Kyoto University Global COE Program
Global Center for Education and Research on
Human Security Engineering for Asian Megacities

Human Security Engineering Education Program

Integrated Engineering Course, Human Security Engineering Field
(Human Security Engineering Education Program)
Graduate School of Engineering

Human Security Engineering Advanced Course
Graduate School of Global Environmental Studies

Human Security Engineering Education Program - Course
Graduate School of Engineering
Graduate School of Informatics

2012.10

Contents

(1) What Is the Human Security Engineering Education Program ?

Educational objective:

Motivating creative, international, and independent researchers and engineers with training in four related academic fields.

To achieve the educational objectives of the Human Security Engineering Education (HSE) Program, we provide the HSE courses of the program, the basic subjects in the four academic fields, and the overseas internship through the English language. The Graduate School of Engineering (three departments related to global engineering, Department of Architecture and Architectural Engineering), the Hall of Global Environmental Research, the Graduate School of Global Environmental Studies, and the Disaster Prevention Research Institute are participating in this program and are responsible for training and research.

(2) Educational Policy

Our policy is intended for doctoral students to provide interdisciplinary and solid education in the core fields and four related fields (urban governance, urban infrastructure management, health risk management, and disaster risk management). The study of these topics will equip researchers and engineers with the ability to apply their knowledge in an integrated manner toward ensuring urban human security, as well as the ability to promote these technologies. Specifically, we aim to promote researchers and engineers who possess sophisticated creativity (in addition to having a wide range of knowledge, the ability to go beyond the boundaries of the existing specialized fields), internationality (the ability to present and debate research in English, perform education and research activity in foreign countries, ability to build international human networks), and independence (the ability to plan research, leadership in education and research, ability to secure research funds, and problem-solving ability in the field). To achieve the educational objectives above, we designate "Human Security Engineering" as the compulsory subject for all students and include English instruction in our courses. Additionally, to enable students at the overseas campuses to participate in the program, we will also provide intensive lectures at the sites through a remote lecturing system and e-Learning system.

(3) HSE Program Students

The following four types of students will be admitted to the program:

a) The doctoral student who entered the Graduate School of Engineering (three departments related to global engineering, Department of Architecture and Architectural Engineering) after April 2009 and is assigned to the Integrated Engineering Course, Human Security Engineering Field (Doctoral Course: 3rd Year).

b) The doctoral student who entered the Graduate School of Engineering (three departments related to global engineering, Department of Architecture and Architectural Engineering) before October 2008, submits the "Human Security Engineering Education Program –

Course Application" to the Director of Human Security Engineering Field, and is allowed to take the course by the Director.

c) The doctoral student of the Graduate School of Global Environmental Studies who selected the "Human Security Engineering Advanced Course."

d) The doctoral student of the Graduate School of Informatics who submits the "Human Security Engineering Education Program – Course Application" to the Director of Human Security Engineering Field and is allowed to take the course by the Director.

(4) HSE Program: Subjects Available for Study

Grouping	Code	Name	Teacher(s) in Charge	Hrs/Week		Credits	Course Specification
				1st Semester	2nd Semester		
	10X301	***Human Security Engineering***	***Matsuoka, Monnai, Ohtsu, Tanaka(Hiro), Tatano, Kobayashi, Matsushita***	***2***		***2***	***Compulsory Core subject***
Group A	***10X303***	***Urban Governance***	***Monnai, Kanki, Kobayashi(Masa), Shaw, Furusaka***	***2***		***2***	***Core subject Major/minor subject***
Group A	10X305	Lectures on Urban Governance 1	Assorted Instructors	2		2	Major/minor subject
Group A	10X307	Lectures on Urban Governance 2	Assorted Instructors		2	2	Major/minor subject
Group A	10X309	Global Environmental Law and Policy	Matsushita, Obata	2		2	(*)Major/minor subject
Group B	***10X311***	***Urban Infrastructure Management***	***Ohtsu***	***2***		***2***	***Core subject Major/minor subject***
Group B	10X313	Governance for Regional and Transportation Planning	Kobayashi(Kiyo)		2	2	Major/minor subject
Group B	10X315	Lectures on Urban Infrastructure Management 1	Assorted Instructors	2		2	Major/minor subject
Group B	10X317	Lectures on Urban Infrastructure Management 2	Assorted Instructors		2	2	Major/minor subject
Group B	10X319	Global Environmental Economics	Mori, Liu	2		2	(*)Major/minor subject
Gourp C	***10X321***	***Lecture on Environmental Risk Management Leader***	***Fujii, Tanaka, Shimizu***	***2***		***2***	***Core subject***
Group C	10X323	Lectures on Health Risk Management 1	Assorted Instructors	2		2	Major/minor subject
Group C	10X325	Lectures on Health Risk Management 2	Assorted Instructors		2	2	Major/minor subject

Group C	10X327	Environmental Engineering for Asia	Fujii, Tanaka(Hiro), Shimizu, Matsuoka, Takaoka		2	2	(*)Major/minor subject
Group C	10X329	Management of Global Resources and Ecosystems	Funakawa, Shibata, Yamashita	2		2	(*)Major/minor subject
Group C	10X331	Environmental Ethics and Environmental Education	Singer, Neef	2		2	(*)Major/minor subject
Group D	***10X333***	***Disaster Risk Management***	***Tatano, Yokomatsu***	***2***		***2***	***Core subject Major/minor subject***
Group D	10X335	Lectures on Disaster Risk Management 1	Assorted Instructors	2		2	Major/minor subject
Group D	10X337	Lectures on Disaster Risk Management 2	Assorted Instructors		2	2	Major/minor subject
	10X339	Internship for Human Security Engineering				2	ORT subject
	10X441	Advanced Capstone Project				8	ORT subject
		Research Paper (Doctoral)					Compulsory

Note:

1) All lectures are conducted in English. The outline of each subject is described in p.9.
2) Prepare the course plan of the subjects by the following procedure and submit the plan to your main supervisor and sub-supervisor to obtain their approval at school entry. Although the course plan can be modified when proceeding to the next grade, the approvals to the supervisor(s) must be obtained. The supervisor cannot modify the additional conditions.
3) Graduate-level subjects not included in this table may be considered as corresponding and equivalent to minor subjects under the instruction of your supervisor(s) for up to 4 credits.

