CONTENTS

02  Mission Statement
03  History
04  New Birth and Tradition

05  Scientific achievement 1
  KamLAND has made Ultimate Particles Practical

07  Scientific achievement 2
  Investigation of the 2004 Sumatra Earthquake and Tsunami

08  Scientific achievement 3
  The Ohno Semiconductor Spintronics project

10  Scientific achievement 4
  Behavior Analysis of Random Walk

11  Scientific achievement 5
  The Brain Wellness Project

12  Scientific achievement 6
  First step toward treatment of prion disease

13  TOPICS: Clarification of gender difference in neurons

14  TOPICS: Compact perpendicular magnetic recording hard disc drive realized after four generations

15  Award Winners
  TOPICS: Ranked 2nd in the ISI’s List of the World’s Highly Cited Papers

16  Evolution in education

17  A wealth of student activities

18  Campus Scenes
  TOPICS: Selected as No.1 University by Japanese high school teachers

21  Open-door Policy Utilizing Academic Achievements
21  Outlet events for university’s accomplishments
22  Contributing to local society
  TOPICS: The University 100th anniversary brand sake, produced and distributed.

24  Creating global advancements in research and education

25  Promoting of projects in International exchange

26  Strengthening Industry-academia-government collaboration

28  Fortifying Industry-academia-government collaboration

32  Promoting the Gender Equality Project

33  Divisional Major Achievements

35  CONTACTS

39  Data and Overview of Tohoku University

37  Toward the New Century

This Annual Review 2006 covers activities conducted from April 2005 to March 2006.

Mission Statement

Tohoku University is committed to the "Research First" principle and "Open-Door" policy since its foundation, and is internationally recognized for its outstanding standards in education and research. The university contributes to world peace and equity by devoting itself to research useful in the solutions of societal problems and for the education of human resources in the capacities of leadership.

History

Tohoku University was founded in 1907 as the third imperial University of Japan, following the Tokyo Imperial University and Kyoto Imperial University, and from its start, it displayed to the world an unwavering commitment of an "Open-Door" policy. Departing from the norms of other imperial universities, it has accepted graduates from higher technical schools and normal schools, and despite the opposition from the government at that time, becoming Japan's First National University to admit female students in 1913, opening those in that year.

At the time of its founding, Tohoku University was able to attract a group of young and brilliant researchers who had traveled around the world to serve on its faculty. As part of this reason, a "Research First" principle came to develop, which enables other scholars to not only pursue highly productive research but also to put their findings to work in the teaching of their students. In addition to this, Tohoku University has nurtured a tradition of "Practice-Oriented Research and Education," in which their results and cutting-edge research are being put to use for the good of society and the improvement of life style. Evident of our pioneering practice before the World War II period, are the set up in local venture businesses which foster regional industry and our status as the nation's center for research on family law, the domestic branch of law which is closely associated with our daily lives.

This spirit, which continued strongly through World War II and the rapid economic growth of this postwar period, still remains alive and is the main theme in today's new era of globalization. As Tohoku University prepares to celebrate its centenary in 2007, we are confident that our traditions be nourished and that with the help of students and researchers from all over the world, it will not only survive but will flourish even more during the coming 100 years.

PICTURES

Front cover
  Laboratory for Advanced Materials Research, Institute of Multidisciplinary Research for Advanced Materials (Katsuragi Campus)

Contents
  University 1 Main Administration Building (Katsuragi Campus)
New Birth and Tradition

[President of Tohoku University]
Takashi YOSHIMOTO

Another year closer toward the forthcoming 100 years

About this publication

We are pleased to announce the publication of Tohoku University’s Annual Review 2006. We have decided to publish Annual Review 2006, to describe notable achievements at the University during the previous year and to clearly show what the University is presently engaged in.

In 2004 Tohoku University became legally independent of the national government, as all other former national universities did, thus embarking on a new path in 2005. In this review of achievements in year 2005, we recognize many young researchers that played important roles in various research projects, and are building on to the works of their predecessors as they make their own markings. We encourage bold educational reforms to expand the range of courses for students and to also improve their academic life. We value the students who actively pursue not only their studies, but also their sports and cultural activities. We also contribute to society in various fields, by using our new status as a National University Corporation making good use of our scientific achievements and promoting new forms of academic-industry collaboration. We also hold large seminars including “Science Café” for high-school students and the general public. In today’s increasingly globalized world, Tohoku University enhances international collaboration with major universities and research institutes overseas focusing on joint research and educational projects. Now that the long-standing Aobayama prefectural land issue has been solved, construction of the Aobayama New Campus including its science park will commence in 2007.

Tohoku University will celebrate its 100th anniversary in 2007. The members of both the faculty and administrative staff as well as the students of Tohoku University in cooperation with graduates and people involved in various social activities are committed in making Tohoku University the world’s most advanced research and education center for the benefit of society and humankind.

Tohoku University News and Events in FY 2005

2005

1. Establishment of the Accounting School / Professional Graduates School
2. Establishment of the Administration Center
3. Announcement of the first Official Tohoku University Logo
4. Tohoku University Entrance Ceremony
5. The 2nd, the 100th Anniversary Satellite Seminars of Tohoku University: “Adventures in the Sciences and Human Life” *Spaces, Earth, Life and Future Civilization
6. Establishment of the Global Operations Centre (GOO)
7. The 1st, the 100th Anniversary Satellite Seminars of Tohoku University: takes in Naples
8. Tohoku University Open Campus
10. Tohoku University’s Annual Review 2006

2006

1. Organizational Partnership Agreement with Hiroshi Lab. to promote R&D and Human Resource Training
2. Organizational Partnership Agreement with the National Institute of Advanced Industrial Science and Technology
3. The 9th, the 100th Anniversary Seminars of Tohoku University: "Scientific Approaches on How We Live, Age and Die"
4. Agreement with the National Institute of Radiological Sciences to promote Scientific Education
5. Presentation of Tohoku University’s Original New Logo "K Thông"
6. First Examination for General Admission
7. 2006 Tohoku University Entrance Examination
8. First Examination for General Admission
9. 2006 Tohoku University Entrance Examination
10. Second Examination for General Admission

Tohoku University Official Logo

In April of 2006, Tohoku University created an official logo to enhance its international recognition and status. The key concepts in the creation of the logo: innovation, globality and tradition. Hagei, or bush down, is the traditional symbol for Sendai and Miyagi, and is a long associated image of our university. As the university official logo, it is our hope that hagei will become a dignified and familiar image throughout the world.
KamLAND has helped in almost fully clarifying the ultimate particle: Unique observation equipment was hand made

KamLAND is an experimental facility at the Research Center for Neutrino Science established in January 2002; was used to successfully observe nuclear reactor antineutrinos in the very same year that it was built. Prof. Atsuto Suzuki wrote a paper describing the verification of the neutrino oscillation phenomenon, and the article ranked first in both 2003 and 2004, as ISI’s list of the world’s most cited papers in the field of physics.

In 2003, Prof. Kunio Inoue’s group wrote a paper on their findings concerning the observation of terrestrial neutrinos, which was published in the July issue of Nature. These results now pave the way for “geonomatography,” which is a field of science that proves the composition of the earth’s deep interior such as its mantle and the its crust, and for “neutrino geophysics”, a field which is linked to geophysics.

And what has KamLAND yielded? Thanks to KamLAND, we have succeeded in observing neutrinos with very weak energy interactions. Thus, neutrinos are no longer a mere research topic, but can be actually used in other fields of research for their unique properties. For example, by tracing neutrinos generated within the earth, it will be possible to observe the earth’s interior in the same way that X-rays reveal the inner parts of the human body. According to Prof. Inoue, “the number of studies on neutrinos in such interdisciplinary fields as geoscience and earth science has since dramatically increased.”

Research Center for Neutrino Science

http://www.ans.tohoku.ac.jp/

Scientific achievement

The results of observing geoneutrinos, which were described in our research paper, appeared on the cover of the July 2005 issue of Nature.

