Master's Courses
2010 April (Spring) Admission
Affiliated School Recommendation

Application Guidelines

Application Period:

October 29, 2009 — November 4, 2009

Akita University
Graduate School of Engineering and Resource Science

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

Master's Courses
2010 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 exchange students having a recommendation from one of Akita University's overseas affiliated schools, either currently enrolled or have graduated from it during the 2009 academic year. These cources provide the students with the opportunity to obtain a Master's Degree in either Resource Science or Engineering.

1. Number to be Admitted

Major	Fall	Spring
Earth Science and Technology	a few	a few
Materials-process Engineering and Applied Chemistry for Environments	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

2. Application Qualifications

Applicants must have received higher education in the field of their desired major and meet all academic requirements. They need to be people of integrity and must be recommended by either the president of their school or the dean of the faculty attended. One of the three qualifications below must also be satisfied and enrollment at Akita University must be promised once the candidate is accepted.

(1) Either have graduated during the 2009 academic year or be able to graduate from an affiliated school by the end of March, 2010.

(2) Will have completed 15 years of school education by the end of March, 2010, and must be acknowledged by the Akita University Graduate School of Engineering and Resource Science as having obtained designated credits with excellent academic performance.

(3) Be 22 years of age or older on March 31, 2010, and be considered to have an academic ability that is equivalent to or higher than a Bachelor's Degree after an Individual Application Qualification Evaluation conducted by the Graduate School of Akita University.

Note :

a) 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.

b) Applicants applying under requirement (2) of the Application Qualifications must submit the following documents to the Admissions Office of the Graduate School of Akita University for Pre-evaluation of Application Qualification. Requests will be accepted starting on October 5, 2009, and no later than October 9, 2009. ① Pre-evaluation Request for Application Qualification (form attached herein), ② Application Permission (issued by the president or the dean of the school currently attending), ③ Academic Record Transcript (prepared and sealed in an envelope by the school currently attending), and ④ Detailed description of undergraduate courses taken (as per School Course Catalogue okay).

c) Applicants applying under requirement (3) of the Application Qualifications must submit ①Pre-evaluation Request for Application Qualification (form attached herein), ② Certificate of Graduation or Prospective Graduation or Certificate of Completion or Prospective Completion from the last school attended, ③ Proof of Current Employment, and ④other information to base the selection process on such as Research/Employment History. The request must be made from October 5, 2009, and no later than October 9, 2009.

d) Applicants will be notified of the Application Qualification Pre-evaluation results no later than October 26, 2009.

3. Application Period and Mailing Address

(1) Application Period:

From October 29, 2009 to no later than November 4, 2009.

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 November 4, 2009. 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

4. Application Procedures

(1) Documents to be submitted

① Letter of Recommendation

Recommendations must be written by the applicant's supervising instructor at the affiliated school where applicant is currently attending or have just graduated from during the 2009 academic year, and must be issued by the president of the school or the dean of the faculty.

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

Before making Evaluation Fee payment, please contact the Admissions Office (kn08@jimu.akita-u.ac.jp) to inform us of your intention to apply.

Evaluation Fee is 30,000 yen.

Application within Japan:

The name of the applicant and other required information must be entered on the enclosed money transfer form (Yubin Furikae). The fee must be paid at a post office within one month prior to the end of the application submission period. "Proof of Postal Money Transfer" received at the time of the deposit must be pasted on the attached

Proof of Evaluation Fee Payment Form.

Application from overseas:

Applicant must make an international money order of 30,000 Japanese yen based on the exchange rate on the day of remittance. A document proving the payment (copy accepted) must be securely affixed on the Proof of Evaluation Fee Payment Form (attached herein) and must be sent to the Admissions Office along with the international money order. Cost for the international money order must be paid by the applicant. Name of applicant and desired department (major) must appear where designated on the form.

Once application procedures are fully completed, the evaluation fee will not be returned. However, if for some reason the application can not be made after the fee has been paid, a refund will be considered. For the refund consideration, please contact the Bursar Section of the Accounting Division (Tel: +81-18-889-2234) within one month after the application submission period.

