Status of STS program in Hiroshima University

-Evolution of the *Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster-*

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May 24, 2017

HIROSHIMA UNIVERSITY

Contents

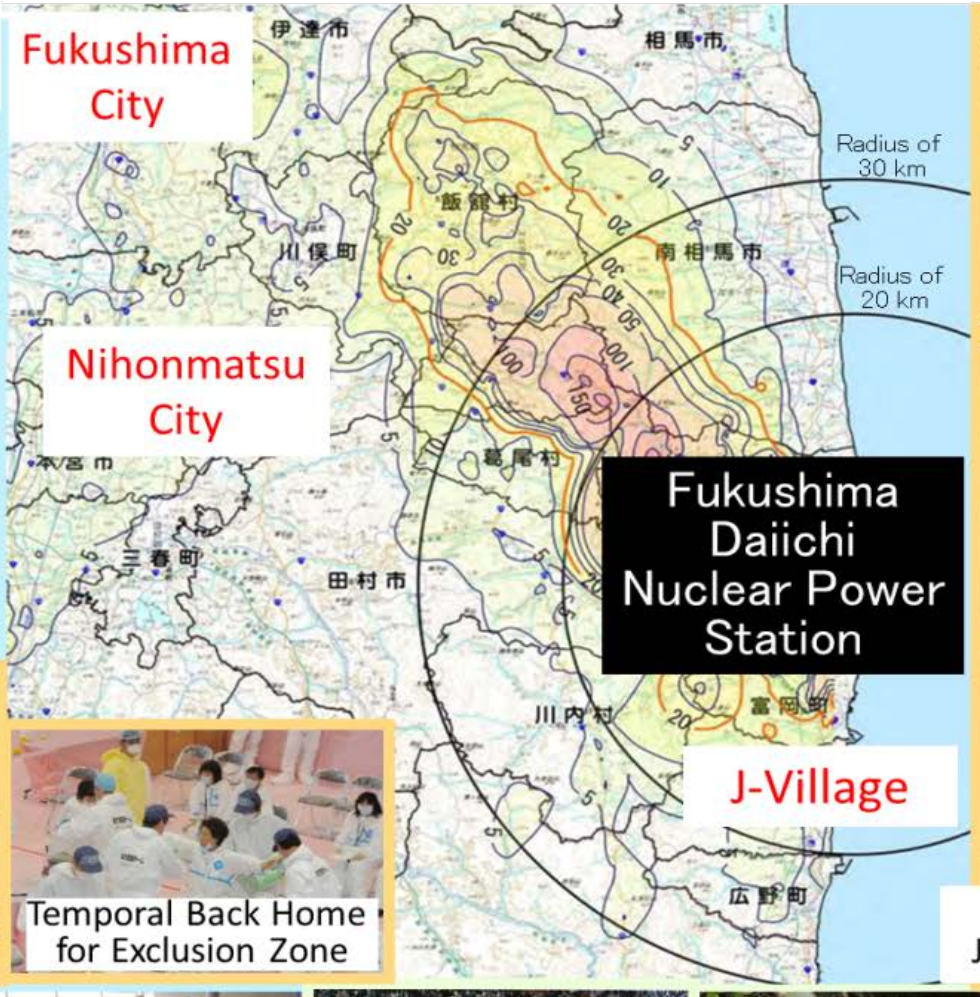
1. Introduction
2. Educational system with STS approach
3. Students' Survey

Background: Contribution of Hiroshima University to Fukushima accident

Radiation Emergency Medical Assistance Team (38 teams: 1,126 people)

Off-Site Center

Explanatory Meeting for Parents



Temporal Back Home for Exclusion Zone

Agreement with Fukushima Univ.

Agreement with Fukushima Med. Univ.

Agreement with Japanese Red Cross Society

Fukushima Daiichi Emergency Room

J-Village Emergency Room

Air Dose Rate Measurement

Soil Sampling

Air Dust Sampling

1. Introduction

Global leaders who have abilities to lead recovery from radiation disaster

Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster

The Purpose

Develop global leaders (Phoenix Leaders) who can exercise sound judgment, have the behavioral abilities to take appropriate actions during a radiation disaster, and who are able to lead the recovery with a clear philosophy and innovative, cross-disciplinary knowledge




Reprinted Source：広島大学「東日本大震災・福島原発災害と広島大学」

- Three Capabilities required for Phoenix Leaders -

Global Skills

A radiation disaster is an issue potentially affecting the whole world. Thus, capability and skills to tackle recovery with a global perspective are required.