A thousand meters underground in a former mine shaft in Kamioka town, Hida city, Gifu Prefecture, located in one of the provincial regions of the Japanese islands, KamLAND is an experimental underground observatory erected in January 2002. The objectives of KamLAND are to measure the mass of the muon neutrino by detecting the nuclear reactor neutrino oscillation phenomenon 37% elucidate the issue in the short-baseline solar neutrino by detecting solar neutrinos at 37% to solve the mystery of how the earth’s internal energy is generated by detecting antineutrinos generated within the inner earth 47 to solve the mystery of evolution of the stars by detecting neutrinos from supernova explosions. The Research Center for Neutrino Science carried out this project, which was led by Prof. Atsuto Suzuki, with the cooperation of 11 universities in the USA.

KamLAND

KamLAND’s detector is a cylindrical pressure vessel 79 meters in diameter that contains 1000 tons of liquid scintillator. The cover of Nature, showing pattern diagrams and hand made.

One of the fundamental rules in KamLAND is that Prof. Suzuki enjoy wearing a helmet, and has decorated one with white and green colors.

Research Center for Neutrino Science

http://www.ans.tohoku.ac.jp/

Dr. Suzuki was born in 1949 and had studied at the Nagoya Prefectural High School. He graduated from the Faculty of Science, Tohoku University, finished the Graduate School of Science and has since 1994 been a professor at Tohoku University. After participating in Super-Kamiokande experiments, he was appointed in 1998 as the Director of the Research Center for Neutrino Science, and organized KamLAND experiments to observe neutrinos, the ultimate particle. In 2003 he was awarded the Medal with Purple Ribbon. He and his wife have four children. He and his family enjoy skateboarding, riding horses and snowboarding.

Dr. Inoue was born in 1955 and had studied at Shika Prefecture High School in Gifu Prefecture. He graduated from the Faculty of Science, Osaka University, where he later finished his master’s degree. After conducting research at Kamiokande and Super-Kamiokande, he then joined KamLAND in 1999. He participated in the KamiLAND project from its inception and has successfully built facilities that were capable of observing geoneutrinos. He has since 2004 been a professor at the Research Center for Neutrino Science.

Inside the KamLAND tank, equipped with 50-cm in diameter photomultiplier tubes (photosensors), Prof. Suzuki believes that by “designing facilities on our own helps clarify our research goals and the steps to achieve them; so our staff designed the necessary equipment themselves, including the water-Cherenkov cosmic ray detectors, liquid scintillators, and photomultiplier tubes. Some of the equipment used was even hand-made.

The results of observing geoneutrinos, which were described in our research paper, appeared on the cover of the July 2005 issue of Nature.

KamLAND

The cover of Nature, showing pattern diagrams and hand made.
Scientific achievement

Dr. Fumihiko Imamura

Imamura was born in 1965 and studied at Hitotsubashi University in Yamanashi Prefecture. He graduated from the Faculty of Engineering, Tokai University and received a graduate degree in Engineering from there. He has been involved in setting up the Disaster Control Research Center since 1991, and was appointed the head of the Center in 2004. Dr. Imamura engaged in the transferring techniques for numerically simulating a tsunami and utilized the project “TIME” to carry out research on the tsunami. This research used computer graphics and digital image processing techniques to predict tsunami waves. He participated in the investigation of the 1993 Hokkaido-Nansei-Oki Earthquake Tsunami and the 1998 Papua New Guinea Earthquake Tsunami. His research was also utilized in the evaluation of the 1995 Hyogoken-Nanbu Earthquake Tsunami and the 1995 Kobe Earthquake. He also researched the 1996 earthquake and tsunami in Sumatra and the 1999 Kanto Earthquake. Dr. Imamura also engaged in the investigation of the 1999 Miyagi Prefecture Oshika Earthquake Tsunami and the 2004 Indian Ocean Earthquake Tsunami.

Sumatra earthquake and Indian Ocean tsunami

The three-year investigation plan was extended to cover every detail. Memories of disasters will fade, away by time and disasters will repeat themselves over and over again. This cycle seems to be becoming shorter and shorter due to both nature itself and human activity. Thus, it is becoming increasingly important to recognize the risks of living in regions and to prevent a natural disaster. The research in combining sciences across boundaries to create an integrated science is considered to be without parallel throughout the rest of the world. Thus, the tsunami prevention-related technology has been transferred overseas through the TIME project under the joint auspices of the Intergovernmental Oceanographic Commission (IOC), the UNESCO’s Intergovernmental Oceanographic Commission (IOC), the Intergovernmental Oceanographic Commission (IOC), and the International Union of Geodesy and Geophysics (IUGG) and the UNESCO’s Intergovernmental Oceanographic Commission (IOC).

Annual Review 2006

Improving regional disaster preparedness

The concept of disaster control is based on mitigation through numerical simulation technologies such as numerical simulation and computer graphics analysis of tsunamis. The research in combining sciences across boundaries to create an integrated science, considered to be without parallel through the rest of the world. Thus, this tsunami prevention-related technology has been transferred overseas through the TIME project under the joint auspices of the Intergovernmental Oceanographic Commission (IOC) and the UNESCO’s Intergovernmental Oceanographic Commission (IOC). Dr. Imamura taught at the Graduate School of Tohoku University and finished the Graduate School of Engineering, Tohoku University and finished the Graduate School of Engineering, Tohoku University, and finished the Graduate School of Engineering, Tohoku University. The picture shows a model of a community tsunami evacuation building being planned in Thailand. Prof. Imamura travels all over the world in his research, with a strong sense of mission, he can make the concept and technology of disaster control useful to people worldwide. This picture shows a model of a community tsunami evacuation building being planned in Thailand.

Graduate School of Engineering Disaster Control Research Center

http://www.darc.dothoku.ac.jp/
The third Japanese to be awarded the Agilent Technologies Europhysics Prize

Ohno Laboratory, Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication
http://www.ohno.nue.tohoku.ac.jp/

The properties of a magnet changed by an external force
A feat accomplished by the Ohno semiconductor spintronics project

Magnetic properties of ferromagnetic semiconductors controlled by applying an external voltage.

Development of new ferromagnetic semiconductors (materials that exhibit both ferromagnetism and semiconduc-
tor properties).

Since their discovery in ancient Greece, magnets were believed to have properties which could not be changed even by application of powerful forces. In 1958, Professor Hideo Ohno demonstrated that the magnetic property of a ferromagnetic semiconductor could be turned off (ferromagnetic state) by applying a particular voltage at a low temperature. When cooled to such a low temperature (ferromagnetic state), by changing the voltage he defied the conventional wisdom believed for thousands of years that such properties could not be turned back on.

An electron has two properties: electric charge and spin. Semiconductors such as transistors use the property of electric charge, whereas magnetic device such as magnetic disks use the property of spin. These two technologies have contributed to the development of electronics as an inseparable pair. Now, spintronics technology that deals with the properties of both electrical charge and spin, are expected both as a breakthrough technology for arithmetic devices and as a basic technology for quantum computers.

Ohno, at the cutting edge of spintronics, has developed semiconducting materials that exhibit ferromagnetism. He has also pioneered and developed a new field of spintronics through his research on spin coherence control in solids. He is playing a leading role in semiconductor spintronics at the Laboratory for Nanoelectronics and Spintronics that aims to create high-performance nano-spintronics integrated devices using the ultimate control of electrical charge, spin, and dimensions. In 2005, he demonstrated, using a ferromagnetic semiconductor, that the properties of a magnet can be turned on and off by applying a certain voltage from an external electrode. He was the third Japanese person to be awarded the Agilent Technologies Europhysics Prize.

Ohno Laboratory, Laboratory for Nanoelectronics and Spintronics, Research Institute of Electrical Communication
http://www.ohno.nue.tohoku.ac.jp/

The Saruhashi Prize was founded in 1981 by Dr. Katsuko Saruhashi (Executive Director, Geochemistry Research Association, and a former member of the Science Council of Japan) as one of the most prestigious awards given to Japanese female scientists who have achieved outstanding results in the field of natural science research. Prof. Kotani was awarded the Saruhashi Prize in 2005 for “Discrete Geometric Analysis on a crystallization.”

