Teacher's course evaluation

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Course name: Vision and Image Processing (ViP)
Course period: Blok 2
Study program: MSc in Computer Science and MSc in It & Cognition

Reflections on student's outcome:
Describe the parts of the course, which in your opinion have contributed to a notably high outcome in relation to the intended learning outcomes of the course.
Describe the parts, which have been notably difficult for the students in achieving the intended learning outcomes.
Please state justifications for your opinions, for instance on the basis of students' exam performance, the assignments they have handed in, their participation in class (dialogue), etc.

This course was given to both MSc students in computer science and It & cognition: Judging from the performance on the assignments and the student evaluation, the course helped computer science (CS) students to understand key aspects of computer vision and the practicalities of this field.

The It & cognition students also gained knowledge in key aspects of computer vision and through the practical assignments they also received training in programming and mathematics. They had problems with understanding the theoretical descriptions of the presented algorithms, mainly due to lack of mathematical background knowledge.

Both groups of students had problems transforming the theoretical description of algorithms to concrete implementations. This is difficult and is therefore not a surprise to the teachers.

Reflections on assessment and teaching methods:
What kind of information on the students' learning outcomes does the exam provide?
How does the exam direct students' work on the subject matter? E.g., whether the exam rewards students for working effectively in the discipline or whether an exam which is exclusively oral or exclusively written may direct students' attention away from working with other perspectives on the subject matter?
In which ways do the teaching methods support students' work on the subject matter – where is there room for improvement?

The course consisted of 2 x 2 hour lectures and one-hour exercise class per week. This format appears to work, but we should consider if we should extend the exercise class hours.

The exam format is continuous pass / fail assessment based on four assignments (1 individual and 3 group). The assignments focus on giving the students practical experience with the studied theory and algorithms. They consist mainly of implementation of selected algorithms and experimentation with these. As such the assignments play a vital role in the learning process.

Reflections on how the course contributes to students' overall disciplinary competence?
From the perspective of the whole study program: How do the course's intended learning outcomes and content contribute to the students' disciplinary development? E.g., disciplinary progression in relation to preceding or following courses, contributions to students' collaborative competence, communication competence, etc.

CS students following the CMM profile gains knowledge in computer vision building on top of the other CMM profile courses.

IT & cognition students gains the first knowledge on how to use computers to analyze images. They also get experience in programming and converting algorithmic descriptions into working programs. Furthermore, the course, to some extend, prepares the students for later courses in the curriculum including the StatML course.

The course is advanced and uses scientific papers as main material thereby training students in reading scientific papers and preparing them for the MSc thesis.

Reflections on student evaluations of the course:
Describe the relation between the students' experience with the course and your experience with the course.
Provide justifications, e.g., that students are particularly satisfied with aspects of the course which you also value, or that your evaluation, with reference to your reflections above, is different from the students', and how your criteria for your evaluation then are different from the students'.

The amount of participants in the students questionnaire is very low, which should be taken into account when looking at the results.

Looking at the results of the student questionnaire it appears that the students mainly appreciate the content of the course. However, several (mainly IT & cognition students) find the mathematical level too high and / or their mathematical background knowledge to low. We have strived to find a balance in the math used during the lectures, but we know that for some of the topics we need to adjust the mathematical level. We have picked a collection of problems and methods, which are current active research areas. Most of these require the use of mathematics to actually provide an explanation of the methods. Hence the use of mathematics is unavoidable.

Overall evaluation of the course:
State and justify your own satisfaction with the way the course went, based on the above.

Considering that this course was given for the second time only we think the course went well, however there is definitely room for improvement.

In total 35 students were signed up for the course and 33 students were active (submitting the first assignment). Of these 27 students passed the course.

The level of programming skills among the It & cognition students have improved, but is still a challenge to be handled on this course.

Future development of the course:
State which elements of the course should be developed before the next section of the course – and how.
Outline your proposal of how the course should develop over the long term.

Besides adjustments of the course content, slides and assignments, we will continue our search for a useful textbook. We will consider if we should extend the weekly exercise class to maybe 2 hours. It is difficult to try to teach both groups of the student population in one course and require some careful balancing. We will continue to adjust the teaching to fit the students diversity.

In our opinion it is necessary to improve the mathematical skills of the It & cognition students before they take the ViP course. We can only cover some mathematical topics but not the basics of linear algebra, both because of limited amount of time but also because the computer scientists already know this material from their bachelor education leading to too much repetition for them. Linear algebra is important both on the ViP and StatML courses. We therefore suggest that it is considered how this material can be introduced as part of the Scientific Programming course on It & cognition. It is better to focus on establishing the basis of programming and mathematics than looking ahead on topics that will be covered in later courses, such as machine learning.

Unfortunately the course was allocated a room for 20 people to begin with, which caused quite some problems. The cause of this was to slow administration around signing up the IT & cognition students for the course. This should be avoided in the future.