(5) Program Accrediation

Cource	Subject	Number of Credits Required for Completion
a) Doctoral Sudents Enrolled in the Integrated Engineering Course, HSE Field	Total	10 or more
	Core subject (HSE)	2
	Core subject	2 or more
	ORT subject	2 or more
	Major subject	0 or more
	Minor subject	0 or more
	Other subject	To be taken obtaining the approval of the supervisor as needed

<table>
<tr><td rowspan="7">b) Doctoral Studens Enrolled in the Graduate School of Engineering before Oct. 2008.

d) Doctoral Students of the Graduate School of Informatics</td><td>Total</td><td>10 or more</td></tr>
<tr><td>Core subject (HSE)</td><td>2</td></tr>
<tr><td>Core subject</td><td>2 or more</td></tr>
<tr><td>ORT subject</td><td>2 or more</td></tr>
<tr><td>Major subject</td><td>0 or more</td></tr>
<tr><td>Minor subject</td><td>0 or more</td></tr>
<tr><td>Other subject</td><td>To be taken obtaining the approval of the supervisor as needed</td></tr>
<tr><td>Doctoral Students of the Graduate School of Global Environmental Studies Who Selected the "Human Security Engineering Advanced Course"</td><td colspan="2">Refer to guidance note issued by the Graduate School of Global Environmental Studies(GSGES)

Contact Educational Coordinator of GSGES</td></tr>
<tr><td rowspan="7">Doctoral Students Who Apply for the Environmental Management Leader (EML) Program with HSE Program
The EML Program is described in p. 18</td><td>Total</td><td>18 or more</td></tr>
<tr><td>Core subject (HSE)</td><td>2</td></tr>
<tr><td>Core subject</td><td>2 (Lecture on Env. Risk Management Leader)</td></tr>
<tr><td>ORT subject</td><td>10</td></tr>
<tr><td>Major subject</td><td rowspan="2">More than 4 credits from subjects marked (*) in the table above</td></tr>
<tr><td>Minor subject</td></tr>
<tr><td>Other subject</td><td>To be taken obtaining the approval of the supervisor as needed</td></tr>
</table>

Note:

1) To complete this course or to be certified as an “HSE Program Graduate,” the number of credits specified for each subject classification, as well as the total number of credits, must be achieved.
2) When a substitute condition is added other than the above, when preparing the course table, the substitute condition must be satisfied.
3) Field completion requirement for *a) doctoral students enrolled in the Integrated Engineering Course, Human Security Engineering Field after April 2009*.

Students who proceed to the Integrated Engineering Course, Human Security Engineering Field, will complete the doctoral course by fulfilling the completion requirements of this field, rather than those of the department to which he/she belongs. Upon completion of the field, the student will be certified as a “Human Security Engineering Education Program Graduate” and will be conferred the program certificate aside from the doctoral degree certificate.

1. Students who have achieved 2 credits in the compulsory core subject “Human Security Engineering.”
2. Students who have achieved at least 1 subject/2 credits from the core subjects of Groups A to D (Urban Governance, Urban Infrastructure Management, Lecture on Environmental

Risk Management Leader, Disaster Risk Management).

3. Students who have achieved at least 2 credits of the ORT subjects.
4. Students who have achieved at least 10 credits from the HSE Program subject table above. However, the subjects of the graduate school which are not included in the HSE Program subjects table above can be certified as the required credits for the completion under the supervisor(s) only if the total number of the credits is equal to or less than 4.
5. Students who have completed the doctoral research in accordance with the spirit of the HSE Program.

4) Program completion requirements for *b) doctoral students enrolled in the Graduate School of Engineering (Dept. of Civil and Earth Resource Eng., Dept. of Urban Management, Dept. of Urban and Environmental Eng., Dept. of Architecture and Architectural Engineering) before Oct 2008* and *d) doctoral students of Graduate School of Informatics enrolled in the "Human Security Engineering Education Program – Course Application."*

A student who satisfies the following conditions will be certified as a "Human Security Engineering Education Program Graduate" and a certificate will be issued to her/him.

1. Students who have achieved 2 credits in compulsory core subject "Human Security Engineering."
2. Students who have achieved at least 1 subject/2 credits from the core subjects of Groups A to D (Urban Governance, Urban Infrastructure Management, Lecture on Environmental Risk Management Leader, Disaster Risk Management). However, when the subject of the graduate school (including the course subjects of the master's course) other than those listed in the HSE Program subjects table is completed and the supervisor approves that the subject is equivalent to one of these core subjects and the student applies the subject to the GCOE Educational Affairs Committee, after appropriate deliberation by the Committee, the credits for the subject will be accepted as credits for the core subjects of the HSE Program.
3. Students who have achieved at least 2 credits from the ORT subjects in HSE Program subjects table. However, as for ORT subjects other than those listed in the HSE Program subjects table and joint research type internship subjects (including the course subjects of the master's course), the credits of the subject will be accepted as one of these ORT subjects when it satisfies the requirement of the Internship for Human Security Engineering or Advanced Capstone Project.
4. Students who have completed doctoral research work conducted in accordance with the spirit of the HSE Program.
5. The completion requirement of the department to which the student belongs should be satisfied.

(Note 1) Even if the credits are certified for the completion requirement of the HSE Program, acceptance of credits depends on the department policy.

(Note 2) Doctoral students who entered the Graduate School of Engineering (three

departments related to global engineering, Department of Architecture and Architecture Engineering) before October 2008 and doctoral students of the Graduate School of Informatics must submit the "Human Security Engineering Education Program – Course Application" to the Director of Human Security Engineering Field in advance under the instruction of their supervisor and must obtain approval to take the course from the Director.

(Note 3) Doctoral students who entered the Graduate School of Engineering (three departments related to global engineering, Department of Architecture and Architecture Engineering) after April 2009 must be assigned to the Graduate School of Engineering, Integrated Engineering Course, Human Security Engineering Field.

5) *EML Program accreditation for doctoral students who apply for the Environmental Management Leader (EML) Program with HSE Program*

Students who successfully meet the following criteria will be presented with a certificate of completion at the end of the program.

1. Students who have achieved 2 credits in Lecture on Environmental Risk Management Leader (Environmental Leadership A and B).
2. Students who have achieved more than 4 credits from at least 2 subjects from Basics in Environmental Studies.
3. Students who have completed their EML program internship (10 credits).
4. Students who have completed thesis work, the research topic of which is related to the EML Program.
5. Students who have achieved at least 18 credits from the EML Program subject list.