In the awarded research, Prof.Kotani used discrete geometric analysis to clarify what geometry of a crystal lattice determines the behavior of a particle randomly moving on it. The Saruhashi Prize gives reason for the award as follows: “From an innovative viewpoint, she has fully integrated geometry, probability theory, and combinatorial mathematics, and specifically, embodied the concept of discrete geometry and geometry with singularities, thus leading to beautiful, epoch-making results.” Research into random motion began when Einstein mathematically explained that the random motion of pollen particles, which was observed by Dr. Brown in 1827, was caused by the collision of thermally moving molecules in 1905. In the long mathematical history of random motion analysis, Prof. Kotani successfully presented her original viewpoint of “symmetry.”

Symmetry can be seen in a random walk
Differential Geometry and Global Analysis

While in elementary school, Prof. Kotani did not excel in mathematics, instead she loved it. But in junior high school, she developed an interest in mathematics which made her good at thinking which not only made her think of her ideas in a lateral fashion, and which helped her to develop a mathematical imagination on the back cover of her notebook.

Mathematical Institute, Tohoku University
http://www.math.tohoku.ac.jp/
Scientific achievement

The Brain Wellness Project conducted with Sendai City has produced great results

Cited from “Achievement of Dreams through Brain Training” by Ryuta Kawashima (Kumon Publishing Co., Ltd.)

Reading, writing and calculation help prevent dementia

Practical application of reading, writing and calculation to learning theory and brain health promotion seminars

Prof. Ryuta Kawashima started a study about the functional organization of the human brain in around 1983 when researchers turned their attention to the brain study. Prof. Kawashima has since been involved in brain imaging and mapping, of higher brain functions, which are new scientific fields of brain imaging examination by the use of large instruments such as light topography systems and functional MRI.

These studies demonstrated that the brain functions of the elderly could be improved by reading, writing, and calculation. In collaboration with private education industry, Prof. Kawashima launched a project to treat patients with dementia by assigning them the learning exercises consisting of reading, writing, and calculation. He called this “learning therapy” and it has now spread widely to healthcare organizations in Sendai City and throughout Japan.

His studies were integrated into the university-academic city joint research project titled “Brain Wellness Project” carried out by Tohoku University and Sendai City. Based on these results, a “brain health promotion seminar” was introduced to help elderly people avoid dementia. In 2005, the final year of the three-year project, the results were compiled into a report and Sendai City is now considering transferring the achievement to Finland and Sweden.

Prof. Kawashima’s Laboratory, Institute of Development, Aging and Cancer, Tohoku University

The Brain function map visualized by functional MRI

Scientific achievement

Blocking transmission to humans
Scientific achievement

In 1998, the Center for Translational and Advanced Animal Research on Human Diseases, Graduate School of Medicine, became a collaborative Creutzfeldt-Jakob disease (CJD) research center with the World Health Organization (WHO) and Prof. Tetsuyuki Kitamoto’s Laboratory was appointed the representative of the Asian region. Since then, Prof. Kitamoto and his research team have been engaged in scientific projects to establish techniques for early diagnosis of CJD and its treatments. In 2005, they established the Division of Prion Protein Biology. Prof. Kitamoto clarified that prion disease could be classified into the following three types: (1) Dynamic prion disease of unknown origin which develops in one in a million people; (2) Familial prion disease caused by gene abnormality; (3) Infectious prion disease transmitted from infected persons or animals. In 2005, he reported an important finding in the type of prion proteins that invades humans, such as vCJD which remained far more contagious than the wild-type prion proteins, and approximately 91% of the infected people of human-type prion proteins might develop CJD. However, why an abnormality such as prion disease occurs remains to be clarified. Prof. Kitamoto warns the risk of the prevalence of CJD and proposes the following measures to help prevent prion disease: detection of abnormal prion protein infection at a high level of sensitivity and the elimination of contaminated substances in our lifestyle.

Our achievements are making steady progress toward establishing a treatment for prion disease and in the development of its preventive measures.

Almost every year, as an improvement of the treatment of abnormal cells in the construction of preventive and curative measures for Tse disease, the Society is continuing to emphasize the importance of identifying and controlling the causative factors in all stages of the disease.

Center for Translational and Advanced Animal Research on Human Diseases
Tohoku University, Graduate School of Medicine

Department of Prion Protein Research, Otsuka of CJD Science and Technology, Division of Prion Biology
http://www.prono.tohoku.ac.jp/
The world’s first compact perpendicular magnetic recording hard disk drive which on records 10 Gb of information on its 1-inch magnetic disk. The researchers have succeeded in the harsh winter years of their research, without yielding to the temptation of technology currently in vogue. They are already working on a next generation perpendicular magnetic recording with terabyte storage.

Another step forward towards ubiquitous computing

138 Gbits/inch², the world’s highest recording density achieved

Practical application of reading, Compact perpendicular magnetic recording hard disk drive accomplished after four generations

The history of development magnetic recording technology at the Research Institute of Electrical Communication goes back to 1993, the time of the AC bias recording technology and Professor Emeritus Kenzo Nagai who developed it. This eventually led to Japan’s first magnetic tape recorder in 1990, and formed the foundation of the global firm, Sony. Since then, magnetic recording research has progressed from the audio to video magnetic recording tapes, while the hard disk drives and new information storage technologies including optical discs and flash memory became a reality. Nevertheless, the quest in a recording technology promises a smaller recording device, larger storage, and higher quality continues, in the line with the pursuit of higher speed and density. Even though, some researchers steadfastly committing themselves to the development of magnetic recording technology, Professor Emeritus Shinichi Iwasaki who succeeded Professor Emeritus Kenzo Nagai, Professor Emeritus Yoshihisa Nakamura, and Professor Hiroaki Muraoka. Iwasaki in 1997 that Professor Iwasaki proposed perpendicular magnetisation was the optimal approach to achieving high density in magnetic recording. Based on his groundbreaking research results which substantiated this claim, it was thirty years later in 2009, an ultra-small hard disk drive, the size of a 50-yen coin, which achieved the world’s highest recording density of 138 Gbits/inch². A realization accomplished under one of the IT Programs sponsored by Japan’s Ministry of Education, Culture, Sports, Science and Technology called “Development of Ultra High Density Small Hard Disk Drive”, led by Professor Emeritus Nakamura. This has paved the way for practical application of hard disk drives based on perpendicular magnetic recording.

[Recording Engineering]

Shinichi Iwasaki Professor Emeritus

Born in 1936, Iwasaki graduated from the University of Tokyo’s School of Engineering in 1960. He became a professor of the Research Institute of Electrical Communication and served as its Director from 1986 to 1996. He is currently President and Chief Director of the Tohoku Institute of Technology.

[Information Storage Systems]

Yoshihisa Nakamura Professor Emeritus

Born in 1926, Nakamura graduated from the University of Tokyo’s School of Engineering in 1949, and he became a professor of the Research Institute of Electrical Communication and served as its Director from 1985 to 1996. He is currently President and Chief Director of the Tohoku Institute of Technolog

[Hiroaki Muraoka Professor]

Born in 1958, Muraoka graduated from the University of Tokyo’s School of Engineering in 1980, and he became a professor of the Research Institute of Electrical Communication in 2000.

