Knowledge Co-Creation Program
(Group & Region Focus)

GENERAL INFORMATION ON

SEISMOLOGY, EARTHQUAKE ENGINEERING, AND TSUNAMI DISASTER MITIGATION

課題別研修「地震学・耐震工学・津波防災」

JFY 2017

NO. J17-04023 / ID. 1784482

Course Period in Japan: October 1st, 2017 to September 15th, 2018

This information pertains to one of the JICA Knowledge Co-Creation Program (Group & Region Focus) of the Japan International Cooperation Agency (JICA), which shall be implemented as part of the Official Development Assistance of the Government of Japan based on bilateral agreement between both Governments.

'JICA Knowledge Co-Creation Program (KCCP)' as a New Start

In the Development Cooperation Charter which was released from the Japanese Cabinet in February 2015, it is clearly pointed out that *"In its development cooperation, Japan has maintained the spirit of jointly creating things that suit partner countries while respecting ownership, intentions and intrinsic characteristics of the country concerned based on a field-oriented approach through dialogue and collaboration. It has also maintained the approach of building reciprocal relationships with developing countries in which both sides learn from each other and grow and develop together."* We believe that this 'Knowledge Co-Creation Program' will serve as a center of mutual learning process.

I. Concept

Background

Earthquake and Tsunami disasters frequently take human lives, destroy houses and devastate social properties instantly and enormously. In general, natural disasters have difficulty of preparedness and precaution due to unpredictability as well as difficulty of immediate response to damage for sudden occurrence, and often cause heavy economic losses. Moreover, earthquakes and tsunamis may accelerate human losses by fires, collapse of man-made structures and/or inundation of coastal areas.

Although the studies related to earthquakes and tsunamis are developed, people are seriously suffered from earthquakes and tsunamis in many countries. The 2011 off the Pacific coast Tohoku Earthquake still lives in the people.

In order to improve technologies in seismology, earthquake engineering, and tsunami disaster mitigation in developing countries located in earthquake/tsunami-prone areas, it is important to develop those technologies applicable to each country by its own efforts, taking conditions and systems of the respective countries into consideration as well as to transfer their latest knowledge and technology from developed countries.

To achieve this aim, it is indispensable to train experts as human resources to be highly capable of planning, instructing, and extending earthquake and tsunami disaster mitigation technologies, by combining relevant advanced technologies with administrative capability to utilize and disseminate those technologies.

This program was divided into two courses, which were "Seismology, Earthquake Engineering and Disaster-Recovery Management Policy," and "Tsunami Disaster Mitigation," up to 2014. Along with the general review of the program in 2014, the unified course named Seismology, Earthquake Engineering and Tsunami Disaster Mitigation was created.

For what?

This program aims to increase capacities of officials, engineers or researchers who are conducive to earthquake and tsunami disaster management. In this course, participants will acquire Japan's leading knowledge and technologies on seismology, earthquake engineering and tsunami disaster mitigation.

For whom?

This program is provided to those who are technical officials, engineers or researchers of governmental organizations, research institutes or universities having public interest in seismology, earthquake engineering or tsunami disaster mitigation, and who have university degrees in seismology, earthquake engineering, tsunami or equivalent and 3 years working experience.

How?

Participants shall have opportunities in Japan to acquire knowledge and techniques of earthquake or tsunami disaster mitigation through lectures, discussions, exercises, on-site-visit, etc.

Participants will also formulate a Master Thesis and a course report describing what the participant learned and what the participant will do after they go back to their home countries by putting the knowledge and ideas acquired and discussed in Japan into their on-going activities.

Remarks:

The curriculum of this course is approved as a master's degree program by the National Graduate Institute for Policy Studies (GRIPS) and Building Research Institute (BRI). Completing all graduation requirements during the program, the participants will be awarded a Master's degree, "Master of Disaster Management" by GRIPS and BRI. Accordingly this program is very demanding. Applicants, with an excellent demonstrable educational and professional background and proficiency in English, should be highly motivated and confident enough to pursue and attain the requirements of the program so that they can obtain the degree.

II. Description

1. **Title (J-No.):** Seismology, Earthquake Engineering, and Tsunami Disaster Mitigation (J17-04023)

2. **Course Period in JAPAN**:
   October 1st, 2017 to September 15th, 2018

3. **Target Regions or Countries**:
   Bangladesh, Chile, Egypt, El Salvador, India, Mexico, Maldives, Morocco, Nepal, Nicaragua, Peru, Philippines, Turkmenistan, Turkey, Vanuatu

4. **Eligible / Target Organization**:
   This program is designed for governmental organizations, research institutes or universities having public interest in seismology, earthquake engineering or tsunami disaster mitigation.

5. **Course Capacity (Upper Limit of Participants)** :
   22 participants

6. **Language to Be Used in This Program**: English

7. **Course Objective:**
   This course aims to increase capacities of technical officials, engineers and researchers in the fields of seismology, earthquake engineering and tsunami disaster mitigation who are conducive to earthquake and tsunami disaster management and disaster recovery policy.

8. **Overall Goal**
   The capacity of the earthquake / tsunami disaster mitigation in target countries is strengthened and the damage of earthquake / tsunami disaster is reduced.

9. **Expected Module Output and Contents:**
   This program consists of the following components. Details on each component are given below;

   (1) Preliminary Phase in a participant's home country
   Preparation for Training Course
   Basic mathematics for Seismology and Tsunami groups (homework)

   (2) Phase in Japan (See ANNEX I for the detail) ;
   (October 1, 2017 to September 15, 2018)
   Participants dispatched by the organizations attend the program implemented in Japan.

Participants are expected to achieve the following outputs;

(1) To acquire basic concepts and theories on Seismology, Earthquake Engineering, or Tsunami which are essential to establish the Earthquake Disaster Mitigation Scheme.
(2) To acquire basic concepts and theories on Seismic / Tsunami Hazard Estimation, Disaster Management and Disaster Recovery Policy in the fields of Seismology, Earthquake Engineering or Tsunami Disaster Mitigation.
(3) To complete a Master thesis for solving problems in participant's country applying techniques and knowledge acquired in the course.

It is mandatory for the applicants to select one of the topics of Individual Study listed on the ANNEX I and write it in the face page of Inception Report. For those who select '–others' it is mandatory to describe a concrete plan of Individual Study including the expected supervisor's name and affiliation.

III. Conditions and Procedures for Application

1. Expectations from the Participating Organizations:

(1)This program is designed primarily for organizations that intend to address specific issues or problems identified in their operations. Applying organizations are expected to use the program for those specific purposes.

(2)In this connection, applying organizations are expected to nominate the most qualified candidates to address the said issues or problems, carefully referring to the qualifications described in section Ⅲ-2 below.

(3)Applying organizations are also expected to be prepared to make use of knowledge acquired by the nominees for the said purpose.

2. Nominee Qualifications:

Applying organizations are expected to select nominees who meet the following qualifications.

1) be nominated by their governments in accordance with the procedures described in III-4.
2) be technical officials, engineers or researchers who have university degrees in seismology, earthquake engineering, tsunami or equivalent.
3) be an employee with more than 3 years of working experience of governmental organizations, research institutes or universities having public interest in seismology, earthquake engineering or tsunami disaster mitigation.
4) be well versed in advanced mathematics such as differentiation and integration, partial derivatives, differential equations, matrix, vector algebra, Fourier analysis, etc.
5) be proficient in MS Word, Excel and PowerPoint.
6) be able to write research reports on the individual study in English.
7) have a competent command of spoken and written English ---with a minimum test score of TOEFL PBT 500, TOEFL iBT 79, IELTS Academic 6.0 or its equivalent. (This program includes active participation in discussions and development of the action plan and Master thesis, thus requires high competence of English ability both in conversation and composition. Please attach an official certificate of English ability such as TOEFL or IETLS.)
8) be between the ages of twenty-five (25) and forty (40) years as of October 1, 2017.
9) be judged medically adequate to pursue study in Japan by an examining physician on a prescribed certificate of health. Pregnant applicants are not recommended to apply due to the potential risk of health and life issues of mother and fetus.

3. Required Documents for Application:

(1) Application Form: The Application form is available at **the JICA office (or the Embassy of Japan).**

Applicants should mention their choice (Seismology group, Earthquake Engineering group or Tsunami Disaster Mitigation group).

(2) Application Materials for GRIPS*/BRI Master's Program**

A part of curriculum of this course is approved as a master's degree program by GRIPS and BRI. Therefore, each applicant is required to prepare and submit all of the following materials for admission to GRIPS/BRI Master's Program as written in ANNEX Ⅱ.

- Application form for GRIPS/BRI Master's Program
- 1 clear photograph of your face (30 x 40 mm)
- 2 letters of recommendation
- Certificate of employment
- Official transcripts of academic record and graduation/degree certificates
- Official evidence of English ability
- Statement of purpose
- Certificate of health

Please note that an applicant will NOT be registered as an applicant until we have received all of the above materials. Please carefully review the information in ANNEX II

*GRIPS -National Graduate Institute for Policy Studies
**BRI –Building Research Institute

(3) Inception Report

Each applicant is required to originally write and prepare a typewritten Inception Report by him/herself in accordance with the Instruction for the Preparation of Inception Report (see ANNEX Ⅲ).

The Inception Reports are used for screening applicants and for presentation. Each participant is required to make a 20-25 minutes presentation on Inception Report within about two weeks after the training begins. It is mandatory to bring these materials in digital forms.

(4) **Photocopy of Passport**: to be submitted with the application form, if you possess your passport which you will carry when entering Japan for this program. If not, you are requested to submit its photocopy as soon as you obtain it.

*Photocopy should include the followings:

Name, date of birth, nationality, sex, passport number and expire date

4. Procedures for Application and Selection:

(1) Submission of the Application Documents:

Closing date for applications: **Please inquire at the JICA office (or the Embassy of Japan).**

(After receiving applications, the JICA office (or the Embassy of Japan) will send them to **the JICA Center in JAPAN by April 28th, 2017**)

(2) Selection:

1) After receiving the document(s) through due administrative procedures in the respective government, the respective country's JICA office (or Japanese Embassy) shall conduct screenings, and send the documents to JICA Tsukuba, which organizes this program.
2) JICA Tsukuba will carry out the screening jointly with BRI and select the qualified applicants out of those who fulfill the set qualifications described above in III.2.
3) Some of the applicants may be requested to take an oral interview by telephone or TV conference system in the respective country's JICA office.
   - The cost of transportation to the respective country's JICA office for receiving an interview will be paid by applicants.
4) A committee, which consists of GRIPS and BRI, will screen the above-qualified applicants academically with the application materials such as official transcripts.
5) The applicants who are accepted to participate in this program will be decided by a faculty council of GRIPS finally by the end of July 2017.

In case the number of applicants is more than the capacity of this course, some applicants may not be accepted due to the limited number of seats even though they fulfill the requirements.

Qualifications of applicants who belong to the military or other military-related organizations and/or who are enlisted in the military will be examined by the Government of Japan on a case-by-case basis, consistent with the Development Cooperation Charter of Japan, taking into consideration their duties, positions in the organization, and other relevant information in a comprehensive manner.

(3) Notice of Acceptance

Notification of results shall be made by the respective country's JICA office (or Embassy of Japan) to the respective Government by **no later than July 31, 2017.** (*Acceptance Agreement will be sent from GRIPS together with the official admission letter soon after this notice of acceptance.)

5. Document(s) to Be Submitted by Accepted Candidates:

Basic Mathematics for Seismology

An accepted applicant will be given Basic Mathematics for Seismology material by BRI. The result of Basic Mathematics for Seismology material (homework) should be sent to BRI by **September 15th, 2017.**

6. Conditions for Attendance:

(1)to strictly adhere to the program schedule.
(2)not to change the program topics.
(3)not to extend the period of stay in Japan.
(4)not to be accompanied by family members during the program.
(5)to return to home countries at the end of the program in accordance with the travel schedule designated by JICA.
(6)to refrain from engaging in any political activities, or any form of employment for profit or gain.
(7)to observe Japanese laws and ordinances. If there is any violation of said laws and ordinances, participants may be required to return part or all of the training expenditure depending on the severity of said violation.
(8)to observe the rules and regulations of the accommodation and not to change the accommodation designated by JICA.

