

2011 Program for Leading Graduate Schools by MEXT

*Phoenix Leader Education Program
(Hiroshima Initiative)*

for Renaissance from Radiation Disaster

FY2015

Self Study Report



– Hiroshima University –

Introduction

The Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereinafter, “the Program”) is a doctoral program designed to foster interdisciplinary and multi-talented global leaders (Phoenix Leaders) who are able to undertake the best possible actions in circumstances involving a radiation disaster. They will also be able to contribute to the recovery efforts by displaying strong leadership based on appropriate judgment and a clear vision. Hiroshima University inaugurated the Program by taking advantage of its wealth of experience gained while supporting the recovery from the destruction of the atomic bombing. Furthermore, this experience is supplemented by the University’s proven track record functioning as a national tertiary radiation medical institution.

This program was launched at Hiroshima University as a component of the Programs for Leading Graduate Schools of Japan’s Ministry of Education, Culture, Sports, Science and Technology (MEXT) in 2011. Officially, the MEXT Program initiative ends in March 2018 but the foundation put in place will certainly live on beyond the next two years. In FY2014, this Program underwent an interim evaluation by the Committee for Programs for Leading Graduate Schools and the Program was assessed as a “Category A: Efforts have been made in accordance with the plan and if ongoing efforts are continued, it is expected to successfully achieve the intended program goals by March 2015. We appreciate that this achievement has been the result of ongoing improvement based on the advice and suggestions generated by the external evaluation committees of the past three years.

We are currently striving to achieve an even higher level of overall educational quality and management efficiency. In particular, the details of the study subject “Radiation Disaster Recovery Studies” as a compilation of studies and research from within the program was determined following lengthy discussions. Consequently, we consider successful completion of the program and the promotion of the graduates into the world at large as Phoenix leaders as both a personal and institutional responsibility. Furthermore, and one of the program’s most important ‘outcomes’, involves the initiative put forth by the Career Path Committee. Our program has taken concrete measures to ensure the smooth transition of our students from the world of academia into a rewarding career following their graduation.

This report consists of the results of the program self-study assessment which was implemented using 9 criteria that were divided into 22 discrete points. These points were based on the program’s original plan. It is my sincere hope that leading figures in industry, academia, and government circles, both inside and outside of Japan will read this report and provide us with informative evaluations and practical suggestions so that we can continue to develop and improve the Program and in turn not only meet, but exceed the expectations placed upon us by stakeholders from around the world. I would like to ask you for your sincere and frank suggestions, including not only praise but also your honest criticism.

January 2016

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I. List of Issues from results of External Evaluation in last year

We at Hiroshima University identified 12 issues to address from the External Evaluation Report FY2014 prepared by the External Evaluation Committee for the Phoenix Leader Education Program for Renaissance from Radiation Disaster, and made efforts to improve these issues in the process of activities in FY2015. Details on the improvements of individual issues are provided in connection with the major points of the evaluation criteria.

No.	Issue	Criterion	Page
1	More active involvement (classes) of faculty members from the social sciences is necessary.	Point 2—①	4
2	It is necessary to clarify strategies to continue the Program, and to promote shared awareness of the strategies among faculty members.	Point 2—②	6
3	The teaching handbook prepared to correct a perception gap among faculty members needs to be made easier to understand.	Point 3—①	7
4	It is necessary to conduct discussions on what education should be provided and hold training seminars for faculty members to promote the shared awareness of achieving the purpose of the Program.	Point 3—②	8
5	Internship destinations need to be expanded beyond the scope of nuclear power and radioactivity to include institutions responding to natural and human-caused disasters.	Point 5—①	12
6	It is necessary to convey the structure of the Program in a concise manner to help promote the activities of students as well as evaluators.	Point 5—②	14
7	It is necessary to clarify the entire process ranging from cross-disciplinary education to degree acquisition.	Point 5—⑤	15
8	The teaching handbook needs to be made easier to understand.	Point 5—⑤	17
9	To compensate for the lack of participation of faculty members from the social sciences, it is necessary to expand opportunities for students to study outside the Program.	Point 5—⑥	18
10	It is necessary to provide opportunities to learn about leadership.	Point 5—⑥	18

11	It is necessary to establish a system to confirm the progress of students' long-term activities outside the University.	Point 5-⑥	18
12	In terms of research themes, it is desirable to cover a wide variety of areas of research.	Point 7-③	24

II. Evaluation of individual criteria

In this self-evaluation report, the activities and achievements of the Program are evaluated based on specific points set under nine criteria. With regard to the 12 issues identified by the External Evaluation FY2014 (described earlier), the status of improvement is reported in connection with the related points of each criterion. The description of each evaluation is followed by a list of major reference materials, which are provided as concrete grounds for the evaluation. These reference materials are contained in “Reference Materials for Self Study Report FY2015.” The numbers of the “major reference materials” listed in this self-evaluation report corresponds to those in the “Reference Materials for Self-Evaluation Report FY2015.”

Criterion 1. Purpose of the Program

Point: Does the purpose of the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster (hereafter “the Program”) comply with the purpose of the Leading Program in Doctoral Education, sponsored by the Ministry of Education, Culture, Sports, Science and Technology (MEXT) : fostering leaders who have a broad perspective and creativity and who will be active in global academic, industrial, and governmental arenas?

【Explanation and Analyze the Situation】

Since its adoption by the MEXT “Program for Leading Graduate Schools,” the Program has aimed to develop “Phoenix Leaders,” or global leaders who have the judgment and behavioral abilities to take appropriate action in circumstances of radiation disaster and lead recovery with a clear philosophy and innovative knowledge across disciplines. To this end, we have established a new academic field called “Radiation Disaster Recovery Studies,” which enables a multidisciplinary approach ranging from medicine to environmental studies, engineering, science, social science, education and psychology.