Research Institute of Electrical Communication, Muraoka, Nakamura and Aoi Lab

http://www.riece.elec.tohoku.ac.jp/
Evolution in education

President's Education Award honors to two researchers and one working group team

**Associate Prof. Toshiaki Muramoto, Graduate School of Information Sciences**
Outstanding class instruction in the Subjects Common across Campus

**Library**
Working Group for Compilation of an Information Research Guide
Compilation of the Guide for Attainment of Information Literacy

**President's Award** honors to 50 undergraduate and graduate students

**Undergraduate**
Yusuke Kurosawa (Faculty of Arts and Letters)
Suzuki Saiki (Faculty of Arts and Letters)
Fukumura Komei (Faculty of Education)
Kakei Koda (School of Law)
Otsuka Masaaki (Faculty of Science)
Yoshikai Mariya (Faculty of Science)
Otsuka Toshiaki (School of Medicine)
Aya Watanabe (School of Dentistry)
Yasuyuki Koda (School of Pharmaceutical Sciences)
Takahiro Naito (School of Engineering)
Tsukasa Tamura (School of Engineering)
Mitsukata Sato (Graduate School of Engineering)
Kenta Araki (School of Science)

**Graduate (Doctor)**
Mitsuki Satoh (Graduate School of Arts and Letters)
Kiyotaka Suzuki (Graduate School of Education)
Takara Saburo (Graduate School of Psychological Sciences)
Soichiro Tani (Graduate School of Medical Education)
Shota Ueno (Graduate School of Medicine)
Takahiro Takeshi (Graduate School of Pharmaceutical Sciences)
Akira Takamizu (Graduate School of Medicine)

**Graduate (Master)**
Katsuyuki Baba (Graduate School of Arts and Letters)
Masanori Ogawa (Graduate School of Science)
Masahiro Kame (Graduate School of Education)
Shinobu Yamauchi (Graduate School of Engineering)
Aya Miyazaki (Graduate School of Engineering)
Francisco Barros (Graduate School of Education)

---


Initiation of ‘Nurturing Natural Understanding and Logical Thinking through Interdisciplinary Scientific Experiments’ (FY2005 - FY2008)

* Support Program for distinctive University Education (Graduate School of Information Sciences), "Education Program for the Development of Human Resources with International Competence" (FY2005 - FY2008)

The Ministry of Education, Culture, Sports, Science and Technology promotes a "Support Program for Distinguished University Education" which aims to support outstanding educational projects selected from those universities with improved educational systems. In 2003, a successful, educational-worldwide human resource program proposed by the Graduate School of Engineering was followed up with another educational-all university, science, discipline and research program which was then incorporated in 2005, and is now part of a larger program.

Support program for distinctive University Education
Nurturing natural understanding and logical thinking through interdisciplinary scientific experiments (Center for the Advancement of Higher Education)

Initiation for attractive education in graduate schools
Program for fostering researchers and educators in language (Graduate School of Arts and Letters)
Program for the development of young internationally-minded researchers (Graduate School of Science)
Exploring aerospace frontiers through flight testing (Graduate School of Engineering)
An international educational initiative program for bio-nano electronics (Graduate School of Engineering)

Adoption of "Support Program for University Education" sponsored by the Ministry of Education, Culture, Sports, Science and Technology (2008)

Support program for distinctive University Education
Nurturing natural understanding and logical thinking through interdisciplinary scientific experiments (Center for the Advancement of Higher Education)

Initiation for attractive education in graduate schools
Program for fostering researchers and educators in language (Graduate School of Arts and Letters)
Program for the development of young internationally-minded researchers (Graduate School of Science)
Exploring aerospace frontiers through flight testing (Graduate School of Engineering)
An international educational initiative program for bio-nano electronics (Graduate School of Engineering)

Support program for professional graduate school formation
Raising the curriculum quality of accounting school’s to international levels (Graduate School of Economics and Management)

Long term internship program for graduate students
Education program for the development of “green steel” (Graduate School of Engineering)

University Education Internationalization Promotion Program
Japan-Korea / Japan-China Joint Educational Programs for the next generation leaders (International Affairs Department)

University Education Internationalization Promotion Program
Support project for the practical application of overseas advanced research (Graduate School of Science)

Practical Education Program for Next-generation Software (Graduate School of Information Sciences)

Establishment of three “Professional Graduate Schools”

In 2005, the Accounting School of was established subsequently to the Law School. Student enrollment has increased significantly, as has interest in the fields of accounting and law. These schools offer professional education aimed at preparing graduates for careers in public accounting and law enforcement.

K. Muto, Z. Yu, S. Cho, T. Shimosato, H. Kaji, G. Kawauchi, S. Okabe, J. Muto (School of Accounting, Faculty of Law), Z. Yu (School of Accounting, Faculty of Law), S. Cho (Faculty of Law), T. Shimosato (School of Pharmacy, Faculty of Pharmaceutical Sciences), H. Kaji (Faculty of Pharmaceutical Sciences), G. Kawauchi (Graduate School of Education), S. Okabe (Graduate School of Engineering), J. Muto (Graduate School of Engineering)
A wealth of student activities

Participation in Asia-Pacific Youth Championship of Contract Bridge.
Participation in the Junior World Championship of Orienteering.
Hiroaki Tsuchiya, Faculty of Economics, has been Japanese champion at abacus accounting for five consecutive years.
Kenji Otsu, School of Engineering, received a special honorable award in the Japan New Year’s Card Contest.
A team consisting of graduate students specializing in engineering and science received the Best Design Award in a Satellite Design Contest.
The International Law Club consisting of law students received the fourth prize in the Asian International Law Moot Court Contest.
Rikie Ishii, Graduate School of Engineering, won the Best Prize in the Campus Venture Grand Prix (CGV Tohoku), Speech Contents Market.

In March 2006, members of the Rowing Club were selected for the U-23 National Team.

In the 2009 Summer Athletics Exhibition, the Graduate School of Engineering's<br>Sukino Takada demonstrated a standing with human readable (YODA).
Kawabata Takanori, a student with a pen name of “Kouen Taka”, was presented the “Shokou” award in January 2006. The award is for his book “M usa Aikido” which is dedicated to his excellent performance in an internal test.

Many talented students of Tohoku University enjoy club activities and hobbies during their college days in Sendai, the capital of academica.
- Participation in Asia-Pacific Youth Championship of Contract Bridge.
- Participation in the Junior World Championship of Orienteering.
- Hiroki Tsuchiya, Faculty of Economics, has been Japanese champion at abacus accounting for five consecutive years.
- Kenji Otsu, School of Engineering, received a special honorable award in the Japan New Year’s Card Contest.
- A team consisting of graduate students specializing in engineering and science received the Best Design Award in a Satellite Design Contest.
- The International Law Club consisting of law students received the fourth prize in the Asian International Law Moot Court Contest.
- Rikie Ishii, Graduate School of Engineering, won the Best Prize in the Campus Venture Grand Prix (CGV Tohoku), Speech Contents Market.

C. concert plan by the symphony orchestra (students’ association)
Campus scenes

Topics

Selected as “No. 1 University” by Japanese high school teachers

In University Ranking 2006 published by Asahi Shimbun Company, there is a questionnaire titled “Rating of
Universities by High School Teachers (Overall Rating).” The newspaper conducted a questionnaire survey
of high school teachers in charge of educational guidance across Japan and compiled the following results:
- University does not recommend it to students
- University is not suitable for the student’s curriculum
- University requires students to pass entrance examinations
- University needs to improve academic performance

Top: Tohoku University
No.2: Ritsumeikan University
No.3: Kyoto University
No.4: Keio University
No.5: University of Tokyo

Data: “University Ranking 2006” published by Asahi Shimbun Company

1. Cherry blossoms in Katahira Campus
2. First green of spring in Aoba-yama Campus
3. Autumn leaves in Kawauchi Campus
4. The Botanical Garden in snow
5. Advanced Materials Processing Building, Institute of Multidisciplinary Research for Advanced Materials
6. Tohoku University Graduate School of Medicine / School of Medicine (Seiryo Campus)
7. Scene of Kawauchi Campus
8. “Natural Science General Experiment” for freshmen
9. Entrance Ceremony
10. Scene of scientific research, Graduate School of Science
11. Sheep grazing at Amamiya Campus
12. Wild Japanese serows in the Botanical Garden
Seminar series commemorating the 100th anniversary of Tohoku University was held with the theme: “What Science can Create in the Next 100 Years”

Tohoku University will be celebrating its 100th anniversary in August of 2006 and a Seminar Project was established to commemorate this auspicious event. As part of this event, January 2005 started the four planned seminars to be held at the Nippon Hall in Tokyo and since then satellite seminars were held in the major cities of Japan.

[Satellite seminars held]
Satellite seminars were held in Nagoya, Yamagata, Akita, Utsunomiya and Koriyama.

The Open Campus Programs and Events had large varieties of attractions aspiring our young generation and the general public

The Open Campus Program and the Public Educational Program hold events for the general public.
As part of the Open Campus Program, a tea ceremony was held for the general public by the Faculty of Arts and Letters, entitled “Admiring the Autumn Colours”.

