Course Analysis

IS1200
Computer Hardware Engineering
(Datorteknik, grundkurs)

Quantitative Data
- **Course code:** IS1200
- **Year:** Spring 2015 (Periods 1)
- **Credits:** 7.5 hp
- **Main programs:** CINTE, TIDAB, TIEDB, TCOMK
- **Examiner:** David Broman
- **Course responsible:** David Broman
- **Responsible for lectures:** David Broman
- **Responsible for labs and exercises:** Fredrik Lundevall
- **Number of students (in Daisy):** 259 course registered
- **Number of participants at the exam:** 193 (may include retake exam students)
- **Students that passed the first exam:** 114 (59%)[1]
- **Students that have finished all parts of the course: see LADOK.**

Course Summary
The course teaches the fundamentals of computer organization that includes both software and hardware. The course is divided into 5 modules:
- C and Assembly Programming
- Processor Design
- Memory Hierarchy
- I/O Systems
- Parallel Processors and Programs

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

There are in total 10 lectures, 10 exercise sessions, 3 laboratory exercises, and 2 take home laboratory exercises. At the end, we also added one optional summary lecture. The course ends with a 5 hour written exam.

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[1] The students that were registered and reported to LADOK according to the time of the report (May 4, 2015). 5 students received FX. This number may also include students taking the exam as a retake exam.

Course Evaluation Methods

The course was evaluated in three ways:

- We performed a Muddy Cards evaluation in the middle of the course, where the students could on a voluntary basis answer anonymously on a sheet of paper what they thought was good with the course and what they thought should improved. The teacher then collected the information and gave feedback on the response at one of the following lectures.

- We formed a course evaluation group (kursnämnd) that consisted of three students and the examiner. One meeting was held in the middle of the course and another after the course. At the second meeting, only two student attended the meeting.

- Course questionnaire using the KTH Social system. The course evaluation was performed after the course. The system sent out the questionnaire to 189 students. The answering frequency was 41%.

Changes from Previous Year

In the spring 2015, this course got a new examiner, David Broman. The major changes of the course this year, compared to previous years, are the following:

- The course got a new structure, consisting of the five modules described above.
- All lectures where redesigned, including organization and lecture slides. In particular, these lectures now emphasize the interaction between the teacher and the students.
- One of the home labs was removed.
- New exercises were introduced for the module Parallel Processors and Programs, and for the module Processor Design.

Feedback from Students

The following bullet items summarize the most essential feedback that was received from the Muddy cards, the course evaluation group (kursnämnd), and via the course questionnaire form.

Lectures
- + Most students reported that they really liked the new lectures. In particular, we received many positive comments about the interactive aspects of the lectures, including the small exercises. Some students said that these lectures might have been the best lectures that they had so far.
- + Many students think that the lecture slides are very good and informative.

Exercises
- + Several students said that they appreciated the exercises.
- - Some students want more connections between the lectures and the exercises.

Labs
- + The labs were in general very appreciated. Many students report that they have learned a lot in the labs.
- - The labs took a lot of time to do.
- - Some students thought that the labs required too much time for preparation, whereas other students appreciated the labs.
- - Some students stated that they did not like that we used MIPS on the lectures and NIOS II in the labs.
- - A few students stated that the Lab-PMs should be improved.
- - There have been some complaints that some laboratory assistants are harder (more strict) when examining students than others.
- - Some students say that there were a lot of waiting time on the labs.
- - There should be more time for lab help.
- + Very good that lunch office hours were introduced in the course.
- + In general positive comments about the take home exam.

Organization
- + Many students stated that they liked the organization in general.
- + Some students mentioned that they really liked the course website.
- + Several students gave positive comments about the teachers and the teaching assistants.

- - Some students said that we should coordinate better with other courses that the students study in parallel.
- - There should be more time to prepare the exam at the end.
- - There should be more choices in the course.

Examination
- + Several students stated that they liked the written exam.
- + It was appreciated that it was possible to bring summery sheets to the exam.

Course Literature
- We got a few comments stating that the course literature was well written and good. We plan to use the same course literature and also complement with the book by Harris and Harris that was stated as additional course literature this year.

Analysis and Response from the Responsible Teachers

Lectures
We are very happy that the new lectures were so appreciated. We did not receive any negative feedback at all about the lectures.

Exercises
It seems like the exercises were appreciated. In general, the exercises are now designed as a preparation step for the labs. We plan to do some changes for the exercises next year. In particular, we plan to have exercises that the students do individually during the course and that can give bonus points to the exam.

Labs
The labs were in general appreciated. We received some comments about the problem about MIPS and NIOS II. This will, however, change next year when we will use also use MIPS in the labs. There were several comments about the amount of work of the labs. We understand that this is an issue for some students (we also received comments that the amount of work was as at a good level). We will take this as input when we design the new labs next year.

Organization
In general, most students seem to like the structure. The main overall criticism we get is that the course is big and contains a lot of material. Now, when we are creating the new labs for a new hardware platform, we will try to find a good solution when it comes to work load.

Examination
In general, students seem to be very happy about the written exam. There are some complaints about the examination of the labs. We will try to improve this for the next year.

Course Literature
Few students said anything about the course literature, but some of the responses were positive.