In FY2014, this Program, which was accepted as one of the 2011 Programs for Leading Graduate School, underwent an interim evaluation by the JSPS* Committee for Program for Leading Graduate Schools. In March 2015, the Program was assessed as “Category A: Efforts have been made in accordance with the plan and if ongoing efforts are continued, it is expected to achieve the purpose of the Program.

* JSPS: Japan Society for the Promotion of Science

【Reference Materials】

- 1 Interim evaluation results of “Program for Leading Graduate Schools of FY 2011”

Criterion 2. Implementation Structure

Point 2-① Does the Program have guidance and student-support systems appropriate for achieving its purpose?

Issue 1: More active involvement (classes) of faculty members from the social sciences is necessary.

【Explanation and Analyze the Situation】

To provide comprehensive, cross-disciplinary research guidance, the Program has established a tutoring system under which each student has at least four advisers: one primary adviser and one co-adviser or more from each of the three courses. Students are also provided with opportunities to receive guidance and advice from outside researchers on a routine basis, including classes and reporting sessions. This education system beyond the boundaries of graduate schools and research institutes allows students to participate in cross-disciplinary omnibus lectures and practical training courses. Under this system, the Program has provided education directed toward its purpose of fostering excellent students who are both highly creative and internationally attuned and who will play leading roles in the academic, industrial and governmental sectors across the globe.

Hiroshima University has established a support system to ensure that students acquire knowledge and skills in and across the area of specialty. In compulsory subjects, graduate students with excellent academic records in more than half of the subjects required are hired as teaching assistants (TA) to provide language support and record lectures on DVD for review.

Students' cross-disciplinary learning activities are also supported by Teaching mentors, Student Consultant (staff) mentors, and SENPAI mentors. (The functions of mentors were organized based on the Mentor Handbook prepared in FY2014.) Last year, exchange meetings between students and mentors were held to promote the effective use of the mentor system. In October 2015, a monthly lunch meeting system for students and mentors was launched under the auspices of the Student Life Committee. These systems enable the University to routinely respond to students' questions and problems, thereby fostering a shared understanding of the distinctive features and purpose of this Program that requires cross-disciplinary study and the acquisition of numerous course credits for completion, and enhancing the students' commitment to the Program.

With regard to the need for more active involvement of faculty members from the field of social science, an issue indicated in the Evaluation FY2014, Tsunekazu Toda, Professor of the Department of Management Studies, Graduate School of Social Sciences, (who is also in charge of the Radioactivity Social Recovery Course) joined the Career Path Committee in FY2015 and planned and implemented Phoenix Leadership Seminars with eminent figures from the business world as guest lecturers. In these seminars, students learned about management in global business. Moreover, the Radioactivity Social Recovery Course Committee meeting held in FY2015 developed a policy to put all Program members in charge of classes (including omnibus) in FY2016 and afterward, and an adjustment is currently being made.

【Reference Materials】

- 2 List of the faculty members
- 3 List of Part-Time Lecturer 2015
- 4 List of Academic Advisers
- 5 Phoenix Leader Education Program Mentor Handbook
- 6 Flyers: Leadership seminars

Point 2-② Does the Program have planning, operating, and partnership-building systems appropriate for achieving its purpose?

Issue 2: It is necessary to clarify strategies to continue the Program, and to promote shared awareness of the strategies among faculty members.

【Explanation and Analyze the Situation】

Yearly updated annual plans have been steadily implemented using appropriate planning, operating and partnership-building systems. With our eyes focused on the MEXT's support program being slated for completion in March 2018, we are currently considering the framework to continue this Program.

The Program has been operated and managed continuously by Hiroshima University's Organization of the Leading Graduate Education Program ("Leading Program Organization"), with the University President as the head. The Hiroshima University Leading Program Organization Steering Committee, established as a deliberative organ for the Leading Program Organization and consisting of all the deans of all the graduate schools of Hiroshima University, makes decisions on important matters such as the development of economic support schemes for students, entrance examination, and Qualifying Examination (QE). The Committee for the Phoenix Leader Education Program ("Program Committee"), consisting of Program Members, and the Steering Committee for the Phoenix Leader Education Program ("Steering Committee") were managed effectively, with fewer meetings than in the previous year, which is largely attributable to strengthened time schedule management at each committee level and carefully-selected agenda items. All the committees, including the Career Path Committee established in FY2014, have been functioning smoothly according to the annual plan.

As mentioned in the Criterion 1 section, this Program received the following comment from the Japan Society for the Promotion of Science (JSPS) as the result of its interim review, which was released nationwide:

Recognizing that the Program is expected to play a critical role in resolving global issues, we hope that Hiroshima University and its related institutions will continue their efforts to make the Program a Japan-based, world-class leader education program by promoting cooperation between industry, government and academia. To this end, it is also hoped that Hiroshima University will closely work with IAEA, WHO and other international organizations to enable the Program to serve as a formal, international-standard diploma program.

Following this comment, Hiroshima University's Organization of the Leading Graduate Education Program has since convened meetings, in which the Director, Coordinator and other staff members of this Program and another program selected as a MEXT Program for Leading Graduate Schools have been continuously engaged in discussions about the continuation and further development of this Program after the completion of government funding. A clear vision on an organizational structure, changes to the curriculum, and financial support schemes for students, will

be presented by the end of FY2015.