The Open Campus Program gives the prospective students experience in trial university lectures.
The open campus is regularly held during the summer time when visitors can enjoy a tour of the facility, attend an explanatory meeting, and receive trial university lectures.

Outlet events for university’s accomplishments

Science Café Program opens as a science communication event for the next generation

The Science Café carries the concept that science is exciting; it is where the participants can enjoy scientific discussions over a cup of coffee. In August 2005, Tohoku University Science Café opened at all the other universities in Japan and holds at Sendai Mediatheque once a month. The researchers engaged in the latest scientific projects, the young people who will shoulder the next generation, and the general public all gather together and with the help of graduate students as facilitators freely discuss current scientific topics.
Contributing to local society

Field evaluation and verification test of Advanced Landmine Imaging System (ALIS)

Prof. Motofumi Satō and his research team, specialists in the field of applied electromagnetic wave measurement studies and environmental survey studies, received support from the Ministry of Foreign Affairs of Japan and Ministry of Education, Culture, Sports, Science and Technology, to conduct field evaluation in Afghanistan in December of 2004 and also held verification tests in Croatia in February of 2006. They recognized the compelling needs for making laborsome tasks in the removal of antipersonnel landmines from the war-rioted lands. Though efficient application of scientific technology, they developed the Advanced Landmine Imaging System (ALIS), a portable handheld landmine detection sensor which consisting of a metal detector and ground penetration radar (GPR). The sensor can differentiate a landmine from other objects, without the task of digging them out, by utilizing the reflection of electromagnetic waves for imaging the landmines. It’s certain that this application of subsurface measurement technology will continue to make further advancements and broaden into various similar fields.

An Exhibition held in The University Library

“Food Culture in the Edo Period: Tracing the Roots of Slow Food”

In November of 2005, as a project commemorating the 100th Anniversary Events of Tohoku University, the library held an exhibition and a memorial lecture meeting program. The exhibition theme, “Food Culture in the Edo Period: Tracing the Roots of Slow Food” consisted of four parts: (1) a history of Japanese Cuisine, (2) popular meals of the common people during the Edo Period, (3) sake and sweets of the Edo Period, and (4) food and special products of the Sendai Domain. Traditional sweets that were popular among the Edo citizens according to the recipes were prepared by Shiromitsu Sake Monaka Kempo, Ltd. This well-established confectionary of Sendai City, prepared the sweets, provided the good topics and sold their products in the exhibition hall.

The historians and specialists promote activities in the preservation of Miyagi’s historical legacy for the benefit of posterity

Miyagi Historical Document Conservation Network (http://www.miahis.tohoku.ac.jp/miyagi-mokuryo/)

Researchers in Tohoku University and in the other universities of Sendai, who specialize in Japanese History, put emphasis on the disaster of the July 2005 earthquake in Northern Miyagi, to promote their activities in the conservation of historical documents. Center for Northeast Asian Studies set up a secretariat that, with the cooperation of officials in local governments, identifies and compiles ancient documents owned by the citizens to establish a database sought to be beneficial for future generations.

Area Studies on Socio-Cultural Exchange, Center for Northeast Asian Studies

Professor Arata Hirakawa

Field Evaluation of and the Verification Test of Advanced Landmine Imaging System (ALIS)

http://www.cneas.tohoku.ac.jp/miyagi-shiryounet/

An Exhibition held in The University Library

“Food Culture in the Edo Period: Tracing the Roots of Slow Food”

In November of 2005, as a project commemorating the 100th Anniversary Events of Tohoku University, the library held an exhibition and a memorial lecture meeting program. The exhibition theme, “Food Culture in the Edo Period: Tracing the Roots of Slow Food” consisted of four parts: (1) a history of Japanese Cuisine, (2) popular meals of the common people during the Edo Period, (3) sake and sweets of the Edo Period, and (4) food and special products of the Sendai Domain. Traditional sweets that were popular among the Edo citizens according to the recipes were prepared by Shiromitsu Sake Monaka Kempo, Ltd. This well-established confectionary of Sendai City, prepared the sweets, provided the good topics and sold their products in the exhibition hall.

Topics

“HAGI MARU” is an original sake made by the staff, Faculty of Agriculture at Tohoku University. The HAGI MARU is distributed as Tohoku University brand sake and commemorates the 100th anniversary of its founding.

HAGI MARU was produced in February 2006. It is a high-quality brewed sake made from only the finest rice, to commemorate the 100th anniversary of the founding of Tohoku University. A graduate of the Faculty of Agriculture, the current Vice-Minister of Miyagi Prefecture, Kaname Tani, decided to help the provincial agriculture and start a brewery that would produce an experimental product. HAGI MARU was selected as the rice malt, and a sake brewery graduate of the Graduate School of Agriculture and Science helped the staff make the domestic sake. This new sake is an original product made by the staff of the Faculty of Agriculture. The cooperation of the faculty of Agriculture, Tohoku University, government, experts, and distributors.

Field Evaluation of and the Verification Test of Advanced Landmine Imaging System (ALIS)

http://www.cneas.tohoku.ac.jp/miyagi-shiryounet/

An Exhibition held in The University Library

“Food Culture in the Edo Period: Tracing the Roots of Slow Food”

In November of 2005, as a project commemorating the 100th Anniversary Events of Tohoku University, the library held an exhibition and a memorial lecture meeting program. The exhibition theme, “Food Culture in the Edo Period: Tracing the Roots of Slow Food” consisted of four parts: (1) a history of Japanese Cuisine, (2) popular meals of the common people during the Edo Period, (3) sake and sweets of the Edo Period, and (4) food and special products of the Sendai Domain. Traditional sweets that were popular among the Edo citizens according to the recipes were prepared by Shiromitsu Sake Monaka Kempo, Ltd. This well-established confectionary of Sendai City, prepared the sweets, provided the good topics and sold their products in the exhibition hall.

Topics

“HAGI MARU” is an original sake made by the staff, Faculty of Agriculture at Tohoku University. The HAGI MARU is distributed as Tohoku University brand sake and commemorates the 100th anniversary of its founding.

HAGI MARU was produced in February 2006. It is a high-quality brewed sake made from only the finest rice, to commemorate the 100th anniversary of the founding of Tohoku University. A graduate of the Faculty of Agriculture, the current Vice-Minister of Miyagi Prefecture, Kaname Tani, decided to help the provincial agriculture and start a brewery that would produce an experimental product. HAGI MARU was selected as the rice malt, and a sake brewery graduate of the Graduate School of Agriculture and Science helped the staff make the domestic sake. This new sake is an original product made by the staff of the Faculty of Agriculture. The cooperation of the faculty of Agriculture, Tohoku University, government, experts, and distributors.

Field Evaluation of and the Verification Test of Advanced Landmine Imaging System (ALIS)

http://www.cneas.tohoku.ac.jp/miyagi-shiryounet/

An Exhibition held in The University Library

“Food Culture in the Edo Period: Tracing the Roots of Slow Food”

In November of 2005, as a project commemorating the 100th Anniversary Events of Tohoku University, the library held an exhibition and a memorial lecture meeting program. The exhibition theme, “Food Culture in the Edo Period: Tracing the Roots of Slow Food” consisted of four parts: (1) a history of Japanese Cuisine, (2) popular meals of the common people during the Edo Period, (3) sake and sweets of the Edo Period, and (4) food and special products of the Sendai Domain. Traditional sweets that were popular among the Edo citizens according to the recipes were prepared by Shiromitsu Sake Monaka Kempo, Ltd. This well-established confectionary of Sendai City, prepared the sweets, provided the good topics and sold their products in the exhibition hall.

Topics

“HAGI MARU” is an original sake made by the staff, Faculty of Agriculture at Tohoku University. The HAGI MARU is distributed as Tohoku University brand sake and commemorates the 100th anniversary of its founding.