(6) Timetable of FY2012 HSE Program

First Semester (9 Apr. 2012 to 27 Jul. 2012)

	Mon	Tue	Wed	Thu	Fri
1 **8:45 - 10:15**	Lecture on Urban Infrastructure Management 1 *[tailor-made lecture]*	Lectures on Disaster Risk Management 1 *[tailor-made lecture]*		Lectures on Health Risk Management 1 *[tailor-made lecture]*	Lectures on Urban Governance 1 *[tailor-made lecture]*
2 **10:30 - 12:00**	Global Environmental Economics (Mori, Liu) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus*		Global Environmental Law and Policy (Matsushita/Obata) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus*		Management of Global Resources and Ecosystems (Funakawa/Shibata/ Yamashita) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus*
3 **13:00 - 14:30**	Urban Infrastructure Management (Ohtsu) *Lecture Studio(117), Katsura Campus*				Urban Governance (Monnai/Kanki/ Kobayashi/Shaw/ Furusaka) *Lecture Room 3(172), Katsura Campus*
4 **14:45 - 16:15**			Disaster Risk Management (Tatano/Yokomatsu) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*		
5 **16:30 - 18:00**	Environmental Engineering for Asia (Fujii/Shimizu/ Tanaka) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*	Environmental Ethics and Environmental Education (Singer/Neef) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*	Human Security Engineering (Matsuoka/Monnai/ Ohtsu/Tanaka/Tatano/ Kobayashi/ Matsushita) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*	Lecture on Environmental Risk Management Leader (Fujii/Tanaka/ Shimizu) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*	

Second Semester (1 Oct. 2012 to 29 Jan. 2013)

	Mon	Tue	Wed	Thu	Fri
1 **8:45** **-** **10:15**	Lecture on Urban Infrastructure Management 2 *[tailor-made lecture]*	Lectures on Disaster Risk Management 2 *[tailor-made lecture]*		Lectures on Health Risk Management 2 *[tailor-made lecture]*	Lectures on Urban Governance 2 *[tailor-made lecture]*
2 **10:30** **-** **12:00**					
3 **13:00** **-** **14:30**					
4 **14:45** **-** **16:15**		Governance for Regional and Transportation Planning (Kobayashi[Kiyo]) *Telecommunication Lecture Studio(171), Katsura Campus*			
5 **16:30** **-** **18:00**	Environmental Engineering for Asia (Matsuoka/Takaoka/ Kurata) *Main Lecture Room, Research Bldg. No.5, Yoshida Campus and Telecommunication Lecture Studio(171), Katsura Campus*				

(7) Course Descriptions for Human Security Engineering Education Program

Human Security Engineering [Compulsory Core subject]

MATSUOKA Yuzuru (GSE), MONNAI Teruyuki (GSE), OHTSU Hiroyasu (GSE), TANAKA Hiroaki (GSE), KOBAYASHI Kiyoshi (GSE), TATANO Hirokazu (DPRI), MATSUSHITA Kazuo (GSGES).

First Semester: Wednesday, 16:30–18:00

This course will provide a comprehensive overview of human security engineering, a system of technologies for designing and managing cities that enable inhabitants to live under better public health conditions, and also to live free from potential threats of large-scale disasters and environmental destruction. The Millennium Development Goals will be evaluated from the viewpoints of four existing fields: urban governance, urban infrastructure management, health risk management, and disaster risk management. Furthermore, we will provide lectures that explore the relationships between the four existing fields.

Urban Governance [Core subject]

MONNAI Teruyuki (GSE), KANKI Kiyoko (GSE), KOBAYASHI Masami (GSGES), SHAW Rajib (GSGES), FURUSAKA Shuzo (GSE).

First Semester: Friday, 13:00–14:30

The key to raising the human quality of life lies in well-designed cities that make good use of human and physical resources. In this course, we will explore the methodology of urban governance, including bottom-up decision making based on collaboration of various actors, in order to solve the multi-dimensional human security problems of safety, health, convenience, comfort, amenity, and sustainability. Moreover, multiple lecturers will provide interesting topics of urban governance, with concrete problems for students to discuss.

Lectures on Urban Governance 1

Assorted Instructors

Tailor-made Lecture

This class will cover the hot topics on urban governance within human security engineering. Instructors will present current literature and expect students to develop arguments.

Lectures on Urban Governance 2

Assorted Instructors

Tailor-made Lecture

In this class, research topics related to urban governance within human security engineering will be assigned to students to enable them to solve human security problems. The students are required to review the latest or important fundamental papers, including related areas, and debate ideas with their teachers.

Global Environmental Law and Policy

MATSUHITA Kazuo (GSGES), OBATA Fumiko (GSGES)

First Semester: Wednesday, 10:30–12:00

In this class, we will examine the legal and institutional framework of global environmental policy. This will be discussed in terms of political economics, examining the role of governments, international organizations, industry, and NGOs engaged in the formation of the policy. The class will identify the ways and means to create global benefits from environmental preservation and sustainable development.

Urban Infrastructure Management [Core subject]

OHTSU Hiroyasu (GSE)

First Semester: Monday, 13:00–14:30

This course aims to provide interdisciplinary knowledge on how urban infrastructure is managed, not only from an economic perspective but also in accordance with human security engineering. The lectures will consist of the following topics: (1) Urban Infrastructure Asset Management, (2) Urban Environment Accounting System, (3) Urban Energy Supply Management, (4) Urban Food/Water Supply Management, and (5) Urban Transport/Logistics Management.

Governance for Regional and Transportation Planning

KOBAYASHI Kiyoshi (GSE)

Second Semester: Tuesday, 14:45–16:15

This course aims to provide interdisciplinary knowledge associated with appropriate governance strategies for urban and regional transportation planning. The lectures will consist of the following topics: Urban development management based upon PPP, landscape design to support activities, public transportation system for sustainable growth, urban facilities planning considering the variety in behaviors, ITS to support highly advanced transportation behavior, advanced logistic systems, and remote sensing technology for urban and regional planning.

Lectures on Urban Infrastructure Management 1

Assorted Instructors

Tailor-made Lecture

This class aims to deepen the understanding on urban infrastructure management, especially related to human security engineering. The class will present and discuss hot topics and related literatures on urban infrastructure management.

Lectures on Urban Infrastructure Management 2

Assorted Instructors

Tailor-made Lecture

In this class, the Assorted Instructors will provide lectures on the current situation and future prospect of the challenges of urban infrastructure management related to urban human security engineering. The aim of this class is to develop advanced and practical research capability of the students. To achieve this, they will be assigned with research subjects and will present and discuss their findings.

Global Environmental Economics

MORI Akihisa (GSGES) and LIU Deqiang (Economics)

First Semester: Monday, 10:30–12:00

We will give lectures on the theoretical basis and policy framework of sustainable development from the viewpoint of environmental/ecological economics.

- How to rebuild relations between people and nature, while taking environmental constraints, material cycling, efficiency, equity, and sustainability into account.
- Socio-economic underpinnings of global environmental problems and policies and measures for dealing with them.
- Evaluating the environmental and socio-economic impacts from current economic growth, with its attendant increase in energy and resource consumption. Then we will discuss management system for local and global common-pool resources and/or environmental assets, financing of sustainable development, in order to realize sustainable society.

Lecture on Environmental Risk Management Leader [Core subject]

FUJII Shigeo (GSGES), SHIMIZU Yoshihisa (GSE), TANAKA Hiroaki (GSE)

First Semester: Thursday, 16:30–18:00

In this class, we will give lectures on the theories of risk analysis, risk identification, risk assessment, risk evaluation, and risk reduction for human health and ecology. The main purpose of this lecture is to provide the students with the basic knowledge required of environmental leaders who can solve environmental issues practically as they occur in developing countries. We will review several international environmental projects as case studies.

