

Curriculum of “Tsuruga Summer Institute on Nuclear Energy 2009”

Day 1st: August 24 (Mon) at Wakasa Wan Energy Research Center (WERC)

August 24th, 2009

	Items	Outline	Remarks
AM	(9:00-9:20) ◆ Opening Address	1) Opening address * ¹ 2) Welcome address* ²	* ¹ Principal of this course: Professor Niki of Fukui Univ. * ² Mr. Kobayashi, Director of WERC * ² Professor Suzuki of Fukui Univ.
	(9:20-9:40) ◆ Orientation		By JAEA
	(9:40-10:30) ◆ Comprehension Test (Pre-Test)	A preliminary survey of the student's knowledge level of each following issue: “energy and environment”, “nuclear energy policy”, “general knowledge on nuclear”, “nuclear power generation” and “nuclear fuel-cycle”	Aiming at learning fundamental issues Total: 100 questions
	(10:40-12:00) ◆ Lecture- I: “The current state of LWR nuclear fuel-cycle (Pu-Thermal) and its prospect”	The effective use of uranium is stipulated as Japan's nuclear energy policy. Learning about “pluthermal” plan, using plutonium generated from LWR as its fuel, and the current state and its prospect.	<Instructor> By KEPCO Mr.Takabatake, Group Manager
PM	(13:00-13:15) ➤ Outcome Report of “Overseas Educational Training in INSTN/SACLAY 2008”	Presentation by three last year's participants*to improve motivation of 2009 participants: Result of “Overseas Educational Training in INSTN/SACLAY, CEA in France”	*Reporter: Participated in overseas training in France
	(13:15-13:40) ◆ English Discussion- I (Explanation on discussion manual)	- Instructions of English discussion (how to conduct discussions) (JAEA) -Grouping, divided into 8 groups -Foreign lecturers, JAEA employees who work overseas, foreign researchers, foreign students of Fukui University, and English teachers of Fukui Univ. join discussions.	*Members: 2 foreign lecturers, 4 English instructors of Fukui Univ. 2 JAEA workers (including expatriate employee in France)

(13:40-14:00) ◆ English Discussion- I (Self-introduction and division of roles)	-Moving to each discussion room -Self introduction - Division of roles: Selection of 1 leader, 2 secretaries, 2 or 3 data creation members and 1 presenter	
(14:00-15:30) ◆ English Discussion- I	<u>Discussion Theme</u> Should Japan promote nuclear energy more?	
(15:40-16:20) ◆ English Discussion- I (Summarizing & Making Presentation Materials)	-Summarization of discussion outcome -Presentation in Power Point	
(16:30-17:40) ◆ English Discussion- I	-Oral presentation in English -10-minute-presentation by each group (8 minutes for oral report and 2 minutes for Q & A)	
(17:40-17:50) ◆ English Discussion- I (Comment on Discussion Outcome)	-Whole comment on discussion outcomes	Commentator: Mr. Asai, Associated Professor of Fukui Univ.
(17:50-18:00) ◆ Questionnaire Survey	Conduct the questionnaire survey every day *	This result is analyzed and reported on the final day.
(18:00-) ◆ Moving	Moving from WERC to Kushikawa	by bus
(18:30-) ◆ Reception	Wine Party*	*At JAEA Kushikawa Guest House

Day 2nd: August 25 (Tue) at INITC (JAEA), Mihama NPP (KEPCO), Tsuruga Unit 3/4 (JAPCO), JAEA Decommissioning Center Fugen