HAGI MARU was produced in February 2006. It is a high-quality brewed sake made from only the finest rice, to commemorate the 100th anniversary of the founding of Tohoku University. A graduate of the Faculty of Agriculture, the current Vice-Minister of Miyagi Prefecture, Kaname Tani, decided to help the provincial agriculture and start a brewery that would produce an experimental product. HAGI MARU was selected as the rice malt, and a sake brewery graduate of the Graduate School of Agriculture and Science helped the staff make the domestic sake. This new sake is an original product made by the staff of the Faculty of Agriculture. The cooperation of the faculty of Agriculture, Tohoku University, government, experts, and distributors.

Field Evaluation of and the Verification Test of Advanced Landmine Imaging System (ALIS)

http://www.cneas.tohoku.ac.jp/miyagi-shiryounet/

An Exhibition held in The University Library

“Food Culture in the Edo Period: Tracing the Roots of Slow Food”

In November of 2005, as a project commemorating the 100th Anniversary Events of Tohoku University, the library held an exhibition and a memorial lecture meeting program. The exhibition theme, “Food Culture in the Edo Period: Tracing the Roots of Slow Food” consisted of four parts: (1) a history of Japanese Cuisine, (2) popular meals of the common people during the Edo Period, (3) sake and sweets of the Edo Period, and (4) food and special products of the Sendai Domain. Traditional sweets that were popular among the Edo citizens according to the recipes were prepared by Shiromitsu Sake Monaka Kempo, Ltd. This well-established confectionary of Sendai City, prepared the sweets, provided the good topics and sold their products in the exhibition hall.

Topics

“HAGI MARU” is an original sake made by the staff, Faculty of Agriculture at Tohoku University. The HAGI MARU is distributed as Tohoku University brand sake and commemorates the 100th anniversary of its founding.

HAGI MARU was produced in February 2006. It is a high-quality brewed sake made from only the finest rice, to commemorate the 100th anniversary of the founding of Tohoku University. A graduate of the Faculty of Agriculture, the current Vice-Minister of Miyagi Prefecture, Kaname Tani, decided to help the provincial agriculture and start a brewery that would produce an experimental product. HAGI MARU was selected as the rice malt, and a sake brewery graduate of the Graduate School of Agriculture and Science helped the staff make the domestic sake. This new sake is an original product made by the staff of the Faculty of Agriculture. The cooperation of the faculty of Agriculture, Tohoku University, government, experts, and distributors.
Creating global advancements in research and education

Tohoku University concludes Academic Exchange Agreement with the Belgian Nuclear Research Center (SCK CEN) followed by other notable International Institutions; a total of 13 institutions

The Tohoku University concluded the Academic Exchange Agreement with the SCK CEN in June of 2009, with the 13 institutions in FY2009, the university now collaborates with a total of 94 universities and institutions in 26 different countries and regions.

The signing ceremony was held in the presence of the Prince of Belgium, HRH Prince Philippe (center), to establish a cooperative agreement between Tohoku University and Belgian Nuclear Research Centre (SCK CEN) developing a friendly and long lasting relationship.

Global Operations Centre (GOC) was established for the promotion of international strategies

Tohoku University established Global Operations Centre (GOC) in June of 2009, as its focal point for promotion in its international strategies. GOC contributes to collaboration with the overseas institutions for its implementation of academic exchange agreements and the establishment of Double Degree Programs.

In November of 2005, Tohoku University signed its first Double Degree Program Memorandum with the Institut National des Sciences Appliquées de Lyon (INSA-Lyon, France) and now, as many as seven overseas institutions are included in this prestigious program.

A double Degree Program is defined as a program in which the exchange student obtains a bachelor’s degree in each country, Tohoku University and its partner school. Tohoku University signed Memorandums on the Double Degree Program with these overseas institutions in FY2009, and presently has a total of 76 school’s participation in the exchange program.

Dr. Ahmed H. Zewail, who was awarded the Nobel Prize in Chemistry was appointed as University Professor, Tohoku University.

November 2005

INSA-Lyon (France)

Ecole Centrale, de Lille
Ecole Centrale, de Lyon
Ecole Centrale, de Marseille (EC3M)
Ecole Centrale, de Nantes
Ecole Centrale, de Paris

March 2006

Tsinghua University (China)

Ecole Centrale of Technology (Finland)
Ecole Centrale de Lyon (France)
Ecole Centrale de Marseille (EC3M) (France)
Ecole Centrale de Nantes (France)
Ecole Centrale de Paris (France)
Promoting of projects in international exchange

An International Symposium on Lu Xin – His Starting Point and Memories in Sendai was held in Beijing to commemorate the 100th anniversary of Lu Xin’s study at Tohoku University

Lu Xin was a great Chinese writer, the Father of Modern Chinese Literature, who studied medicine from 1900 to 1906 at the Sendai Medical College, which is the predecessor of the School of Medicine at Tohoku University. A number of events were held to commemorate the 100th anniversary of his study at Tohoku University and in September 2005, an international symposium was held in Beijing, China.

The “Tohoku University Professor Fujino Award” was presented to Mr. Sun Yi, Director of Beijing Lu Xin Museum

In this short story titled “Yujin Serena (Fujino Fujino)”, Lu Xin mentioned about Prof. Goetsuka Fujino under whom he had studied and had Tohoku University. As part of the project commemorating the 100th anniversary of Lu Xin’s study at Tohoku University, an international symposium was held to establish the Fujino Award to be presented to prominent Chinese individuals and groups for contributing to the advancement of education and research at Tohoku University.

The “Tohoku University Professor Fujino Incentive Award” was presented to Chinese graduate students

In conjunction with the symposium, the Tohoku University Professor Fujino Incentive Award was presented to Chinese graduate students.

Various international conferences and symposiums were held or organized by the university

- The Graduate School of Medicine organizes Workshops on Quality Improvement Healthcare in July 2005
- The Division of International Health held a workshop entitled “A Training of Trainers Course on Quality improvement of Breast Cancer Outcomes in Georgia” for eight countries in Latin America.

The Health Teams of Mexico, Guatemala, El Salvador, Nicaragua, Honduras, Costa Rica, Panama and the Dominican Republic participated in the JCPS training course entitled “Quality improvement of Obstetric Health Services in Mexico”. It carried out efforts to establish workshops in order to improve quality of health services.

Symposium organized in September 2005 by Graduate School of Law

The 21st Century COE Program Gender Law and Policy Center held an international symposium to promote gender equality and affirmative action in Paris.

The 21st Century COE Program Gender Law and Policy Center, Tohoku University, and French Comparative Legislation Association jointly held an international symposium.

International Academic-Industrial Alliance Exchange Meeting in Lyon, November 2005

Tohoku University held an international academic-industrial alliance exchange meeting in Lyon collaborating with INSA Lyon and Edis Cen- tral, Lyon. The attendees made presentations, participated in discussions, exchanged information and played a role in international cooperation.

International Frontier Center of Advanced Materials (IFCAM), In December 2005, Institute for Material Research held an international conference.

Two winners of the Nobel Prize in Physics, Dr. Henrik Hellman (1960) and Dr. Robert B. Laugh- tin (1960), were invited to the international conference with the theme “Frontiers of Materials Science.”
Strengthening industry-academia-government collaboration

MEMS-Conduct for water test.

MEMS-Core Co., Ltd., established as a Tohoku University based nanotechnology venture company, commercialized a next-generation microsystem.

Results of “MEMS Park Consortium”

Department of Nanomechanics, Graduate School of Engineering

The demand in Micro Electro Mechanical System (MEMS) is rapidly increasing for development of key components for instrumentation, microsensors and microactuators. The production of integrated systems is highly functional devices of micromachining and nanomachining technologies made possible through miniaturization of microfabrication technology. Prof. Masayoshi Esashi and his research team developed sensors and microactuators by using a glass layer through and supplied this technology to MEMS-Core Co., Ltd. (Tahoku-kou, Sendai City). This company is striving to commercialize MEMS devices such as pressure transducers for I.S. testing and water level packaging.

Prof. Esashi also plays a leading role in the MEMS Park Consortium, which was established as an in-house technology venture company project, promoted by industry, academicians and government officials. A project involving the collaboration of Tohoku University and Sendai City MEMS Core Co., Ltd. is to establish a university-based MEMS fabrication venture company in Northeast Japan. The University of Sendai and the Tohoku Prefecture are prominent centers in the micro-processing industry and part-manufacturing industry in Japan which now have an urgent need to establish full-fledged business in global competitiveness. Prof. Akihisa Inoue, Director of the Institute for Materials Research, decided to foster this industry-academia-government collaboration project in the hope of establishing a world-leading institute for Materials Research.