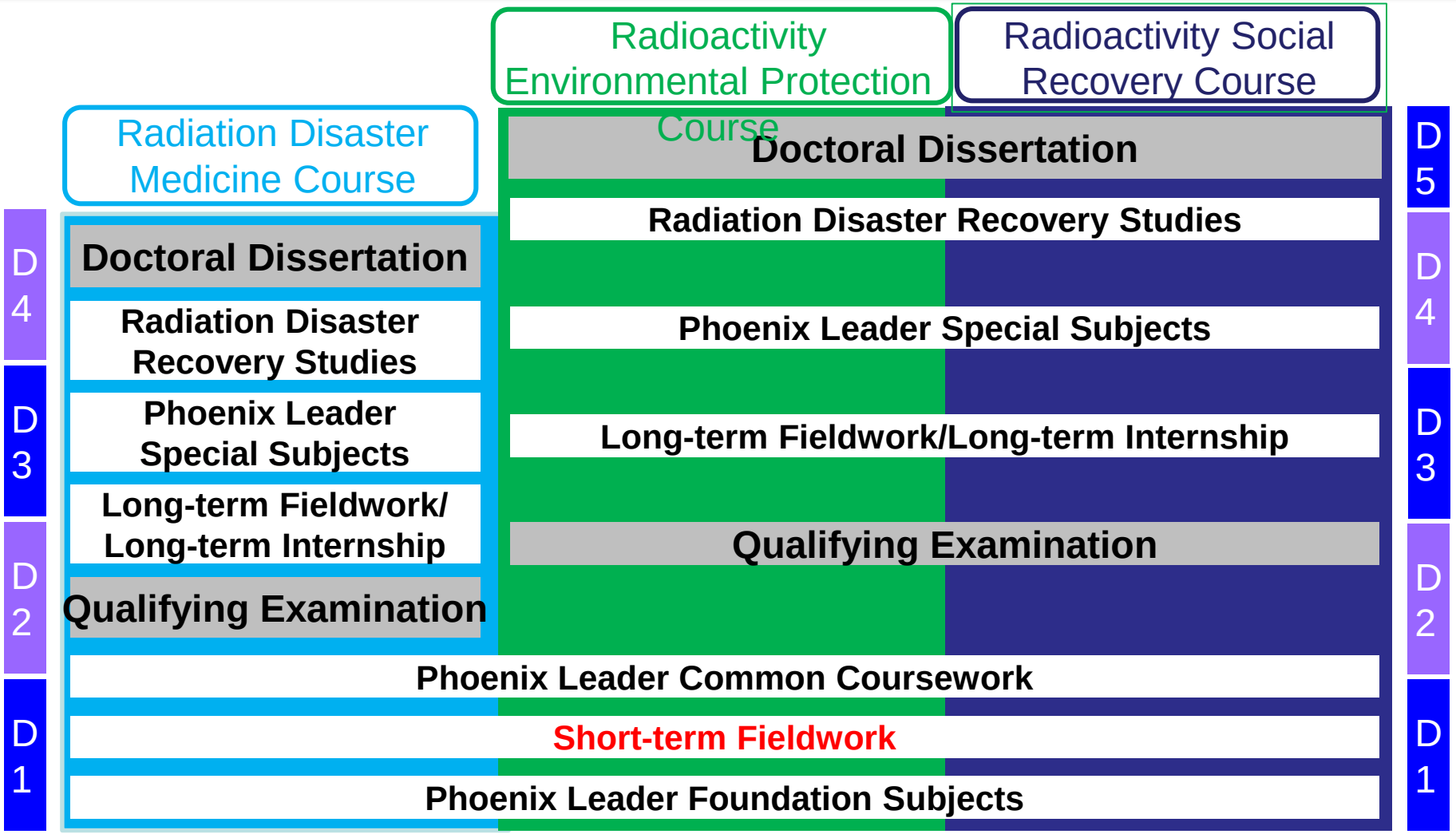
Interdisciplinary Skills

The recovery from a radiation disaster requires comprehensive cross-disciplinary knowledge including medical science, social science and environmental sciences.