【Reference Materials】

- 7 Annual Plan
- 8 List of Program Meeting Agenda

Criterion 3. Program Members and Education Supporters

Point 3-① Does the Program have a clear policy to build an organization of faculty members? Does it clarify the responsibilities of respective members for education and research activities?

Issue 3: The teaching handbook prepared to correct a perception gap among faculty members needs to be made easier to understand.

【Explanation and Analyze the Situation】

As stated in the section “Point 2-①”, the University has established a tutoring system for the Program, under which each student has at least four advisers: one primary adviser and one co-adviser or more from each of the three courses (including faculty members other than Program members). In the curriculum for the Program, students are also provided with opportunities to receive education from instructors from outside the University (partner institutions).

In response to changes in advisers due to the personnel revisions made in FY2015, adjustment and coordination in each course and necessary procedures for the Program were conducted in a timely and appropriate manner to ensure that students can receive education in a stable condition.

Since outside researchers and specialists who are at the forefront of recovery from radiation disasters also participate in the Program as part-time lecturers, it is necessary to ensure a common understanding of the positioning and objectives of individual classes among lecturers. To address this issue, a Teaching Handbook was prepared in the previous fiscal year, and in this fiscal year improvements were made to make the Teaching Handbook easier to understand, including the inclusion of a curriculum map that allows an at-a-glance view of class objectives.

【Reference Materials】

- 4 List of Academic Advisers
- 9 Teaching Handbook

Point 3-② Does the Program have faculty members capable of achieving the purpose of the Program: to foster Phoenix Leaders, Who will conduct interdisciplinary and integrated management of recovery programs in regions suffering from complex damage caused by radiation disasters?

Issue 4: It is necessary to conduct discussions on what education should be provided and hold training seminars for faculty members to promote the shared awareness of achieving the purpose of the Program.

【Explanation and Analyze the Situation】

As stated in the section “Point 2-①”, specialists in radiation and recovery from radiation disasters have also been involved in the Program, across national and organizational boundaries, by providing lectures and guidance. An international symposium has been held every year, in which these researchers and experts meet to check the progress of the Program and promote interdisciplinary dialogues to build an academic foundation for the new field “Radiation Disaster Recovery Studies.” In FY2015, the seventh education seminar was held, in which Program members engaged in active discussions about how the classes of Radiation Disaster Recovery Studies should be, as the final subject of the Program. Through these discussions, participants developed a shared understanding of the purpose of the Program and consolidated the foundations of the new academic field of Radiation Disaster Recovery Studies.

【Reference Materials】

- 2 List of the faculty members
- 3 List of Part-Time Lecturer 2015
- 10 Flyer: the 7th Educational Seminar for the Phoenix Leader Education Program
- 11 Report on the 7th Educational Seminar
- 12 Flyers: FY2015 International Symposium

Criterion 4. Status of Accepting Students

**Point 4-① Does the Program have a definite policy and criteria for admitting students?
Does the University Publicize those criteria?**

【Explanation and Analyze the Situation】

We created a student recruitment pamphlet and application guide for October 2016 enrollment, both of which carry detailed information, such as the educational purpose of the Program, what type of students are sought, the basic policy for student screening, and the admissions policy. To widely distribute the information, copies of the pamphlet and application guide were sent to universities in Japan and abroad, related organizations, and Program members, and they were also put on the Hiroshima University website.

Moreover, we conducted PR activities, such as recruiting fairs and briefing sessions for admission to the Program, on the campus of Hiroshima University and in Fukushima Prefecture, as well as abroad in China, Indonesia, Vietnam and Thailand. Our PR activities conducted in FY2015 have involved all the Program members by calling on them to hold briefing sessions and distribute relevant materials at their graduate schools and academic conferences.

Public relations have also been conducted using magazines and journals. Just as in the previous fiscal year, we ran advertisements in the magazines/journals “Kyoshoku Katei” (teacher training), “Experimental Medicine,” “Saibo Kogaku” (cell engineering) and “Journal of Radiation Research,” and the website “Daigakuten.com.” In FY2015, the two titles of “Resident Note” and “Daigakuin ni ikou” (Let’s go to graduate school) were newly added for publicizing the Program.

【Reference Materials】

- 13 Flyer: Application Guide for Admission (October 2016 Enrollment)
- 14 Application Guide for Admission
- 15 List of Domestic Explanation Meetings of Entrance Examination
- 16 List of Overseas Explanation Meetings of Entrance Examination
- 17 List of Journals in which Application Notice were published

Point 4-② Does the Program employ an appropriate system to select students according to its admission policy? Does the system function well?

【Explanation and Analyze the Situation】

Examinations to screen applicants for October 2016 enrollment (the fourth year of the Program) were held twice.

In each examination, applicants were screened, from the viewpoint of industry, government and academia, by the Program Director, Program members under whom each applicant desires to study, other Program members within and outside the University, and external examiners (from Mitsubishi Heavy Industries, Ltd. and the Chugoku Electric Power Co., Ltd.).

Each examination has two stages of screening: a written exam and an interview exam. In the first-stage exam, we conduct the screening of applicants on the basis of a written thesis to check their areas of specialty, motivation for applying for the Program, and applied abilities required for cross-disciplinary research. The second-stage screening is conducted in the form of an overnight camp, in which each applicant's linguistic, communication, and presentation abilities are examined through a face-to-face personal interview in English, a group interview and a presentation.

As a result, four students joined the Program in October 2015. The three courses of the Program have accepted a balanced number of students so far, including this fiscal year, thereby realizing the development of experts with a broad perspective—a policy we stand for. **A student from the Philippines was newly accepted this year, making a total of 10 nationalities enrolled so far in the program. They are working hard through friendly competition with each other, creating an international academic environment.**

【Reference Materials】

18 List of Students and Attendees to Explanation Meeting of Entrance Examination

Point 4-③ Does the Program have a system to verify that screening methods comply with the admissions policy? Are verification results reflected in improving the screening methods?