The Osaka location was selected by Prof. Akihisa Inoue, a foremost researcher in the field of non-equilibrium materials.

Director of Institute for Materials Research

Akihisa Inoue

The Osaka Institute of Materials Research announces in January 2006, the establishment of a research institute in Osaka. It is the collaboration of Osaka Prefecture University, Osaka City, City, Nippon Steel and the Osaka University, which is to promote practical applications of nanotechnology and to meet the needs of local industries. The new research institute will be set up as the “Institute for Materials Research, Osaka University, and Affiliated Laboratory Osaka Center” to fulfill its mission of research in nanotechnology and its research activities. It is the hope that the institute will be a world-leading institute for Materials Research.
Fortifying industry-academia-government collaboration

Attracting the attention of industry leaders to advanced technology in Tohoku University Innovation Fair

In February 2006, Office of Research Promotion and Intellectual Property (Currently, Office of Cooperative Research and Development) arranged an event in Akiaka Prince Hotel (Tokyo) to explain the advanced technology developed by Tohoku University. The University, which has built and fostered cooperative relationships with industry and local communities, held lecture meetings titled "Development of New Medicine by Utilizing Molecular Imaging" and "Dream Materials: Future-oriented Practical Raw Materials." The results of latest scientific studies conducted by the University's research staff were displayed and related presentations were made in the field.

Enhancement of cooperative relationship with companies and steady progress of joint research and development projects

In collaboration with Yamatake Corporation, Prof. Takufumi Adki, Graduate School of Information Sciences and his research team developed the world’s most advanced iris verification system.

Starting a scientific advisory system to assist companies

In 2005, ahead of other universities, Tohoku University launched a project to provide scientific advice to companies. At the request of companies, the departments and institutes dispatched their research staff to companies who gave scientific instructions or advised for an hourly fee. About 50 companies used this system.

Attracting the attention of industry leaders to advanced technology

In expectation of promotion of joint research projects and mutual exchanges in the fields of electricity/information, materials and mechanics.

The University concluded an organizational collaboration agreement for research and development and cultivation of human resources with Hitachi, Ltd.

In expectation of promotion of joint research projects in the fields of the environment, information communication and electronics.

The University concluded an agreement for organizational partnership and cooperation with the National Institute of Advanced Industrial Science and Technology.

In order to develop highly specialized human resources contributing to molecular imaging studies using positron emission tomography (PET)

The University concluded an agreement with the National Institute of Radiological Sciences.

The Sawayanagi Prize is awarded for Gender Equality Encouragement and Promotion

Tohoku University was the first national university to adopt the "Open-Doors" policy, by its first president Masatosi Sawayanagi, and also the first to accept female students in 1913. Since 2003, for the encouragement of gender equality, the University awards the "Sawayanagi Prize" yearly by commending studies and activities that significantly promotes gender equality.

Research Category

Emi Yano

"Stakeholders' Values and Impact of Social Marketing for Promoting Women's Participation in Sustainable Development - A Case Study of Japan"

Project Category

Masato Hatakeyama

"A Study on the Social Impact of Social Marketing in the Case of Women's Rights - A Case Study of Japan"

Activity Category

Masahiro Ishigaki

"Research Associate, Graduate School of Economics and Management"

Rumi Matsuzaki

"Research Associate, Graduate School of Economics and Management"

Kawachki Keyaki Nursery, Open for the office and teaching staff of Tohoku University
<table>
<thead>
<tr>
<th>Course</th>
<th>General Affairs Section</th>
<th>Graduate School of Environmental Studies</th>
<th>Graduate School of Educational Information Research Division</th>
<th>Institute for Malaria Research</th>
<th>Institute of Development, Aging and Cancer</th>
<th>Institute of Fluid Sciences</th>
<th>Research Institute of Electrical Communication</th>
<th>Institute of Multidisciplinary Research for Advanced Materials</th>
<th>Center for Northeast Asian Studies</th>
<th>New Industry Creation Hatchery Center (NICHE)</th>
<th>Student Affairs Division, Education and Student Support Department</th>
<th>Tohoku University Library</th>
<th>Tohoku University Hospital</th>
<th>BioMosial Engineering Research Organization</th>
<th>Overseas offices</th>
<th>Number of visiting research fellows from overseas</th>
</tr>
</thead>
<tbody>
<tr>
<td>General School of Agriculture</td>
<td>General Affairs Section</td>
<td>Graduate School of Environmental Studies</td>
<td>Graduate School of Educational Information Research Division</td>
<td>Institute for Malaria Research</td>
<td>Institute of Development, Aging and Cancer</td>
<td>Institute of Fluid Sciences</td>
<td>Research Institute of Electrical Communication</td>
<td>Institute of Multidisciplinary Research for Advanced Materials</td>
<td>Center for Northeast Asian Studies</td>
<td>New Industry Creation Hatchery Center (NICHE)</td>
<td>Student Affairs Division, Education and Student Support Department</td>
<td>Tohoku University Library</td>
<td>Tohoku University Hospital</td>
<td>BioMosial Engineering Research Organization</td>
<td>Overseas offices</td>
<td>Number of visiting research fellows from overseas</td>
</tr>
<tr>
<td>Faculty of Agriculture</td>
<td>General Affairs Section</td>
<td>Graduate School of Environmental Studies</td>
<td>Graduate School of Educational Information Research Division</td>
<td>Institute for Malaria Research</td>
<td>Institute of Development, Aging and Cancer</td>
<td>Institute of Fluid Sciences</td>
<td>Research Institute of Electrical Communication</td>
<td>Institute of Multidisciplinary Research for Advanced Materials</td>
<td>Center for Northeast Asian Studies</td>
<td>New Industry Creation Hatchery Center (NICHE)</td>
<td>Student Affairs Division, Education and Student Support Department</td>
<td>Tohoku University Library</td>
<td>Tohoku University Hospital</td>
<td>BioMosial Engineering Research Organization</td>
<td>Overseas offices</td>
<td>Number of visiting research fellows from overseas</td>
</tr>
<tr>
<td>Faculty of Life Sciences</td>
<td>General Affairs Section</td>
<td>Graduate School of Environmental Studies</td>
<td>Graduate School of Educational Information Research Division</td>
<td>Institute for Malaria Research</td>
<td>Institute of Development, Aging and Cancer</td>
<td>Institute of Fluid Sciences</td>
<td>Research Institute of Electrical Communication</td>
<td>Institute of Multidisciplinary Research for Advanced Materials</td>
<td>Center for Northeast Asian Studies</td>
<td>New Industry Creation Hatchery Center (NICHE)</td>
<td>Student Affairs Division, Education and Student Support Department</td>
<td>Tohoku University Library</td>
<td>Tohoku University Hospital</td>
<td>BioMosial Engineering Research Organization</td>
<td>Overseas offices</td>
<td>Number of visiting research fellows from overseas</td>
</tr>
</tbody>
</table>

**Number of students (as of May 1, 2000):**

<table>
<thead>
<tr>
<th>School enrollment</th>
<th>Number of international students</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>18,820</td>
<td>1,194</td>
<td>1,000</td>
</tr>
</tbody>
</table>

**Number of personnel (as of May 1, 2000):**

<table>
<thead>
<tr>
<th>Position</th>
<th>Full-time</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Executive Vice Presidents</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Audits</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Teaching staff</td>
<td>2,460</td>
<td>2,460</td>
</tr>
<tr>
<td>Administrators / Technical staff</td>
<td>2,348</td>
<td>2,348</td>
</tr>
<tr>
<td>Total</td>
<td>5,983</td>
<td>5,983</td>
</tr>
</tbody>
</table>

**Agreements on academic exchange (as of March 30, 2000):**

<table>
<thead>
<tr>
<th>Agreements on a University Level</th>
<th>24 countries &amp; regions</th>
<th>24 institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agreements on an Exchange Program Level</td>
<td>42 countries &amp; regions</td>
<td>24 institutions</td>
</tr>
</tbody>
</table>