7. Certificate and Master's Degree:

(1)A Participant who has successfully completed the course will be awarded a certificate by JICA.
(2)A Participant, who has successfully fulfilled requirements given by International Institute of Seismology and Earthquake Engineering (IISEE), will be awarded another certificate and a diploma by IISEE.
(3)A Participant, who has successfully completed all graduation requirements, will be awarded a Master's Degree, 'Master of Disaster Management,' by GRIPS and BRI.

IV. Administrative Arrangements

1. Organizer:

(1) Name: JICA Tsukuba

(2) Contact: Ms. McGOEY Sachie (tbicttp@jica.go.jp)

2. Implementing Partner:

(1) International Institute of Seismology and Earthquake Engineering (IISEE) at Building Research Institute (BRI)

1) URL: http://iisee.kenken.go.jp

2) Address: 1 Tachihara, Tsukuba, Ibaraki 305-0802, Japan

3) TEL: +81-29-879-0679

4) FAX: +81-29-864-6777

5) E-mail: iisee@kenken.go.jp

6) Remark: IISEE is a research department of BRI that trains participants from earthquake-prone developing countries on seismology, earthquake engineering and tsunami disaster mitigation. The course is implemented at relevant places including BRI and GRIPS.

(where "81" is the country code for Japan, and "29" is the local area code)

(2) National Graduate Institute for Policy Studies (GRIPS)

1) URL: http://www.grips.ac.jp/en/

2) Address: 7-22-1 Roppongi, Minato-ku, Tokyo, 106-8677 Japan

3) TEL: +81-3-6439-6046

4) FAX: +81-3-6439-6050

5) E-mail: admissions@grips.ac.jp

6) Remark: GRIPS is a graduate school and research institute established in October 1997. GRIPS aims to be an international center of excellence for the education of future leaders in policy arena, advancement of policy research, and collection and dissemination of policy-related information.

(where "81" is the country code for Japan, and "3" is the local area code)

3. **Travel to Japan:**

(1) Air Ticket: The cost of a round-trip ticket between an international airport designated by JICA and Japan will be borne by JICA.

(2) Travel Insurance: Coverage is from time of arrival up to departure in Japan. Thus traveling time outside Japan will not be covered.

4. **Accommodation in Japan:**

JICA will arrange the following accommodations for the participants in Japan basically:

JICA Tsukuba International Center (JICA Tsukuba) Address: 3-6 Koyadai, Tsukuba, Ibaraki 305-0074, Japan TEL: +81-29-838-1111, FAX: +81-29-838-1776 (where "81" is the country code for Japan, and "29" is the local area code) Please refer to facility information of JICA Tsukuba at its URL: http://www.jica.go.jp/english/contact/domestic/information.pdf

5. **Expenses:**

The following expenses will be provided to the participants by JICA:

(1) Allowances for accommodation, meals, living expenses, outfit, and shipping

(2) Expenses for study tours (basically in the form of train tickets)

(3) Free medical care for participants who become ill after arriving in Japan (costs related to pre-existing illness, pregnancy, or dental treatment are not included)

(4) Expenses for program implementation, including materials

For more details, please see "III. ALLOWANCES" of the brochure for participants titled "KENSHU-IN GUIDE BOOK," which will be given before departure for Japan.

The curriculum of this training course is approved as a master's degree program by GRIPS and BRI. The application fee, admission fee and tuition for the Master's Degree Program will be provided by BRI.

6. **Pre-departure Orientation:**

A pre-departure orientation will be held at the respective country's JICA office (or at Japanese Embassy), to provide participants with details on travel to Japan, conditions of the workshop, and other matters.

V. Other Information

1. **Computer:**
   The participants are recommended to bring their own laptop/notebook computers to prepare a report, presentation slides and to communicate by e-mail.

2. **Relevant Data for Seismology, Earthquake Engineering, and/or Tsunami Disasters in Participants' Country:**
   The participants are strongly recommended to bring the relevant data in their countries on their laptop/notebook computers for preparing the Master thesis, reports and other presentation slides, etc.

3. **Introduction of Participants' Country:**
   The participants may have opportunities to join cultural exchange events or visit Japanese school. It is recommended to bring something to introduce their countries such as photographs, drawings, traditional goods, clothes, instruments or ornaments.

4. **For the Promotion of Mutual Friendship:**
   JICA Tsukuba encourages international exchange between JICA participants and local communities, including school and university students as a part of development education program. JICA participants are expected to contribute by attending such activities and will possibly be asked to make presentations on the society, economy and culture of their home countries.

5. **Bring Some Cash:**
   Allowances, such as for accommodation, living, clothing, and shipping, will be deposited to your temporary bank account in Japan after 2 to 5 days after your arrival to Japan. It is highly advised to bring some cash / traveler's check in order to spend necessary money for the first 2 to 5 days after your arrival.

6. **Exchange to Japanese Currency (YEN) :**
   It is very important that your currency must be exchanged to Japanese Yen at any transit airport or Narita International Airport or Haneda Airport, Japan soon after your arrival. It is quite difficult to exchange money after that, due to no facility or time during the program.

END

ANNEX-I: Detail of the Phase in Japan
ANNEX-II: Application Materials for GRIPS/BRI Master's Program
ANNEX-III: Instruction for the Preparation of Inception Report
ANNEX-IV: Syllabus of the Training Program (Tentative)

For Your Reference

JICA and Capacity Development

The key concept underpinning JICA operations since its establishment in 1974 has been the conviction that "capacity development" is central to the socioeconomic development of any country, regardless of the specific operational scheme one may be undertaking, i.e. expert assignments, development projects, development study projects, training programs, JOCV programs, etc.

Within this wide range of programs, Training Programs have long occupied an important place in JICA operations. Conducted in Japan, they provide partner countries with opportunities to acquire practical knowledge accumulated in Japanese society. Participants dispatched by partner countries might find useful knowledge and re-create their own knowledge for enhancement of their own capacity or that of the organization and society to which they belong.

About 460 pre-organized programs cover a wide range of professional fields, ranging from education, health, infrastructure, energy, trade and finance, to agriculture, rural development, gender mainstreaming, and environmental protection. A variety of programs and are being customized to address the specific needs of different target organizations, such as policy-making organizations, service provision organizations, as well as research and academic institutions. Some programs are organized to target a certain group of countries with similar developmental challenges.

Japanese Development Experience

Japan was the first non-Western country to successfully modernize its society and industrialize its economy. At the core of this process, which started more than 140 years ago, was the *"adopt and adapt"* concept by which a wide range of appropriate skills and knowledge have been imported from developed countries; these skills and knowledge have been adapted and/or improved using local skills, knowledge and initiatives. They finally became internalized in Japanese society to suit its local needs and conditions.

From engineering technology to production management methods, most of the know-how that has enabled Japan to become what it is today has emanated from this "*adoption and adaptation*" process, which, of course, has been accompanied by countless failures and errors behind the success stories. We presume that such experiences, both successful and unsuccessful, will be useful to our partners who are trying to address the challenges currently faced by developing countries.

However, it is rather challenging to share with our partners this whole body of Japan's developmental experience. This difficulty has to do, in part, with the challenge of explaining a body of "tacit knowledge," a type of knowledge that cannot fully be expressed in words or numbers. Adding to this difficulty are the social and cultural systems of Japan that vastly differ from those of other Western industrialized countries, and hence still remain unfamiliar to many partner countries. Simply stated, coming to Japan might be one way of overcoming such a cultural gap.

JICA, therefore, would like to invite as many leaders of partner countries as possible to come and visit us, to mingle with the Japanese people, and witness the advantages as well as the disadvantages of Japanese systems, so that integration of their findings might help them reach their developmental objectives.

CORRESPONDENCE

For enquiries and further information, please contact the JICA office or the Embassy of Japan.
Further, address correspondence to:

JICA Tsukuba International Center (JICA Tsukuba)
Address: 3-6 Koyadai, Tsukuba, Ibaraki 305-0074, Japan
TEL: +81-29-838-1111 FAX: +81-29-838-1776

ANNEX I: Detail of Phase in Japan

Outputs	Subjects/Agendas				Methodology
	Category	Seismology group **(S group)**	Earthquake Engineering group **(E group)**	Tsunami Disaster Mitigation group **(T group)**	
(1) To acquire basic concepts and theories (general)	Orientation	*- Overview of Earthquake,*	*- Guidance* *- Introduction to Earthquake Engineering* *- Computer*	*- Overview of Earthquake,* *- Tusnami and Earthquake*	Lecture
	Basic Subjects Related with Earthquake and Disasters	**Information Technology Related with Earthquakes and Disasters**	**Structural Analysis**	**Information Technology related with Earthquakes and Disasters**	Lecture, Practice and Seminar
		- Computer	*- Structural Analysis I,II &III)*	*- Computer*	
		- Theory of Seismic Waves	*- Finite Element Method I & II*	*- Theory of Seismic Waves*	
		- Surface Waves	*- Limit Analysis*	*- Surface Waves*	
		- Scattering and Attenuation	*- Soil Mechanics*		
		Earthquake Phenomenology	**Ground Vibration and Structural Dynamics**	**Earthquake Phenomenology**	
		- Earthquake Observation I & II	*- Structural Dynamics I & II*	*- Earthquake Observation I & II*	
		- Local Earthquake Analysis I & II	*- Structural Response Analysis*	*- Local Earthquake Analysis I & II*	
		- Teleseismic Phases and Magnitudes	*- Shaking Table Testing*	*- Teleseismic Phases and Magnitudes*	
		- Observation of Seismological Observatory	*- Soil Test and Survey II*	*- Observation of Seismological Observatory*	
		- Earthquake Early Warning	*- Effect of Surface Geology on Seismic Motion I , II*	*- Earthquake Early Warning*	
		- Seismicity and Statistics	*- Dynamic Soil Structure Interaction*	*- Seismicity and Statistics*	
		- Crust and Upper Mantle Structure	*- Microtremor Observation I , II*	*- Crust and Upper Mantle Structure*	
		- Crustal Deformation		*- Crustal Deformation*	
		- Seminar of Basic Seismology	*- Seminar of Ground Vibration and Structural Dynamics*	*- Seminar of Basic Seismology*	
	Advanced Subjects Related with Earthquake and Disasters	**Earthquake Circumstance**	**Seismic Structures**	**Earthquake Circumstance**	Lecture, Practice and Seminar
		- Earthquake Generation and Forecasting I & II	*- RC Structures I,II,III &IV*	*- Earthquake Generation and Forecasting I&II*	
		- Mathematics for Seismology	*- Steel Structures I , II*	*- Mathematics for Seismology*	
		- Focal Mechanism	*- PC Structures*	*- Focal Mechanism*	
		- Moment Tensor Analysis	*- Masonry Structures I & II*	*- Moment Tensor Analysis*	
		- Earthquake and Plate Tectonics	*- Foundation Engineering I , II & III*	*- Earthquake and Plate Tectonics*	

		- Earthquake Source Process	*-Underground Structures and Large Soil Deformations*	*- Earthquake Source Process*	
		Characteristics of Earthquake Disasters	*- Bridge Engineering I & II*	**Theory of Tsunami**	
		- Data Processing	*- Dam Structures*	*- Tsunami Simulation*	
		- Study Tour of Earthquake Monitoring	*- Port & Harbor Structures and Tsunami Engineering*	*- Data Processing*	
		- Real Time Determination of Source Parameter	*- Structural Testing I, II & III*	*- Practice for Theory of Tsunami*	
		- Determination of Broadband Moment Magnitude	*- Seminar of Seismic Structures*	*- Tsunami Magnitude and Catalogue*	
		- Effect of Surface Geology on Seismic Motion I & II	**Seismic Evaluation and Seismic Design Code**	*- Mathematics for Tsunami*	
		- Seismic Tomography	*- Seismic Design Codes Ⅰ, Ⅱ & Ⅲ*	*- Hydrodynamics for Tsunami*	
		- Numerical Simulation of Seismic Wave Propagation	*- Design Earthquake Ground Motion and Seismic Force*	*- Tsunami Generation and Propagation*	
		- Seminar of Applied Seismology (a)	*- Simulation of Seismic Ground Motion*	*- Tsunami Source*	
			- Seismic Micro-Zonation	*- Geology for Tsunami*	
		Special Topics	*- Dynamic Aseismic Design*	**Special Topics**	
		- Tsunami and Earthquake	*- Seismic Isolation*	*- Study Tour of Earthquake Monitoring*	
		- Earthquake Geology	*- Structural Response Control*		
		- Observation Visits	*- Seismic Design and Retrofit of Bridges*		
			- Seminar of Seismic Evaluation and Seismic Design Code		
			Special Topics		
			- Tsunami Load and Structural Design of Tsunami Shelter		
(2) To acquire basic concepts and theories (detail)	Earthquake/ Tsunami Hazard and Risk Assessment	**Earthquake Hazard Assessment A**		**Tsunami Hazard Assessment**	Lecture, Practice and Seminar
		- Soil Test and Survey		*- Tsunami Hazard Map*	
		- Strong Earthquake Motion Observation		*- Tsunami Disaster Prevention Administration*	
		- Soil Dynamics		*- Lessons from the Great East Japan Earthquake of March 11, 2011*	
		- Strong Ground Motion Study I (Probabilistic Seismic Hazard Analysis)		*- Tsunami Disaster Mitigation Policy and Risk Management in Japan*	