【Explanation and Analyze the Situation】

The Entrance Examination Committee of the Program verifies each fiscal year that students are accepted appropriately in accordance with the purpose of the Program, and identifies areas for improvement. Verification results are reflected, as needed, in improving the screening methods and PR activities for the following fiscal year.

In FY2015, the criteria for entrance examinations were revised in order to conduct screenings more strictly and impartially. For the Radiation Disaster Medicine Course, we introduced a recommendation-based examination system for physicians, based on the idea that we need to secure medical license holders who can engage in medical activities, including medical diagnoses and treatment, in Japan.

【Reference Materials】

- 19 Application Guide for Admission, “Special Quota of Physicians Protecting Human Lives from Radiation Disaster”

Criterion 5. Content and Means of Education

Point 5-① Does the Program have systematic curricula appropriate to fulfill its goal and suitable for granting academic degrees? Are the subjects to be taught well arranged in line with the purpose of the Program?

Issue 5: Internship destinations need to be expanded beyond the scope of nuclear power and radioactivity to include institutions responding to natural and human-caused disasters.

【Explanation and Analyze the Situation】

As stated in the section “Point 3-①”, those in charge of classes design and conduct classes based on the Teaching Handbook. They also use the curriculum map and rubrics to check the positioning of their classes and determine the content and difficulty level of each class. In FY2014, “Hiroshima Recovery History,” one of the start-up common subjects, was redesigned, and in FY2015 a field trip to Fukushima was newly incorporated into the subject, which also provides an omnibus lecture series from the three courses. This improvement has enabled students to have an early understanding of the importance of taking an interdisciplinary approach. In order to optimize hands-on learning opportunities, preparatory training was beefed up into a compulsory subject “short-term fieldwork” in FY2015. As a result, students took the initiative in learning from local people and conducted active discussions at a review meeting held every day at their accommodations. Some students have developed the issues identified in the short-term fieldwork into their own individual research activities, for which they are keeping in touch with local organizations and people.

Short-term and long-term internships designed for students to acquire practical expertise, on which the Project places prime importance, were reinforced due to close cooperation between industry, government and academia. In Japan, for instance, Mazda Motor Corp. provided support for the Program by offering internship opportunities that enable students to take advantage of their backgrounds and learn firsthand about what is expected of themselves in the real world. Penta-Ocean Construction Co., Ltd. and other companies were added to the list of internship destinations, thereby providing students with internship programs fitting their career designs and goals.

Overseas, we continuously offered short-term internship (scientific visit) opportunities at the International Atomic Energy Agency (IAEA), and in FY2015 also realized a long-term internship (four months) there. Furthermore, in FY2015, a long-term internship program was implemented at the International Commission on Radiological Protection (ICRP), and we are planning to provide a long-term internship at Le Centre d'étude sur l'Evaluation de la Protection dans le domaine Nucléaire (CEPN). To further increase internship opportunities, we will hold a meeting to promote collaboration between industry, government and academia in February 2016 and raise shared awareness of human resources development in the Program.

In FY2015, we held the seventh education seminar, in which Program members engaged in active discussions about the teaching content and methods of Radiation Disaster Recovery Studies, a

compulsory subject that is the final subject of the Program, for the next fiscal year starting in April 2016. In this subject, students are required to set their own themes based on the knowledge and skills acquired through common coursework, fieldwork, internships and global field visits, and write under the mentorship of their primary advisers and co-advisers responsible for each course. The students' final goal is to identify their own positions and roles to play in the context of recovery from radiation disasters, while pursuing their areas of specialty. Students are evaluated based on a paper concerning Radiation Disaster Recovery Studies, as well as oral presentations and questions and answers in a debriefing session.

【Reference Materials】

- 9 Teaching Handbook
- 10 Flyer: the 7th Educational Seminar for the Phoenix Leader Education Program
- 20 By-Laws for the Completion of the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster
- 21 Lecture plan of History of Hiroshima Restoration
- 22 2nd Phoenix Leader Education Program Seminar, 2014
- 23 Short-term Fieldwork Schedule FY2015
- 24 List of Internship
- 25 Code on Implementing Radiation Disaster Recovery Studies
- 26 Syllabus of Radiation Disaster Recovery Studies

Point 5-② Does the Program have means to guide students of diverse backgrounds to the goal of obtaining degrees? Does the Program have means to allow students to confirm their achievement levels?

Issue 6: It is necessary to convey the structure of the Program in a concise manner to help promote the activities of students as well as evaluators.

【Explanation and Analyze the Situation】

The Program has effectively used the University's online system to ensure the smooth implementation of classes and research guidance by faculty members belonging to different graduate schools. The University's Learning Management System "Bb9" has been used for the management of class materials and homework, and the Learning e-Portfolio, for the learning of individual students. The Learning e-Portfolio also enables primary advisers and co-advisers to check each student's research activity reports and their progress toward the Program goals, together with the academic credits acquired and the academic achievements.

We conduct the Qualifying Examination (QE) in the third semester of the four-year course and in the fourth semester of the five-year course to check students' academic achievements. The QE has been conducted four times by September 2015, and all the examinees (19 students) passed the exam and were allowed to continue their studies.