Lectures on Health Risk Management 1

Assorted Instructors

Tailor-made Lecture

This class will provide an overview of health risk management, especially as they relate to human security engineering. The class will present and discuss the hot topics and related literatures on health risk management.

Lectures on Health Risk Management 2

Assorted Instructors

Tailor-made Lecture

This class will provide lectures on the current situation and future challenges of human health risk management from the viewpoint of urban human security engineering. The aim of this class is to develop the student's research capability. Students will be assigned academic and practical research subjects, and will then present and discuss their findings.

Environmental Engineering for Asia

First Semester: FUJII Shigeo (GSGES), TANAKA Hiroaki (GSE), SHIMIZU Yoshihisa (HSE)
Second Semester: FUJII Shigeo (GSGES), MATSUOKA Yuzuru (GSE), TAKAOKA Masaki (GSE), KURATA Gakuji (GSE), SHIMIZU Yoshihisa (GSE)
First Semester: Monday, 16:30–18:00
Second Semester: Monday, 16:30–18:00

This course will cover the fundamental knowledge, latest technologies, regional characteristics, and applied examples of environmental engineering problems related to atmosphere and waste products in Asia. The course will be taught and discussed in English. This course will also provide remote learning (a hybrid system using recorded videos and teleconference system [VCS]) with the teachers and graduate students of Tsinghua University and University of Malaya to improve English ability and internationality through the lecture, comprehensive discussion, etc., on the environmental field.

Management of Global Resources and Ecosystems

FUNAKAWA Shinya (GSGES), SHIBATA Shozo (GSGES), YAMASHITA Yo (GSGES)
First Semester: Friday, 10:30–12:00

Natural resources can be recycled sustainably by maintaining the environment. Ecosystems can be kept healthy so that organisms can reproduce effectively. This class outlines the characteristics of material circulation in various ecosystems and the link mechanism between ecosystems. We will also consider methods for using natural resources in harmony with ecosystems, after reviewing examples of deteriorated ecosystems and their rehabilitation throughout the world.

Environmental Ethics and Environmental Education

Jane SINGER (GSGES) and NEEF Andreas (GSGES)
First Semester: Tuesday, 16:30–18:00

Ethical approaches and informed decision making are essential for solving environmental problems, especially to facilitate consensus building among conflicting stakeholders. This course covers prominent schools of thought in the field of environmental ethics, applied ethics in environmental stewardship, and basic principles of environmental education.

Disaster Risk Management [Core subject]

TATANO Hirokazu (DPRI), YOKOMATSU Muneta (DPRI)

First Semester: Wednesday, 14:45–16:15

Natural disasters have low frequencies but high impacts. It is very important to make an integrated risk management plan that consists of various countermeasures such as prevention, mitigation, transfer, and preparedness. This class will present economic approaches to natural disaster risk management and designing appropriate countermeasures.

Lectures on Disaster Risk Management 1

Assorted Instructors

Tailor-made Lecture

This class aims provide an overview of disaster risk management, with an emphasis on human security problems. The class will present and discuss hot topics and related literatures on disaster risk management.

Lectures on Disaster Management 2

Assorted Instructors

Tailor-made Lecture

This class will provide lectures on the current situation and future challenges of disaster risk management from the viewpoint of urban human security engineering. The aim of this class is to develop advanced and practical research capability of the students. To achieve this, they will be assigned with research subjects and will present and discuss their findings.

Internship for Human Security Engineering

Contact your supervisor(s) to inquire

The internship aims to develop practical capabilities to secure urban human security, in addition to acquiring expert knowledge and the ability to develop new research fields by carrying out research activity related to human security engineering and presenting research results at international conferences. Specific examples include participating in internships domestically or abroad at companies or research institutes which conduct the operation of international projects, conducting field surveys, and attending academic conferences.

Advanced Capstone Project

Contact your supervisor(s) to inquire

This class aims to develop the abilities of international collaboration, field investigation, and on-site planning/problem solving through long-term investigation/research activities related to human security engineering with thorough hands-on policy in foreign countries. Specific examples include field research at overseas centers and participation in international projects overseas. As a rule, participants will stay in the field for 2 months or more.

(8) Example Course Plans

1) A student of the field of Urban Infrastructure Management

	Subject Code	Subject Name	Credits	Academic Year	1st	2nd
Compulsory Core subject	10X301	Human Security Engineering	2	2012	○	
Core subject	10X311	Urban Infrastructure Management	2	2012	○	
ORT	10X339	Internship for Human Security Engineering	2	2012	○	○
Major/minor	10X313	Governance for Regional and Transportation Planning	2	2011		○
Major/minor	10X317	Lectures on Urban Infrastructure Management 1	2	2012	○	

2) A student of the field of Health Risk Management

	Subject Code	Subject Name	Credits	Academic Year	1st	2nd
Compulsory Core subject	10X301	Human Security Engineering	2	2012	○	
Core subject	10X321	Lecture on Environmental Risk Management Leader	2	2012	○	
ORT	10X339	Internship for Human Security Engineering	2	2012	○	○
Major/minor	10X327	Environmental Engineering for Asia	2	2012	○	
Major/minor	10X323	Lectures on Health Risk Management 1	2	2012	○	

3) A student who will obtain both HSE and EML Program

	Subject Code	Subject Name	Credits	Academic Year	1st	2nd
Compulsory Core subject	10X301	Human Security Engineering	2	2012	○	
Core subject	10X321	Lecture on Environmental Risk Management Leader	2	2012	○	
ORT	10X339	Internship for Human Security Engineering	2	2012	○	○
ORT	10X341	Advanced Capstone Project	8	2012	○	○
Major/minor	10X327	Environemental Engineering for Asia	2	2012	○	
Major/minor	10X331	Environmental Ethics and Environmental Education	2	2012	○	

(9) Kyoto University HSE Program Portfolio and Registration Card

You are requied to submit the Kyoto University HSE Program Portfolio (Form HSE-003) by e-mail to kyomu_gcoe@hse.gcoe.kyoto-u.ac.jp. Only word documents will be accepted. And, this portfolio with your supervisor's approval and signature should be submitted to HSE Center, C1-3-182 NO LATER THAN **10 October, 2012**.

If you wand to register any subjects, you should fill in the registration card (Form HSE-030/ HSE-031), print the document out, and submit it with signature of your supervisor to C Cluster Office NO LATER THAN **10 October, 2012**.

Portfolio Form: HSE-003 (http://hse.gcoe.kyoto-u.ac.jp/en/inside/)

Registration Form: HSE-030 for the 1st semester, HSE-031 for the second semester

(10) ORT subjects

"Internship for Human Security Engineering" (short-term internship: 2 credits) and *"Advanced Capstone Projects"* (long-term internship: 8 credits) are available for ORT subjects in HSE Program. To conduct each ORT subject, you would contact your supervisor(s) to inquire and make plans for internships with your supervisor's advice and suggestion.

