

Report - IL2212 - 2024-06-03

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.

All students were invited to participate in the KTH learning experience questionnaire (LEQ) with 12 questions. The LEQ summary also gives separate diagrams based on gender, type of student, or disability. The LEQ also allows giving free comments. In total, 9 out of 25 students participated in the LEQ.

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.)

A course committee meeting was held on March 9, 2024, where two students, the TAs, and the course responsible/examiner participated. The different parts of the course were discussed in more detail, but confirmed the course evaluation results. In general, the participating students were very positive about the course.

COURSE DESIGN

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

The course is designed for about 50 students and is given each year at the advanced level. The course consists of 15 lectures (2h), 2 seminars (2h) and 3 laboratory sessions (4h). To pass the course, both the written exam (grades: A-F), focusing on the theoretical aspects, and the laboratory course (grades: P,F) have to be passed.

During the pandemic, the course was run with theoretical and practical homework, which has been well received by the students. The current course design reflects this and tries to include the positive aspects of the pandemic and the previous years with a re-designed laboratory course, including mandatory preparation tasks and bonus points, and re-introduced the written exam.

The course focuses on the practical real-time aspects of multiprocessor embedded real-time systems. The seminars supported the laboratory course. The laboratory also involved one laboratory on an Altera FPGA board, which the students can borrow for the duration of the course. Bonus points have been awarded during the laboratory course, which could be added to the total points in the written exam.

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?

According to the student's answers in the learning environment questionnaire, the workload seems reasonable. Still, it seems most students work an average of 20 hours per week.

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?

Students perform well in this master course. The preceding IL2206 Embedded Systems course seems to have prepared them well for this course.

STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

It is very difficult to summarise the answers to the open questions. Many students pointed out that the course was well organised and had interesting content and laboratories. Below follow selected comments from the course evaluation and the course committee meeting, which are relevant for the next year's version of the course.

- "The embedded software course connects very well to the preceding embedded systems course."
 - "Be more clear that laboratory 3 should be done in pairs."
 - "The laboratory course was very useful"
 - "Keep laboratory 3, which uses an FPGA board"
 - "Laboratory 3 should maybe be split into two parts"
 - "The TAs should maybe put more effort to get the discussion between students going"
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SUMMARY OF STUDENTS' OPINIONS

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

The KTH learning experience questionnaire has been used for the evaluation. The questionnaire has 12 questions, where students give marks from 1 (strongly disagree) via 4 (neutral) to 7 (strongly agree). The questions are grouped into the following three areas.

There were too few students who answered the questionnaire to draw any conclusions regarding different student groups and gender.

- Meaningfulness - emotional level (Questions 1-6)

The course received very high marks in this area. According to the evaluation, the course had very stimulating tasks (Q1: 6.1), and has been challenging in a stimulating way (Q4: 5.8).

- Comprehensibility - cognitive level (Questions 7-16)

Also in this area, the course achieved very high marks in almost all questions (between 5.3 and 6.8). The students viewed the course to have clear goals and a clear organisation (Q7: 6.1). They found the subject and the presentation very understandable (Q10: 5.8, Q11: 6.3). Students found that the course had a very good alignment between the learning activities and the intended learning outcomes (Q12: 6.2). Also, students put high marks regarding the delivery of the feedback (Q15: 5.3). The assessment on the course has been regarded as fair and honest (Q16: 6.8).

- Manageability - instrumental level (Questions 17-22)

The course achieved in general very high marks (between 5.9 and 6.9). Students regarded their background knowledge as sufficient (Q17: 6.9), and could learn in a way that suited them (Q19: 6.3). They gave very positive marks on the possibility of collaborating and discussing with others (Q21: 6.2), and students found that they were able to get support when needed (Q22: 5.9).

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.

The course seems to have run very well and the students show a very good performance. Also, students find the course relevant and stimulating.

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?

The course's different activities, lectures, seminars and laboratories, seem to create an environment which integrates the theoretical and practical aspects of the course, and enable to successfully address the intended learning outcomes of the course and the student's understanding of embedded software design process. Thus, it seems that the course is well-designed from a student's perspective. In my opinion, the inclusion of theoretical and practical preparation task examination as part of the laboratories has been very successful as a means to enable continuous examination. There is still a written exam, which connects to the preparation tasks. The lecture notes have been very useful to support this kind of learning environment.

However, there is also another side of the coin, since both the FPGA laboratory and the continuous examination with bonus points during the course also require a lot of effort from the teaching staff. Unfortunately, the number of students in this course has been lower during this year (normally around 40-50 students take the course, but this year only 25 students took the course). If this trend stabilises, it is important to overview the structure of the course since maintaining the use of the FPGA hardware requires a very big effort from the course team.

Since only a low number of students have participated in the questionnaire, it is difficult to draw any conclusions between different student groups.

PRIORITIZED COURSE DEVELOPMENT

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

Since the number of students in the course decreases and the workload on the course staff is high in the current structure, it is important to investigate how the course structure can be adapted so that it becomes more scalable and does not require so many resources.