In FY2015, we established the content and teaching methods of Radiation Disaster Recovery Studies, which is the Program's final subject all students attend. In the course, students are required to create a work product, including writing a paper, as a summation of what they have learned on the Program, and present it in a debriefing session, in which they are evaluated in light of the Program's goal for fostering specialists. Students also need to take a doctoral degree examination conducted by the graduate school. A diploma showing completion of the Program is awarded to those who pass these examinations. We presented to students the process for the completion of the Program (including degree examination and decision process about program completion) in the eighth semester of the four-year course and the tenth semester of the five-year course.

As mentioned above, in FY2015 we fine-tuned the structure of the Program and made improvements in the methods to clearly convey how the Program is structured for students. Specifically, as mentioned in the section "Point 3-①", we revised the Teaching Handbook for the Program and improved the Learning e-Portfolio so that students can confirm their achievement levels at a glance.

【Reference Materials】

- 27 Guide to Implementing Qualifying Examination
- 28 Qualifying Examination Implementation Procedures
- 29 Process for the attainment of an academic degree
- 9 Teaching Handbook

- 30 Improvement of the e-Portfolio system
- 25 Code on Implementing Radiation Disaster Recovery Studies
- 26 Syllabus of Radiation Disaster Recovery Studies

Point 5-③ Does the Program have advanced educational functions sufficient to offer high-level practical curricula?

【Explanation and Analyze the Situation】

As mentioned in the section “Point 3-①”, the classes for the Program are delivered by the University’s faculty members at the forefront of the recovery of radiation disasters as well as outside researchers and practitioners (hired as part-time lecturers), thereby providing education based on cutting-edge research achievements and the latest case studies.

The Program also provides students with ongoing opportunities for learning at research institutes involved in radiation research and recovery from radiation disasters, as well as in areas affected by radiation disasters. For example, students have an opportunity to receive high-level practical training at the Radiation Emergency Assistance Center/Training Site (REAC/TS) at the Oak Ridge Institute for Science and Education (ORISE).

The Program also provides students with opportunities to listen to lectures by experts from industry, government and academia and to talk with guest speakers by holding retreats (twice a year) and many types of academic seminars (various times). Although participation in these events is an optional part of the Program, students can use a report about these retreats/lectures as an assignment for the compulsory subject, “Interdisciplinary Integrated Seminars.” These events enable students to absorb a wide variety of information in an effective manner. In FY2014, we launched the Global Field Visit program for students who have passed their QE, to provide hands-on training at research and other organizations in Japan and abroad, depending on their area of specialty.

The Program also encourages students to actively participate in academic conferences in Japan and abroad to access cutting-edge research achievements, by supporting travel and other expenses. Students can use a report about these academic conferences as an assignment for the compulsory subject “Interdisciplinary Integrated Seminars,” which requires an examination administered by the Education Committee.

As mentioned in the section “Point 3-②”, the Program holds an international symposium every year as the culmination of the education described above. Students join a working group for the symposium to express their opinions from the planning stage, resulting in higher motivation and enthusiasm for practical work experience. The international symposium provides students with not only an opportunity to learn the latest research and practice findings but also an opportunity to disseminate what they learn through the Program and to promote discussions. In this sense, holding such an international symposium has tangible and beneficial effects on the student’s education.

【Reference Materials】

- 31 List of Field Visits
- 32 List of Retreats

- 33 List of Seminars
- 34 Guide to the Organization of Interdisciplinary Integrated Seminars
- 35 List of Interdisciplinary Integrated Seminars
- 12 Flyers: FY2015 International Symposium

Point 5-④ Does the Program have a mechanism to develop students' communication and negotiation abilities so as to foster active leaders who will address global challenges?

【Explanation and Analyze the Situation】

In the compulsory subjects of the Program, all classes are provided in English; students are required to improve their communication abilities in English. As mentioned in the sections “Point 5-① and ③”, internship opportunities at IAEA, ICRP and CEPN and practical training at REACT/TS have served as a good opportunity for students to view themselves objectively in terms of international communication, their negotiation abilities, and to increase their awareness of the importance of improving such abilities.

As part of the efforts to improve students' English communication skills, student-driven classes, in which various international situations are simulated, are provided in the compulsory subjects of Scientific English, English Communication, English Rhetoric, and English Presentation.

To identify goals and challenges as the program to foster human resources equipped with the ability to play an active role on the global stage, moreover, the Program has decided to require all students—regardless of whether they have registered for English classes—to participate in the Phoenix Leader Education Program's English Proficiency Assessment from FY2015, and to ensure that students can reach the target level set out in the Code on the Assessment of Outcomes of English Education for the Phoenix Leader Education Program for Renaissance from Radiation Disaster. In December 2015, we developed the Code on English Proficiency Examinations for Overseas Training and Related Programs, in which the desired achievement scores for various English proficiency tests are shown as the benchmarks for participation in internships and other overseas training programs.

【Reference Materials】

- 24 List of Internship
- 35 List of Interdisciplinary Integrated Seminars
- 36 Syllabi of lectures in English
- 37 Phoenix Leader Education Program English Outcomes Report
- 38 Code on the Evaluation of Learning Outcomes in English-language Education
- 39 Code on the Qualifications for Certifying Language Proficiency Required for Overseas Studies

Point 5-⑤ Does the Program have appropriate syllabi in adherence with the spirit of curriculum organization and a system to use them effectively?
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Issue 7: It is necessary to clarify the entire process ranging from cross-disciplinary education to degree acquisition.
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Issue 8: The teaching handbook needs to be made easier to understand.
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【Explanation and Analyze the Situation】

Syllabi for all the subjects have been prepared in an appropriate manner, and they have been published on the online class support system Bb9. The syllabi are not only used for registration but also to enable students to attend a class with a clear vision of what's expected.