1) Internship for Human Security Engineering

Internship for Human Security Engineering normally requires 2 weeks (10 days) of on-site training or on-the-research training. Examples of this internship activities as follows:

(a) Presentation at international conference followed by information collection relevant to your doctoral research at laboratories of foreign universities and authorities.

(b) Normal internship activities at private companies to study the state of the cutting-edge technologies or practical business.

2) Advanced Capstone Projects

Advanced Capstone Projects require more than 2 months on-site or research training. Examples as follows:

(a) Fieldwork at overseas base for your doctoral research.

(b) Working as a visiting researcher at agencies/organizations related to Human Security Engineering.

NOTICE OF INTERNSHIP

1) Submit the "Kyoto University HSE Program Portfolio and Registration Card" on which ORT subjects are filled out.

2) Contact your supervisor and make plans for internship with your supervisor's advice.

3) Complete the "Notice of Internship for Human Security Engineering Form" (HSE-004) or "Notice of Advanced Capstone Projects Form" (HSE-005) and submit it to GCOE HSE

Office (kyomu_gcoe@hse.gcoe.kyoto-u.ac.jp) by e-mail. You could access our website (http://hse.gcoe.kyoto-u.ac.jp) and download these template files.

4) Submit ***the NOTICE*** to HSE Office NO LATER THAN 4 WEEKS BEFORE you carry out internship activity.
5) You MUST have an appropriate "insurance" to support you in case of serious trouble during internship working.

REPORT ON INTERNSHIP ***(Must be written in English)***

1) Internship for Human Security Engineering

Context

1. Cover Report Page on Internship for HSE (Form HSE-013)
2. Main Text Pages ***at least 4 pages*** in accordance with Format HSE-015

Main Text Pages must contain the following:

1. Objective
2. Outline of Internship
3. Activity Records (including PHOTO, etc.)
4. The Present Understandings in "Human Security Engineering"
5. Remarks and Comments
   - In addition to the above, you may include any research activity reports, reports presented at international conference, and questions and answers.
   - You should use photographs and diagrams as much as possible.
   - You should include the signature of your supervisor.
   - You may attach Proceedings as reference material

Deadline

Within 2 weeks after the completion of the internship.

Submission

GCOE HSE Center (kyomu_gcoe@hse.gcoe.kyoto-u.ac.jp)

2) Advanced Capstone Project

Context

1. Cover Report Page on Internship for HSE (Form HSE-014)
2. Main Text Pages ***at least 8 pages*** in accordance with Format HSE-015

Main Text Pages must contain the following:

1. Objective
2. Outline of Internship
3. Activity Records (including PHOTO, etc.)
4. The Present Understandings in "Human Security Engineering"
5. Remarks and Comments
   - In addition to the above, you may include any research activity reports, reports

presented at international conference, and questions and answers.

- You should use photographs and diagrams as much as possible.
- You should include the signature of your supervisor.
- You may attach Proceedings as reference material.

Deadline

Within 3 weeks after the completion of the internship.

Submission

GCOE HSE Center (kyomu_gcoe@hse.gcoe.kyoto-u.ac.jp)

(11) Contact

Kyoto University Global COE Program "Global Center of Education and Research on Human Security Engineering for Asian Megacities" (GCOE HSE) Center
Education Coordinator of Human Security Engineering Education Program
GCOE Associate Professor HIRAYAMA Nagahisa
C1-3-182, Katsura Campus C Cluster
Phone: 075-383-3416
e-mail: kyomu_gcoe@hse.gcoe.kyoto-u.ac.jp
Website: http://hse.gcoe.kyoto-u.ac.jp
Office Hour: Tuesday, 10:30–16:00

(12) Environmental Management Leader Program

This program seeks to foster a new generation of internationally-aware environmental leaders, able to focus on finding solutions to an array of diverse global and regional environmental problems. Through theoretical study and practical experience relating to the interdisciplinary field of environmental management, students will focus on generating solutions to a number of issues facing the Asian region today, such as growing population concentration in urban areas, rapid economic development, the widening gap between cities and rural areas, ecological conservation, the eradication of poverty, regional disaster prevention, urban environments and sanitation. The problem also seeks to cultivate environmental leaders able to contribute to the design of optimal ways for diverse societies to reduce their carbon footprint, mitigate the effects of global warming, and formulate policies on resource recycling and environmental management. All educational and research aspects of the program are overseen by the Graduate School of Global Environmental Studies (GSGES), the Graduate School of Engineering (GSE), and the Graduate School of Energy Science (GSES).

Students acquire environmental management leadership skills and knowledge through this program in three ways: 1) by writing a master's or doctoral thesis grounded in field research on environmental improvements conducted in or beyond Asia, 2) by participating in an internship program, which offers internship placements at environmental policy and international organizaions, national and local administrations, and environmentally-focused businesses both in Japan and overseas, and 3) by studying a range of subjects offered in the EML Program.

1. Educational Goal

The goal of this program is to foster a new generation of internationally-aware environmental leaders, able to focus on finding solutions to a wide spectrum of global and regional environmental problems.

2. EML Program Students

The following are eligible to apply for this program:

1) Master and Doctoral Students of GSGES (Graduate School of Global Environmental Studies)
2) Doctoral Students enrolled in the Educational Program of Human Security Engineering or the Integrated Engineering Course of the Human Security Engineering Department of GSE (Graduate School of Engineering)
3) Doctoral Students of GSES (Graduate School of Energy Science)

Students wishing to take part in the program should submit an application for registration to the EML Office via the administration office of each graduate school or department. A form is available for this purpose from the EML office. All applications are checked by the EML Program Committee.

Note: The Environmental Management Leader Program is recognized variously as the Environmental Management Leader Course, within the Master Program of GSGES, the Advanced Course in Environmental Management Leadership, within the Doctoral

Program of GSGES, and Environmental Management Leader Program, within the Doctoral Program of GSE and GSES.