Management Skills

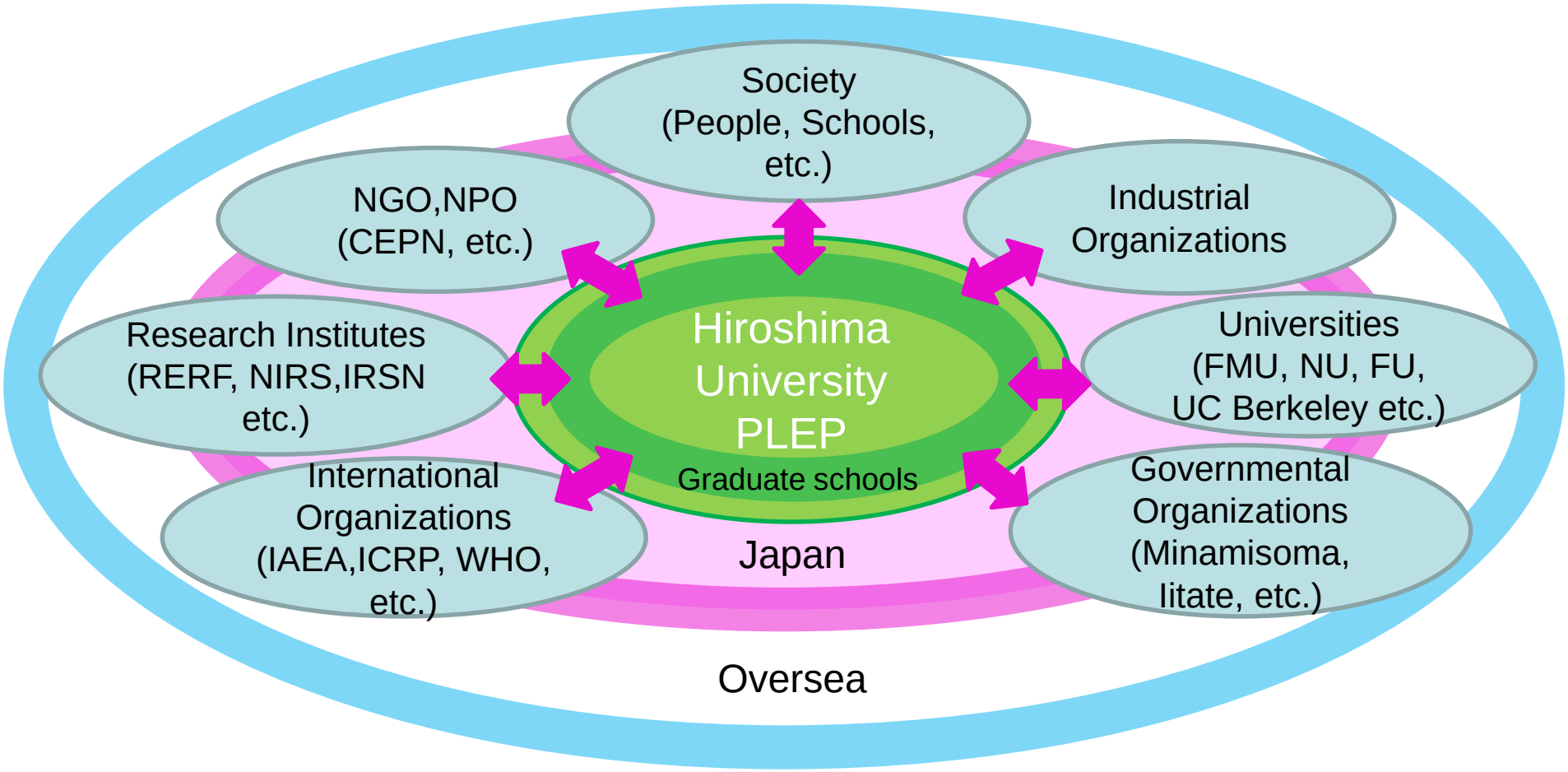
The recovery from a radiation disaster requires an ability to build consensus (management skills) by understanding the effects of radiation and convey the information to people.