		- Strong Ground Motion Study II (Strong Motion Seismology)		*- Introduction of Tsunami Disaster Mitigation*	
		- Seminar of Earthquake Disaster –Recovery (b)	*- Seminar of Earthquake Hazard Assessment A*		
		Earthquake Hazard Assessment B	**Earthquake Risk Assessment**	*- Tsunami Hazard Assessment*	
		- Microtremor Observation I & II	*- Structural Reliability*	*- Tsunami Damage Survey*	
		- Simulation of Seismic Ground Motion	*- System Identification in Vibration Analysis*	*- Theory of Tsunami Propagation and Inundation Simulation*	
		- Observation Visit for Dissemination for Earthquake Disaster-Recovery Management	*- Seismic Evaluation and Seismic Rehabilitation*	*- Scenario Earthquakes*	
		- Geophysical Prospecting	*- Urban Earthquake Disaster Mitigation System*		
		- Seismic Micro-zonation	*- Post-Earthquake Quick Inspection, Damage Evaluation and Rehabilitation*	*- Numerical Simulation of Tsunami Inundation and Its Application*	
		- Seminar of Earthquake Disaster –Recovery Management	*- Seminar of Earthquake Risk Assessment*	*- Tsunami Evacuation Planning Simulation*	
				Tsunami Countermeasures	
				- Tsunami Protection Facility	
				- Tsunami Damage and Reconstruction I&II	
				- Tsunami Observation	
				- Tsunami Early Warning System and Dissemination	
				- Practice for Tsunami Countermeasures	
				- Tsunami Force and Tsunami Resistant Structure	
				- Tsunami Deposit Survey	
				- Tsunami Load and Structural Design of Tsunami Shelter	
(3) To understand new	Disaster – Recovery Management Policy	**Disaster Management Policies A: from Regional and Infrastructure Aspect**			Lecture, Practice, Seminar and Presentation
		- Social System against Disasters *- Education on Basic Knowledge for Disasters* *- Policy for Infrastructure* *- Policy Making Process for Disaster*			
		Disaster Management Policies B: from Urban and Community Aspect			
		- Basic issues of disaster management policies *- Urban disaster management policies in Japan* *- Lessons from past large disasters in the world* *- Policies and regulations to secure building safety*			
		Earthquake Tsunami Disaster Management and Development Assistance			

		- *Seminar of International Disaster Prevention*			
		- *Japanese ODA Policy and Development Assistance Related with Disaster-Recovery Management*			
		- *Seminar of Earthquake Disaster – Recovery Management Policy*			
	Case Studies	**Practice for Earthquake Disaster – Recovery Management Policy I, II & III**		**Practice for Earthquake Disaster-Recovery Management Policy I&II**	
		- *Colloquium*	- *Colloquium*	- *Colloquium*	
		- *Study Trips*	- *Study Trips*	**Practice for Tsunami Disaster Mitigation Policy**	
				- *Real Time Determination of Source Parameter*	
				- *Determination of Broadband Moment Magnitude*	
				- *Study Trips*	
		- *Practice for Seminar of Earthquake Disaster – Recovery Management*			
(4) To complete a Master thesis	Individual Study	**Menu for the Topics of Individual Study**			Practice, Seminar and Presentation
		- *Determination of Earthquake Source Parameters*	- *Seismic Performance Design Method*	- *Tsunami Simulation*	
		- *Study on Seismotectonics Based on Earthquake Parameter Determination*	- *Seismic Evaluation and Retrofitting Techniques*	- *Tsunami Source*	
		- *Moment Tensor Analyses*	- *Seismic Isolation and Response Control Techniques*	- *Tsunami Hazard Assessment (Tsunami Propagation and Inundation Simulation)*	
		- *Analysis of Earthquake Source Process*	- *Nonlinear Earthquake Response Analysis and Damage Evaluation*	- *Tsunami Database for Tsunami Early Warning System*	
		- *Crustal Structure Analyses Using Receiver Function*	- *Post-earthquake Damage Inspection Method*	- *Rapid Determination of Earthquake Parameters for Tsunami Early Warning System*	
		- *Study on Earthquake Generation Process*	- *Effect of Soil Structure Interaction*	- *Real Time Usage of Tsunami Data for Tsunami Early Warning System*	
		- *Analysis of Strong Motion Generation Using Empirical Green's Function Technique*	- *Geotechnical Engineering and foundation structures*	- *Others*	
		- *Site Effect Studies using Strong Ground Motion Records*	- *System Identification and Health Monitoring*		
		- *Geophysical Prospecting for Sedimentary Strata Using Microtremors and Surface Waves*	- *Urban Planning for Earthquake Disaster Mitigation and Recovery*		
		- *Others*	- *Others*		

* It is mandatory for the applicants to select one of the topics listed in this table and to write it explicitly in the face page of Inception Report. For those who select '–Others', it is mandatory to describe a concrete plan of Individual Study including the expected supervisor's name and affiliation.

ANNEX II Check List
Application Materials for GRIPS/BRI Master's Program

1. Instructions

Selection for admission is based on the evaluation of supporting documents submitted. Before starting your application, please carefully review the following application process.

You will NOT be registered as an applicant until we have received all of your supporting documents.

If you have applied to GRIPS in previous years and wish to reapply this year, any supporting documents you submitted previously cannot be used for this year's application.

Please note that if you provide any false or misleading statement or incomplete or inaccurate information in your application, your application may not be screened, you may be denied admission or, if you have been admitted, you may be dismissed from GRIPS.

Ensure that all supporting documents meet our requirements (see Section 2).

All of your supporting documents must reach the JICA office (or the Embassy of Japan) by the designated deadlines. It is your responsibility to prepare all supporting documents far enough in advance so as to meet the designated deadline. Incomplete applications and applications received after the deadline will not be considered.

Applicants are responsible for the timely delivery to the JICA office (or the Embassy of Japan) of all required documents. We strongly recommend that you send the documents by registered mail or courier service well ahead of the deadline.

Applicants must send all required supporting documents together in one package. In extenuating circumstances you may have your official transcripts and certificates of graduation/degree sent directly to us by the registrar. In such cases, please enclose a memo with your application explaining the circumstances.

All materials submitted by an applicant become the property of GRIPS and will not be returned. Please be sure to keep one copy of your application for your records.

All personal information that we receive from applicants will be used solely for the purposes of admissions screening, collecting statistical information, student registration, educational affairs, and collection of tuition. All information provided by applicants in their applications and supporting documents will remain confidential.

2. Supporting Documents

All documents must be in English. Documents in languages other than English must be accompanied by an official translation. To be official, the translation must have been done by the organization issuing the document or by an accredited translator. We will not accept your own translations.

Supporting documents, which can be prepared solely by the applicant, should be typed or printed wherever possible (A4 size paper and single-sided printing are preferable). If circumstances require, documents legibly handwritten with a pen or a ballpoint pen are acceptable.

Faxed documents or digital copies sent by e-mail will not be accepted.

Do not attach any additional documents apart from the items listed below.

◆Please check ☑ whether you have submitted all the necessary documents

1.	**Application form for GRIPS/BRI Master's Program** (use the designated form)	☐
2.	**1 clear photograph of your face** (30 x 40 mm) Please paste the photograph onto the application form.	☐

ANNEX II Check List

3.	**2 letters of recommendation** (use the designated form) Your letters of recommendation must be written by faculty members or job supervisors who are familiar with your academic and/or professional abilities. Ideally, one recommendation letter should come from a former professor or an academic supervisor. Each of your letters must contain both of the two A4 pages provided. Letters submitted that do not use our designated forms will not be accepted. They must be submitted in sealed, unopened envelopes signed across the flap by each recommender. For details, please see the explanation on the designated form.	☐
4.	**Certificate of employment** (use the designated form) You are required to submit this certificate (including a leave of absence approval, if applicable) if you are currently employed. For details on required contents, please see the explanation on the designated form.	☐
5.	**Official transcripts of academic record and graduation/degree certificates** You must submit by post official transcripts and graduation/degree certificates from all undergraduate and graduate institutions attended. These must be documents issued by the university and bearing the seal or signature of the registrar, and they must be submitted in sealed, unopened envelopes with the university logo and address noted; the envelopes must be signed or stamped across the flap by the issuing school authorities. You should request and receive your official transcripts and graduation/degree certificates from your university. ● Official transcripts of academic record Official transcripts should contain the following information: the name of the degree program/course, the enrollment period, the names of all courses taken and grades received, and the grading scale. It is helpful to have the student's rank in the class included in the information. If you are currently attending a university, please submit your most recent transcript. ● Official graduation/degree certificates Official certificates should state the name of your degree and the date the degree was awarded. If you are currently attending a university, you must submit an authorized statement of expected graduation certifying the specific date of graduation and title of the expected degree upon completion of the program. Do not send your original diploma, as documents will not be returned. Important notes ➢ Transcripts/certificates that have been opened are not acceptable. ➢ Transcripts/certificates without the institution's official stamp or the signature of the registrar are not acceptable. ➢ If a university has a policy not to issue more than one official transcript/certificate, you may submit photocopies verified by the university. These must be submitted in sealed, unopened envelopes with the university logo and address noted; the envelopes must be signed or stamped across the flap by the issuing school authorities. ➢ If a university cannot issue an official English transcript/certificate, you are required to submit both an official transcript/certificate (photocopies are not acceptable), written in its original language and bearing the institution's stamp or the signature of the registrar, and an official English translation of the document, prepared by an accredited translator. ➢ If official transcripts do not include the grading scale, you are required to request the university to issue an official letter providing the details of the grading scale. That letter should be enclosed in the same envelope as the transcripts. ➢ Provisional or temporary graduation/degree certificates are not acceptable.	☐

ANNEX II Check List

6.	**Official evidence of English ability** One of the following test scores is required: 1. TOEFL PBT: 550 or higher 2. TOEFL iBT: 79 or higher 3. IELTS Academic: 6.0 or higher Please note that English test scores are valid for two years from the test date, and therefore, tests must have been taken within two years of the date of admission. A TOEFL ITP score is not acceptable. How to apply for a waiver of the English language proficiency requirement (Please note that there aretwo categories in our English test exemption policy.) Category 1: Applicants who have completed or expect to complete an undergraduate or a graduate degree at an accredited institution located in the USA, the UK, Canada, Australia, New Zealand, or Ireland will be automatically exempted from submitting an English test score. Category 2: Applicants who have completed or expect to complete an undergraduate or a graduate degree at an institution where the language of instruction is English may request a waiver of the English language proficiency requirement. If you wish to apply for a waiver, you must submit, as evidence, official documents issued by the educational institution you attended, certifying that your undergraduate or graduate education was conducted entirely in English. This document must be issued by the university and bear the seal or signature of the registrar, and it must be submitted in a sealed, unopened envelope with the university logo and address noted; the envelope must be signed or stamped across the flap by the issuing school authority. Please note that the granting of your language waiver request is at the discretion of our screening committee and that your request for a language waiver will be considered at the time of screening. This means that there is a possibility that your waiver request will be denied. If possible, we strongly recommend you to take a TOEFL or IELTS test prior to your application.	☐
7.	**Statement of purpose** (use the designated form) For details on required content, please see the explanation on the designated form.	☐
8.	**Certificate of health** (use the designated form)	☐

3. After You Apply

Notify the JICA office (or the Embassy of Japan) of any changes

You must notify the JICA office (or the Embassy of Japan) by e-mail as soon as possible of any changes in your application that may occur after you have submitted the supporting documents. In case of any changes in your employment information (e.g., promotion, transfer), you must submit a certificate of employment that certifies your new status within 30 days, using the designated form, by post.