3. EML Program: subjects available for study

Category	Subject	Credit	School
EML Basics (compulsory)	Lecture on Environmental Leader A [1)]	1	GSGES
	Lecture on Environmental Leader B [1), 2)]	1	All schools
Basics in Environmental Studies (electives)	Global Environmental Law and Policy	2	GSGES
	Global Environmental Economics	2	GSGES
	Management of Global Resources and Ecosystems	2	GSGES
	Environmental Ethics and Environmental Education	2	GSGES
	Asian Environmental Engineering [3)]	2	GSE
	Basics on Environmental Energy Science [4)]	2	GSES
Practical Study (compulsory)	Internship A [5)]	2	All schools
	Internship B [5)]	8	All schools
Lectures in EML (electives)	New Environmental Engineering I, Advanced [3)]	2	GSE
	New Environmental Engineering II, Advanced [3)]	2	GSE
	Human Security Engineering	2	GSE
	Advanced Seminar on Socio-Environmental Energy Science [4)]	2	GSES
	Present and Future Trends of Fundamental Energy Science, Adv. [4)]	2	GSES
	Advanced Energy Conversion Science [4)]	2	GSES
	Advanced Energy Science and Technology [4)]	2	GSES
	Global Environmental Architecture	1	GSGES
	Environmental Infrastructure Engineering	1	GSGES
	Landscape Ecology and Planning	1	GSGES
	International Environment and Disaster Management	1	GSGES
	International Climate Policy	1	GSGES
	Watershed Water Environment Management	1	GSGES
	Environmental Communication Studies	1	GSGES

All lectures area conducted in English. Subjects not included in this table may, after appropriate deliberation by the EML Program Committee, be accepted as credit for the EML Program. (NOTE 1-5)

1) For doctoral students, Environmental Leadership A and B lectures are named differently by each of the graduate schools participating in the EML Program. They are known as "Environmental Leadership" within GSGES, "Environmental Risk Management Leader Theory" within GSE, and "Zero-Emission Social System" within GSES.
2) GSGES master students are not required to take Environmental Leadership B. Credit received for participation in the Seminar in Environmental Management (compulsory for all GSGES master students) is automatically transferred for GSGES master students participating in the EML Program.
3) Credit from "New Environmental Engineering I, Advanced" (2 credits) or "New

Environmental Engineering II, Advanced" (2 credits) is transferable in lieu of credit for "Asian Environmental Engineering" (2 credits).

4) Credit from one of the following EML lecture electives ("Advanced Seminar on Socio-Environmental Energy Science" (2 credits), "Present and Future Trends of Fundamental Energy Science, Adv." (2 credits), "Advanced Energy Conversion Science" (2 credits) and "Advanced Energy Science and Technology" (2 credits)) is transferable in lieu of credit for "Basics on Environmental Energy Science" (2 credits)

5) Participation in Internships A and B is mandatory. The period of internship (combined) should be no less than 5 months for doctoral students and 3 months for master's students. Internship programs are provided by each of the graduate schools participating in the EML Program, and credit received from them is transferable in lieu as credit for Internship A and B.

- Internship A gives students the opportunity to work with cutting-edge environmental technology and/or environmental policy, and should last for at least two weeks.
- Internship B comprises research into a practical environmental issue. Although Japanese students should conduct research overseas (e.g. in an Asian country), non-Japanese students may choose to conduct their research in Japan or overseas. In principle, Internship B should not be undertaken in a Japanese university.

4. Program Accreditation

Students who successfully meet the following criteria will be presented with a certificate of completion at the end of the program.

1. Students who have achieved 2 credits in Environmental Leadership A and B.
2. Students who have achieved more than 4 credits from at least 2 subjects from Basics in Environment Studies.
3. Students who have completed their EML program internship (10 credits).
4. Students who have completed thesis work, the research topic of which is related to the EML program.
5. Doctoral students who have achieved at least 18 credits and master's students who have obtained at least 22 credits from the above subject list.

(HSE-003)

Kyoto University Human Security Engineering Education Program Portfolio

（人間安全保障工学分野ポートフォリオ）

Date of Entrance 入学年月	Affiliation 所属専攻	Student ID 学生番号	Nationality 国籍
Entered in . .20			

Name 氏名	Laboratory 研究室名	Supervisor 主指導教員	Sub-supervisor(Option) 副指導教員
	TEL (Ext.):		

Present address 現住所		TEL (Fixed)	
		TEL (Cell)	
		E-mail	

(1) Course Plan for the HSE Program（履修計画）

科目区分名	Subject Code 科目コード	Subject Name 科目名	Credits 単位数	Academic year 履修学年	Semester	
					1st	2nd
Compulsory Core Subject 必修，コア		Human Security Engineering （人間安全保障工学概論）	2	2013	○	
Core Subject コア						
ORT						

Supervisor's signature _____

（主指導教員印またはサイン）

(2) Reason for application for the HSE Program

(3) Doctoral research plan

Title _____

Research summary/plan

(4) Position of the doctoral research theme filled in this application in Human Security Engineering

(5) HSE Program and Research Condition/Outcome

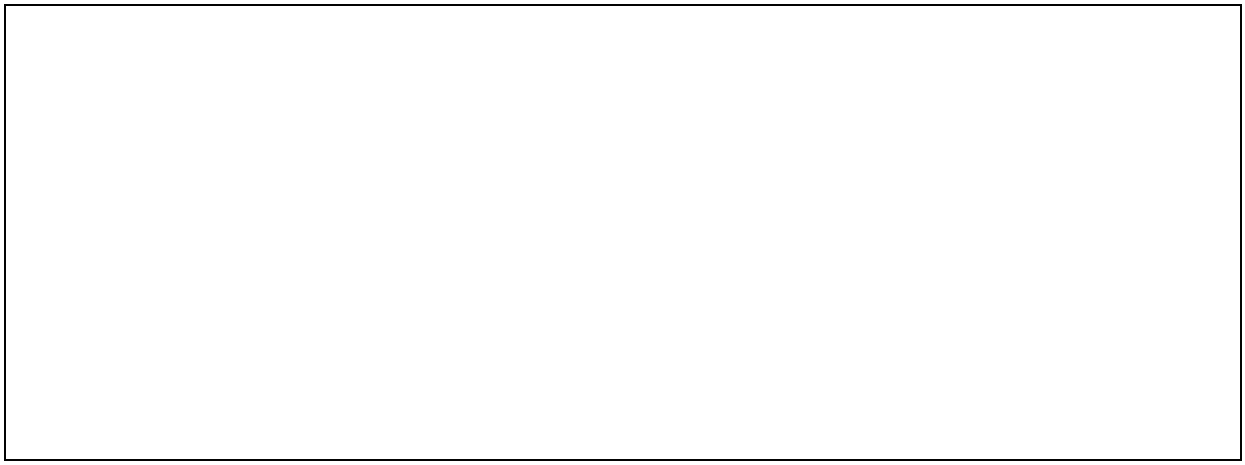
Fill out the subjects, which you have taken, and your doctoral research result/outcome (published papers etc.) in each semester.