As mentioned in the section “Point 3-①”, in FY2015 the Teaching Handbook was overhauled to make it easier to understand, and then distributed to Program members. The handbook carries the Curriculum Map, enabling Program members to quickly check the positioning of their classes and create a syllabus for each class from the overall perspective of the Program. Further efforts are currently underway to improve syllabi for FY2016 to clearly show an attainment goal for each class and provide criteria for the evaluation of student performance.

Moreover, the content and the teaching strategies of Radiation Disaster Recovery Studies were discussed by Program members, as mentioned in the section “Point 5-②”, based on which a syllabus was created and released to students. This enables both teachers and students to share an understanding of the goals of learning and education in the Program and look at the general plan for completion of the Program.

【Reference Materials】

- 9 Teaching Handbook
- 25 Code on Implementing Radiation Disaster Recovery Studies
- 26 Syllabus of Radiation Disaster Recovery Studies

Point 5-⑥ Is the Program organized with due consideration given to students' autonomy and students who take courses outside their own fields?

Issue 9: To compensate for the lack of participation of faculty members from the social sciences, it is necessary to expand opportunities for students to study outside the Program.

Issue 10: It is necessary to provide opportunities to learn about leadership.

Issue 11: It is necessary to establish a system to confirm the progress of students' long-term activities outside the University.

【Explanation and Analyze the Situation】

As stated in the section “Point 2-①”, students studying subjects outside their specialty are provided with a variety of support, including records of classes and the use of teaching assistants.

To address the issue of increasing learning opportunities in the field of social science, which was indicated in FY2014 by the External Evaluation Committee, classes conducted by teachers of the Radioactivity Social Recovery Course were reorganized as seminars that are open to non-registered students irrespective of what year of the Program they are in. Additionally, seminars with invited speakers were held by the Radioactivity Social Recovery Course.

With regard to the issue of providing opportunities to learn about leadership, the Career Path Committee held leadership seminars (see the section “Point 2-①”), through which the students set a clear vision for what kind of leaders they want to be and to promote a better understanding of what leadership means. In a leadership seminar with speakers from industry, a faculty member belonging to the Graduate School of Social Sciences and responsible for the Radioactivity Social Recovery Course served as a facilitator, and active discussions about the nature of leadership took place among the leadership.

As described in the section “Point 5-③”, there are some subjects, such as Interdisciplinary Integrated Seminars, in which learning activities conducted by students on their own initiative can be counted as course credits. Internship programs also encourage students' voluntary initiatives. Moreover, a class support system and the Learning e-Portfolio, as stated in the section “Point 5-②”, enable students to seek advice from advisers and teachers even though they are geographically far apart from each other. Students are required to write a Monthly Report in the Learning e-Portfolio in an appropriate manner, contributing to closer communications between students and their advisers.

【Reference Materials】

- 40 Flyer: Radioactivity Social Recovery Course Seminar
- 6 Flyers: Leadership seminars
- 35 List of Interdisciplinary Integrated Seminars
- 41 Monthly Reports

Point 5-⑦ Does the Program have and use appropriate means of education for adult students in remote locations, etc., such as conducting classes using printed learning material (including corrections by mail), broadcasting classes, interview classes (including face-to-face classes), and classes using IT media?

【Explanation and Analyze the Situation】

The Program has established a system that provides continuing support to students while working in a remote location. Students living in areas around Tokyo can attend classes at Hiroshima University's Tokyo office. Before launching the Program, an educational environment enabled for remote classes was established, including teleconferencing and other audio and video systems which allow the University's two campuses of Higashi Hiroshima and Kasumi to connect to cooperating organizations, such as Fukushima University, Tohoku University and the National Institute of Radiological Sciences. As well document cameras that enable the implementation of written tests for students at remote locations were purchased. Moreover, a recording and delivery system designed for preparing and reviewing classes has been effectively utilized to provide interactive class instruction and appropriate assistance for self-directed learning to students at remote locations.

Until July 2015, English classes were provided by part-time lecturers for working students living in areas around Tokyo. At present, there is no subject that requires a remote class. If the occasion arises, we will be able to respond quickly. Furthermore, this flexibility allows us to continue to active recruit and accept students from diverse backgrounds.

【Reference Materials】

42 Device List for Remote Teaching System

Criterion 6. Outcomes of Education

Point 6-① Does the Program have an appropriate system to evaluate students' achievement levels in terms of their academic performances and credentials, as well as their progress toward the goal of developing abilities required for Phoenix Leaders?

【Explanation and Analyze the Situation】

Under the Program, we have clarified learning goals and established a system to evaluate students' achievement levels in terms of their academic performance, which are applied to the QE (Qualifying Examination). As the results of the interim evaluation conducted by the Japan Society for the Promotion of Science (See the Criterion 1 section for details), the Program received the following comments, which were released nationwide: *With regard to a world-class, well-established, quality assurance system, it can be evaluated that QE consists of a written exam and an interview to check students' understanding and achievement levels, and that unique methods such as the Curriculum Map and the Rubric have been devised and introduced.*

For evaluation of students' progress toward the goal of the Program, the Curriculum Map and the Rubric (guidelines for achievement criteria), both of which are shown in the Teaching Handbook (See the section "Point 3-①"), have been used. The achievement levels required at the point of acquiring the credits required for QE, which also serve as the guide lines for achievement criteria on the Rubric, are rigorously examined. In FY2015, we set the achievement criteria required at the point of acquiring the credits necessary for the completion of Program, and the achievement criteria serve as a benchmark for the evaluation of student performance in the compulsory subject "Radiation Disaster Recovery Studies" (see the section "Point 5-①").