Details regarding the graduate program may be obtained at the following websites:
http://www.grips.ac.jp/en/
http://iisee.kenken.go.jp

Disaster Management Policy Program by GRIPS and BRI In Co-operation with JICA, Japan

For GRIPS Use: Application ID

APPLICATION FORM
for GRIPS/BRI MASTER'S PROGRAM 2017-2018

(Type or print, and do NOT use "ALL CAPITAL LETTERS.")

Photograph

Please write your name on the back of the photo (30 x 40 mm)

Please complete each section as fully and accurately as possible. Please respond to all questions. The information you provide is essential in reviewing your application.
Please note that if you provide any false or misleading statement or incomplete or inaccurate information in your application, your application may not be screened, you may be denied admission or, if you have been admitted, you may be dismissed from GRIPS.

PERSONAL DATA

1. Full name: _____
As written in your passport (English alphabet only)

2. Date of birth: _____ 3. Age (as of October 1st, 2017): _____
Month/Day/Year

4. Gender: ☐ Male ☐ Female 5. Marital status: ☐Single ☐ Married

6. Nationality: _____
As written in your passport

7. Present employer (name of organization): _____

(Does your organization belong to a central or regional authority? ☐ Central ☐ Regional ☐ Neither)
(Upon admission to GRIPS, ☐ I will be given study leave by my employer. ☐ I will quit my job.)

8. Present position, department/section: _____

9. Work address: _____

_____

Postal code: _____ Country: _____

TEL: _____ - _____ FAX: _____ - _____
Country code - complete number Country code - complete number

10. Residential address: _____

_____

Postal code: _____ Country: _____

TEL: _____ - _____ FAX: _____ - _____
Country code - complete number Country code - complete number

11. Preferred mailing address: ☐ Work ☐ Residence ☐ Other, namely (Fill in the following fields.)

Address: _____

_____

Postal code: _____ Country: _____

TEL: _____ - _____ FAX: _____ - _____
Country code - complete number Country code - complete number

12. E-mail 1: _____

E-mail 2: _____

ANNEX II Application Materials for GRIPS/BRI Master's Program

APPLICATION INFORMATION

13. List the names of the undergraduate and graduate (if applicable) institutions you attended or are currently attending. Enter the names of the degrees you received and the dates of enrollment at each institution. If your official transcript or certificate of graduation/completion states your GPA, honors, class, or rank, enter this information as it is shown in your transcript. If there is insufficient space for entering all the institutions you have attended, you may add new rows as needed.

	Period of attendance (from–to) Month Year	Duration of schooling
From primary to secondary education (before tertiary education)		years months

Tertiary education	Full name of institution & city	Period of attendance (from–to) Month Year	Duration of schooling	Name of degree	GPA (if available)	Honors/ class/rank/ division (if available)
Undergraduate level (Bachelor's)			years months			
			years months			
Graduate level (Master's/ Doctoral)			years months			
			years months			

Total number of years of schooling (from elementary education to undergraduate/graduate education inclusive)	years months

14. English proficiency:
One of the following test scores is required. Please note that English test scores are valid for two years from the test date, and therefore, **tests must have been taken within two years of the date of admission.**

☐ TOEFL PBT: _____ (Score) _____ (Month/Day/Year) The minimum acceptable test score is 550.

☐ TOEFL iBT: _____ (Score) _____ (Month/Day/Year) The minimum acceptable test score is 79.

☐ IELTS Academic: _____ (Score) _____ (Month/Day/Year) The minimum acceptable test score is 6.0.

Other information:
☐ Undergraduate education instructed in English
☐ Graduate education instructed in English

Location of the accredited institution where you have completed or expect to complete an undergraduate/graduate degree:
☐ The USA, the UK, Canada, Australia, New Zealand, or Ireland
☐ Other country

15. List below two persons familiar with your past academic or professional activity, from whom you have requested letters of recommendation.

1. _____ (Name) _____ (Position and affiliation)

2. _____ (Name) _____ (Position and affiliation)

16. List current and all previous employment (up to five positions) **in reverse chronological order,** starting with your most recent position.

Organization, type, & city	Dates (from-to) Month Year	Job title and description (maximum 20 words)

CERTIFICATION

I certify that to the best of my knowledge all information given above is correct and complete, and I understand that any omission or misinformation may invalidate my admission or result in dismissal.

Signature of the applicant

Month/Day/Year

Please submit this application form along with other supporting documents by courier or registered mail.

ANNEX II Application Materials for GRIPS/BRI Master's Program

Disaster Management Policy Program by GRIPS and BRI In Co-operation with JICA, Japan

For GRIPS Use: Application ID [ ]

LETTER OF RECOMMENDATION 2017-2018

TO THE APPLICANT: Please complete the section below and give this letter to two people who know you well. Have the recommender complete the form, put it in an envelope, seal the envelope, sign it across the flap, and return the letter to you. Include this letter with your application and all the other application materials when sending in your application.

Your name: _____
As written in your passport

Recommender's name: _____

TO THE RECOMMENDER: Please write a recommendation letter for the above applicant, sign it, enclose it in an envelope, seal the envelope, and sign it across the flap. Return the sealed envelope to the applicant. This recommendation letter will remain confidential and will be used for application screening purposes only. You may attach additional sheets if the space provided is insufficient.

1. How long have you known the applicant? _____ years _____ months

2. In what capacity have you known the applicant?

_____

3. How often have you interacted with the applicant?

☐ Daily ☐ Weekly ☐ Monthly ☐ Rarely

4. In comparison with other students/staff whom you have known in the same field, how would you rate the applicant's overall **academic** ability?

☐ Outstanding (top 5%)
☐ Excellent (top 10%)
☐ Good (top 20%)
☐ Average (top 50%)
☐ Below average (lower 50%)
☐ Unable to comment

5. In comparison with other students/staff whom you have known in the same field, how would you rate the applicant's overall **professional** ability?

☐ Outstanding (top 5%)
☐ Excellent (top 10%)
☐ Good (top 20%)
☐ Average (top 50%)
☐ Below average (lower 50%)
☐ Unable to comment

6. Please evaluate the applicant in the areas below as excellent, average, poor, or unable to comment.

	Excellent	Average	Poor	Unable to comment
Academic performance	☐	☐	☐	☐
Intellectual potential	☐	☐	☐	☐
Creativity & originality	☐	☐	☐	☐
Motivation for graduate study	☐	☐	☐	☐

7. Discuss the applicant's competence in his/her field of study, as well as the applicant's career possibilities as a professional worker, researcher, or educator. In describing such attributes as motivation, intellectual potential, and maturity, please discuss both strong and weak points. Specific examples are more useful than generalizations.

8. Discuss the applicant's character and personality. Please comment on his/her social skills, emotional stability, leadership skills, and reliability.

9. **For university professors and instructors only**
Is the applicant's academic record indicative of the applicant's intellectual ability? If no, please explain.

10. Additional comments, if any.

11. How would you evaluate the applicant's overall suitability as a candidate for admission to a graduate program at the National Graduate Institute for Policy Studies?

☐ Outstanding ☐ Good ☐ Average ☐ Poor

Name of person completing this form: _____

Position/title: _____

Name of organization: _____

Address: _____

TEL: _____ (Country code - complete number) FAX: _____ (Country code - complete number) E-mail: _____

Signature: _____ Date: _____ (Month/Day/Year)

ANNEX II Application Materials for GRIPS/BRI Master's Program

Disaster Management Policy Program by GRIPS and BRI In Co-operation with JICA, Japan

For GRIPS Use: Application ID [ ]

CERTIFICATE OF EMPLOYMENT 2017-2018

This form must be completed by, or under the authority of, the applicant's employer or equivalent official. Please note that the official stamp or seal of, and signature by, any person other than the above persons will be considered as invalid.

EMPLOYER DETAILS

Name of organization: _____

Address: _____

_____ Postal code: _____

TEL: _____ FAX: _____ E-mail: _____

Country code - complete number (TEL) / Country code - complete number (FAX)

EMPLOYEE DETAILS

This is to certify that _____

Full name of applicant

has been employed by this organization from _____ to _____

Month/Day/Year (from) / Month/Day/Year (to)

Please write "Present" above if the person is on a permanent contract.

Present position, department/section: _____

Responsibilities: _____

_____

Civil servant qualification (e.g., BCS, IAS, IRS, CSS), if applicable: _____

This applies to applicants from Bangladesh, India and Pakistan.

LEAVE OF ABSENCE APPROVAL

Please tick only one box below.

☐ I will approve a leave of absence for the above employee to study at GRIPS if he/she is admitted for a period of one year.

☐ I will not approve a leave of absence for the above employee to study at GRIPS if he/she is admitted.

Authorized person completing the form:

Name: _____

Position/title: _____

Name of organization: _____

Signature: _____

Date: _____

Month/Day/Year

Please put an official stamp or seal in this space.
If the official stamp or seal is in your local language and an English version is not available, please write its **English translation in the margin of the form.**

ANNEX II Application Materials for GRIPS/BRI Master's Program

Disaster Management Policy Program by GRIPS and BRI In Co-operation with JICA, Japan

For GRIPS Use: Application ID

STATEMENT OF PURPOSE 2017-2018

Please state your purpose for studying at GRIPS, the area of study you wish to pursue, your short-term and long-term career goals, and how your qualifications and experience match the requirements of the program you are applying for. Summarize your present duties and responsibilities and describe how your studies at GRIPS might contribute to your career. If you are still in school, describe your future career aims and explain how your studies at GRIPS would help you achieve them. (300-500 words)

健康診断書
CERTIFICATE OF HEALTH (to be completed by the examining physician)

日本語又は英語により明瞭に記載すること。
Please fill out (PRINT/TYPE) in Japanese or English. Do not leave any items blank.

氏名
Name：_____ _____
Family name, First name Middle name

□男 Male
□女 Female

生年月日
Date of Birth：

年齢
Age：

1．身体検査 Physical Examinations

(1) 身　長 Height_____cm　体　重 Weight_____kg

(2) 血　圧 Blood pressure_____mm/Hg～_____mm/Hg　血液型 Blood Type

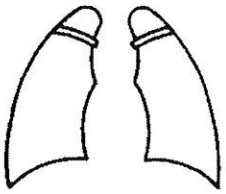
ABO	RH ＋ −

脈拍数 Pulse Rate _____/min　□整 regular　□不整 irregular

(3) 視　力 Eyesight：(R)_____(L)_____ 裸眼 without glasses　(R)_____(L)_____ 矯正 with glasses or contact lenses

(4) 聴　力 Hearing：□正常 normal □低下 impaired　言　語 speech：□正常 normal □異常 impaired

2．申請者の胸部について，聴診とX線検査の結果を記入してください。X線検査の日付も記入すること（6ヶ月以上前の検査は無効。）
Please describe the results of physical and X-ray examinations of applicant's chest x-ray (X-ray taken more than 6 months prior to the certification is NOT valid).



肺 lung：□正常 normal □異常 impaired　Date_____　Film No._____

Describe the condition of applicant's lung.

_____

心臓 Cardiomegaly：□正常 normal □異常 impaired

心電図 Electrocardiograph □正常 normal □異常 impaired

3．現在治療中の病気 Disease & Treatment at Present　□Yes (Disease:_____ Medicine:_____)　□No

4．既往症 Past history：Please indicate with ＋ or − and fill in the date of recovery.

Tuberculosis……□(. .)
Epilepsy……□(. .)
Diabetes……□(. .)
Functional disorder in extremities……□(. .)
Rheumatic fever……□(. .)
Malaria……□(. .)
Kidney disease……□(. .)
Drug allergy……□(. .)
Hepatitis (Type: A, B, C, D, E) (. .)
Measles……□(. .)
Heart diseases……□(. .)
Psychosis……□(. .)
Others……□(. .)