- Curriculum Outline -



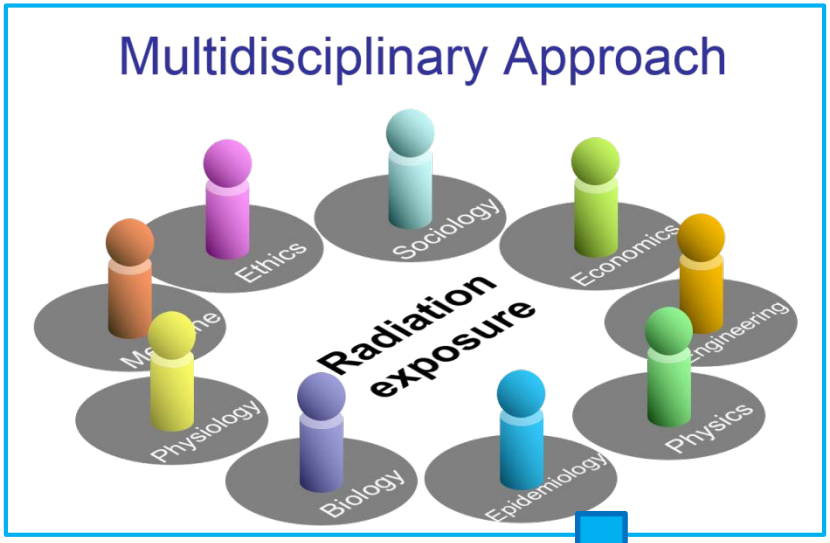
2. Educational system with STS approach

Collaboration among Disciplines, Institutions, Sections



2. Educational system with STS approach

Shifting from multidisciplinary/interdisciplinary approach to also include transdisciplinary approach



Transdisciplinary Evolution of Radiological Protection
Nobuhiko Ban (Commissioner, The Nuclear Regulation Authority)

2. Educational system with STS approach

Transition from Multidisciplinary/Interdisciplinary Approach to Transdisciplinary Approach

Educational Contents of PLEP

① *Phoenix Leader Foundation Subjects*
② *Phoenix Leader Common Coursework*
③ *International Trainings*
④ *Field visits*
⑤ *Seminars by Experts at Forefront of Disaster Recovery*
⑥ *Retreat for Professional Development*
⑦ *Cross-disciplinary Exchange Forum*
⑧ *Short-term Fieldwork*
⑨ *International symposium*

Multidisciplinary/ Interdisciplinary Approach

Transdisciplinary approach

2. Educational system with STS approach

① *Phoenix Leader Foundation Subjects*

To acquire foundational knowledge and skills needed to be successful in the Phoenix Leader Education Program regardless of academic background.

ex; Survey meter usage training

② *Phoenix Leader Common Coursework*

All students will take cross-disciplinary hands-on training at the Hiroshima Phoenix Training Center (HiPTC).
The coursework is designed to cultivate practical skills, risk recognition and risk communication.

Students from all three courses learn in a class

ex; Survey training

ex; Soil sampling

2. Educational system with STS approach

③ International Trainings


Training provided by CEPN - RIR (Belarus)


Training at REAC/TS (USA)


Emergency Medical Training at FMU

④ Field Visits


Soma city


Fukushima Daini NPP


JAEA

2. Educational system with STS approach

⑤ *Seminars by Experts at Forefront of Disaster Recovery*

Dr. May Abdel-Wahab (IAEA)

Dr. Rethy K. Chhem (CDRI)

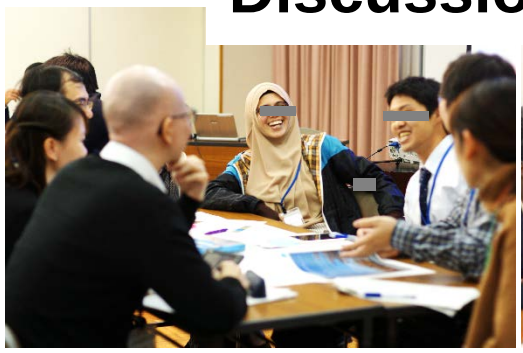
Dr. Jacques Lochard (ICRP)

