Report - IS1500 - 2024-10-02

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.

I offered the following means for students to give opinions and influence the course:

1) Student Course Committee (SV. kursnämnd): Students volunteer to be part of the course committee when the course starts and take on the role of being proxies for other students to give anonymous feedback on the course. I met the students on two occasions: once in the middle of the course and once at the end.This year, the student course committee consisted of two male students, both from CDATE. I had tried to recruit other students from other programs to the committee, but with no volunteers.

2) Anonymous Feedback: Here, I offer an additional communication channel to complement the course committee. The anonymous feedback was performed halfway through the course and in an online format, where students could anonymously comment and give feedback on what works well and what does not work well. This year, the student course committee volunteered to setup the battery evaluation (based on the template I suggested). The anonymous feedback further served as a discussion point for the meeting with the course committee.

3) We upload all course analyses to the Canvas page and make them accessible for students

4) I encourage students to send feedback directly to the course responsible.

5) Finally, students can give their opinions through the CDATE program meetings.

6) I support students with disabilities by informing and encouraging them to contact me through the Canvas homepage. Furthermore, I offered recorded and video-edited lectures in the course, which allowed all students to study and go through the lecture multiple times at their own leisure.

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.)

Two meetings were arranged with the student course committee during the course. The first time is in the middle of the course, and the second time is near the end (just after the exam). Furthermore, anonymous feedback was performed in the middle of the course, which was online and anonymous. Finally, I had attended the CDATE program to receive feedback from the student committee at the program level.

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

The course teaches the fundamentals of computer organization, including both software and hardware.

The course is divided into six modules:

1. C and Assembly Programming
2. I/O Systems
3. Logic Design
4. Processor Design
5. Memory Hierarchy
6. Parallel Processors and Programs

The course is divided into 3 LADOK parts:
1. Labs in logic design (1.5 hp)
2. Labs and home labs (4.5 hp)
3. Written Exam (3hp)

There are, in total, 14 lectures, 6 exercise sessions, four seminars, six laboratory exercises, and one mini-project. The course ends with a 5 hour written digital exam. This year, we continued to improve the performance of the virtual machines that were used during the digital examination.

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

Overall, according to the LEQ response diagrams, the average student spends between 3 and 17 hours per week on the course, where the top three responses are:

1) 20% of the students spent 9-11 hours/week

2) 15.6% of the students spent 15-17 hours/week

3) 13.3% of the students spent 6-8 hours/week and 3-5 hours/week

Compared to the previous year (2022), the effort spent by students in 2023 is more spread and seems to be lower. Overall, the students spent more time during weeks with seminars and in the week prior to the expo. Overall, the students were quite satisfied with the course. The average response is 5.35. Overall, most students answer that the course is demanding (but fun) but that it is well organized, with good lectures, labs, and projects. For example, a student writes: "Kursens innehåll är guld värt,och kunskapen är verkligen "ingenjörskunskap" som man känner ger en bättre förståelse för hur datorer fungerar.".

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?

This year, the distribution of the grades was the following:

Grade distribution:

F: 29% (22% in 2022)
Fx: 1% (1% in 2022)
E: 26% (22% in 2022)
D: 23% (16% in 2022)
C: 11% (26% in 2022)
B: 4% (6% in 2022)
A: 4% (7% in 2022)

Overall, the performance is on-par with that of 2022, albeit with a shift towards the lower grade, with more D and E grades compared to 2022. The reason for this is unclear, as there have not been any significant changes to the course.

STUDENTS´ANSWERS TO OPEN QUESTIONS
What does students say in response to the open questions?

N/A

SUMMARY OF STUDENTS' OPINIONS
Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

Overall, the students seem very happy with the course and its delivery.

Some of the strengths:
1) Many students like the quality of the lectures, that they were recorded, and also
2) Labs were relevant and fun,
3) Overall very good structure. The lecturer was very good.

Some of the weaknesses:
1) Some TAs had different difficulties at the beginning of the course (this was remedied during the course as we noticed it)
2) There was some feedback about the exam, where some students indicated that some parts seem needlessly hard (C-programming), that the passing rate for the exam is too high, and that the Fx serves no purpose (stating it's hard to reach it).
3) The time at labs was sometimes not enough to be fully examined

Some recommendations from students:
1) Attend the lectures and start the labs, projects, and seminars early
2) Book lab slots early, and do not wait until the last moment
3) It might feel overwhelming at first, but once understood it will be easy ("Det kan kännas svårt och komplicerat i början men när man väl förstår hur saker hänger ihop så blir det enkelt.")

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.

Overall, we found the course to have gone very well. We are happy that the exam performance continues to be on par with the past year (and there has been a significant improvement over COVID-19 times). I, personally, am happy with the praise given by the students ("Arturs föreläsningar. De var de överlägset bästa föreläsningarna jag gått på under min tid på KTH.", "Jag skulle framförallt vilja tacka Artur för en mycket intressant kurs!", etc.) which really motivates to do an even better job in the future. Finally, I think much praise is also given to the TAs for the wonderful work they have done in the course. Thank you for that.

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 be 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?

Students identifying as female and male?
Overall, females seem to score the course a bit lower, but it is unclear why. There are two exceptions to this: females seem to score the course higher in question 15 (I could practice and receive feedback without being graded), as well as question 21 (I was able to learn by collaborating and discussing with others). No further feedback was given in the text.

>> International and national students?
In this round, only Swedish students had attended.

>> Students with or without disabilities?
The data shows that the students with disabilities scored higher overall than those without on all questions except question 1 (I worked with interesting issues), but the difference was negligible. In particular, they really appreciated the prerecorded videos but gave the feedback that in the future, the exam should have less text.

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?

There are plans for the course to be reworked from MIPS to RISC-V. This is motivated by:

1) The latest version of the course literature no longer uses MIPS, but instead use RISC-V
2) The hardware used in the course that the students perform labs with is no longer available to buy,
3) RISC-V is a relatively important processor, both from a research and European perspective.

The target is to develop a custom system on an FPGA, which would eliminate the problem of supply in the future, as well as allow us to continuously improve and upgrade the processor system over the years.
Finally, we will likely remove the seminar series, which is motivated by the fact that we are seeing a more widespread use of finished solutions, which means that the seminar's purpose is void.

OTHER INFORMATION
Is there anything else you would like to add?

Thank you to everyone that responded to this course, and to all teachers and ta's for making it a success!