5．ワクチン接種歴 Vaccination history

MMRV (Measles, Mumps. Rubella, Zoster)……□ Time(s) ( )
MMR (Measles, Mumps. Rubella)……□ Time(s) ( )
MR (Measles, Rubella)……□ Time(s) ( )
M (Measles)……□ Time(s) ( )
Mumps……□ Time(s) ( )
Chicken pox……□ Time(s) ( )
Polio……□ Time(s) ( )
Diphtheria Pertussis Tetanus combined……□ Time(s) ( )
Hepatitis B……□ Time(s) ( )
Meningitis……□ Time(s) ( )

6．検　査 Laboratory tests
検　尿 Urinalysis:glucose( ), protein ( ), occult blood ( )・検　便 Feces: Parasite(egg of parasite)(+,−)
赤沈 ESR：_____mm/Hr, WBC count：_____x10^3/μl, Hemoglobin:_____g/dl, ALT:_____u/l
Pregnancy test ( ) if you are female

7．診断医の印象を述べて下さい。 Please describe your impression.

8．志願者の既往歴，診察・検査の結果から判断して，現在の健康の状況は充分に留学に耐えうるものと思われますか？
In view of the applicant's history and the above findings, is it your observation his/her health status is adequate to pursue studies in Japan？ yes □ no □

日付 Date:_____　署名 Signature:_____

医　師　氏　名 Physician's Name in Print:_____

検査施設名 Office/Institution:_____

所在地 Address:_____

ANNEX III: Instructions for the Preparation of Inception Report

The Inception Report should be originally written by the applicant herself/himself and typewritten including items listed below. Applicants are requested to follow strictly the technical instruction shown in the next page of this General Information. **It is mandatory to record the Inception Report on the electronic medium such as CD or USB memory and bring it to Japan.**
IISEE will request the accepted applicants to revise Inception Report, if necessary, by adding the missing information etc. At the early stage of the course (Oct. 2017) these applicants will be requested to conduct a presentation about Inception Report. Therefore, it is necessary for these applicants who receive the notice of acceptance to start preparing Power Point file for presentation.

Inception Report should include all of the followings:

for Seismology(S) group

1. Geographic, geophysical and geological information of your country with maps (tectonics, active faults, seismicity, macro-zoning studies etc.).
2. Damaging earthquakes or tsunami (hypocenter, magnitude, isoseismals, surface faulting, damages, casualties), catalogs, photographs etc.
3. Responsibilities of your organization in the national government or country.
4. Internal structure of your organization with the organization chart.
5. Equipments and personnel of your organization (seismic network, research activities).
6. Analyses of capacities (strong and weak points) of your organization and country on earthquake monitoring, seismological data analyses, (disaster mitigation planning, hazard and risk estimations, micro-zoning studies, etc..
7. Other organizations collaborating with your organization in the fields of seismology and earthquake disaster mitigation.
8. Your own responsibility in your organization.
9. Potential target of your study in the course with difficulties or obstacle for you to obtain your target with.
10. Your expectations for the course: What do you expect to obtain and achieve in the course?

for Earthquake Engineering(E) group

1. Seismic Design Code for buildings of your country*
2. Characteristics of building damage due to earthquakes in your country.
3. Microzoning and earthquake disaster mitigation planning of your country.
4. Responsibilities of your organization in the national government or country.
5. Internal structure of your organization with the organization chart.
6. Your own responsibility in your organization.
7. Potential target of your study in the course, the difficulties or obstacles in obtaining your target, and a list of your strengths and weaknesses.
8. Your expectations for the course: What do you expect to obtain and archive in the course?

* Applicants who do not have any seismic design code in their countries are requested to present practical measures to secure the seismic safety of buildings.

for Tsunami Disaster Mitigation(T) group

1. Tsunamis, earthquakes, and tsunami mitigation in your country

1.1. Geographic and geoscientific information with maps
(tectonics, seismicity, tsunamigenic earthquakes, etc.)

1.2. Destructive tsunamis and earthquakes
(tsunami damage, tsunami height, casualties, tsunami catalogs, photographs, etc.)

1.3. Tsunami mitigation (tsunami hazard assessment, tsunami awareness activities, etc.)

1.4. Tsunami countermeasures (tsunami early warning system, tsunami observation system, etc.)

2. Regarding your organization

2.1. Role in the national government or country

2.2. Internal structure along with the organization chart

2.3. Equipment and systems (tsunami early warning system, tsunami observation system, etc.)

2.4. Analysis of tsunamis (tsunami modeling, tsunami forecasting, tsunami hazard maps, real-time determination of earthquake parameters, etc.)

2.5. Analysis of your organization's and country's capacity (strengths and weaknesses)
(Tsunami disaster mitigation plan, responsible organization, tsunami hazard maps, tsunami early warning system, etc.)

2.6. Other organizations collaborating with yours for tsunami activities

3. Your responsibilities and interests

3.1. Your own responsibility in your organization

3.2. The potential target of your study in the course, the difficulties or obstacles in obtaining your target, and a list of your strengths and weaknesses.

3.3. Your expectations of the course: What do you expect to derive from it?

3.4. A concrete plan of individual study. Please select the topics of individual study from "ANNEX I. Detail of the Phase in Japan, (4) To complete a Master thesis, Menu for the topics of Individual Study".

The cover page of Inception Report should include:

(1) Name of Applicant

(2) Name of Organization to which Applicant belongs, namely, the affiliation

(3) Choice of Group (Select one of **(S) , (E) or (T)**)
Note: Ambiguous expression for the selection of group will cause a severe disadvantage in screening process.

(4) Choice of Topic for Individual Study selected from the topics' list in "ANNEX I. Detail of the Phase in Japan, (4) To complete a Master thesis, Menu for the topics of Individual Study ".
Note: Ambiguous expression or null answer will cause a severe disadvantage in screening process.)

The first page of Inception Report should include:

(5) Title and **Author's Name**

(6) Abstract

The abstract should be informative and include the principal findings and conclusions. References to formulas or figures are not necessary. It should not be consist of more than 200 words.

(7) Introduction

(8) Affiliation of the Author.

Note: Affiliation should appear as a foot note on the first page as following sample shows.

The main part of Inception Report that starts from the second page should include:

(9) Topic mentioned above

(10) "**Acknowledgement**" and "**Appendix**" after the topic if necessary

(11) References

Applicants are requested to submit attached documents including 3 or 4 items,

(12) Attached Document

- Information about the structure of Organization, for example, Organization Chart,
- Research activity of Organization related to Seismology, Earthquake Engineering, or Seismic Hazard/Risk Analysis,
- A list of governmental or private organizations related to Seismology or Earthquake Engineering in the country of Applicant, and,
- (If you select 'others' for the topic of Individual Study) a concrete plan of Individual Study. IISEE may inquire about the plan during the selection process.

(13) Format

1. The manuscript must be carefully prepared and should be submitted with the JICA Knowledge Co-Creation Program Application form and GRIPS application materials. The total pages of the Inception Report should not exceed 15 pages including tables and figures.

2. **Page Format:** Use A4 white paper sheets (21 cm x 29.7 cm). Leave 2.5 cm margins at the top, right and left sides of the text and 3.5cm margin at the bottom. Special attention has to be paid in preparing papers using US letter-size paper. It should be appropriately arranged so that it conforms to the above requirements in appearance, namely the manuscript should occupy 16cm x 23.7cm in each page. All main text should be single spaced, Times New-Roman types. Use 18pt in capital letters and boldface for **TITLE**, 12pt for authors, and 11pt for the rest, including affiliations, abstract, main text, headings, sub-headings, sub-subheadings, acknowledgement, appendix, references, and captions for figures, photos and tables.

3. **Organization of the papers:** Write the **TITLE** of your paper, centered and in 18pt capital letters and boldface types at the top of the first page. After two more line space, write your names in 12pt. Last names should be in capital. Affiliations should be cited by superscripts. Leave two lines, and then write abstract in 11pt. "**ABSTRACT**" should be in capital letters and boldface and be followed by the text of Abstract. After three lines, start main body of your paper in 11pt. The ordinary pages, starting from the second page, contain the main text from the top line. Avoid footnotes and remarks. Explain in the main text, or in Appendices, if necessary. Affiliation itself should be put at the bottom of the first page, cities, countries and e-mail addresses of all authors, as indicated above.

4. **HEADINGS:** Use at most three levels of headings, i.e., headings, subheadings and sub-subheadings. Headings shall be written in capital letters, boldface types, and centered of your text. Leave two lines space before headings and one after them. Do not indent the first line after headings, subheadings and sub-subheadings. First lines of the other text paragraphs should be indented as indicated here. Do not leave blank lines between paragraphs. **Subheadings:** Subheadings shall be written in lower-case letters and boldface types, right against the left side of your text, as indicated here. Leave one line space before and after subheadings. Use the above mentioned rules for indentation. ***Sub-subheadings:*** The only difference with respect to subheadings is that sub-subheadings shall be in Italic and no lines space shall be left after sub-subheadings. Don't put numbering to heading of any level.

5. **EQUATIONS AND SYMBOLS:** Use high quality fonts for both mathematical equations and symbols. Papers with hand-written mathematical equations and symbols are not accepted. Equations should be centered and numbered. Leave one line above and below equations. The equation number, enclosed in parentheses, is placed flush right. Equations should be cited in the text as Eq. (1).

6. **FIGURES, TABLES AND PHOTOS:** Figures and tables shall be legible and well reproducible, and photos shall be clear. Colored figures, tables and photo will be printed in Black and White. Captions shall be written directly beneath figures and photos and above tables, and shall be numbered and cited as Figure 1, Table 1 or Photo 1. They should be written in 11pt, and centered. Long captions shall be indented. Do not use capital letter or boldface types for captions. Figures, tables and photos shall be set possibly close to the positions where they are cited. Do not place figures, tables and photos altogether at the end of manuscripts. Figures, tables and photos should occupy the whole width of a page, and do not place any text besides figures, tables and photos. Leave one line spacing above and bottom of figures, tables and photos. Do not use small characters in figures and tables. Their typing size should be at least 9pt or larger.

7. **UNIT:** Use SI unit in the entire text, figures, and tables. If other units are used, provide it in parentheses after the SI unit as 1MPa (10.2 kgf/cm^2).

8. **CONCLUSIONS:** Write a **CONCLUSIONS** section at the end of your paper, followed by ACKNOWLEDGEMENT, APPENDICES and REFERENCES.

9. **ACKNOWLEDGMENT:** Acknowledgment should follow CONCLUSIONS.

10. **APPENDIX:** Appendix should be placed between Acknowledgment and References, if any.

11. **REFERENCE:** All references should be listed in alphabetical order of the first author's family name. They are referred in the main text like "(Gibson 1995)" or "(Aki 1957; Okada 2003; 2006)" when cited at the end of phrase and "Gibson (1995)" or "Aki (1957) and Okada (2003; 2006)" when cited in phrase. Write the reference list as

Gutenberg, B., and Richter, C. F., 1954, Seismicity of the Earth and Associated Phenomena, 2nd ed. Princeton Univ. Press, Princeton, NJ.
Richter, C. F., 1935, An instrument earthquake magnitude scale, *Bull. Seis. Soc. Am.* **25**, 1-32.
Web site: F-Net, National Research Institute for Earth Science and Disaster Prevention (NEID) http://www.fnet.bosai.go.jp/

(13) Sample for Inception Report

Sample for the cover sheet		Sample for the first page
THE KNOWLEDGE CO-CREATION PROGRAM ON SEISMOLOGY, EARTHQUAKE ENGINEERING, and TSUNAMI DISASTER MITIGATION 2017 – 2018 (COURSE ID: J17-04023) INCEPTION REPORT ON 1. Name of Applicant 2. Name of Organization 3. Choice of Group (S), (E), or (T) 4. Choice of Topic for Individual Study		TITLE OF THE INCEPTION REPORT by AUTHOR* **ABSTRACT** .... **INTRODUCTION** .... *The Author's organization and occupation are to be written here.