Dr. Tomoyoshi Oikawa
(Minamisoma Municipal General Hospital)

2. Educational system with STS approach

⑥ *Retreat for Professional Development*

- An overnight retreat at least once a year
- Insightful, reflective discussions with outstanding speakers and program faculty members from different fields
- Opinion exchange about their activities



Discussion

Presentation

2. Educational system with STS approach

⑦ *Cross-disciplinary Exchange Forum*

- Lectures by various experts
- Discussion on topics drawn from across acdemic fields
- Participation by other leading program students across their own fields
  (So far, students participated from TOKYO INSTITUTE OF TECHNOLOGY, TOHOKU UNIV., UNIVERSITY OF HYOGO, and HIROSHIMA UNIV.; TAOYAKA Program)

2. Educational system with STS approach

⑧ *Short-term Fieldwork*

Connection to the real world with active (on-site, hands-on, student-centered, minds-on…) learning method : e.g. Development of the Short-term Fieldwork (STFW)

FY2013 Consist of lectures related to effects of Fukushima Daiichi Nuclear Power Plant accidents was conducted in Fukushima for first students admitted to PLEP as a requirement subject in their 2nd semester (summer intensive course)

FY2014 Open to students of other Universities adopted as MEXT “Program for Leading Graduate Schools” and three outside students joined in. Start the visit to temporary elementary schools for evacuee form Iitate Village.

FY2015 Expand firsthand activities to include Soma Fishing Port and Matsukawaura Bay having 3 students from other Programs for Leading graduate Schools.

FY2016 Include volunteer work having support from Minami- soma City

FY2017 Shift to community based STFW involving local stakeholders

2. Educational system with STS approach

1week practicum STFW (@2016)

		Mon. 31 Aug.		Tue. 1st Sep.		Wed. 2 Sep.		Thur. 3 Sep.		Fri. 4 Sep.
AM	Theme	Support for children after an earthquake disaster according to the situation of each child		Status of Contamination and its health effect Caused by Fukushima Daiichi NPS Accident		Volunteer work for the community		Physical fitness in the daily life of senior citizens		Fukushima Resident Health Management Survey and Thyroid Examination
	Instructor	Tamaki Honda (Special appointed professor of Fukushima Univ.)		Aoki (‘Josen’ (Decontamination) Information Plaza)		Listening to participants of day care service	Farmland conservation activity (clean up rubbles)	Yukio Urabe (Prof. HU)		Akira Otsuru (Prof. FMU)
	Venue	Temporary school building at Iitatemura municipal elementary schools/Fukushima Univ.		Lecture at Ministry of the Environment, ‘Josen’ (Decontamination) Information Plaza		Minamisoma city senior sitizens support center “Kibou”(=“Hope”)	Minamisoma city Odaka district	Temporary housing for evacuees in Minami-Soma city		FMU
PM	Theme	Psychological effects caused by nuclear disaster, and their mechanisms	Current status of and issues in community revitalization programs in Fukushima prefecture	Measurement of environmental radiation along a transportation route	Local residents’ anxiety and measures to cope with it (counseling)	Round table talk with Minamisoma Municipality staff members		Measurement of environmental radiation along a transportation route	Behavior of radioactive materials in a river mouth region ecosystem	Summary discussion
	Instructor	Yuji Tsutsui (Prof. FU)	Itsuki Yoshida (Assistant Prof. FU)	Kiyoshi Shizuma (Special Appointed Prof. HU)	Tomoyoshi Oikawa (Minamisoma Municipal General Hospital)	Yukio Urabe (Prof. HU)		Kiyoshi Shizuma	Seiichi Nohara (National Inst. of Environmental Studies)	All participants
	Venue	Fukushima University		Between Fukushima city and Minami-Soma city	Minami-Soma General Hospital	Minami-Soma city hall		Between Fukushima city and Minami Soma city	Fukushima, Soma-city, Matsukawaura	Decontamination Information Plaza

Each part is coordinated by:

- Radiation Disaster Medicine Course
- Radioactivity Environmental Protection Course
- Radioactivity Social Recovery Course
- Collaborate with Community