	Items	Outline	Remarks
AM	(9:00-10:20) ◆ Lecture - II : “ Safety of LWR and Public Acceptance ”	Learning safety measures after LWR accidents and the results of survey on attitudes of the society toward LWR: how much the society accepts the LWR safety system and nuclear energy.	<Instructor> Mr. Fujimura (Head of Aging Research Center) and Mr. Kitada (Associate Senior Researcher), INSS
	(10:30-12 :00) ◆ Lecture - III: “ Sodium Technology Development in France and its Tasks ”	Learning fast reactor development technology of France through sodium technology which France has developed at such laboratories as Cadarashe, CEA, and the future tasks.	<Instructor> Dr. C. Latge, Head of Scientific Office, Research Director of Cadarache CEA *With Consecutive interpretation
PM	(12:50-13:00) ◆ Moving	-Moving from INITC to Mihama NPP	by Bus
	(13:00-14:30) ◆ Site Tour - I: “ Mihama NPP ” (KEPCO)	-Learning the outline of the injured & dead accident caused by ruptured steam piping of secondary system at Mihama NPP No.3 of August in 2004, and see the broken SG (the first ECCS accident) at the exhibition hall to understand safety measures toward this kind of accidents.	
	(14:30-15:10) ◆ Moving	-Moving from Mihama NPP to Tsuruga NPP	by bus
	(15:10-17:00) ◆ Site Tour - II : “ Tsuruga NPP ” (JEPCO)	-Visit Tsuruga No. 3 & 4 units (APWR construction field) -Visit the exhibition hall to learn existing type of PWR and improved type of PWR.	The students are divided into 2 groups to look around this facility.
	(17:00-) ◆ Moving	-Moving from Tsuruga NPP to Fugen	by bus
	(17:10-18:00) ◆ Site Tour -III: “ Decommissioning Center Fugen ”	-Learning future decommissioning program of JAEA through this visit to Fugen	
	(18:00-) ◆ Moving	-Moving to hotel	by bus Questionnaire survey at hotel

Day 3rd: August 26 (Wed) at INTIC (JAEA), FBR MONJU

	Items	Outline	Remarks
AM	(9:00-12:00) ◆ Site Tour - IV "Prototype FBR MONJU"	-Learning FBR plant development for nuclear fuel-cycle under the national policy through Prototype FBR "MONJU" visit.	<ul style="list-style-type: none"> • Inside Container Vessel (in the controlled area) • Inside Central Control Room (in the controlled area) • "MONJU" PR hall • In-Service Inspection
PM	(13:00-14:20) ◆ Lecture - IV "Concept of FBR"	Learning FR basic knowledge including breeding mechanism of FBR using metal sodium as a coolant (the use of fast neutron), and such features as plant features and reactor features.	<Instructor> Dr. H. Mochizuki, Professor of Nuclear Energy Safety Engineering, Fukui University
	(14:20-14:40) ◇ Topics- II -Preparation for Q&A with "MONJU researchers/engineers" (Explanation of Discussion Manual)	-Grouping: divided into 5 or 6 groups -Instructions of Q&A (for all students)	By JAEA At Meeting room No.1, INTIC
	(14:50-16:30) ◇ Topics- II - Q&A with "MONJU researchers/engineers" (Discussion in each group)	-Moving to each room -Discuss the issues on what the students have questions and about what they are worried concerning "MONJU" with researchers and engineers	Some handouts are prepared for the students in advance. They must learn before the discussion.
	(16:50-17:30) ◇ Topics- II -Summarization of Discussion (Summarizing & Making Presentation Materials)	-Q&A with the focus on the questions which were delivered in each group and were not obtained their answers	At Meeting room No.1, INTIC
	(17:30-17:40)	Questionnaire survey	
	(17:40-) ◆ Moving	-Moving to hotel	By bus

Day 4th: August 27 (Thu) at Monju Simulator & FBR Training Facility (INITC)