⑦ Other

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) Certificate of Graduation/Completion is not required if applying under requirements (2) or (3) of the Application Qualifications.

b) No application will be accepted unless all documents mentioned above are fully and accurately completed.

c) Once submitted, documents will not be returned to applicants for any reason.

d) Applicants are not allowed to change majors after submission of application.

e) 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

f) 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 9, 2009. 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 9, 2009 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 scheduled to be posted at 1:00 p.m. on November 16, 2009, in front of the entrance to the Engineering and Resource Building No. 1. A Letter of Acceptance will be sent to those students who are accepted. Selection results in writing will also be relayed to those who made recommendations.

Telephone inquiries will not be honored.

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 17, 2009. 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, 2010 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

Those with an excellent academic standing yet who have difficulty paying school fees 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 school fees, or may be allowed to pay the fees 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

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 seven departments (24 divisions), the Doctor's Degree Program consists of four departments (10 divisions). The seven 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	Allied Earth Sciences
	Geo-Engineering
Materials-process Engineering and Applied Chemistry for Environments	Materials-process Engineering
	Materials Engineering for Resource and Environment
	Molecular Functional Chemistry
	Chemical Systems
Materials Science and Engineering	Materials Science
	Functional Materials
	Advanced Materials for Energy
	Materials Development
Computer Science and Engineering	Computer Science for Human
	Applied Information Technology
	Mathematical Design
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

[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
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 Emgineering	Electrical and Computer Engineering
	Electronic and Computer 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, Micropal eontology, 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	Applied Micropaleontology
			Advanced Energy Geology
Quaternary Geology	Quaternary and Environmental Geology, especially based on Sedimentology, Tephrochronology, and Geomorphology		Advanced Quaternary Science
Economic Geology	Geological and physicochemical approaches to Ore Genesis, especially on Igneous Activities, Hydrothermal Processes and Mineralization, and on Methodology of Mineral Exploration	Prof. Toshio Mizuta	Advanced Economic Geology
			Resource Mineralogy
		Prof. Daizo Ishiyama	Theoretical Chemistry of Ore Solution
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	Associate Prof. Masatsugu Yamamoto	Advanced Petrology I
			Applied Geology
		Associate Prof. Tsukasa Ohba	Advanced Petrology II
		Lecturer Hideki Murakami	Advanced Mineralogy of Rock-forming Minerals
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	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		Green-tuff Geology
		Associate Prof. Takaaki Fukudome	Advanced Structural Geology I
		Lecturer Osamu Nishikawa	Advanced Structural Geology II

Geothermal Geology	Geological and Geochemical Applications to Geothermal Resource Exploration and Genesis, especially based on Alteration Mineralogy, Age Determination and Remote Sensing	Prof. Takashi Uchida	Geothermal Geology
Geochemistry	Circulation of Geochemical Materials through the Surface and Interior of the Earth, especially Water and Gas Circulation based on Isotopic Analyses		Advanced Geochemistry I
			Advanced Geochemistry II

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	Advanced Waste Water Treatment
Engineering Rock Mechanics	Basics and Application of Rock Mechanics for Excavation	Prof. Fumio Sugimoto	Advanced Rock Engineering
		Associate Prof. Tadao Imai	Numerical Analysis for Resource Development
Petroleum and Geothermal Engineering	Theoretical and Applied Studies on the Development of Fluid Energy Resources, such as Petroleum, Natural Gas, Geothermal and Ground Water	Associate Prof. Shinji Yamaguchi	Advanced Reservoir Engineering
			Advanced Geothermal Engineering
Resource Systems Engineering	Transportation Technology and Systems Engineering for Mineral Resources	Prof. Hiroshi Sato	Transportation Technology in Mine Design
			Advanced Design Engineering of Systems for Mineral Transportation
			Advanced Prospect Technology of Mineral Resources

[Department of Materials-process Engineering and Applied Chemistry for Environments]

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, four divisions provide training for students to become sharpened engineers in each research field.

1) Division of Materials-process Engineering
2) Division of Materials Engineering for Resource and Environment
3) Division of Molecular Functional Chemistry
4) Division of Chemical Systems

Division	**Material-process Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Molecular Biological Chemistry	Characterization and Synthesis of Biomolecules and Nanomolecules	Prof. Hideaki Itoh	Advanced Biochemistry
	Study of roles of cytosolic molecular chaperones in protein folding, and cytotoxicity of misfolded aggregation-prone proteins.	Associate Prof. Hiroshi Kubota	Molecular Cell Biology
Chemistry of Organic Materials	Synthesis and Properties of organic Functional Materials	Prof. Mitsutoshi Jikei	Functional Organic Materials
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 Solvent Extraction Chemistry

