

## Research Programs

### Special Coordination Funds for Promoting Science and Technology

This is a Special Coordination Fund which is based upon the strategies of Council for Science and Technology Policy. The Funds are established for and initiate the Promotion of Science and Technology; they are used in coordinating the Comprehensive Areas which arise on the Key issues of Science and Technology. Selected programs, which utilize this Promotion Fund, show and produce results of high effectiveness by government-led supports. These Programs are A) original and novel efforts found in policies of Offices and Ministries, B) in boundaries areas, having difficulty in proactive approaches in terms of Departmental Policies within existing organizations, C) expected to generate synergy effects, in cooperation with different organizations, D) for rapid and flexible actions, etc.

#### FY 2006

Program	Our Designated Program Title	Contents
Independent Research Environment Promotion Program for Young Scientists	Program for Exploring Advanced Interdisciplinary Frontiers	This program aims to train researchers with the ability to conduct world-class research in cutting-edge fields in the competitive global environment.
Supporting Activities for Female Researchers	Tohoku Women's Hurdling Project	Aims to support women in overcoming hurdles in their career paths as female scientists.
Creation of Innovation Centers for Advanced Interdisciplinary Research Areas	Nano/Micro Fabrication and IT-Converging Area	This program aims are to create future, next-generation industrial technology, industrial collaborations from the integration of technology in diverse areas of research, concentrating upon MEMS technology that leads establishment of an Innovation Center for Comprehensive manufacturing named "R&D Center of Excellence for Integrated Microsystems."

Total: 3 programs

#### FY 2007

Program	Our Designated Program Title	Contents
Creation of Innovation Centers for Advanced Interdisciplinary Research Areas	R & D Center of Excellence for Intergrated Microsystems	By integrating machinery, electronics, materials, chemistry, optics, biotechnology, medical science, etc, with its core on an integrative micro-system, the program aims to create an innovative production headquarter for the next century, in addition to establishing a research development system and a new industrial-academic collaboration model for the innovation.

Total: 1 program

## Education Programs

Tohoku University promotes the following educational programs with support from the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

### Support Program for Distinctive University Education

MEXT has since 2003, implemented the Support Program for Distinctive University Education to review the efforts of universities and junior colleges in Japan. They select the most outstanding and distinctive programs which contribute to the improvement of education and encourage their initiatives for the improvement of higher education by providing information to the society at large.

Year	Program	Contents
FY2005 - FY2008	Nurturing Natural Understanding and Logical Thinking through Interdisciplinary Scientific Experiments	Aimed to design and conduct "interdisciplinary scientific experiments" on a completely new base of thinking whereby "people can approach the same conclusion experimentally from different angles and learn to logically analyze and describe complex natural phenomena," in contrast to traditional approaches that separate science into physics, chemistry, biology, geology, etc.
FY2006 - FY2008	Small-sized Classes in Research Universities: Aiming for "Transformation of Learning"	"Basic Seminar" is the starting point in "Learning at a University" for our students who pick subjects for research, presentation and discussion. The seminar averages 15 undergraduate students from across our faculties which is managed and supported by the university; class content is in various areas such as experiment, practical training, investigation, seminar camp, etc.

### Support Program for Professional Graduate School Formation

The aim of the professional graduate school is to nurture professional people, those who are in high demand of in society, such as attorneys and teachers. The program supports and enhances pedagogy; the methods and teaching contents provided at the professional graduate school reinforce this system.

Year	Program	Contents
FY2007 - FY2008	Construction of a psychological and practical legal education program	This program aims to integrate and systematize psychological analysis and legal practices, and established "Psychological Jurisprudence" which used to be divided into civil, criminal, and administrative litigation. It also aims to formulate a systematic pedagogical method and teaching content on psychological jurisprudential analysis based upon a graduate school curriculum, especially those which focus upon basic practicality.

### Cancer Professional Training Plan

This program aids in fostering medical professionals who specialize in the field of cancer; high in intelligence and skills; those who become carcinoma doctors, etc.

Year	Program	Contents
FY2007 - FY2011	Tohoku Cancer Professional Cultivation Plan	In order to enhance cancer treatment, the plan introduces holistic educational programs which trains the potential cancer specialists high in knowledge and skills; it also assists those with abilities to pursue and promote practical research, both academically and holistically, and also to attain a medical license.

## Education Programs

### Support Program for Improving Graduate School Education

This program supports the organizations of educational systems at the graduate school level; it has established in order to nurture high quality professionals who are adaptable in various fields of our society.

