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.

The course is usually evaluated based on a survey in the middle of the course, a meeting with the course representatives at the middle of the course and based on the standard student survey at the end of the course and a meeting with the student representatives at the end of the coruse. The end of course meeting with the students is often cancelled due to the start of the summer break. This year we could not collect student representatives, but performed the two surveys and discussed them in the teacher team. Both of the surveys were answered by ca 20 students out of the ca 80 active students in the course.

Aspects regarding gender and disabled students are investigated via the standard student survey. Extended writing time needs are taken into account at the mid-term tests as well as the exam. This year there was a need for flexible project submission deadlines. As the course have weekly project submissions followed by the discussion of the project, this need is hard to accommodate, but we allowed now flexible submission times in two cases.

DESCRIPTION OF MEETINGS WITH STUDENTS
Describe which meetings that has been arranged with students during the course and after its completion.

The program coordinator of the CELTE program organizes a "länk möte" in each period where student representatives, teachers and program coordinator are present to discuss all actual courses. This gives a good opportunity to discuss the course. The students also provide a written evaluation based on a survey a students themselves conduct.

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 project based. During the course the students have to complete 10 small projects that build on each other. The students are supported by lectures and consultation. Progress during the course is checked via three tests and project presentations, while the course completes with a written examination.

This year the course was still entirely on-line, following the same setup as last year. The consultations have been improved by the introduction of a ticketing system, and several introductory presentations from the student TAs, for example on debugging techniques.

To help discussions among the students we set up discussion groups, however, they were not utilized.

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?

EP1200: Considering the students who submitted the survey, around 45% of them spent the expected time or less with the course. 20% spent more than 30 hours a week, which is too much. They spent significantly more time than in the years with on-campus teaching, where ca 90% spent the expected time or less. The distance teaching made it also harder for the students to meet and discuss. These could have also increased the time the students had to spend with the course. This year we emphasized that the students should try to work together and discuss the project.

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?

Around 10% of the students perform very well in the course. However, we found the average results of the students rather low this year. Very few of them participated at the lectures, far less than previous year, when the lectures were already on-line. Videos are available about the course content. We believe that many of the students follow those, but miss the lectures where the key points of the topics are better emphasized. We have to make efforts to make the students participate more actively.

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

Many of the students find the content of the course interesting and useful.

" Otroligt spännande att lära sig hur en dator fungerar. Verkligen den mest intressanta kurs jag läst hittills. Roliga projekt med mycket bra videor till, och en bok som var tydlig och bra."

"Att ha projekt och KS:ar under kursens gång var bra, då hängde jag med i kursen hela tiden och slapp stressplugga inför tentan."

"Kursens innehåll är intressant och allmänbildande"

"The project presentations were great, because you got direct feedback on your work. Wish that I was selected more often."

As said, a very small part of the students answered the surveys. The typical negative comments are:
- More help is needed to handle the various software tools
- More help is needed with the testing of the solutions, that is too time-consuming
- The HW part of the course is too fast for the industrial economy students, since they do not have introductory course on the topic, in contrast to the electrical engineering students
- It is not clear what will be asked at the exam

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

Both from the survey and the meeting with the students it seems that there are students who are very positive and students who are very negative about the course.

The weakest points are still the possibility to get feedback without grading and the possibility to get support. We believe that with example tests and frequent consultations we give this opportunity, but we constantly look for other solutions.

For industrial economy students the start of the course is definitely too fast, and this we will address next year.

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.

Our overall impression is that the students learn a lot, and many of them has the right background for the course. However, we see the problem that there is too much publicly available material about the course, which redirects the focus of many students from concentrated work.

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 be? Are there significant differences in experience between:
- students identifying as female/male?
- international/national students?
- students with/without disabilities?

Many of the students like the setup with the continuous projects. The students would like to receive more feedback without grading and would like to get more help if needed.

We do not see significant differences between the 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?

- Further development of the automatic testing framework
- Better information about the project presentations
- An assessment of on-line resources and their integration into the course
- Re-design of the course start to address the student groups with different backgrounds
- Better support for discussions among the students

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