



Report - SH2612 - 2021-10-12

Respondents: 1
Answer Count: 1
Answer Frequency: 100.00%

Please note that there is only one respondent to this form: the person that performs the course analysis.

Course analysis carried out by (name, e-mail):

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DESCRIPTION OF THE COURSE EVALUATION PROCESS

Describe the course evaluation process. Describe how all students have been given the possibility to give their opinions on the course. Describe how aspects regarding gender, and disabled students are investigated.

After the course's completion all students were asked to participate in the course evaluation by sending them the LEQ survey questionnaire. During the period of the course offering, the students were also encouraged to express their opinions on the arrangement and contents of course lectures. The students' opinions on course projects were reflected in the seminars. However, only six students among 14 total students answered the LEQ survey questionnaire. They are all male and international students.

DESCRIPTION OF MEETINGS WITH STUDENTS

Describe which meetings that has been arranged with students during the course and after its completion. (The outcomes of these meetings should be reported under 7, below.)

There were four meetings with all students held in the middle and the end of the course. Each meeting was three hours, with the main objective for students to report the progress of their course projects using the learnt outcomes from the course, and to receive feedbacks from the teacher. Meanwhile, their opinions on the course were also presented and reflected during the process of lectures. For instance, quite often I asked students what are their suggestions and comments on the class activities and other matters related to the course, and suggestions are good - for instance, giving the handout before each lecture one day in advance, so students have time to perform pre-reading.

COURSE DESIGN

Briefly describe the course design (learning activities, examinations) and any changes that have been implemented since the last course offering.

After learning the course of nuclear power safety, the students are expected to possess a basic understanding of the principles, issues and tools in nuclear power safety. More specifically, the students should be able to (i) Define safety design requirements and explain how they are achieved in design, construction and operation of a nuclear powerplant; (ii) Identify key milestones in accident progression scenarios (from design-basis accidents to severe core-melt accidents) and relate them to respective prevention and mitigation measures; and (iii) Perform a scoping assessment of a perceived threat against plant safety barriers using contemporary knowledge and methods in safety analysis. Learning-by-doing approach is employed to help achieve the intended learning outcomes, and therefore the course projects are conceived to address safety issues which may appear in different reactor designs. The intended learning outcomes are accomplished by 38 hours of classroom work (26 hours of lectures and 12 hours of seminars) and 120 hours of students' independent work (60 hours of reading the course materials, and 60 hours of working on course project). The final grading scale is A/B/C/D/E/FX/F, with the consideration of a student's performance in quiz (15%), project (50%) and final exam (35%). The first change since last course offering is the distant learning environment through Zoom webinar. The second change is that I became the only supervisor to all course project groups, while in the last offering senior PhD students were assigned to be the supervisors, but students were unhappy with some of the supervisors. The third change is that more lectures (10 out 13) were given by myself, including organization of all seminars, so my feedbacks are given to students on time. I also called students to have separate meetings with me for discussions of their projects.



THE STUDENTS' WORKLOAD

Does the students' workload correspond to the expected level (40 hours/1.5 credits)? If there is a significant deviation from the expected, what can be the reason?

Yes, the total workload student is supposed to be 158 hours for this course.

THE STUDENTS' RESULTS

How well have the students succeeded on the course? If there are significant differences compared to previous course offerings, what can be the reason?

I believe all students have reached the intended learning outcomes, manifested in their successful delivery of the assignments (quiz, project and written exam). This time I had more in-class activities which required students to discuss specific topics which were just taught. The prompt feedbacks are useful for the adjustment/modification of coming lectures. To have more students' involvement in the lectures is something I learnt from the previous course offering, so I had a better idea of how well they can catch up and how much time they spent on the reading materials and project. The accomplishments of the course projects were at higher standard, and discussions and debates in the seminars were also more focused and intensified, due my coordination and more involvement in the progress of the projects.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

The response is quite positive in general, and the students appreciated that the contents in lectures are full of new knowledge and interesting, and the projects are fun to work with. The students also gave some suggestions such as: (1) exercises through hands-on approach on how different safety systems act after some accidents; (2) the written exam should be given more time; (3) the lectures should be more interactive, although it may be difficult through Zoom; (4) the presentation style can be improved; (5) two seminars should have different focuses and can be moderated more efficiently; etc.

SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

All students who participated in the survey expressed that they worked with interesting issues. Six of 14 students who participated in the survey expressed that the course was challenging in a stimulating way. All students expressed that they are able to practice and receive feedbacks without being graded, and the assessment on the course was fair and honest. They also responded that they are able to learn by collaborating and discussing with others, and to get support if they needed.

OVERALL IMPRESSION

Summarize the teachers' overall impressions of the course offering in relation to students' results and their evaluation of the course, as well as in relation to the changes implemented since last course offering.

Generally speaking, I am satisfactory with the offering and the students' results. The evaluation was fair and honest, and suggestions from students are useful and instructive for the improvement of the next offering of the course. The most important change from the last course offering was the addition of more in-class activities in most lectures. The students were divided into four groups, and discussed the questions given by the teacher in around 5 minutes, and then presented their answers in around 5 minutes. This way the students were actively involved in the lectures, and the teacher got the prompt feedbacks on the previous learning outcomes. The another change was that a more specific reading assignment was given to the students after each lecture, so to help students to further digest and comprehend the lecturing topics. I felt all these changes were beneficial to the the students' results.



ANALYSIS

Is it possible to identify stronger and weaker areas in the learning environment based on the information you have gathered during the evaluation and analysis process? What can the reason for these be? Are there significant difference in experience between:

- students identifying as female and male?
- international and national students?
- students with or without disabilities?

Yes, it is possible to identify stronger and weaker areas in the learning environment based on the information I have gathered during the evaluation and analysis process. There were no significant differences in experience between female and male students, and between international/national students. Obviously some students did not spend enough time on the course, which were reflected in their performance in exam and quiz. Actually, around 80% and 20% of questions in the quiz and written exam were from the lecture handouts and reading assignments, respectively. This means if the students read through the handouts and reading assignments, they should be able to pass the examinations with good grades (A or B). However, it turned out that only less than half of students managed to reach that. This outcome may have nothing to do with the learning environment, but I would like to think of some solutions to improve it, including some change in learning environment which may help students to spend required time on the course.

PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

The literatures are scattering while the subject is complex with multidisciplinary contents. As a result, it is a challenge for the students to follow all topics discussed in the classes. For previous offerings of the course, the students felt hard to complete all reading materials. so, for future offerings, the course materials should be more structured, and in long term it will be very helpful to develop a textbook which will not only summarize all key concepts, safety principals and methodologies (e.g. deterministic safety analysis), but also highlight the specific materials (sections in reference books and articles) for students to read in order to reach intended learning outcomes. In short term, such a textbook can be compiled from more detailed handouts and explicit referencing to specific articles and sections of books. The format of course project also needs some changes. The previous projects were designed in a way to reach the intended learning outcomes through a learning-by-doing approach. All projects are conceived to perform a scoping assessment of a perceived threat against a plant safety barrier using contemporary knowledge and methods in safety analysis, and each project will be carried out by a group of four students. Through the project work, the students should evidences that they are able to: (1) Collect information from open sources relevant to selected reactor design; (2) Identify potential flaws in safety design and explain how basic safety principles (e.g. such as Defense in-Depth) can be violated due to the flaws; (3) Explain how the identified violation of the safety principles will affect initiation, progression and consequences of the accidents; (4) Suggest potential prevention and mitigation measures which can improve safety design and ensure that basic safety principles are fulfilled in the revised design; and (5) Carry out a scoping analysis employing state of the art knowledge and methods in safety analysis in order to assess potential accident consequences in the original design and effectiveness of suggested safety design modifications in reduction of risk. The idea of the projects is great, but I found that it is too difficult for students to accomplish and demonstrate all items in the checklist. The main challenges are time limitation (60 hours workload) and no access to safety analysis tools which need licenses. I realized that the projects should be simplified to make it more doable within the constraints.

OTHER INFORMATION

Is there anything else you would like to add?

Due to the Covid-19 pandemic, all classroom activities (lectures and seminars) have been done through Zoom webinar. This change of learning environment had some effects on the learning process. For instance, it is hard for the teacher to know the level of attention from individual student. Also, it is inconvenient and nonefficient to organize in-class activities in the visual classroom. If the distant teaching/learning is still used in the next offering, some adaptation and modification in the teaching/learning toolbox should be done to help reach the intended learning outcomes.