In FY2015, we established the Career Portfolio by utilizing the system of Learning e-Portfolio (see the section "Point 5-②"), enabling students to show their academic achievements and initiatives at a glance. This portfolio is also used by primary advisers and co-advisers to check their students' progress toward their individual career goals. It is also possible to post the portfolio on the Internet.

【Reference Materials】

- 9 Teaching Handbook
- 43 Code on the Curriculum Map for the Phoenix Leader Education Program for Renaissance from Radiation Disaster
- 44 Effort and Achievement Rubric for the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster
- 45 Career Portfolio Manual

Point 6-② From an analysis of the results of hearing students' opinions, including questionnaires, can it be concluded that the Program has produced favorable educational outcomes?

【Explanation and Analyze the Situation】

In the Program, the University's class questionnaire system is used, and some interviews with students are conducted for evaluation at the end of classes. Continuing efforts have been made to resolve the issue of content overlapping between subjects, pointed out by students in questionnaires and interviews. Questionnaire surveys are always conducted at the end of short-term fieldwork and the various seminars. Survey results show that positive evaluation is given concerning the results and effects of the interdisciplinary education.

The importance of leadership education has been indicated in questionnaire surveys and the opinion-exchange meetings involving teachers and students, held regularly since FT2013. Efforts made on this issue are reflected in the Phoenix Leadership Seminar (see the section "Point 2-①"). To further provide useful information and know-how on future career possibilities, we are planning to design a new seminar based on questionnaire results.

【Reference Materials】

- 46 Participants' Report on Field visit
- 47 Questionnaire Results of Leadership Seminar
- 48 Code on Faculty and Student Opinion Exchange Meeting of the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster

Criterion 7. Student Support Systems

Point 7-① Does the Program offer an ideal environment where excellent students can inspire and compete with each other?

【Explanation and Analyze the Situation】

Students are provided with an educational environment in which they can both inspire and compete with each other, and with students from other universities. Students enrolled in the Program have many opportunities to interact, including mandatory classes and seminars open to all students. In the compulsory subject “short-term field work” (see the section “Point 5-①”), students spend about one week together and exchange their opinions at the daily debriefing, which is an important opportunity to identify challenges they face. In every retreat (see the section “Point 5-③”), students have time—including lectures and informal meetings—to discuss their opinions about research and to be inspired by their peers and instructors. At the same time, students are stimulated and inspired through interactions with those outside the Program. An annual international symposium held as part of the Program (see the sections “Point 3-②” and “5-③”) provides students with an opportunity to present the progress of their research activities. The students who deliver oral presentations receive feedback directly from various specialists from both Japan and abroad. In the full-participation poster session of the symposium, prizes are awarded to students with excellent research achievements. Thus, this event encourages students to develop their skills through friendly competition.

Moreover, the program to promote interactions between Hiroshima University students and those from other universities—Leading Programs in Doctoral Education in particular—launched in FY2014, also serves as a place to promote collaboration among graduate students from varying backgrounds. In FY2015, three students from the Disaster Nursing Global Leader Degree Program (Chiba University and Tokyo Dental and Medical University) and Kyoto University’s Inter-Graduate School Program for Sustainable Development and Survivable Societies participated in the short-term fieldwork mentioned above. Participants in the Second Cross-disciplinary Exchange Forum of the Phoenix Leader Education Program included five students from Hiroshima University’s TAOYAKA Program for creating a flexible, enduring, peaceful society; Tohoku University’s Inter-Graduate School Doctoral Degree Program on Science for Global Safety; the Disaster Nursing Global Leader Degree Program of the University of Hyogo, and the National Institute of Radiological Sciences. In the forum with a Program member as the facilitator, participants had a lively discussion on the roles played by experts in disasters. Questionnaires show that students appreciate the positive aspects of these opportunities for friendly competition and hope that efforts to increase such opportunities will be further promoted.

【Reference Materials】

- 23 Short-term Fieldwork Schedule FY2015
- 32 List of Retreats
- 12 Flyers: FY2015 International Symposium
- 54 Invitation to Participate in The 2nd Cross-disciplinary Exchange Forum with the
Hiroshima University Phoenix Leader Education Program for Renaissance from Radiation
Disaster
- 55 Participants' Report on the Cross-disciplinary Exchange Forum

Point 7-② Does the Program offer financial support to students to enable them to concentrate their efforts and time on studies and research activities?

【Explanation and Analyze the Situation】

Since the inauguration of the Program, we have created an environment in which students can be freed from financial concerns and concentrate their time and effort on studies and research activities. The Program offers a wide variety of financial support programs, including the provision of a grant (180,000 to 200,000 yen per month), housing support, the loan of PCs, and financial support for participation in academic conferences in Japan and abroad.

Moreover, there are exclusive rooms for graduate students enrolled in the Program on the Higashi Hiroshima Campus and the Kasumi Campus. Students can use these rooms for various purposes, such as studying and an academic journal club.

To grasp the situation students are in and to respond timely to problems that prevent students from concentrating on studies and research activities, we have established a mentor system (see the section “Point 2-①”) and hold regular meetings between faculty members and students to discuss their opinions (see the section “Point 6-②”).

【Reference Materials】

- 50 FY2015 List of substantial support by student
- 48 Code on Faculty and Student Opinion Exchange Meeting of the Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster

Point 7-③ Does the Program support students in preparing and carrying out their autonomous and original research plans?

Issue 12: In terms of research themes, it is desirable to cover a wide variety of areas of research.

【Explanation and Analyze the Situation】

The Program has created the foundation for unique research activities by providing cross-disciplinary, cross-institutional and/or cross-boundary education that makes a clear distinction compared with conventional graduate school education. In addition, various systems have been established to promote students' research activities and to relieve financial constraints in pursuing research themes of their own initiative, including financial support for participation in academic conferences.