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ANNEX IV: Syllabus of the Training Program (Tentative)

S-Group (Seismology Group)

Category	Title	Subtitle	Contents
Orientation	Orientation	Overview of Earthquake, Tsunami, and Disasters	Introductory lectures for Seismology and Tsunami Groups are given by staff members of IISEE. Basic concepts and general scope of seismology, earthquake phenomena, strong motion study, seismic hazard and risk, and tsunami, etc. are described.
Basic Subjects Related with Earthquake and Disasters	Information Technology Related with Earthquakes and Disasters	Computer	Practices on FORTRAN programming for scientific computing and on UNIX and GMT are given using PC.
		Theory of Seismic Waves	Basic expressions for strain and stress relations are induced from the fundamental concept of the property of elasticity. Mathematical background of the theory of elasticity is discussed from the standpoint of specific problems such as equilibrium conditions, strain energy and transmissions of elastic waves. Reflection and refraction of plane waves are explained. P and S waves velocity distribution is discussed.
		Surface Waves	Crust and upper mantle structure inferred from surface wave methods will be explained.
		Scattering and Attenuation	Stochastic modeling and measurement of small-scale heterogeneities and intrinsic attenuation of seismic waves in the crust will be explained.
	Earthquake Phenomenology	Earthquake Observation(1)(2)	Basic theory of seismometers is explained. A method for calibration of conventional type of short period seismometer is presented with a practical training. Data acquisition and seismic telemetry systems are explained
		Local Earthquake Analyses(1)	Analyses of seismograms obtained by local networks, e.g., Wadati diagram, particle motion, apparent velocity, hypocenter determination, and magnitude.
		Local Earthquake Analyses(2)	Practical analyses of seismograms obtained by local network, e,g.,Earthquake location for a homogeneous medium, location errors, iterative weighting, and application.
		Teleseismic Phases and Magnitudes	Teleseismic phases and typical magnitude scales are explained. The Earth's normal modes and their relations to seismic phases are introduced.
		Observation of Seismological Observatory	Observation of Matsushiro Seismological Observatory, Japan Meteorological Agency.
		Earthquake Early Warning	The methodologies of Earthquake Early Warning (EEW) are explained, and then actual operation of the system is discussed. Experience of actual operation of nationwide EEW system by the Japan Meteorological Agency is also given.
		Seismicity and Statistics	Fundamental concepts on seismic activity and earthquake statistics including prediction-oriented method analysis.
		Crust and Upper Mantle Structure	Crust and upper mantle structure inferred from explosion seismic and surface methods are explained.
		Crustal Deformation	Introductory course of crustal deformation including geodetic survey and continuous measurement with special references to the problems on modeling of earthquake and volcanic events and earthquake forecasting.
	Seminar of Basic Seismology		Discussion, presentation and practice for the topics of Basic Seismology

Advanced Subjects Related with Earthquake and Disasters	Earthquake Circumstance	Earthquake Generation and Forecasting(1)	Earthquake dynamics and scaling laws are explained. Earthquake preparation processes and researches on short-term prediction are introduced.
		Earthquake Generation and Forecasting (2)	Earthquake cycles and long- and intermediate-term prediction are introduced.
		Mathematics for Seismology	Basic concepts and technique of applied mathematics used often in the field of seismology are explained. Subjects include linear differential equations, Fourier analysis, matrix algebra and vector analysis. Practice of applied mathematics is also given.
		Focal Mechanism	Basic knowledge and practice for determination of focal mechanism by P-wave first motion method.
		Moment Tensor Analysis	Basic knowledge and practice for determination of focal mechanism by moment tensor inversion method.
		Earthquake and Plate Tectonics	The basic concept of plate tectonics is presented. Methods to obtain plate motions are described.
		Earthquake Source Process	Basic models and conceptions of earthquake source processes are provided. The following three subjects: 1) how to describe an earthquake source mathematically, 2) how to synthesize body waves generated from the source, 3) how to determine the model parameters are explained.
	Characteristics of Earthquake Disasters	Data Processing	Theory and practice of the least squares method used for seismological analyses and those of Discrete Fourier transform and digital filter are introduced.
		Study Tour of Earthquake Monitoring	Study tours to institutes which have observational networks to monitor earthquakes are conducted.
		Real Time Determination of Source Parameter	Real time determination of source parameters (local event) is introduced.
		Determination of Broadband Moment Magnitude	Broadband moment magnitude (Mwp) is a magnitude determined by processing of first arriving P-waves, and has been adopted by tsunami warning centers. First, this magnitude scale is explained in the lecture. Then, computer practices to determine this magnitude are provided.
		Effect of Surface Geology on Seismic Motion (1)	Effects of surface geology on seismic motion (ESG) are explained by showing results of ground motion case studies: amplification mechanisms of seismic waves, actual examples of site amplifications at sites with various site conditions, relations with earthquake damage.
		Effect of Surface Geology on Seismic Motion (2)	Subsurface explorations and strong motion synthetic techniques are explained in detail.
		Seismic Tomography	Theory and application of seismic tomography in local, regional, and global scales are explained. Practice on computer is also given.
		Numerical Simulation of Seismic Wave Propagation	Basic theory of seismic wave propagation and numerical methods for solving the elastic equations are explained. Seismic wave propagation is demonstrated by animation made by computer. Practice on the numerical simulation is given by using PC.
	Special Topics	Observation Visits	Observation tour to the institutes that have notable activities in the field of Earth Sciences.
		Tsunami and Earthquake	Basic concept and overview of tsunamis, including tsunami generation, propagation and tsunami warning and hazard reduction systems.
		Earthquake Geology	Geological subjects related to earthquake prediction, hazard assessment and countermeasures.
	Seminar of Applied Seismology		Discussion, presentation and practice for the topics of Applied Seismology

Earthquake Hazard and Risk Assessment	Earthquake Hazard Assessment A	Soil Test and Survey	Geotechnical field investigation and laboratory testing methods are discussed in this lecture. An emphasis is placed on providing the information about currently used practical methods.
		Strong Earthquake Motion Observation	General procedures and system of a strong-motion earthquake observation are presented. Participants are introduced to the principle of strong-motion accelerometers (SMAC), data acquisition systems and data analysis procedures. Application of strong earthquake ground motion to seismic-resisting design is explained.
		Soil Dynamics	Fundamental properties of soil such as non-linearity and constitutive law are reviewed. Dynamic behavior of soil deposits and analytical method are explained with evaluation of material constants. Liquefaction of sand deposits will be discussed and countermeasures against liquefaction are introduced.
		Strong Ground Motion Study I (Probabilistic Seismic Hazard Analysis)	Seismic Hazard Assessment is discussed, that is an estimation of the likelihood of an earthquake occurrence and its magnitude in and around the location of interest and of the severity of strong ground motions expected for a certain return period.
		Strong Ground Motion Study II (Strong Motion Seismology)	Strong-motion seismology is concerned with high frequency seismic waves from large earthquakes. Its ultimate goal is to predict strong ground motion from the basic understanding of fault mechanics and seismic wave propagation in the Earth.
	Earthquake Hazard Assessment B	Practice for Earthquake Risk Assessment	Participation in international conferences, field trips and/or special lectures related to the earthquake risk assessment.
		Microtremor Observation(1)	Practice in the field and analysis are introduced for microtremor that is one of the useful information to evaluate the characteristics of earthquake ground motion.
		Microtremor Observation(2)	Field practice of microtremor array observation
		Simulation of Seismic Ground Motion	Method to estimate the strong ground motion at the engineering bedrock based on the empirical formulas is explained.
		Observation Visit for Dissemination for Earthquake Disaster-Recovery Management	Observation visit to the institutes related to disaster -recovery management.
		Geophysical Prospecting	Principles of seismic refraction and reflection and their applications to the real field are discussed. Field Practice is given.
		Seismic Micro-zonation	This lecture gives an introduction to seismic micro-zoning technique by presenting the methods to estimate the distribution of the local and regional seismic hazard, explaining the preparation process of seismic scenarios, describing the applications of micro-zoning results, and discussing the future of micro-zoning. Various examples of actual studies are also presented.
	Seminar of Earthquake Disaster-Recovery Management		Discussion, presentation and practice for the topics of Earthquake Disaster-Recovery Management
Disaster-Recovery Management Policy	Disaster Management Policies A: from Regional and Infrastructure Aspect		This lecture deals with the various aspects of disaster management policies from the viewpoint of nation-wide or wide range regional and Infrastructure development. The lecture consists of five parts: 1) bird-view lectures to look over the philosophies and principles of disaster management policies, 2)

			field-wise specialized lectures on practical measures against natural disasters, 3) two special lectures by Japan-representing outstanding lecturers, 4) an one day site-visiting in central Tokyo, and 5) presentations of student groups and overall discussions.
	Disaster Management Policies B: from Urban and Community Aspect		This lecture aims to provide a broad understanding of disaster risk management policies related to urban, housing and building aspects. It emphasizes application of appropriate and practical measures, reflecting social, economic and environmental conditions of each country.
	Earthquake Tsunami Disaster Management and Development Assistance	Seminar of International Disaster Prevention	Joint & mutual observation visits are planned for JICA course participants of IISEE and ICHARM.
		Japanese ODA Policy and Development Assistance Related with Disaster-Recovery Management	Japanese ODA policy and implementation and the international trend of development assistance related with disaster-recovery management activities including poverty and gender issues are explained.
		Seminar of Earthquake Disaster-Recovery Management Policy	Methodology and practice for Project Management Cycle and its facilitation techniques.
		Colloquium	Three colloquiums are planned: 1) for the report on the seismic observation and its results in the countries of each participant, 2) for the practice of reading scientific papers, and 3) for explaining the plan of individual study.
Case Studies	Practice for Earthquake Disaster-Recovery Management Policy I, II & III	Study trips	Study trip to north-eastern part of Japan (Tohoku) for a week and to western part of Japan (Kansai) for a week.
		Practice for the topics of Earthquake Disaster-Recovery Management	
	Practice for Seminar of Earthquake Disaster-Recovery Management		During individual study period, each participant makes a research on a specific subject and writes a paper under the direction of an instructor. The subject is selected in the list shown in "II. Description, 10.Expected Module Output and Contents".
Individual Study	Individual Study		During individual study period, each participant makes a research on a specific subject and writes a paper under the direction of an instructor. The subject is selected in the list shown in ANNEX I.

E- Group (Earthquake Engineering Group)

Category	Title	Subtitle	Contents
Orientation	Orientation	Guidance	An introduction to the training program for Earthquake Engineering Group will be given through Guidance and an introductory lecture.
		Introduction to Earthquake Engineering	Basic concepts and damage aspects by past earthquakes in Japan, as an introductory lecture for engineering course.
		Computer	The lecture introduces the computer environment at Building Research Institute (BRI) and International Institute of Seismology and Earthquake Engineering (IISEE). Usage and instructions of the provided laptop PC and the preinstalled software are also given in the lecture.
Basic Subjects Related with Earthquake and Disasters	Structural Analysis	Structural Analysis I, II & III	Fundamental concepts and principles which are utilized in the current structural analysis are introduced in the matrix algebra language. The displacement method and the force method with some extension to the finite element method and the elastic-plastic analysis of structures are discussed in some detail. Fundamental theories for non-linear analyses of building structures are introduced. Some member models and basic concepts of the direct stiffness method are discussed. These theories are also learned with some exercises using available software in IISEE.
		Finite Element Method I	1) Basic concepts of finite element method, 2) Procedures for static linear analysis, 3) Formulation of some elements' matrices, 4) Example programs
		Finite Element Method II	1) Aims and Material Modeling, 2) Cracks width analysis, 3) Dynamic Analyses of RC Frames
		Limit Analysis	Fundamentals of limit analysis (plastic analysis) as well as plastic design of structures are presented. Basic theorems in the limit analysis, safe and unsafe theorems, are introduced, and how to use them when computing the load carrying capacity of a framed structure is illustrated.
		Soil Mechanics	This lecture covers an introduction to fundamental soil mechanics which will give the basis for understanding dynamic behaviors of soil and foundation.
	Seminar of Structure Analysis		Discussion, presentation and practice for the topic of Structural Analysis
	Ground Vibration and Structural Dynamics	Structural Dynamics I & II	The objective of this subject is to study the behavior of structures by dynamic loadings. The lecture covers the SDOF (single－degree-of-freedom) system to the MDOF (multi-degree-of-freedom) linear elastic system. The deterministic procedure is discussed in detail with exercises. Furthermore, the lecture introduces computer programming and provides some practices in programming of typical structural dynamic calculations. Participants compute dynamic response of a Single-Degree-Of-Freedom system and response spectra using Fortran 95. Fourier spectrum analysis is also introduced in the lecture.