Division	**Materials Engineering for Resource and Environment**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Chemical Reaction Engineering	Basics and Application of Reactor Design and Operation to Realize Chemical Reactions in Industrial Scale	Prof. Kenzo Munakata	Advanced Reaction Engineering
Environmental Energy Engineering	Process Design of Heterogeneous Reaction Including Solids with Due Consideration of Efficient Utilization of Energy and Resources	Prof. Katsuyasu Sugawara Associate Prof. Kenji Murakami	Advanced Topics of Energy chemical Engineering Advanced Surface Chemistry
Microstructural Design on Ceramics	Development of Functional Ceramics Based on the Microstructural Design		Ceramic Materials Design
		Associate Prof. Osamu Yamamoto	Functional Carbon Materials

Division	**Molecular Functional Chemistry**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Functional Polymer Chemistry	Effective Application of Synthetic and Biofunctional Polymers to Chemical Processes	Prof. Noritaka Ohtani	Advanced Polymer Chemistry
		Lecturer Yukihiko Inoue	Chemistry of Polymer Functionalities
Functional Surface Chemistry	Surface Processes for Environments and for a Production of Value-added Materials with Specific Functions		Advanced Chemistry of Surface Processes
		Associate Prof. Takayoshi Shindo	Advanced Chemistry of Organic Resources
Molecular Bio-Organic Chemistry	Development of Supramolecular Advanced Materials Based on Organic or Bio-Organic Molecular Reactions Strategically Designed by Spectroscopic and Quantum-Chemical Methods	Prof. Fumio Hamada	Advanced Synthetic Organic Chemistry
		Associate Prof. Yoshiaki Amatatsu	Advanced Quantum Chemistry
		Associate Prof. Uichi Akiba	Reaction Mechanism in Organic Chemistry

Division	**Chemical System**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
High Temperature Chemistry and Engineering Physical Chemistry	Design and Application of Inorganic Environmental Advanced Materials from the Viewpoint of Inorganic Materials Chemistry and Physical Chemistry		Ceramic Processing
		Associate Prof. Kiyoshi Fuda	Advanced Engineering Physical Chemistry
Chemical Process Design	The Design and Development of Chemical Processes and Related Equipment	Prof. Ken-ichi Kikuchi	Advanced Separation Process Engineering
		Associate Prof. Takeshi Gotoh	Advanced Biochemical Engineering
		Lecturer Hiroshi Takahashi	Advanced Chemical Process Design
Analysis of Chemical Reaction Processes	Analysis of the Chemical Process for Acid Rain, an Interfacial Phenomenon, and an Electrode Reaction using the Analytical Method	Prof. Nobuaki Ogawa	Advanced Analytical Chemistry
Inorganic Process 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	Prof. Shinichi Nakata	Molecular Engineering
		Associate Prof. Sumio Kato	Properties of Inorganic materials

[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	**Materials Science**		
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. Shigeo Sugawara	Advanced Physics of Materials
Crystal Engineering	Optical properties and Structure of Functional Crystalline Materials	Prof. Nobuhiro Kodama	Properties of Crystalline Solids
Materials Science and Engineering of Biopolymers	Research and education on molecular structures of biopolymers and their properties	Lecturer Yutaka Tsujiuchi	Materials Science and Engineering of Biopolymers

Division	**Functional Materials**		
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	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 Moleculer Orbital Method	Associate Prof. Yoshiyuki Sato	Intelligent Material Design
Chemically Functional Materials	Chemical and electrochemical properties of materials and their application	Associate Prof. Eiji Tada	Advanced Chemistry of Functional Materials
Thin Film Materials	Fabrication and evaluation of thin film materials and their application	Associate Prof. Satoru Yoshimura	Physical Properties of Thin Film Materials
Surface Modification	Modifying Process for the Functional Surface of Materials	Lecturer Michihisa Fukumoto	Surface Modification

Division	**Advanced Materials for Energy**		
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
Advanced Functional Materials	Materials Design, Functional Properties and Applications of Shape Memory Alloys, Damping Alloys and Superconducting Materials	Associate Prof. Xiaoye Lu	Advanced Course of Functional Materials