**Overseas offices (as of March 30, 2000):**

<table>
<thead>
<tr>
<th>Location</th>
<th>Number of offices</th>
<th>Number of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>8 offices</td>
<td>11 countries</td>
<td>66 countries</td>
</tr>
</tbody>
</table>

**Number of visiting research fellows from overseas (FY 2000):**

<table>
<thead>
<tr>
<th>Visiting chairs</th>
<th>17 chairs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visiting research divisions</td>
<td>8 divisions</td>
</tr>
</tbody>
</table>

**Balance sheet (as of March 31, 2006):**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount (in million yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assets</td>
<td>3,308</td>
</tr>
<tr>
<td>Liabilities</td>
<td>1,380</td>
</tr>
<tr>
<td>Total</td>
<td>4,688</td>
</tr>
<tr>
<td>Long-term liabilities</td>
<td>453</td>
</tr>
<tr>
<td>Capital</td>
<td>1,823</td>
</tr>
<tr>
<td>Current liabilities</td>
<td>15</td>
</tr>
<tr>
<td>Current portion of long-term liabilities</td>
<td>15</td>
</tr>
<tr>
<td>Cash and cash equivalents</td>
<td>330</td>
</tr>
<tr>
<td>Accounts payable, etc.</td>
<td>24,1</td>
</tr>
<tr>
<td>Total current assets</td>
<td>3,047</td>
</tr>
</tbody>
</table>

**Income statement (April 1, 2000-March 31, 2001):**

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount (in million yen)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating revenue</td>
<td>517</td>
</tr>
<tr>
<td>Operating expenses</td>
<td>104</td>
</tr>
<tr>
<td>General administrative cost</td>
<td>62</td>
</tr>
<tr>
<td>External funding</td>
<td>134</td>
</tr>
<tr>
<td>Total</td>
<td>1,059</td>
</tr>
<tr>
<td>Profit</td>
<td>1,078</td>
</tr>
</tbody>
</table>

**Current gross profit:**

| Current gross profit        | 22                     |

**The 21st Century Center of Excellence Program (COE Program):**

Fukui Medical Engineering, based on Biotechnology: Masao Tsuru

Unmanned Vehicles: Gigawatt and Complex Systems: Yoshitaka Yamashita

International Center for Research & Education for NEMS: Akihisa Ishii

Systems and Global Network Operations Information Systems: Takanori Omura

Strategic and Education Center for an Integrated Approach to Language and Cognition: Kaori Irie

Center for Innovative Therapeutic Development for Common Diseases: Kenzo Sugimoto

Exploring New Science by Blending Material Science: Daisuke Hishiki

Advanced Science and Technology Center for the Dynamic Earth: Fujihiko Inoue

The Exploration of the Frontiers of Mechanical Science: Takahiro Shigetomi

International CCF of Ecosystems: Shigeyasu Masanori

Center for the Study of Social Stratification and Inequality: Yoshinori Sato

Gender Law and Policy in the Gender Equal Society: Miyako Takegami

Drug Discovery Research and Education Center for Policing Office, Development and Clinical Evaluation: Yuko Inoue

**Program for Promoting the Establishment of Strategic Research Centers:**

Biomedical Engineering Research Organization: TUNER (Tohoku University Biomedical Engineering Research Organization)

Kosuke Tanaka, Director of TUNER

**PICTURES** Graduate School / Faculty of Science (p.35-36)
Toward the New Century

Tohoku University will celebrate its 100th Foundation Day anniversary on the 22nd of June in 2007.

The University recognizes its achievements of the past 100 years, and as a research-oriented university contributing to the world and to the local community, it continues further in progressing while believing in tradition. In expectation of future developments, the University has started the following four major projects to mark this auspicious occasion by establishing: 1) Tohoku University Foundation, 2) publication of a Century History Book, 3) a 100th Anniversary Hall (tentative name) and 4) commemorative events (100th anniversary campaign). The four projects of the 100th anniversary campaign will be fully underway in and after 2006.

Schedule marking the Main Projects of the 100th Anniversary Events

[2006]

April 1: Symposium for New Students of Tohoku University (Tohoku University Memorial Auditorium)

May 1: The 10th Anniversary Lecture of Tohoku University "The McGill 2006 Satellite Symposium in Sendai" (Hiroshi Takahashi, Graduate School of Sciences)

June 1: The 10th Anniversary Lecture on "Francis-Japan Cultural Exchange: Its Economic Dimension" (Kawasaki Campus) (Graduate School of International Cultural Studies (GCICS))

June 2: Distributed Tohoku University brand name "YAMARU" (Graduate School of Agricultural Sciences)

June 22: University Founding Anniversary Day and Tohoku University Pre-Centenary Event

August 2: The 10th Anniversary Seminar of Tohoku University (Sendai)

September 29: The 10th Anniversary Public Symposium of Tohoku University on "Leading the Edge of Metabolism, Nutrition and Physiology Sciences, in Expectation of Integration of Sciences with the Healthy Industry" (Sendai) (Graduate School of Agricultural Sciences)

November 3-12: Special Exhibition: "Play in Our Period: Interesting Souvenirs" (General Media Museum) (Tohoku University Library)

November 29: The 10th Anniversary Seminar of Tohoku University (Niigata)

December 3: The 10th Anniversary Seminar of Tohoku University (Sendai)

January 13: The 10th Anniversary Seminar of Tohoku University (Sendai)

January 21-22: The 2nd 10th Anniversary Mechanical and Engineering Seminar at Tohoku University (Student's Lobby, Graduate School of Engineering)

February 6-9: "International Forum for Joint Anniversary" (Lyon-Tohoku, Treasuring for the Future, Lyon, France)

[2007]

April 4: Symposium for New Students of Tohoku University (Sendai)

June 22: University Founding Anniversary Day (Establish the official Tohoku University Flag and Color)

July 8: The 10th Anniversary Seminar of Tohoku University (Sendai)

July 11: Open International Exchange Program at Graduate School of International Studies

July 29-29: Tohoku University and Niigata Festival "Kabuki the Campus"

July 29-30: The 10th Anniversary Science Exhibition Museum of Natural History, Tohoku University (Graduate School of Science)

August 20-24: The 10th Anniversary Public Science Lecture at Graduate School of Science

August 20-24: The 10th Anniversary Public Science Lecture at Graduate School of Science

August 20-31: The 10th Anniversary "International Symposium on the 1911 Agreement between Tohoku University and Siberian Branch Russian Academy of Sciences on a General International Center etc." for Russo-Japanese Studies

August 20-26: Tohoku University Centennial Anniversary Festival (Kataoka Campus)

August 26: Centenary Anniversary Garden Party (Kataoka Campus)

August 26: The 10th Anniversary Public Conference "International relations: Miyagi-Wakayama"

August 27: Centenary Anniversary Commemorating and Reception (Sendaicentennial Celebration Center etc.)

August 27: The 10th Anniversary Public Science Lecture at Graduate School of Science

August 30: Agricultural Science/International Science Seminar at Graduate School of Agricultural Science

August 30-September 1: International Symposium at Graduate School of Agricultural Science

August 30-October 10: The 10th Anniversary Special Exhibition "History of the City: Survival in the Awaodori Area: Sendai, the City of Greenery and Tohoku University (tentative name)" (Tohoku-Tokyo Museum)

September 1: Centenary Celebration at Sendai

September 8: Centenary Celebration at Sendai

September 14-17: The 10th Anniversary Event Special Program "The Dawn and Development of Modern Physics" (Graduate School of Science)

October 5-7: Tohoku University Symposium and the 10th Anniversary Seminar of Tohoku University

October 7: Centenary Symposium for the Tohoku University Student's Friendship Association Sports Department (Sports Department of the Student's Friendship Association)

November 14: The 10th Anniversary Special Exhibition "History of the City: Sendaicentennial Celebration Area: Sendai, the City of Greenery and Tohoku University (tentative name)" (General Museum of Science)

December: International Forum for Joint Anniversary (Niigata)