		Items	Outline	Remarks
A Gr.	AM	(9:00-12:00) ◆ Exercise - I: “ Simulator Operation ”	Experience the nuclear reactor operation by using the MONJU simulator used for operators’ training.	180 min.
	PM	(13:10-15:00) ◆ Exercise - II: “ In Service Inspection ”	Learning FBR maintenance technology through practice of ISI (non destructive testing) under development at MONJU	110 min.
		(15:20-16:50) ◆ Exercise - III: “ Experience of Sodium Handling Technology ”	Experience sodium handling technology which is one of FR peculiar technologies, including sodium fire extinguishing, sodium combustion and sodium chemical reaction.	90 min.
B Gr.	AM	(9:00-10:30) ◆ Exercise - I: “ Experience of Sodium Handling Technology ”	Experience sodium handling technology which is one of FR peculiar technologies, including sodium fire extinguishing, sodium combustion and sodium chemical reaction.	90 min.
		(10:50-12:40) ◆ Exercise - II: “ In Service Inspection ”	Learning FBR maintenance technology through practice of ISI (non destructive testing) under development at MONJU	110 min.
	PM	(13:50-16:50) ◆ Exercise - III: “ Simulator Operation ”	Experience the nuclear reactor by using the MONJU simulator used for operators’ training.	180 min.
PM	(17:00-) Moving			By bus
	(18:30-) ◆ Friendship Event (Barbecue)			TOYOBO Club House

*Questionnaire survey at hotel

Day 5th: August 28 (Fri) at WERC

	Items	Outline	Remarks
AM	(9:00-9:10) ◆ Opening Address for Open Lecture	Opening Address*1 Speech by Guest of Honor*2	*1: Mr. Nakagawa, Vice-president of Fukui University *2: Mr. ASAHI Fukui Vice-governor *2: Mr. KAWASE Tsuruga Mayor
	(9:10-9:30) ◆ Open Lecture - I: “Expectation from Fukui Univ. toward “MONJU” ”	“Expectation from Fukui Univ. toward “MONJU” ”	Dr. Takeda, Director of Research Institute of Nuclear Engineering, Univ. of Fukui
	(9:30-10:10) ◆ Open Lecture - II : “MONJU Restart and its Future Use Project”	Learning the outlines of construction confirmation test and plant confirmation test for restart of MONJU, and its future use plan and international cooperation at MONJU.	<Speaker> Dr. M. Ichimiya, Director of FBR Plant Engineering Center, JAEA
	(10:20-11:50) ◆ Open Lecture - III: “French FBR PHENIX Operation and Future FBR development”	Learning the future development program of FBR in France via operation outcome of French FBR “PHENIX” which will be terminated operation in fy2009	<Speaker> Mr. J. Guidez, Former Head of PHENIX Plant, CEA *With consecutive interpretation
	(12:00-12:30) ◆ Open Lecture - IV: “Efforts of Manufacturers for NPP Construction Project”	Learning the development of future nuclear industry through the efforts made by manufacturers for NPP construction project in Japan and other countries.	<Speaker> Mr. Kubota, TOSHIBA

PM	(13:10-14:40) ◆ Open Lecture - V: “Trends of FR Development Strategy and Sodium Technology Development Progress in the US”	Sandia National Laboratories (SNL) has had sodium tests at its newly-built sodium test facility. Learn the outline and progress on FR development program under OBAMA administration.	<Speaker> Dr. J. Kelly, Senior Manager of Advance Nuclear Energy program of Sandia National Laboratories *With consecutive interpretation
	(14:40-14:45) ◆ Closing Address	Closing Address by Host	Mr. Ito, Executive Director of Tsuruga H.O of JAEA
	(14:55-15:45) ◆ Site Tour - V: “Wakasa-wan Energy Research Center”	Learning radiation utilizing technology including cancer treatment via accelerator at WERC	The students are divided into 3 groups to look around this Center.
	(15:45-14:55) ◆ Questionnaire Survey	Final questionnaire survey *	
	(16:00-16:40) ◆ Comprehension Test (Post-Test)	Conduct the same comprehension test as pre-test.	
	(16:40-17:10) ◆ Grading of the Test	Grading of the test with explanation of correct answer Comparing with pre-test’s result for each category	Self-rating
	(17:10-17:30) ◆ Evaluation of Training	Analysis report for the questionnaire survey on each training item (subject) ➤ Best training items - Entirely - By category: lecture, practical training, site tour ➤ Improvement	
	(17:30-18:00) ◆ Closing Ceremony	-Closing address *1 -Award of a certificate *2 -Take a ceremonial photograph	*1 Mr. Yokoyama of WERC