Division	**Materials Processing**		
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
Fabrication Engineering of Inorganic Materials	Fabrication processes, Microstructural control and Evaluation of inorganic Materials via powder processes	Prof. Shigeo Hayashi	Design of Inorganic Materials
Structural Materials	Deformation Mechanism, Strengthing Method and Evaluation of Mechanical Properties of Materials, including Their Application for Manufacturing Processes in High Strength Structural Materials	Associate Prof. Kaichi Saito	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

[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	**Computer Science for Humans**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Image Information System Engineering	Analysis and Algorithms of Remote Sensing Data, and Image Information Applications	Prof. Makoto Nishida	Image Information
		Associate Prof. Yoichi Kageyama	Remote Sensing Engineering
Network and Computer System Engineering	Information Network System and Highly Reliable Computing System	Prof. Hideo Tamamoto	Advanced Computer Architecture
		Lecturer Hiroshi Yokoyama	Advanced Logic Circuit Design
Telecommunications Network Engineering	Next Generation Network Architecture and Systems	Prof. Ken-ichi Yukimatsu	Advanced Telecommunications Engineering

Division	**Applied Information Technology**		
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 I
		Associate Prof. Hajime Kawakami	Information and Computation II
	Electron Tunneling Phenomena in Solids and Optical and Electrical Properties in Layered Compounds	Associate Prof. Kunihiko Yamaguchi	Fundamentals of Applied Condensed Matter Physics
Digital System Engineering	Digital Signals, Systems, and Application of Stochastic Processes	Associate 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	Advanced Information Theory in Industries

Division	**Mathematical Design**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Computer Simulation	Database for Thermal, Mechanical, Electrical and Physical Properties of Metals and Mixed Semiconductors under Pressure and at High Temperatures	Prof. Toshinobu Soma	Advanced Applied Mathematics
			Advanced Engineering Mathematics II
		Lecturer Hiroko Kagaya	Advanced Engineering Mathematics I
Geometry and Topology of Graphics (GTG)	Eigenspace Method in Graphics Computer Aided Geometric Design, Shape Detection by Inverse Mappings and Group Actions	Prof. Kentaro Mikami	Topics of Poisson Geometry
		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	**Mechanical Engineering Science**		
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	Basic Atomic Technology
		Prof. Yotsugi Shibuya	Advanced Solid Mechanics
		Associate Prof. Mikio Muraoka	Micro-materials
		Associate Prof. Takuo Sakon	Applied Magnetoelectrical Engineering
		Associate Prof. Yoshiyuki Yamamoto	Advanced Applied Electromagnetism

Division	**Mechanical Dynamics**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Elastic Systems of Dynamics for Design	Applied Mathematical Design for Environmental Oriented Elastic Systems	Prof. Tadashi Ohyoshi	Applied Mathematics for Mechanical Design
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. Masahiro Sugawara	Numerical Heat Transfer
		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 and Fluid Mechanics
Nano-Metrology	Ultra-Precision Measurement using Software Datum	Associate Prof. Eiki Okuyama	Advanced Sensors Engineering

Division	**Systems Design**		
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
		Prof. Manabu Tanaka	Advanced Mechanics of Materials
Vacuum System Engineering	Analysis and practical Application for the Mechanism of Rarefied Gas Flow	Lecturer Wataru Sugiyama	Molecular Gas Motion
Computer Controlled Systems	Controller Design for Electro Mechanical Systems	Associate Prof. Akihiro Naganawa	Design of Digital Control Systems
Engineering of Waves	Propagation Behavior of Elastic Waves for Composite Material and Application to the Non-Destructive Inspection	Associate Prof. Kimihisa Miura	Advanced Dynamics of Mechanical Waves

Division	**Robotics and Walfare Engineering**		
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
		Prof. Katsuaki Sunakoda	Advanced Vibration Damping and Application Engineering
Intelligent Control Engineering	The Theory of Control Design of Intelligent Mechanical Systems and the Application to Medical Devices	Associate Prof. Kazuhiko Hiramoto	Advanced Control Engineering
		Lecturer Takehiro Iwami	Biomedical Engineering
		Lecturer Masaki Hokari	Actuator 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	**Electric Energy Engineering**		
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.		Applied Electromagnetic Engineering
			Advanced Materials for Electrical Engineering
		Prof. Masafumi Suzuki	Measurement and Instrumentation Engineering
Bioinstrumentation Engineering	Study on applications of information technology to biological systems and welfare systems.	Associate Prof. Kazutaka Mitobe	Biological Systems 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 Electronics Engineering	Study on theory and applications of quantum electronic phenomenon in solid state devices.	Associate Prof. Masaru Onoda	Quantum Physics
		Associate Prof. Yoshitada Tanuma	Quantum Engineering
High Energy Electromagnetic Engineering	High Energy Electro-magnetic Phenomena of Elementary Particles and Methods of Measurement.		Advanced Applied Physics I
			Advanced Applied Physics II