		Structural Response Analysis	Inelastic earthquake response analyses using SDOF systems with various kind of hysteresis models and introduction of some applications using inelastic earthquake response analyses. Member models and structural idealization which are utilized in the current nonlinear structural analysis of buildings are outlined. Examples of dynamic and nonlinear analysis of reinforced concrete structures are presented. Methods for the theoretical interpretation on the results from the numerical analysis are introduced.
		Shaking Table Testing	General concept of structural dynamic test is introduced. Simple shaking table test and free vibration test are practically performed using a small single mass model. Data processing technique is also discussed through the practice.
		Soil Test and Survey II	Some common methods on the field survey of soil deposits and laboratory tests are introduced.
		Effect of Surface Geology on Seismic Motion	Effects of surface geology on seismic motion (ESG) are explained by showing results of ground motion case studies: amplification mechanisms of seismic waves, actual examples of site amplifications at sites with various site conditions, relations with earthquake damage.
		Dynamic Soil Structure Interaction	In case a structure is founded on soft site, its structural behavior is strongly affected by underlying soil with each other. This phenomenon is called "Dynamic Soil-Structure-Interaction (SSI)", and is recognized as being very important for the earthquake resistance design of structure. The physical meaning of the SSI and the influence of SSI on dynamic behaviors of structure are explained.
		Microtremor Observation I	Practice in the field and analysis are introduced for microtremor that is one of the useful information to evaluate the characteristics of earthquake ground motion.
		Microtremor Observation II	Among many techniques for investigating subsurface shear wave velocity structure, microtremor (or ambient vibration) observation is efficient and cost-effective approach for exploration of soils and sediments. In this lecture, basics of microtremor observation techniques and data processing procedures are introduced. Field exercises on single and multiple observations will be conducted.
	Seminar of Ground Vibration and Structural Dynamics		Discussion, presentation and practice for the topic of Ground Vibration and Structural Dynamics
Advanced Subjects Related with Earthquake and Disasters	Seismic Structures	RC Structures I	The structural performance from cracks to collapse about the RC members is predicted by using some equations. The prediction is made by the equations for designs.
		RC Structures II	Detailed structural design procedure of reinforced concrete members for flexure, shear and bond is lectured. Design practice of RC members according to the presented design procedure is conducted.
		RC Structures III	Design of Box-Shaped Wall building and evaluation of seismic performance of RC wall buildings are lectured.
		RC Structures IV	Outline of the seismic design procedure in accordance with the Japanese codes is presented. The related codes in U.S. and New Zealand and the design guidelines currently proposed in Japan are also introduced.
		Steel Structures I & II	Outline of the design procedure for steel building structures in Japan is explained.

		PC Structures	General principles of prestressed concrete and several examples of precast prestressed concrete buildings are introduced. Performance of precast prestressed concrete buildings during recent earthquakes is summarized with current seismic design procedure of prestressed concrete buildings in Japan. Prestressing methods, and calculation of cracking moment and flexural strength of a beam section are lectured with employing a computer program. New seismic design methods being discussed, for example performance-based design, are also introduced with some design examples.
		Masonry Structures I	The lecture covers an introduction to Performance of Masonry-based Structures and seismic design. The lecture covers an introduction to structural performance and seismic design of Confined Masonry structures, which has been studied as a research projects in BRI. It also includes housing construction conditions in the Third World Countries and their comparison with Japan's
		Masonry Structures II	First, the concept and the method of seismic design of masonry structures will be reviewed for several representative design codes in the world. Also the "AIJ (Architectural Institute of Japan) Standard for the structural design of reinforced concrete hollow concrete block masonry structures" will be introduced as part of the Japanese codes. Second, the seismic behavior of masonry buildings will be explained from the aspects of "seismic evaluation of existing masonry buildings" and the "modeling of restoring force characteristics of masonry wall members".
		Foundation Engineering I, II & III	Design concept and design procedures for static and earthquake loads for several types of foundation i.e. pile, spread and caisson foundations are presented. Furthermore their characteristics, construction methods, selection procedures, repairing methods, etc. are explained.
		Underground Structures and Large Soil Deformations	1) Buried structures and soil deformations in earthquakes, 2) Key parameters governing performances of buried structures in earthquakes, 3) Earthquake resistant design of buried structures and future problems, 4) Other topics
		Bridge Engineering I & II	Overall view of steel and concrete bridges and historical development are presented. Essential engineering issues for steel and concrete bridges are explained.
		Dam Structures	The types of dams including concrete arch, gravity, and embankment dams are explained first. Next, design concepts of each type are given. The design of dams to resist earthquakes is discussed with the performance of dams during earthquakes, dynamic properties of dam materials, and analysis. Particularly, behaviors of dams during the 1995 Hyogoken-Nanbu Earthquake (Kobe Earthquake) and the 2000 Western Tottori Prefecture Earthquake are explained.
		Port & Harbor Structures and Tsunami Engineering	Earthquake resistant design for port and harbor structures is explained with some examples of actual earthquake damage.
		Structural Testing I, II & III	Objectives, testing techniques, loading and measuring techniques are presented with some examples of the previous tests. Static tests for RC members are also conducted to observe structural performance.

	Seminar of Seismic Structures		Discussion, presentation and practice for the topic of Seismic Structures
	Seismic Evaluation and Seismic Design Code	Seismic Design Codes I, II & III	Participants investigate the design concept and methods of the selected seismic codes in the world. Presentation and discussion are given for comparison of the surveyed codes. Differences in each code are discussed. Also, recent advanced concepts of seismic design codes are introduced.
		Design Earthquake Ground Motion and Seismic Force	Seismic design code of Japan is introduced. Some international seismic design codes are also introduced and compared with each other.
		Simulation of Seismic Ground Motion	Methodology of how to generate design earthquake ground motion for engineering purpose is explained. In general, the earthquake load is considered as design seismic force. However, some buildings for special purposes are required to examine structural safety using design ground motions in time domain. A conventional methodology used for actual seismic design works will be introduced.
		Seismic Micro-Zonation I & II	This lecture gives an introduction to seismic micro-zoning technique by presenting the methods to estimate the distribution of the local and regional seismic hazard, explaining the preparation process of seismic scenarios, describing the applications of micro-zoning results, and discussing the future of micro-zoning. Various examples of actual studies are also presented.
		Dynamic Aseismic Design	Dynamic aseismic design procedure is introduced. Problems which frequently occur during the design of nuclear power plants and high-rise buildings are presented with some examples.
		Seismic Isolation	Seismic isolation system is explained as one of structural response control methods. The Seismic isolation system is most effective to reduce the response and improve safety of a superstructure. Principles of the seismic isolation, merits and demerits of the seismic isolation, and behaviors of buildings with the seismically isolated buildings during earthquake are discussed.
		Structural Response Control	Basic theory on structural seismic response control and its practical applications in Japan are presented.
		Seismic Design and Retrofit of Bridges	This lecture introduces concepts of seismic design method of highway bridges in Japan. The lecture starts from lessons learned from damage experiences in the past extreme earthquakes. Outline and concept of seismic design specifications of highway bridges in Japan are followed. Seismic assessment and retrofit design of existing bridges are presented.
	Seminar of Seismic Evaluation and Seismic Design Code		Discussion, presentation and practice for the topic of Seismic Evaluation and Seismic Design Code
Earthquake Hazard and Risk Assessment	Earthquake Hazard Assessment A	Soil Test and Survey I	Soil investigation has become an important component of construction from the viewpoint of safety. Soil test helps to determine physical characteristics in order to design foundations for structures. Outline of Geotechnical investigation method is introduced in this lecture.

		Strong Earthquake Motion Observation	Strong motion observation plays important role in the fields of earthquake engineering and building engineering. This lecture explains history and the current situation of the strong motion observation in Japan. The strong motion network of Building Research Institute and the recent research works are also introduced. Moreover, the application of the research results using strong motion data for the seismic design and the earthquake disaster mitigation are described.
		Soil Dynamics	Fundamental properties of soil such as non-linearity and constitutive law are reviewed. Dynamic behavior of soil deposits and analytical method are explained with evaluation of material constants.
		Strong Ground Motion Study I (Probabilistic Seismic Hazard Analysis)	Seismic hazard assessment is discussed, that is an estimation of the likelihood of an earthquake occurrence and its magnitude in and around the location of interest and of the severity of strong ground motions expected for a certain return period.
		Strong Ground Motion Study II (Strong Motion Seismology)	Strong-motion seismology is concerned with high frequency seismic waves from large earthquakes. Its ultimate goal is to predict strong ground motion from the basic understanding of fault mechanics and seismic wave propagation in the Earth.
	Seminar of Earthquake Hazard Assessment A		Discussion, presentation and practice for the topic of Earthquake Hazard Assessment
	Earthquake Risk Assessment	Structural Reliability	1) Introduction to reliability concept, 2) Probability of failure as a measure for the safety degree, 3) Extreme value distributions as probability model for load intensity, 4) Load and resistance factor format based on the second moment reliability, 5) Target safety degree due to the optimum reliability.
		System Identification in Vibration Analysis	This subject introduces several system identification methods to determine structural characteristics such as natural periods and damping ratios from measuring data of buildings.
		Seismic Evaluation and Rehabilitation	Seismic capacity evaluation and seismic rehabilitation (retrofit) of existing buildings are introduced with emphasis on our practice after the 1995 Hyogoken-Nanbu Earthquake (Kobe Earthquake).
		Urban Earthquake Disaster Mitigation System	Mechanism and various impacts of earthquake damage in urban areas will be analyzed considering the problems generated by urbanization of the area. Based upon the analysis above, issues for establishing proper countermeasures for disaster mitigation will be discussed.
		Post-Earthquake Quick Inspection, Damage Evaluation and Rehabilitation	Post-earthquake quick inspection for risk evaluation of secondary disasters is introduced with basic concept of evaluation methods in Japan, U.S. and Europe, and detail procedure and criteria of Japanese method including application example in Turkey. Post-earthquake damage evaluation for decision of rehabilitation strategy, and rehabilitation technique examples for damaged buildings are also introduced.
	Seminar of Earthquake Risk Assessment		Discussion, presentation and practice for the topic of Earthquake Risk Assessment

Disaster-Recovery Management Policy	Disaster Management Policies A: from Regional and Infrastructure Aspect		This lecture deals with the various aspects of disaster management policies from the viewpoint of nation-wide or wide range regional and Infrastructure development. The lecture consists of five parts: 1) bird-view lectures to look over the philosophies and principles of disaster management policies, 2) field-wise specialized lectures on practical measures against natural disasters, 3) two special lectures by Japan-representing outstanding lecturers, 4) a one day site-visiting in central Tokyo, and 5) presentations of student groups and overall discussions.
	Disaster Management Policies B: from Urban and Community Aspect		This lecture aims to provide a broad understanding of disaster risk management policies related to urban, housing and building aspects. It emphasizes application of appropriate and practical measures, reflecting social, economic and environmental conditions of each country.
	Earthquake Tsunami Disaster Management and Development Assistance	Japanese ODA Policy and Development Assistance Related with Disaster-Recovery Management	Japanese ODA policy and implementation and the international trend of development assistance related with disaster-recovery management activities including poverty and gender issues are explained.
		Seminar of International Disaster Prevention	Joint & observation visits are planned for JICA course participants of IISEE and ICHARM
	Seminar of Earthquake Disaster –Recovery Management Policy		Methodology and practice for Project Management Cycle and its facilitation techniques.
Special Topics	Tsunami Load and Structural Design of Tsunami Shelter		1) Observed Buildings Damage Pattern by Tsunami in Great East Japan Earthquake, 2) Introduction of Design Tsunami Loads in Past Guidelines and New Design Guideline, and 3) A Study on Design Flow and an Example of Tsunami Shelters
Case Study	Practice for Earthquake Disaster -Recovery Management Policy I, II & III	Colloquium	Three colloquiums are planned: 1) for seismic codes and past seismic damage of buildings in the countries of each participant, 2) for the practice of reading scientific papers, and 3) for explaining the plan of individual study.
		Study Trips	Study trip to northern part of Japan (Tohoku) for a week and to western part of Japan (Kansai) for a week.
	Practice for Seminar of Earthquake Disaster-Recovery Management		Practice for the topics of Earthquake Disaster-Recovery Management
Individual Study			During individual study period, each participant makes a research on a specific subject and writes a paper under the direction of an instructor. The subject is selected in the list shown in ANNEX I.

