

Second, we developed a new course titled "Prediction and Response Techniques for Severe Nuclear Accidents(Course 7)." This course aims to enhance participants' understanding of response strategies, facility conditions during severe nuclear accidents, and measures to improve nuclear power plant safety.

Table I: Total Number of Trainees

Course Name	Nuclear Power Plant Simulation Operation	Nuclear Power Plant Material Degradation Assessment	Practical Radiation Safety Management	Personal Radiation Dose Measurement and Evaluation	Prediction and Response to Severe Nuclear Accidents	Nuclear Research Field Experience	Total
Number of Training Sessions	3	2	2	1	1	1	10
Participating Universities	8	12	14	8	4	4	19*
Undergraduate Students	8	20	8	4	16	2	58
Graduate Students	29	16	37	22	2	6	112

Table II: Improvement Rate of Learning Level Before and After Training

No.	Training Course	Graduates (Number)	Before Training	After Training	Improvement Point
1	Nuclear Power Plant Material Degradation Assessment	14	33	70	37
2	Nuclear Research Field Experience	8	41	82	41
3	Practical Radiation Safety Management	23	52	81	29
4	Nuclear Power Plant Simulation Operation I	10	48	87	39
5	Nuclear Power Plant Simulation Operation II	11	37	87	50
6	Personal Radiation Dose Measurement and Evaluation	26	52	89	37
7	Prediction and Response to Severe Nuclear Accidents	18	42	72	30
8	Nuclear Power Plant Simulation Operation III	16	38	81	43
9	Nuclear Power Plant Material Degradation Assessment	22	47	80	33
10	Practical Radiation Safety Management	22	59	85	26

3. Operation of the Academic-Industry Research Education Program and Course Evaluation Results

Trainees were selected, and the course design report and implementation plan were prepared and approved. After conducting the training sessions, a training implementation report was compiled. A survey evaluation was then conducted, followed by the preparation of a final training outcome report. Additionally, survey questionnaires were developed or refined to align with each field's training program. The collected survey responses from participants were analyzed to identify areas for future improvement.

3. Results

Table I shows the overall results of the training operation. As shown in Table II, an analysis of learning achievement point before and after the training revealed that the improvement point were highest in Courses 2, 4, 5 and 8. However, course 10 showed the lowest learning improvement rate, indicating the need for future adjustments in lecture difficulty.

According to Fig. 2 and Table III, the overall satisfaction score (out of 5) indicates that graduate

students generally had equal or higher satisfaction levels compared to undergraduate students.

Table III: Training Satisfaction

Satisfaction	Overall	Graduate Students	Undergraduate Students
Expectation	4.6	4.6	4.7
Satisfaction	4.6	4.4	4.7
Acquisition of New Knowledge/Skills	4.6	4.4	4.8
Willingness to Recommend to Others	4.7	4.7	5.0
Instructor/Lecture Content	4.7	4.9	4.9
Learning Environment	4.6	4.7	4.8

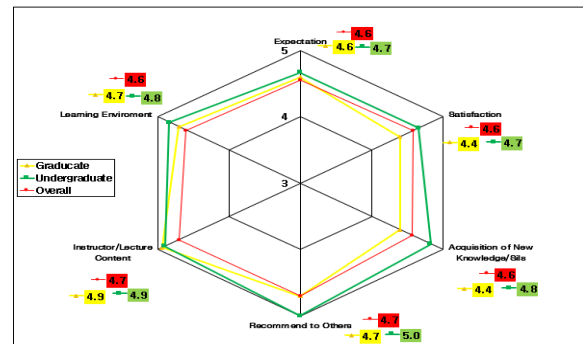


Fig. 2. Training Satisfaction Chart

4. Conclusions

Analyzing the overall training survey results, it was found that graduate students expressed higher satisfaction with the hands-on training, suggesting that it contributed to the enhancement of the expertise level of highly educated nuclear engineering students. In the future, we aim to address the shortcomings identified during the development and implementation of the training programs, with the goal of strengthening the capabilities of nuclear professionals and contributing to the activation of the nuclear safety research field.

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REFERENCES

- [1] Current Status and Trends of Global Nuclear Power Generation, pp. 11-16, Korea Nuclear Industry Association, 2023.
- [2] I. Jeong, et al., Capacity Building of Nuclear professionals: Cultivation of International Nuclear Professionals, KAERI/RR-5146/2024, 2024.