Kanazawa City

Population: 400,000
Traditional Cultures
History of Kanazawa University

Origin
1862 Hikoso Vaccination Center
1874 Ishikawa Normal High School
1923 Kanazawa Medical College
1918 Ishikawa Youth Normal School
1920 Kanazawa Technical College
1887 The Forth Higher School

1949 Kanazawa University

2008 Three Colleges 16 Schools from 8 Faculties 25 Departments
2012 The 150th Anniversary of Kanazawa University

Campus in the Castle  Kodatsuno Campus  Kakuma Campus
University Organization

Teaching staff

Inst. of Human & Social Sciences

Inst. of Science & Technology

Inst. of Medical, Pharmaceutical & Health Sciences

Research Institutes etc

University Hospital

Others

3 Colleges 16 Schools

College of Human and Social Sciences (6 schools) 3,270

College of Science and Engineering (6 schools) 2,731

College of Medical, Pharmaceutical and Health Sciences (4 schools) 1,726

Graduate Schools

Master: 1,419, Doctor: 986

- Grad. School of Human and Socio-Environment Studies
  M: 155, D: 79

- Grad. School of Education
  M: 60

- Grad. School of Natural Science and Technology
  M: 927, D: 306

- Grad. School of Medical Science
  M: 277, D: 601

- Law School: 63

Students

Bachelors: 7,989

- College of Human and Social Sciences

1,209 Faculty, 413 Office Staff, and 1,742 Medical Technical Staff.

- Cancer Research Institute
- Inst. of Nature & Environmental Technology
- Research Center for Child Mental Development
- Organization of Frontier Science and Innovation
Research in Kanazawa University

- Grants from outside university  (2011)

<table>
<thead>
<tr>
<th>Classification</th>
<th>Number</th>
<th>Unit:1,000 yen</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grants-in-Aid for Scientific Research</td>
<td>698</td>
<td>1,733,046</td>
</tr>
<tr>
<td>Grants from Joint Research</td>
<td>222</td>
<td>218,345</td>
</tr>
<tr>
<td>Grants from Commissioned Research</td>
<td>103</td>
<td>864,357</td>
</tr>
<tr>
<td>Endowments and Donations</td>
<td>2,738</td>
<td>1,369,971</td>
</tr>
<tr>
<td>Total</td>
<td>3,767</td>
<td>4,185,719</td>
</tr>
</tbody>
</table>

- Subsidy from the Japanese Government: 17,113 million of yen
- Grand-in-Aid for Scientific Research is ranked the 18th in Japanese universities.
- The number of paper published is 9,096 (in 2002-2012)
- Citation count is 99,875 (20th-ranked in 2002-2012)
International Exchange

Europe
Partner
24 Universities and Faculties

Russia and NIS
Partner
7 Universities and Faculties

North and South America
Partner
13 Universities and Faculties

Africa
Partner
3 Universities and Faculties

Asia and Middle east
Partner
103 Universities and Faculties

Oceania
Partner
4 Universities and Faculties

Total 155 universities and Faculties

As of May 16, 2012
## International Students in Kanazawa University

<table>
<thead>
<tr>
<th>Classification</th>
<th>Undergraduate Students</th>
<th>Graduate Students (Master)</th>
<th>Graduate Students (Doctor)</th>
<th>Research Student Etc.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia (except China)</td>
<td>21</td>
<td>58</td>
<td>102</td>
<td>26</td>
<td>207</td>
</tr>
<tr>
<td>China</td>
<td>33</td>
<td>99</td>
<td>53</td>
<td>27</td>
<td>212</td>
</tr>
<tr>
<td>Middle East</td>
<td>1</td>
<td>1</td>
<td>8</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Oceania</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Africa</td>
<td>1</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Europe</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Russia &amp; NIS</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Americas</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>57</td>
<td>160</td>
<td>178</td>
<td>89</td>
<td>484</td>
</tr>
</tbody>
</table>

As of May 1, 2012

The Number of International Students is **484 from 39 countries**.
Environment/eco-technical special course

- Specialized course work
  - Language arts
  - Liberal arts

- Training of basic skill
- Training of practical skill

- The group-work of students from Japan, China and Korea
  - Overseas Study Tour (M1) (in China or Korea)
  - Long-term Internship (M1) (in Japan)
  - Research for Master Thesis (in Japan)
  - Recognizing problems and proposing solution
  - Practical skill and experience

- Acceptance of excellent students from China and Korea
  - Tuition and fee exemption scholarships

- Selection of excellent students in Japan
  - Study grant

- Environmental engineers with basic skills and power of execution, who can resolve the environment-related issue in the leadership position.

- Environmental engineers with global understanding and strong communications skills, who can promote international cooperation in the future.

- Consortium of University and company
  - Collaboration and support
<table>
<thead>
<tr>
<th>Features of Environment / Eco-technical Special Course</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The group-work of students from Japan, China and Korea</strong></td>
</tr>
<tr>
<td>Through study activities and communications together, students from three countries will get benefit of the cooperation between different countries.</td>
</tr>
<tr>
<td><strong>The ability to find the environment-related issues through overseas environmental training</strong></td>
</tr>
<tr>
<td>Through overseas environmental training in East-Asia, students can get better understanding of mutual environmental problems, and develop the ability in excavating problems in the field of environmental technology.</td>
</tr>
<tr>
<td><strong>The ability to solve problems through long-term internship</strong></td>
</tr>
<tr>
<td>To develop the ability in solving practical issues, through long-term internships in the companies in Japan.</td>
</tr>
<tr>
<td><strong>Communication skills and the knowledge of environmental engineering</strong></td>
</tr>
<tr>
<td>As an eco-engineer, it is necessary to develop specialized knowledge and communication skills. Further, the ability to grasp the perspective of social sciences and medicine is also required.</td>
</tr>
</tbody>
</table>
Outline of the selection

Students should have the following backgrounds:
Civil and Environmental Engineering,
Chemical Engineering,
or Mechanical Engineering.