T- Group (Tsunami Group)

Category	Title	Subtitle	Contents
Orientation	Orientation	Overview of Earthquake, Tsunami, and Disasters	Introductory lectures for Seismology and Tsunami Groups are given by staff members of IISEE. Basic concepts and general scope of seismology, earthquake phenomena, strong motion study, seismic hazard and risk, and tsunami, etc. are described.
		Tsunami and Earthquakes	Basic concept and overview of tsunamis, including tsunami generation, propagation and tsunami warning and hazard reduction systems.
Basic Subjects	Information Technology	Computer	Practices on FORTRAN programming for scientific computing and on UNIX and GMT are given using PC.

Related with Earthquake and Disasters	Related with Earthquakes and Disasters	Theory of Seismic Waves	Basic expressions for strain and stress relations are induced from the fundamental concept of the property of elasticity. Mathematical background of the theory of elasticity is discussed from the standpoint of specific problems such as equilibrium conditions, strain energy and transmissions of elastic waves. Reflection and refraction of plane waves are explained. P and S waves velocity distribution is discussed.
		Surface Waves	Crust and upper mantle structure inferred from surface wave methods will be explained.
	Earthquake Phenomenology	Earthquake Observation(1)(2)	Basic theory of electro-magnetic seismometer is explained. A method for calibration of conventional type of short period seismometer is presented. Practical training for the calibration is also planned. Data acquisition and seismic telemetry systems will be explained.
		Local Earthquake Analyses(1)	Analyses of seismograms obtained by local networks, e. g., Wadati diagram, particle motion, apparent velocity, hypocenter determination, and magnitude.
		Local Earthquake Analyses(2)	Practical analyses of seismograms obtained by local network, e,g.,Earthquake location for a homogeneous medium, location errors, iterative weighting, and application.
		Teleseismic Phases and Magnitudes	Teleseismic phases and typical magnitude scales are explained. The Earth's normal modes and their relations to seismic phases are introduced.
		Observation of Seismological Observatory	Observation of Matsushiro Seismological Observatory, Japan Meteorological Agency.
		Earthquake Early Warning	The methodologies of Earthquake Early Warning (EEW) are explained, and then actual operation of the system is discussed. Experience of actual operation of nationwide EEW system by the Japan Meteorological Agency is also given.
		Seismicity and Statistics	Fundamental concepts on seismic activity and earthquake statistics including prediction-oriented method analysis.
		Crust and Upper Mantle Structure	Crust and upper mantle structure inferred from explosion seismic and surface methods are explained.
		Crustal Deformation	Introductory course of crustal deformation including geodetic survey and continuous measurement with special references to the problems on modeling of earthquake and volcanic events and earthquake forecasting.
	Seminar of Basic Seismology		Discussion, presentation and practice for the topics of Basic Seismology
Advanced Subjects Related with Earthquake and Disasters	Earthquake Circumstance	Earthquake Generation and Forecasting (1)	Earthquake dynamics and scaling laws are explained. Earthquake preparation processes and researches on short-term prediction are introduced.
		Earthquake Generation and Forecasting (2)	Earthquake cycles and long- and intermediate-term prediction are introduced.
		Mathematics for Seismology	Basic concepts and technique of applied mathematics used often in the field of seismology are explained. Subjects include linear differential equations, Fourier analysis, matrix algebra and vector analysis. Practice of applied mathematics is also given.
		Focal Mechanism	Basic knowledge and practice for determination of focal mechanism by P-wave first motion method.
		Moment Tensor Analysis	Basic knowledge and practice for determination of focal mechanism by moment tensor inversion method.

		Earthquake and Plate Tectonics	The basic concept of plate tectonics is presented. Methods to obtain plate motions are described.
		Earthquake Source Process	Basic models and conceptions of earthquake source processes are provided. The following three subjects: 1) how to describe an earthquake source mathematically, 2) how to synthesize body waves generated from the source, 3) how to determine the model parameters are explained.
	Theory of Tsunami	Tsunami Simulation	Hands-on practices to calculate tsunami waveforms and tsunami height will be given by using Linux WS and Windows PC. In order to help the interpretation of simulation results, visualization technique using mapping software are also introduced.
		Data Processing	Theory and practice of the least squares method used for seismological analyses and those of Discrete Fourier transform and digital filter are introduced.
		Practice for Theory of Tsunami	Specific tasks and subjects on Practice for Theory of Tsunami are given considering interests and backgrounds of participants.
		Tsunami Magnitude and Catalogue	History of large tsunamis in the world is explained and discussed. Existing tsunami catalogues are also studied. The size of tsunami is described by various magnitude scales. Mechanisms of tsunami earthquakes are also learned. Various tsunami generated by non-earthquake origins, such as landslides or volcanic activities, are also studied.
		Mathematics for Tsunami	Practices on applied mathematics used often in the field of tsunami are given.
		Hydrodynamics for Tsunami	The basic equation of fluid dynamics, general ocean wave theory, tsunami generation theory, and non-linear wave theory of tsunamis are explained.
		Tsunami Generation and Propagation	Tsunami generation from earthquake fault motion and tsunami propagation: Both forward and inverse modelings are explained.
		Tsunami Source	To calculate travel time of tsunami some computer practices will be given. Basic concept to estimate a tsunami source area from arrival times of observed tsunami is explained. Hands-on practices to estimate tsunami source will be also given.
		Geology for Tsunami	Basic techniques for detecting geological and geomorphological evidences of paleo-tsunami and paleo-earthquake are explained. Subjects include coastal sedimentlogy, coastal geomorphology and Quaternary geochronology.
Tsunami Hazard and Risk Assessment	Tsunami Hazard Assessment	Tsunami Hazard Map	Basic concepts and outline of tsunami hazard map, method of making tsunami hazard map, use of tsunami hazard map and tsunami countermeasures in river and coastal zone in Japan are explained.
		Tsunami Disaster Prevention Administration	Tsunami disaster prevention schemes by local government are introduced. We will visit Kesen-numa city along the Sanriku coast and learn about governmental approaches for tsunami disaster prevention.
		Lessons from the Great East Japan Earthquake of March 11, 2011	Disaster prevention for millennium earthquakes-tsunamis and characteristics of the 2011 Great East Japan earthquake – tsunami are introduced.
		Tsunami Disaster Mitigation Policy and Risk Management in Japan	A visit to the Cabinet of Japan and the Port and Harbor Bureau to study tsunami disaster mitigation policy and risk management in Japan is conducted.

		Introduction of Tsunami Disaster Mitigation	Various features of tsunamis are explained with hydrodynamic principles. Many kinds of tsunami disasters are shown by examples in the past, and possible disasters in the future are also estimated.
		Tsunami Hazard Assessment	Basics on the tsunami hazards assessment is introduced by reviewing historical and recent tsunami hazard/disaster and providing the idea of the risk analysis. Records of tsunamis in the documentation and geological evidences are examined to estimate the frequency.
		Tsunami Damage Survey	Characteristics of tsunami damages are introduced through examples of post-tsunami survey results. Survey method is explained with the theory. After explanations for matters to be attended in field survey, survey exercise is conducted.
		Theory of Tsunami Propagation and Inundation Simulation	This class aims to understand the logic of source program of TUNAMI-N1 and N2 (Linear and Non-linear model of tsunami propagation and run-up).
		Numerical Simulation of Tsunami Inundation and its Application	A finite difference method for the long-wave model is explained. Simulation exercises for tsunami propagation and inundation are given.
		Tsunami Evacuation Planning and Simulation	Overview of tsunami evacuation planning and tsunami evacuation simulation. Hands on concepts, definitions, steps and issues for tsunami evacuation planning. Review of methodologies used on tsunami evacuation simulation.
		Scenario Earthquakes	You will learn a method for setting Scenario earthquakes for tsunami situation.
	Tsunami Countermeasures	Tsunami Protection Facility	A field study, in which the tsunami protection facilities will be observed, is included in the course. A field trip to observe the tsunami trace and to understand the damages due to tsunamis will be also conducted along the Sanriku coast.
		Tsunami Damage and Reconstruction I and II	Observation of tsunami damage caused by the Great East Japan earthquake disaster and reconstruction process.
		Tsunami Observation	Sea level observation method and tidal data analysis are introduced. Tidal station tour is also conducted.
		Tsunami Early Warning System and Dissemination	Outline of tsunami warning service and tsunami estimation are explained.
		Practice for Tsunami Countermeasures	Each participant has practices so that he/she can improve understanding on the subject "Tsunami Countermeasures." IISEE staff members decide specific tasks and subjects considering interests and backgrounds of participants.
		Tsunami Force and Tsunami Resistant Structure	Design formulas of tsunami force are introduced and some examples to computation of tsunami force are lectured. An experiment to evaluate the tsunami impulsive force is demonstrated during the course. As tsunami resistant structures, breakwaters and tidal barriers are shown as well as greenbelt techniques.
		Tsunami Deposit Survey	Observation of tsunami damage caused by the Great East Japan earthquake disaster and reconstruction process.
		Tsunami Load and Structural Design of Tsunami Shelter	Observe buildings damage pattern by tsunami in Great East Japan Earthquake. Introduction of design tsunami loads in past guidelines and new design guideline. A study on design flow and an example of Tsunami shelters.
	Special Topics	Study Tour of Earthquake Monitoring	Observation tour to the institutes that have notable activities in the field of Earth Sciences.

Disaster-Recovery Management Policy	Disaster Management Policies A: from Regional and Infrastructure Aspect		This lecture deals with the various aspects of disaster management policies from the viewpoint of nation-wide or wide range regional and Infrastructure development. The course consists of five parts: 1) bird-view lectures to look over the philosophies and principles of disaster management policies, 2) field-wise specialized lectures on practical measures against natural disasters, 3) two special lectures by Japan-representing outstanding lecturers, 4) an one day site-visiting in central Tokyo, and 5) presentations of student groups and overall discussions.
	Disaster Management Policies B: from Urban and Community Aspect		This lecture aims to provide a broad understanding of disaster risk management policies related to urban, housing and building aspects. It emphasizes application of appropriate and practical measures, reflecting social, economic and environmental conditions of each country.
	Earthquake Tsunami Disaster Management and Development Assistance	Seminar of International Disaster Prevention	Joint & mutual observation visits are planned for JICA course participants of IISEE and ICHARM.
		Japanese ODA Policy and Development Assistance Related with Disaster-Recovery Management	Japanese ODA policy and implementation and the international trend of development assistance related with disaster-recovery management activities including poverty and gender issues are explained.
		Seminar of Earthquake Disaster-Recovery Management Policy	Methodology and practice for Project Management Cycle and its facilitation techniques.
Case Studies	Practice for Earthquake Disaster-Recovery Management Policy I & II	First, Second, and Third Colloquiums	Three colloquiums are planned: 1) for the report on the seismic observation and its results in the countries of each participant, 2) for the practice of reading scientific papers, and 3) for explaining the plan of individual study.
	Practice for Tsunami Disaster Mitigation Policy	Observation of Seismological Observatory	Inspection of the Matsushiro Seismological Observatory, Japan Meteorological Agency.
		Real Time Determination of Source Parameter	Real time determination of source parameters (local event) is introduced.
		Determination of Broadband Moment Magnitude	Broadband moment magnitude (Mwp) is a magnitude determined by processing of first arriving P-waves, and has been adopted by tsunami warning centers. First, this magnitude scale is explained in the lecture. Then, computer practices to determine this magnitude are provided.
		Study Trips	Study trip to northern part of Japan (Tohoku) for a week and to western part of Japan (Kansai) for a week.
	Practice for Seminar of Tsunami Disaster Mitigation Policy		Practice for the topics of Tsunami Disaster Mitigation Policy.
Individual Study	Individual Study		During individual study period, each participant makes a research on a specific subject and writes a paper under the direction of an instructor. The subject is selected in the list shown in ANNEX I.