As stated in the section “Point 7-②”, students enrolled in the Program can receive financial support (travel expenses, etc.) for attending academic conferences (up to 100,000 yen/year for conferences at home and 300,000 yen/year for those abroad). For students who pass QE, the financial support is replaced by Research Grant of Phoenix Leader Education Program, under which a maximum of 500,000 yen per semester is provided to students to cover the costs necessary for doctoral dissertation research, including travel, equipment, and books. At the start of each semester, students submit a research plan and a cost estimate to the University. The amount of assistance grant is determined by an examination committee consisting of the Program Director, Program Coordinator and Course Leaders. The grant is provided after approval from the President.

With regard to the post-QE mandatory subject “Long-Term Fieldwork/Long-Term Internship, students can do a long-term fieldwork and/or internship as an activity based on their research interest, for which financial support, including travel expenses, is provided.

As stated in the section “Point 5-③”, students who have passed QE are provided with opportunities to be exposed to the latest information in Japan and abroad, as part of the Global Field Visit program. In 2015, field visits were made to the Belarusian State Medical University and the Gomel State Medical University in January, an organization to support evacuees from the Fukushima Daiichi nuclear disaster (Yonezawa City in Yamagata Prefecture) in March, Fukushima Daiichi and Daini Nuclear Power Plants in July, and a training course provided in Gomel by CEPN (Nuclear Protection Evaluation Center - France) and RIR (the Research Institute of Radiology- Belarus) in September.

【Reference Materials】

- 49 List of Research Topic
- 51 FY2015 List of Support for Domestic academic meeting

- 52 FY2015 List of research grant payments by student and category for students' research activities
- 53 Guide to Research Grant of Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation Disaster
- 46 Participants' Report on Field visit

Criterion 8. Facilities and Equipment

Point: Does the University have facilities and equipment sufficient for educational and research activities of the Program, and suitable for providing the curriculums?

【Explanation and Analyze the Situation】

Classes are conducted in the Hiroshima Phoenix Training Center equipped with the latest technology and equipment, including portable whole body counters, low-background Ge-detectors, whole-body decontamination shower devices, imaging analyzers, high volume air samplers, Geiger-Mueller (GM) counters, and NaI scintillation survey meters.

In FY2015, the Learning e-Portfolio was revised so that students' progress and achievement levels toward the goal of the Program could be checked quickly and easily (see the section "Point 5-②"). Additionally, the Career Portfolio was implemented to enable students to visually check their achievement levels and progress towards their individual goals.

【Reference Materials】

56 Device list of Hiroshima Phoenix Training Center

Criterion 9. System for Quality Enhancement and Improvement of Education

Point: Does the Program have an appropriate system to evaluate its implementation processes?

【Explanation and Analyze the Situation】

Since its launching in 2011, the Program has been managed and improved according to the PDCA (plan-do-check-act) cycle. In FY2015 as well, new proposals and improvement suggestions were submitted by the various committees of PLEP and a number of improvements were made to the Program.

Of special note is that a system to reflect students' opinions in the improvement of the Program was established in FY2015. Specifically, a meeting between faculty members and students to discuss their ideas and opinions (see the section "Point 6-②") was held in July by the Program Director and Coordinator. In the meeting, there was a request that internship report meetings should be made public, and the Program Administration acted promptly to meet this request. Another request made at a lunch meeting between students and their mentors (see the section "Point 2-①") was to distribute class materials at an earlier date, which was reported to the Program Members' General Meeting by the Education Committee and then distributed to all faculty members.

One of the most striking characteristics of the Program is that evaluations made from the perspective of outsiders have contributed significantly to the improvement of the Program. Among others, prime importance is placed on evaluations by courses instructed by outside experts, follow-up reports for on-site visits by the Program Officer appointed by the Japan Society for the Promotion of Science (JSPS), and an interim assessment by the JSPS Committee for the Program for Leading Graduate Schools. Challenges identified through external assessments have been examined by the related committees in the program. As seen by the improvements made in FY2015, various measures have been taken to address identified issues.

【Reference Materials】

57 Tasks of Program Officer (extract)

Conclusion

Having passed the mid-way mark of our MEXT funding, the Phoenix Leader Education Program's internal evaluation for this fiscal year has been conducted with a heightened sense of concern because our future funding model remains uncertain. The outcomes of the program will play a crucial role and function as the most important reference when determining the best way forward in the hopes of continuing the program following the end of MEXT's financial support.

Improvement of the program has been successfully reported in the targeted areas after a critical examination of the outcomes based on the initial 9 criteria that had been put forth.

This report is a collaborative effort. It is the result of the constant support of the external evaluation committee members, the suggestions from the program faculty and staff members, as well as initiatives put forth by the various program committees.

The Evaluation Committee of Phoenix Leader Education Program would like to express its sincere gratitude to everyone for their generous cooperation.

**Evaluation Committee,
Phoenix Leader Education Program (Hiroshima Initiative) for Renaissance from Radiation
Disaster, Hiroshima University Graduate Schools**

Member of Evaluation Committee

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Professor	Masao Kobayashi	Institute of Biomedical & Health Sciences	Program Coordinator Radiation Disaster Medicine Course
Professor	Tetsuji Okamoto	Institute of Biomedical & Health Sciences	Radiation Disaster Medicine Course
Professor	Makoto Iwanaga	Graduate School of Integrated Arts and Sciences	Radioactivity Social Recovery Course
Professor (Special Appointment)	Kiyoshi Shizuma	Institute of Engineering	Radioactivity Environmental Protection Course
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