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version

Tohoku University

Program for Leading Graduate Schools, MEXT
Multidisciplinary Field of Safety and Security

Inter-graduate School Doctoral Degree Program on
Science for Global Safety

Application Guidelines

Academic Year 2016

Division for Leading Graduate School Programs,
Tohoku University Institute for Promoting Graduate Degree Programs
Center for Education and Research on Global Safety
6-6, Aramaki Aza Aoba Aoba-ku, Sendai, Miyagi

Inter-Graduate School Doctoral Degree Program on Science for Global Safety
(Admissions Policy)

More than four years have passed since the Great East Japan Earthquake struck and caused extensive damage to the Tohoku region, but the social and industrial infrastructure of the damaged areas have not yet fully recovered. Furthermore, the situation has compelled Japan to enter into discussions on making a major shift in energy policy, including the issue of restarting nuclear power plants. It would not be an exaggeration to say that we are approaching a crucial turning point that may determine the future of Japan. As a university located in the disaster region, Tohoku University shoulders a significant part of the responsibility in taking the lead to rebuild the Tohoku region, and carries a deep sense of mission toward realizing the safe and secure society that society strongly demands. We recognize that the university's mission is to foster leaders who are able to contribute to the development of a safe and secure society.

The Great East Japan Earthquake served as a cautionary lesson that highlighted the limitations of dependence on scientific technology in disaster prevention, as well as the importance of mitigating disasters from the perspective of social science. Hence, utilization of technology, as well as contributions from the humanities and social sciences in order to incorporate this utilization into the social system with human beings as the focal point, are of great importance in order to recover from major disasters and minimize any damage that may be caused by the various risks forecasted to materialize in the future.

The objectives of human resource development in this program are **to foster top leaders in the field of global safety capable of understanding what generates the diverse risks confronting Japan and the world, including natural disasters such as major earthquakes and tsunamis, climate change, and energy security; who are able to purposefully integrate multiple scientific disciplines; and who can design engineering and social science systems aimed at preventing and mitigating disasters.** To this end, we will foster leaders from the three perspectives of “**understanding safety and security,**” “**creating safety and security,**” and “**living in safety and security,**” through a program bringing together researchers in science, technology, and humanities and social science through collaboration.

This program is a continuous five-year education program from the Master's program through to the Doctoral program. The program is comprised of three academic core areas that focus on natural science, including Earth and planetary science and environmental science; engineering, including civil engineering, urban engineering, architecture, and mechanical engineering; as well as philosophy, psychology, ethics, and public policy; and the integrated fields of these focus areas. Through studies in these fields, the program aims to develop human resources who can contribute to playing leadership roles in the reconstruction of Tohoku from the perspective of building a safe and secure society, contribute to the

sustainability of human society, and at the same time contribute to building a safe and secure society through the development of an industrial and social system.

The following three courses have been established in this program, corresponding to the three units of “understanding,” “creating,” and “living in” safety and security.

- **Natural Disaster Science Course**
- **Safety and Security Engineering Course**
- **Human Science Course**



Figure 1 : “Hexagonal (Confeito)-type” human resources

These courses aim to develop human resources who will be equipped with the following capabilities (“hexagonal (Confeito)-type” human resources).

- Human resources with professional capability demonstrated through sophisticated research (core), and the applied skills to solve a wide variety of issues (shell)
- Human resources with the capability to establish logical systems for problem-setting and problem-solving, research and development, project development, and grand design in an independent manner, and to apply these systems
- Human resources with the ability to take a bird’s-eye view of phenomena, organize the information, and to communicate their own thoughts accurately to others
- Human resources able to take on leadership roles on the global stage
- Human resources with a sense of ethics and responsibility in their roles as leaders

The following careers await leaders who possess the abovementioned qualities and capabilities:

- **Global business leaders:** Leaders equipped with global perspectives who are able to provide accurate assessments of various risks, including natural disasters and economic risks; take the appropriate countermeasures, and manage business continuity
- **Academic leaders:** World-class researchers in their core disciplines, as well as leaders able to impart knowledge from a broad perspective
- **National/Regional leaders in disaster prevention:** Leaders able to take the lead in formulating disaster prevention policies at the national or regional level, in administrative organizations,

research institutes, disaster prevention centers, and other organizations

- **Global risk management leaders:** Leaders able to carry out crisis management for diverse risks from global perspectives, at international and other organizations



Figure 2: Career paths after graduation

I. Enrollment quota and application eligibility

I-1. Enrollment quota for the Program for Leading Graduate Schools

Approximately 20 graduate students will be newly enrolled as freshmen in the Program for Leading Graduate Schools (hereafter, “students of the Program”) for Academic year 2016.

Applicants who submit their application forms will undergo a document screening and an interview selection, and about 20 students will be selected as students of the Program for the following April.

I-2. Application eligibility

- Those who will be enrolled in the Master’s program for the graduate schools/specializations shown in **Table 1** in April 2016.*
- Those who are enrolled in the first year of the Master’s program for the graduate schools/specializations in **Table 1** as of Academic Year 2015.
- Those who will advance to the Doctoral program for the graduate schools/specializations

in **Table 1** in April 2016. *

- Those who will transfer to the Doctoral program for the graduate schools/specializations in **Table 1** from other schools in Academic Year 2016. *

* However, applications will also be accepted for those whose results of acceptance into the respective graduate schools are announced after the application deadline.