2. Educational system with STS approach

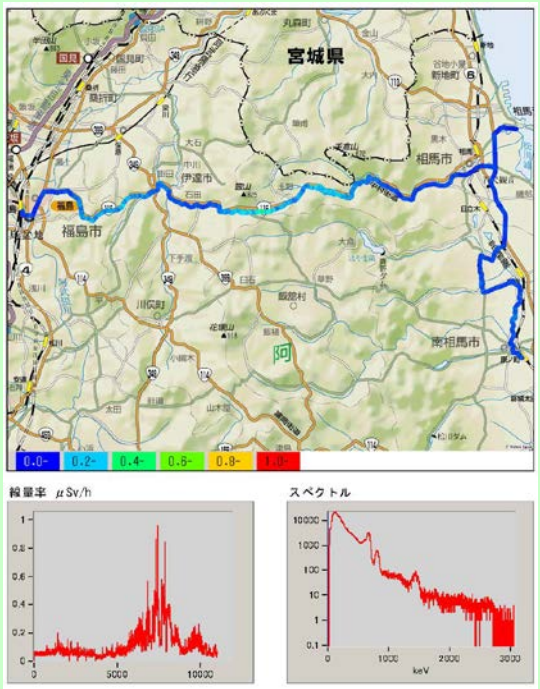
Radiation Disaster Medicine Course

Lecture on Health Management Survey at FMU

Counseling Training in Minamisoma Municipal general hospital

Radioactivity Environmental Protection Course

Measuring, Analyzing Environmental Radiation



Radioactivity Social Recovery Course

Visit to Temporary Housing in Minamisoma City

Visit to Temporary Elementary School in Kawamata City

2. Educational system with STS approach

STWF FY2017: Shift to community based STFW involving local stakeholders
Connection to the real world with active learning method

- Community centered planning
- Fieldworks in three areas by three small groups of students
- Number of opportunities to lean in communication with residents
- Property sessions to learn local situation from different academic view point
- Supervising of various experts
- Support of TA (senior students)

	Sat. 8/26	Sun.8/27	Mon.8/28			Tue.8/29			Wed.8/30	Thur.8/31
AM		Kickoff Meeting（FU）	Field works（Mix members among courses）			Minami -soma group	Yamakiya, Iitate group	Futaba, Suetugi group	School visit (Iitate Elementary school)	Wrap up Meeting（FMU）
PM		Transfer to Fields	Minami -soma group	Yamakiya, Iitate group	Futaba, Suetugi group	- Transfer to Fukushima City			Dialogue meeting（FMU）	
Evening	Welcome Meeting（Fukushima City）	Debriefing meeting								

2. Educational system with STS approach

⑨ *International symposium*

Synthesis of PLEP Students' Transdisciplinary Learning

- Students' participation in the preparatory meetings to organize the symposiums
- Students presentation with feedback from invited experts and symposium attendee form deferent fields, institutions and sectors

Students' Planning Meeting

Students' Poster, Oral Presentation

2. Educational system with STS approach

⑨ *International symposium*

Bridging the Academic World and Society

- Main symposium coordinated by students
- Discussion involving scientists and stakeholders from government and communities





2. Educational system with STS approach

Quality Assurance System:

Common Curriculum Map for visualization of the Transdisciplinary approach

NO	Learning Goals	Learning Objectives	Natural Disasters and International Cooperation	Advanced Lectures on Radiation Biology	Business Continuity Management (BCM)
1	Global skills : The student will demonstrate leadership in international society.	The student can prepare academic papers by using a foreign language.			
		The student can hold discussions by using a foreign language.			○
		The student can conduct business by using a foreign language.			
		The student can use judgment and coordination that are required to achieve objectives in an international group.	○		○
2	Management skills : The student will grasp a situation from a scientific perspective, and guide consensus formation toward improving the situation.	The student can understand problems confronted by human society and problems encountered by groups.			
		The student can propose measures for relevant problem solving tasks on the basis of correct knowledge and a high ethical sense.	○		
		The student can control the stresses of individuals and groups, and provide management so that the individuals and groups can advance in the appropriate direction.			○
		On the basis of the experience of Hiroshima University, which achieved restoration from the damage caused by the atomic bomb, the student can clarify the role that they themselves should play in radiation disasters.		○	
3	Interdisciplinary skills : The student will take a comprehensive look at the entire body of specialized knowledge, and utilize such knowledge as needed.	The student can utilize both knowledge and technologies that transcend specialized fields, and can propose and deploy original research.	○		
		The student understands the diverse risks accompanying radiation disasters from a comprehensive viewpoint, and can recommend appropriate countermeasures.	○	○	○
		The student understands the fundamentals of radiation biology, and can evaluate the effects of radiation on the human body.		○	
		The student understands the fundamentals of radioactive substances and radioactive rays, and can evaluate the dynamic state of radioactive substances in the environment.			
		The student can grasp the stresses on individuals and groups at the time of a radiation disaster, and can present methods of solution.		○	