Year	Program	Contents
FY2007 - FY2009	Program for cultivating practice-oriented education professionals	The program trains students to acquire practical teaching skills which meet the standards of higher quality school education. It aims to cultivate top-level professionals and researchers through educational research programs which combine theory and practice; the program wins the support of Tohoku University, with principal relationship in the Graduate School of Education.
FY2007 - FY2009	Cultivation of advanced scientists aiming at the practice and application of science	Based upon the educational approaches, the Graduate School of Science cultivates young and leading science researchers in science with high professionalism and internationalism; the program aims to cultivate "advanced scientists for practicing and applying academic science" (frontier scientists), who are flexible to able work in new academic fields with high skills in practicality and adaptability, in environment where technical innovation shows the most rapid diverse changes.
FY2007 - FY2009	Substantiality of graduate school of medicine education with multiple layers and bidirectionality - Renaissance plan for cultivating physician-scientists who play leading roles	The program aims to foster students to be autonomous and cooperative through research activities, and to attain a post-graduate (medical) degree by implementing the "multi-teacher instruction system." The goal of this program is to produce "physicians-scientists who play leading roles" in society having exceptional intelligence with experience both internationality and academically.
FY2007 - FY2009	Creation of frontier technology in mechanical engineering - Innovation for system integration based on flight, robotics, and nano-technology	This graduate education program provides an extensive curriculum for innovative engineers through the project-based, hands-on experiences on broad research topics of mechanical engineering, highlighted by flight, robotics, and nano-technology. It aims to foster creative and experienced graduates to be recognized in the international society, industries, and academic communities. Two new courses: "Project-Based Learning for Frontier of Mechanical Engineering" and "Innovation Oriented Seminar on Mechanical Engineering" are offered as a core of this advanced education program.
FY2007 - FY2009	Education program for Biomedical and Nano-Electronics, Tohoku University	By teaching and training the electronic major students systematically in biology and medicine, the program aims to cultivate those who can apply and expand their knowledge of electronic technology into the field of biology and medicine; an important academic field of welfare for the 21st century.
FY2007 - FY2009	Graduate Program on Frontier Environmental Studies-Develop basic skills and research capabilities by striking a good balance between multi-disciplinary subjects such as science, engineering, human and social studies-	In Masters and Doctoral programs, the social and cultural studies' students will be offered with subjects on ecology, energy, recycling and other environmental techniques along with environmental risk assessment, international environmental economics, emission trading, and Asian economies. A distinctive feature of this program is 'eco-practice', a compulsory subject through which students expose themselves to international environmental problems and carry out feasibility studies of solutions available in developed countries.

### Program to Support Medical Education Corresponding to Community Health Care Needs and Other Social Needs

This program supports efforts by university hospitals to cultivate medical professionals who will be responsible for holistic medical care, etc., by developing medical education based of community health care needs and other social needs.

Year	Program	Contents
FY2006 - FY2008	General Perinatal Practitioner Training Plan	This plans takes place during a 3-year doctoral program and aims to nurture the perinatal practitioner through across department (obstetrics, anesthesia, and NICU) clinical training, it is for establishing a high level of perinatal skills and takes place mostly at the Tohoku University Hospital.

### Advanced Internship Program for Graduate Students

Under this plan, students who already possess a certain level of expertise, are publicly solicited and implemented in joint projects between universities and corporations. They target on developing and carrying out programs centered on "hands-on" training within the industry and nurture professionals who can play a central role in a variety of research fields and business activities.

Year	Program	Contents
FY2005 - FY2009	Promotion of Graduate Students Internship Project - Green Steel Creation Program -	The advance internship program for graduate students by MEXT entrusts academic and industrial entities to create and implement together good long term internship program for graduate students using practical environments in businesses and workplaces. This program aims at constructing a system for developing human resources by which academic and industrial entities can cooperate with each other in a constructive manner and which fosters highly educated experts who understand various problems in society and approaches in the industry, and have an interest in society, through effective management of joint research.

### Program for Innovation and Productivity Improvement in Service Industries at the Graduate School of Economics and Management

This program aims to develop managers who administer service innovations and keep a high performance. The Graduate School of Economics and Management prepares an educational course taking in the knowledge from mathematics, statistics, and management based on evidences supported by MEXT.

Year	Program	Contents
FY2007 - FY2009	Program for Innovation and Productivity Improvement in Service Industries at the Graduate School of Economics and Management	The Graduate School of Economics and Management prepares an educational course taking in the knowledge from mathematics, statistics, and management based on evidences supported by MEXT.

### Science and Mathematics Students Support Project

In order to cultivate potential science technologists, the project has been entrusted to the university's science department by the Ministry of Education, Culture, Sports, Science and Technology; to establish and to facilitate ability and knowledge of highly motivated students in the field of science and mathematics.

Year	Program	Contents
FY2008 - FY2011	Advanced mathematics and physics for special education project	The program aims to educate students with special knowledge in science and mathematics, and from at an early stage, provides special education for small groups specialized in mathematics or physics; preparing them for further study in the graduate program.

### Distinctive University Education Assistance Programs

This is an extra-curricular course for undergraduate and graduate students aimed at enhancing practical English communication skills.

Year	Program	Contents
FY2005 -	Practical English Course	This course, taught by native instructors, will help students further develop English communicative abilities required in academic and social situations through activities including discussions and oral presentations.