Division	**Photonic and Electronic Device Engineering**		
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.		Advanced Optical Device Engineering
			Electronic Display Engineering
		Associate Prof. Rumiko Yamaguchi	Organic Optoelectronic Device Engineering
Electromagnetic Wave Engineering	Theoretical and experimental studies on millimeter wave and sub-millimeter wave propagation characteristics in various materials including solid-state plasma, and applications of far-infrared lasers.	Prof. Tetsuo Obunai	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	**Intelligent Information Communication**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Electronic Application and Electronic Measurement Instrumentation	Study on measurement technologies using electromagnetics, ultrasonic and electronic devices and applications to electromagnetic compatibility, medical and biomedical electronics and ultrasonic electronics.		Advanced Integrated Information Circuit
			Signal Processing Engineering for Measurement
		Lecturer Motoshi Tanaka	Advanced Communication Engineering
Wave Information Engineering	Study on signal analysis and processing in acoustic waves.	Prof. Kazuhiko Imano	Advanced Electroacoustics
			Applied Ultrasonic Engineering
Information Communication Engineering	Study on high performance broadband communications systems.		Information Communication System
		Prof. Hitoshi Obara	Digital Signal Processing Engineering

Division	**Control System Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Electronic Control Engineering	Application of control engineering and research on electric servo systems.	Prof. Toshiyuki Taniguchi	Applied Control Engineering
			Computer Aided Engineering
		Lecturer Takeshi Miura	Advanced Control System Engineering
Electrical Machinery Engineering	Study on development and analysis of electromechanical energy conversion systems and its control techniques.	Prof. Tadashi Sato	Advanced Power Electronics
			Computational Electromagnetism
		Associate Prof. Katsubumi Tajima	Advanced Electrical Machinery Engineering

[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	**Welfare Environment Engineering**		
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	Prof. Kazuhiro Kimura	Advanced Urban Planning
		Associate Prof. Chimataro Ishii	Advanced Hydraulics Engineering
			Advanced Water Environment Engineering
		Associate Prof. Hidekatsu Hamaoka	Advanced Traffic Engineering
		Associate Prof. Satoru Hino	Advanced Urban Planning

Division	**Structures and Materials Engineering**		
Field of Instruction and Research	Quality	Faculty Member	Instruction Subject
Construction Materials	Properties of Construction Materials required for Design, and Construction, Maintenance and Control of Structures	Prof. Makoto Kagaya	Construction Material Design
			Construction Materials and Environment
Structural Mechanics	Linear and Nonlinear Mechanics and Theory of Structural Design of Steel and Timber Structures	Prof. Kaoru Hasebe	Timber Structural Engineering
		Associate Prof. Humihiko Gotou	Advanced Structural Mechanics
Structual Engineering	Structural Analysis and Design of Concrete Structures and Composite Structures	Prof. Makoto Kawakami	Advanced Structural Engineering
		Associate Prof. Hidenobu Tokushige	Advanced Structural Design

Division	**Regional Environment Engineering**		
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
		Associate Prof. Tomoyuki Takahashi	Advanced Hydraulic Engineering
Soil Mechanics and Geotechnical Engineering	Physicochemical and Mechanical Properties of Soft Soil	Prof. Hiroshi Oikawa	Advanced Geotechnical Engineering
		Lecturer Toshihiro Ogino	Advanced Soil Mechanics

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
2010 April (Spring) Admission
Affiliated School Recommendation
Graduate School of Engineering and Resource Science, Akita University

Application for Admission

Application No.	※
Name of Applicant	
Date of Birth	／ ／ month day year
Sex	Male ／ Female
Application Qualification	
Desired Department (Major)	
Desired Division	
Desired Field of Study	Department of Earth Science and Technology only
Contact Address	Address: Tel.: postal code country
Educational and Employement History	

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
2010 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)	
Please paste ID photo. (4.5cm x 3.5cm) Upper frontal view of applicant without a hat.	

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.