2. Educational system with STS approach

Quality Assurance System:

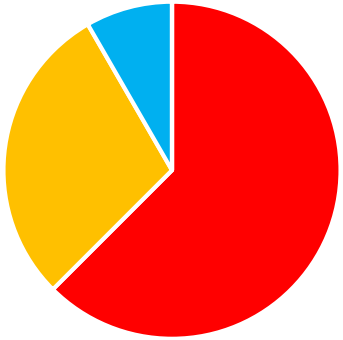
Common Rubric for visualization of student achievement

Learning Goals	Learning Objectives	Effort 1	Effort 2	Effort 3	Effort 4	Effort 5
International skills: Students will exerting leadership in international society			**omitted**			
	Students will conduct business in a foreign language	Handle passively (receive) operational communication in English	Handle actively (send) operational communication in English	Engage in negotiations in English	Engage in negotiations in English and obtain individual results	Engage in a series of negotiations in English and obtain organizational results
	Students will reach decisions and make necessary adjustments in order to attain objectives in an international group setting	Contribute to group work in English	Draw up group projects in English	Pursue group projects in English	Direct group projects in English	Direct group projects in English and obtain significant results
Management skills: Students will gain a scientific understanding of the situation and lead the way to a consensus	Students will understand the issues confronting mankind and problems plaguing community	Explain the basic concepts necessary for understanding human social behavior	Explain the multi-layered process of the influence of human social behavior	Propose concrete responses to social exclusion, prejudice and discrimination	Draw up programs based on the concepts of human social behavior	Draw up and execute programs based on the concepts of human social behavior and obtain tangible results
	Students will propose measures concerning issues based on accurate information and a lofty sense of ethics	Collect information necessary for analyzing a given situation or making an ethical decision with regard to a given challenge	Explain a given situation and make an ethical statement with regard to a given challenge based on accurate information	Propose measures with regard to a given challenge, based on accurate information and for the social good	Draw up and execute programs based on accurate information and original observations of ethical issues in a given situation	Draw up and execute programs based on accurate information and deep ethical reflection in a given situation and propose a new concept of social good
			omitted			

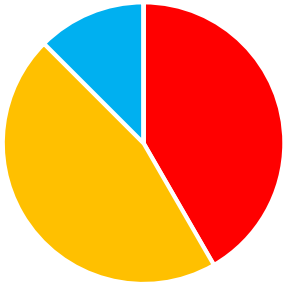
3. Students Survey

Are/Were classes in this program (each subject and Common Coursework) useful for improving your knowledge?

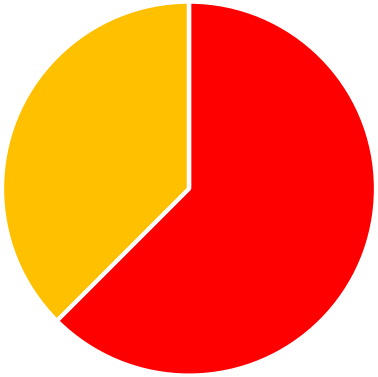
Are/Were Fieldwork and Field Visits useful for improving your knowledge?



Are/Were you able to acquire cross-disciplinary knowledge after enrolling in the Phoenix Leader Education Program?



Are/Were you happy to be selected for the program?



Very Useful Useful Somewhat Useful Not Very Useful Not useful


Thank you
We will fully support Fukushima
for its Renaissance from Radiation Disaster