2012 Second Semester

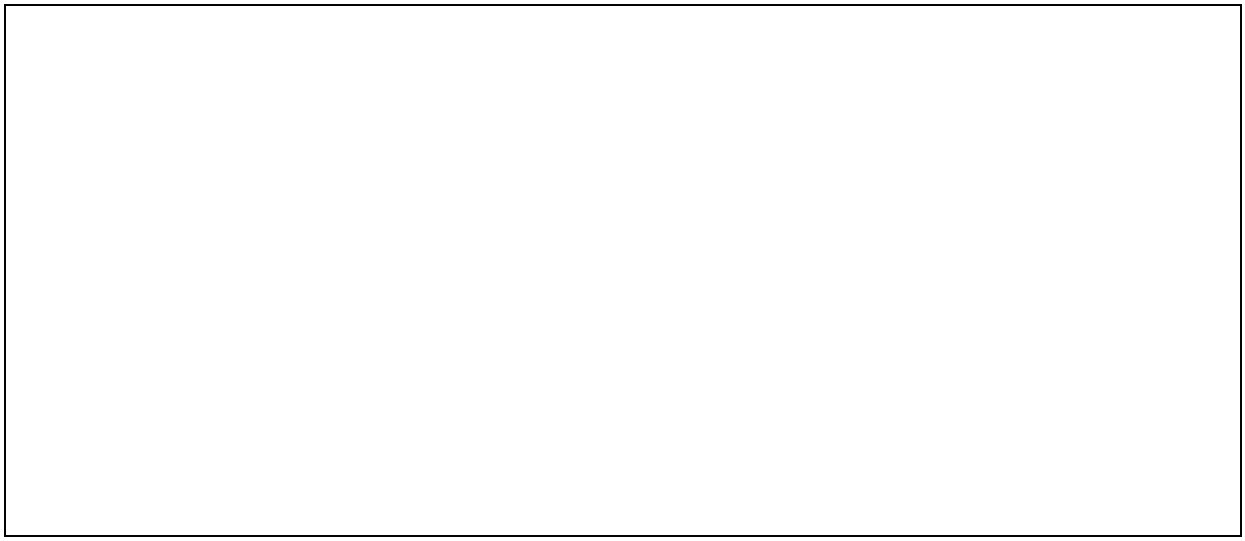
2013 First Semester

2013 Second Semester

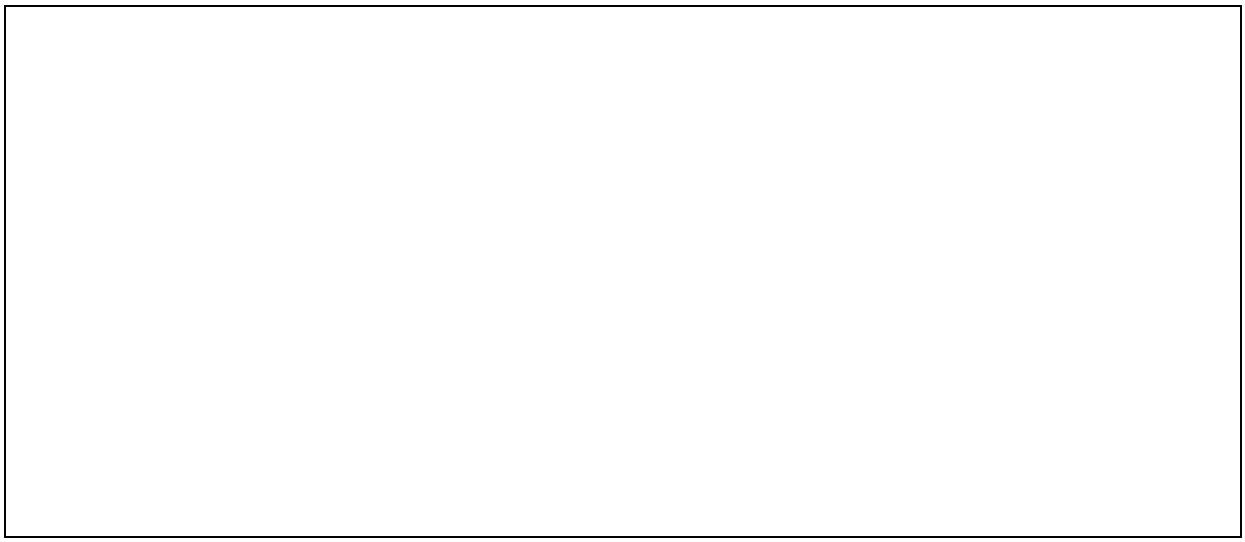
2014 First Semester



2014 Second Semester



2015 First Semester



[HSE-030]

融合工学コース【人間安全保障工学分野】

2012 Human Security Engineering Registration Card First 前期 Doctor Course 博士

Affiliation 専攻名		Student ID 学生番号	
Entrance Year 入学年		Name 学生氏名	

Registration	Code (科目コード)	Subject (科目名)	Teacher(s) in Charge (担当教員名)
	10X301	Human Security Engineering (人間安全保障工学概論)	Y. Matsuoka, Monnai, Ohtsu, H. Tanaka, Tatano, K. Kobayashi, Matsushita 松岡（譲），門内，大津，田中（宏），多々納，小林（潔），松下
	10X303	Urban Governance (都市ガバナンス論)	Monnai, Kanki, M. Kobayashi, Shaw, Furusaka 門内，神吉，小林（正），ショウ，古阪
	10X311	Urban Infrastructure Management (都市基盤マネジメント論)	Ohtsu 大津
	10X321	Lecture on Environmental Risk Management Leader (環境リスク管理リーダー論)	H. Tanaka, Shimizu, S. Fujii 田中（宏），清水，藤井（滋）
	10X333	Disaster Risk Management (災害リスク管理論)	Tatano, Yokomatsu 多々納，横松
	10X339	Internship for Human Security Engineering (Short) (人間安全保障工学インターンシップ)	
	10X441	Advanced Capstone Project (Long) (アドバンスド・キャップストーン・プロジェクト)	

25

1. Please fill in the registration column with "O mark" (in the appearance of circle) for the subject(s) which you would register in this semester.

Supervisor's Signature 指導教員印	

融合工学コース【人間安全保障工学分野】

2012 Human Security Engineering Registration Card

Second 後期

Doctor Course 博士

Affiliation 専攻名		Student ID 学生番号	
Entrance Year 入学年		Name 学生氏名	

Registration	Code (科目コード)	Subject (科目名)	Teacher(s) in Charge (担当教員名)
	10X313	Governance for Regional and Transportation Planning (地域・交通ガバナンス論)	K. Kobayashi 小林 (潔)

1. Please fill in the registration column with "O mark" (in the appearance of circle) for the subject(s) which you would register in this semester.

Supervisor's Signature 指導教員印	

(HSE-004)

Notice of Internship for Human Security Engineering
（人間安全保障工学インターンシップ届け）

The following student will participate in the internship for Human Security Engineering as follows.