Regarding the mandatory subjects for 3rd year (D1) transfer students, please refer “VI. Guide to Studying for Third year (D1) Transfer Students”. (added on Jan. 25,2016)

Note : Since the MEXT-funding period for this program will expire in March 2019, the scholarships may not be guaranteed throughout the enrollment period.

The financial supports during the following years are under consideration.

Table 1: Graduate schools/specializations that are part of the Inter-Graduate School Doctoral Degree Program on Science for Global Safety

| | |
|--------------------------|--|
| Arts and Letters | Humane Studies, Human Sciences, Historical Studies |
| Law | Legal and Political Studies |
| Economics and Management | Economics and Management |
| Science | Astronomy, Geophysics, Earth Science |
| Engineering | Mechanical Systems and Design, Nanomechanics, Aerospace Engineering, Quantum Science and Energy Engineering, Electrical Engineering, Chemical Engineering, Civil and Environmental Engineering, Architecture and Building Science, Management Science and Technology, Bioengineering and Robotics, Mechanical Systems Engineering, Finemechanics, Robotics |
| Information Sciences | Applied Information Sciences, Human-Social Information Sciences |
| Environmental Studies | Environmental Studies for Advanced Society, Frontier Sciences for Advanced Environment |
| Biomedical Engineering | Biomedical Engineering |

II. Recruitment of students for the Program for Leading Graduate Schools

II-1. Application forms

Please obtain (1) and (2) below from the website for this Program.

- (1) Application forms (one set)

(2) Application requirements (one set)

URL <http://www.g-safety.tohoku.ac.jp>

Period available: 12 January 2016 (Tue) ~ 10 February 2016 (Wed)

II-2. Application procedures

Please submit a full set of the application forms within the application period to the Office of the Center for Education and Research on Global Safety, Tohoku University Organization for Promotion of Leading Graduate Schools.

Please address the applications to:

Office of the Center for Education and Research on Global Safety,
Tohoku University Organization for Promotion of Leading Graduate Schools
9F Engineering Laboratory Complex Building
6-6-11 Aramaki Aza Aoba, Aoba-ku, Sendai, Miyagi, Japan 980-8579

If you are submitting the application in person, please check the location through the following URL:

<http://g-safety.tohoku.ac.jp/access/>

Application period: 27 January 2016 (Wed) ~ 10 February 2016 (Wed) (09:00 ~ 17:00)

(Applications will not be accepted after 12:00 noon on 10 February.)

* Applications sent by post must reach the Office by 10 February (Wed).

Applicants will be notified of their examinee number through e-mail at a later date.

II-3. Selection process for the Program for Leading Graduate Schools

A document screening will be carried out based on the reasons for applying for this program, application form, recommendation letter from the supervising faculty, and other documents submitted by the applicant. An interview will also be conducted, to be held on 4 March (Fri) 2016. Applicants will be notified of the details separately.

II-4. Announcement of selection results for the Program for Leading Graduate Schools

Selection results for the Inter-Graduate School Doctoral Degree Program on Science for Global Safety will be announced through the Program's website after mid-March 2016.

URL <http://www.g-safety.tohoku.ac.jp>

III. Scholarships

Scholarships are awarded as stipends to support outstanding graduate students selected for this program, with the aim of gaining outstanding students from Japan and overseas, and fostering global leaders able to take a proactive stance in planning and executing original research.

The value of the scholarships will be decided based on the results of the selection, and revised thereafter based on an annual screening process.

IV. Assessment of Basic Research Skills for Doctoral Dissertation

Upon enrollment, an assessment (Qualifying Examination to Assess Basic Research Skills for Doctoral Dissertation) will be carried out for a fixed period of time on areas such as academic results, earned academic credits, and English proficiency. Students who fail the assessment will lose their place as a student of this Program. Hence, please submit your application only upon a thorough understanding of the graduation criteria of the respective graduate schools.

V. Sequence of events leading to the enrollment of a student of this Program

Based on the procedures outlined above, the following is the sequence of events leading to the enrollment of a student of this Program.

| Period | Procedures |
|--------------------------|--|
| 12 January 2016~ | Distribution of application forms and application requirements (Website of the Center for Education and Research on Global Safety) |
| | ↓ |
| 27 January ~ 10 February | Submission of application forms (Office of the Center for Education and Research on Global Safety) |
| | ↓ |
| 4 March | Selection of students for this Program (Interview selection) |
| | ↓ |
| Mid-March ~ | Announcement of results of the selection for students of this Program (Website of the Center for Education and Research on Global Safety) |
| | ↓ |
| April | Start of program for students enrolled in Academic Year 2016 |

VI. Guide to Studying for Third year (D1) Transfer Students (added on Jan.25,2016)

You must take the following subjects from the 1st and 2nd year courses, in addition to the mandatory subjects from the 3rd, 4th and 5th year courses.

【Core Subjects】

Two credits or more including “*Fundamental on Global Safety*” and “*Global Safety II*”

【Multidisciplinary Subjects】

Two credits or more including “*International Lecture of Global Disaster Mitigation I and/or II*”

【Training Subjects】

- Two credits or more from “*Convergence-Lab (C-Lab) Training*”
- Four credits from the “*Global Communication Skills Training I and II*”

*If students have achieved an objective standard signifying they have attained a certain level of English language ability, such as TOEIC and TOEFL (including ITP), English language training may be omitted.