Entrance examination:
Beijing, Shanghai, Dalian, and Seoul.
Research for Master Thesis, Seminar

**Advanced Subjects**
- Air Pollution Control Engineering, Unit Operation for Atmospheric Environment, Atmospheric Chemistry,
- Technology for water quality control, Aquatic Environmental Chemistry, Physical Chemistry for Environment,
- Thermodynamic Analysis for Environmental Eng., Environmental Microbiology, Soil Analytical Chemistry,
- Environmental system engineering, Environmental Risk Assessment, Environmental Planning, Advanced
- Environmental Science and Technology

**Basic Subjects**
- Environmental unit operation, Environmental Analysis and Experiment, Basic of Environmental Science,
- Introduction to Environmental Engineering

**Liberal Arts**
- Environment and Sustainable Society, Environment and Health,
- Environmental Administration, Environmental Management

**Language Arts**
- English for Environmental Science and Technology, Advanced English for Environmental Science and Technology,
- Japanese

**Curriculum**
- Internship
- Overseas Training
- Basic Subjects in Each Department.
Research activities
Atmospheric Environment and Pollution Control Engineering, FURUUCHI Lab.

- NOx
- PAHs
- SOx

PM
PM$_{2.5}$
Nano-particles

Evaluation of environmental load from biomass utilization
Nano-particles, PAHs, Carbons, etc.

Development of "Nano" equipments
Nano-particle measurement, pollution control devices

Environmental monitoring
East and South East Asia (Thailand, Cambodia, China, Japan)
NANOPARTICLE

We develop synthesis techniques for nanoparticles by novel aerosol processing which can be used in the various fields such as cosmetics, foods, catalysts, medicine, structural materials, electronics and so on.

Laser Ablation
Carbon Nanotube
Microplasma

Various atomization techniques and the generation of highly charged nanodroplets can be applied for the analysis of air quality as well as water quality. Aerosol technologies are applied for the measurements and control of atmospheric and water pollutants for the innovation of clean technology. We are also involved in the campaign of aerosol measurement in East Asia.
Anaerobic treatment of wastewater with low temperature, high SS or high sulfate using an biological Reactor equipped with swinging carbon fiber
Nitrogen removal using sulfate reducer, sulfate oxidizer and Anammox

Small scale co-digestion of sewerage sludge and biomass.
Pretreatment of sewerage sludge
Pretreatment of Wood and plant biomass
Energy & Biomass Production from Wastewater

1. Membrane Photobioreactor (MPBR) process
   - High-rate CO₂ capture by concentrated microalgal cultivation
   - Production of microalgae biomass for biofuel and bioenergy
   - Nutrients removal and water reclamation as tertiary treatment

2. Forward Osmosis (FO) membrane process
   - Nutrients concentration for high algae productivity in subsequent MPBR
   - Simultaneous osmotic power generation / water recovery using treated sewage

Health Risk in Reused Water in Asia

3. Fate of Antibiotic-Resistant Bacteria in water environment in Asia
   - Prevalence of antibiotic-resistant bacteria in water environment
   - Population dynamics in sewage collection and treatment

http://www.ce.t.kanazawa-u.ac.jp/~honda/eng/
Surfactant science and technology

- Synthesize and characterization of novel green surfactant based on amino acids.
- Investigation of self assembled behavior of amphiphile with a view to purify water.
Chemical washing for separation of valuable metals from waste materials

Role of trace elements for regulation of algal biomass

Speciation change of trace elements in natural waters

Environment/ an Eco-technical Special Course, Kanazawa University
Efficient Production of Marine Biomass using By-products

Production of Biodiesel or Bioethanol

Conservation and Regeneration of Marine Environment

Effective Utilization of By-products from Coal-fired Power Plants or Steel Works

Microalga, 
Botryococcus braunii *
*This photograph was offered by Prof. Takimoto.

Macroalga, 
Sargassaceous Species

RESEARCH CENTER FOR SUSTAINABLE ENERGY AND TECHNOLOGY, MIKI LAB.
Biomass refinery Technology

Key chemicals

Sugars

Bio gas (CH₄, H₂, CO)

Ethanol

Propanol

Butanol

Bio Diesel

Oil

Lignin residue

Biochemical process

Chemical Process

Ethylene

Propylene

Butylene

Benzen

Toluen

Xylene

Polyethylene, etc

Polypropylene, etc

Kinds of chemicals

Environment/ an Eco-technical Special Course, Kanazawa University
“Adsorption technologies” for effective use of a low-temperature heat

- Adsorption Desiccant Cooling/Dehumidification process
- Thermal Swing Adsorption for CO₂ recovery, Biogas purification and VOCs removal
Visit to companies and municipal sites
日中韓環境・エコ技術特別コース「海外環境研修」
北京の訪問期間：8月30日～9月7日（9日間）
2011 Oversea Internship (Beijing, Sept. 2011)
2012 Oversea Internship (Korea, 08/2012)

日中韓環境・エコ技術特別コース「海外環境研修」
ソウル・光州の訪問期間：8月20日〜8月26日（7日間）
Internship in Japanese companies (several weeks)
Internship in Japanese companies (several weeks)
Tateyama Trip (Oct. 2011)
We are really waiting for your application.

THANK YOU FOR YOUR KIND ATTENTION!

http://www.se.kanazawa-u.ac.jp/ecotechgp/index.php