Supervisor's signature（指導教員印またはサイン）_____

Department Chairperson's signature（専攻長印またはサイン）_____

Affiliation （所属専攻）	Laboratory （研究室名）	Student ID （学生番号）	Nationality （国籍）

Name（氏名）	Supervisor（主指導教員）

(1) Basic Information（基本情報）

Date of notification （届け日）			
Grade（学年）		Date of Entrance 入学年月	
Sex（性別）	Male / Female		
Emergency Contact （緊急時連絡先）	(Provide a telephone number which will reliably allow us to contact)		
E-mail			
Enrollment statues of "insurance" （旅行保険加入状況）			

(2) Information on Internship for HSE（人間安全保障工学インターンシップ情報）

Name of the host （訪問先）	(Universities, Research Organizations, Companies, Public office, etc)
Address of the host （訪問先住所）	
Contact Person of the host （訪問先連絡者）	
Telephone Number/e-mail of the host （訪問先連絡先）	
Name of International Conference （国際学会名等）	(If you participant)
Date& Time Period of the Internship （日時＆期間）	
Purpose of the Internship for HSE （目的）	
Place of the Internship （場所）	
Content of the Internship （インターンシップ概要）	

(HSE-005)

Notice of Advanced Capstone Project
(Human Security Engineering Education Program)
（人間安全保障工学アドバンスド・キャップストーン・プロジェクト届け）

The following student will participate in the Advanced Capstone Project of Human Security Engineering Education Program as follows.

Supervisor's signature（指導教員印またはサイン）_____

Department Chairperson's signature（専攻長印またはサイン）_____

Affiliation (所属専攻)	Laboratory (研究室名)	Student ID (学生番号)	Nationality (国籍)

Name（氏名）	Supervisor（主指導教員）

(1) Basic Information（基本情報）

Date of notification (届け日)			
Grade（学年）		Date of Entrance (入学年月)	
Sex（性別）	Male / Female		
Emergency Contact (緊急時連絡先)	(Provide a telephone number which will reliably allow us to conact)		
E-mail			
Enrollment statues of "insurance" (旅行保険加入状況)			

(2) Information on Advanced Capstone Project（アドバンスド・キャップストーン・プロジェクト情報)

Name of the hosts (訪問先)	(Universities, Research Organizations, Companies, Public office, etc)
Address of the hosts (訪問先住所)	
Contact Person of the hosts (訪問先連絡者)	
Telephone Number/e-mail of the hosts (訪問先連絡先)	
Date& Time Period (日時＆期間)	
Purpose of the Internship (目的)	

Place of the Internship (場所)	
Content of the Internship (アドバンスド・キャップストーン・プロジェクト概要)	

(HSE-028)

誓　約　書

GCOE「アジア・メガシティの人間安全保障工学拠点」拠点リーダー 殿

　このたびインターンシップあるいは研究調査のため海外渡航するにあたり、出国から帰国までの期間中における事故・疾病等については、私自らの責任として対処することを誓約します。

平成　　年　　月　　日

（渡航者）

所属学科または専攻 ______________________________.

住　　　　所 ______________________________.

氏　　　　名 ______________________________㊞.

印またはサイン

(HSE-013)

Report on Internship for Human Security Engineering

1. OUTLINE

Affiliation		Laboratory	
Student ID		Nationality	
Grade		Date of Entrance	. .
Name		Supervisor	

2. INFORMATION ON INTERNSHIP

Name of the host	
Address of the host	
Contact Person	
Name of International Conference	
Date & Time Period of the internship(s)	
Place of the Internship	

3.ABSTRACT

(Abstract of Internship Activities within 400 words)

Supervisor's Signature _____

(HSE-014)

Report on Advanced Capstone Project

1. OUTLINE

Affiliation		Laboratory	
Student ID		Nationality	
Grade		Date of Entrance	. .
Name		Supervisor	

2. INFORMATION ON INTERNSHIP

Name of the host(s)	
Address of the host(s)	
Contact Person(s)	
Date & Time Period of the internship(s)	
Place of the Internship(s)	

3.ABSTRACT

(Abstract of Internship Activities within 800 words)

Supervisor's Signature _____

TITLE OF REPORT ON INTERNSHIP FOR HUMAN SECURITY ENGINEERING (Times-Roman, 18pt, bold, centered)

Author (Times-Roman, 12pt, centered)

Affiliation (Times-Roman, 9pt, centered)
E-mail: your e-mail (Times-Roman, 9pt, centered)

Key Words: *times italic, 10pt, one blank line below e-mail address*

1. TITLE PAGE

The first page consists of two parts:
(a) Front matters: single column (title, author, affiliation, E-mail address, key words)
(b) Main text in double columns.

(1) Layout and fonts for the front matters

Left and right margins for the front matters are equally set at 30mm.

The front matters include the followings:

Title in Times-Roman, 18pt, bold
(1 line spacing)
Author in Times-Roman, 12pt
(1 line spacing)
Affiliation in Times-Roman, 9pt
E-mail address in Times-Roman, 9pt
(1 line spacing)
About 5 Key Words in Times-Italic, 10pt

The title 'Key Words' is bold and italic.

(2) Layout and fonts of the main text

The text should be placed 2 lines spacing below the key words. Left and right margins for the text are equally set at 20mm. The text, in double columns put side by side with 6mm gap in between, must be single-spaced with double spacing between chapters. The first line of each paragraph is indented 3 spaces. Use 11pt Times-Roman font for the text.

The main text is required to be consisted the followings;

a) Activity records: Activity work book day by day

b) The present understandings in 'Human Security Engineering': realization, understanding, knowledge and perception, which you've got through internship activities

c) Remarks and Comments: Self-evaluation, achievement, and reflection of your internship activities. In addition, comments and wishes to practical training organization(s) and your supervisor(s).

2. ORDINARY PAGES

In ordinary pages, the text must be placed within borders immediately below 25mm top margin. The other layout is same as the main text in the title page.

3. HEADINGS

(1) Main heading

Capital letters in 12pt bold face fonts should be used for main headings (chapter titles). Leave double and single spacing of lines before and after every main heading.

(2) Sub-headings for sections

The sub-headings for sections, in 10pt, bold face fonts. Leave single spacing of line before every sub-heading.

4. FIGURES AND TABLES

(1) Location of figures and tables

Figures, tables and photographs should be inserted at the upper or lower part of the page where reference in first made to them.

Figures or tables should occupy the whole width of a column, or the whole width over two columns. Do not place any text besides figures or tables.

(2) Fonts and captions

Do not use too small characters in figures and tables. At least, the letters should be larger than those in the captions (9 pt). Captions should be centered. The heading of captions is 9pt bold face.

5. REFERENCE LIST

All the references must be numbered in the order of appearance in the article and the right parenthesized numbers are used at the text where it is referred like this[1)]. The reference list must be summarized at the end of the main text. Use 9pt font for the list.

REFERENCES

1) United Nations Development Programme: Human Development Report, 1994.
2) M. Akiba. : Earthquake Risk and its Countermeasures for Water Supply and Sewerage Systems, *Journal of the National Institute of Public Health*, Vol. 56, No.1, pp.9-15, 2007.