Report - IS1200 - 2024-10-10

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.

We have used the following method:
1. Course committee meetings. Two students volunteered to be part of the committee in the beginning of the course. We had one meeting halfway through the course.
2. At the end of the course, we sent out the LEQ form to all students.
3. The students were encouraged to send emails directly to the course responsible and/or examiner with feedback.
We try to encourage students from different programs with different background to take part in the course committee.
To enable support for disabled students, we always inform (on Canvas) about where they can find more information about their rights (FUNKA). We also take into account specific feedback from FUNKA 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.)

We had arranged one meeting throughout the course with the course representatives.
The goal of the meeting was to see whether any corrective actions could be applied.
The main points were:
- too much material in the lectures. We couldn't change that, but we explained the course will move to Year 2.
- it is difficult to look back at the slides later on. Video lectures are however available.
- the students heard that the display is hard to program. We added new slides and a tutorial.
- some labs instructions were unclear, but we couldn't figure out which ones.
- seminars are not useful. We agreed and will remove them.
- add a getting started on the canvas page. We added it.
- the 75% threshold at the written exam is too high. I explained the threshold is on the basic part, not including the advanced part.

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 5 modules:
1. C and Assembly Programming
2. I/O Systems
3. Processor Design
4. Memory Hierarchy
5. Parallel Processors and Programs
The course is divided into 2 LADOK parts: (i) Labs and home labs (4.5 hp), and (ii) Written Exam (3hp). There are in total 12 lectures, 5 exercise sessions, 4 seminars, 4 laboratory exercises, and one mini project. The course ends with a 5-hour written exam.

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?

The course is perceived as challenging and time demanding.
The average workload is 23.5 hours / week based on the course evaluation. This compares to 28.5 hours/week in 2023.
One year ago, 25% of the students spending more than 40 hours on the course, which is high. This year, we did not observe this trend in the course evaluation.
We believe that the slightly higher workload experienced by many students is due to a combination of many factors:
1. Many students do not have sufficient prerequisite knowledge of programming, and computer use in general. This problem has been confirmed with discussions with the students who don't feel to possess enough skills to go through the course.
2. The students are attending their first year at KTH, and many may not have adjusted fully to university studies yet. Combined with the high pace of this course (only one period), this can come as a shock to many.

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?

Passing rate at the first exam occasion over the total number of registered students (not necessarily present) for the exam:
2017: 50% pass rate
2018: 60% pass rate
2019: 68% pass rate
2020: 62% pass rate
2021: 45% pass rate
2022: 47% pass rate
2023: 52% pass rate
2023: 45% pass rate

Detailed statistics for this round (2023): F: 47%, 101 students
Fx: 1%, 2 students
E: 22%, 51 students
D: 9%, 20 students
C: 7%, 16 students
B: 3%, 8 students
A: 2%, 5 students

The pass rate is lower than one year ago, The course has not changed in any significant way, while we actually added more support material.
We are looking forward to seeing the results when the course will move to Year 2.

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

Aspects liked:
- Project is practical
- Course topic is interesting
- engaging and knowledgable members from the teaching team.

To improve:
- The students observe that the course workload is too high.
- Overall, the students suggest to either reduce the amount of material & teaching activities, or increase the HP for the course.
- There are observations about some TAs being tougher than others, some targeting males more than females whereas one year ago it was the opposite.
- Some students suggest to break down the exam across different days.
- Some students with dyslexia would prefer not having to read long documents.

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

The average response to LEQ questions are similar to the previous course round.

This happened despite all the modifications we made to improve the quality of the course:
- added detailed explanations to the solutions to all the seminars.
- added tutorials on how to use the chipkit.

One item got a score < 4:
- My background knowledge was sufficient to follow the course (f)
We believe this problem will be mitigated by moving the course to Year 2.

The items had a lower score compared to others:
- The course was challenging in a stimulating way.
*** The main concern about this point that we are aware of is that the high workload does not make the course challenging in a "good" way.

- I was able to learn from concrete examples that I could relate to (g
*** this point is unclear since the students use several practical tools, from real programming languages to real hardware to create applications.

- The course activities helped me to achieve the intended learning outcomes efficiently (i)
*** this is also related to the perceived high-pace of the course combined with a low background in the area.

- I could practice and receive feedback without being graded (j)
*** the students mention it was too much the workload to ask questions. We have lab activities also to ask questions and a large fraction of lab times were unused.

Summary of feedback from the course committee meetings
+ Overall good course
+ Great teachers
- Many students do not have sufficient programming background
- Too much work required

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 works well in many aspects. The course has been refined and matured significantly over the years. However, for this course round (2024), and also for the last four course rounds (2020, 2021, 2022, 2024), we have noticed a clear increase in the number of complaints regarding the course workload. In addition to this, we have had to schedule large amounts of retake lab sessions for these four course rounds, because a large amount of students are not able to finish the labs during the ordinary lab sessions. This was not been an issue in previous years apparently.
It is difficult to pinpoint the reason for this decline, and we believe it is rather a combination of many factors, including insufficient background by the students.

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 strong areas in the learning environment are the teachers and lab assistants, the course material, the practical aspects of the course, and the course organization. This also agrees with the student feedback from this and earlier course rounds in the LEQs and the course committee meetings.
As mentioned before, a possible weak area that have been especially prominent for the three most recent course rounds is the high workload and stress experienced by students. Again, the reason for this decline is not obvious, and we (the lead teaching team involved in the course) do not believe we can do any major changes to reduce the workload without also modifying the intended learning outcomes. It is interesting that this has become a problem in IS1200 during the last three rounds, but not for IS1500 (the same course that we give for CDATE). We have evaluated the possibility of removing the mini-project for lower grades, but we decided not to do it to avoid disaligning the IS1200 and IS1500 course. We considered reducing the workloads on the lab activities, but we believe the labs are useful to help the students in preparing for the exam.
It is important to investigate the problem above for future course rounds.
As far as we know, IS1200 will move to Year 2 starting in 2025 so this will alleviate the above problems as the students will have a stronger background to take this course.
Finally, we observed that the LEQ scores from females were significantly lower than males. It is unclear why but one reason may be the perception that female students receive more questions during the labs than male students. We inform the TAs about this situation.

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

We have moved IS1200 to Year2.
This is a big change and will hopefully result in receiving students with a stronger background in programming and algorithms.

We have also redesigned the course and update it to new RISC processors. We removed the seminar activities, which were perceived as unneeded. We will also change the way the project examination works.