



Report - MF2071 - 2022-01-11

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.

MF2071 is the Mechatronic's master track course in research methodology. It is primarily focused on preparing the students for their master thesis projects. (It also replaces other courses on research methodology as the master track has included 3 ECTS on research methodology in our capstone course, rendering 7.5 ECTS courses in research methodology "non-optimal" for our students.) This means that the evaluation must look beyond MF2071 to understand whether its impact is appropriate. With that in mind the evaluation includes:

1. An voluntary questionnaire at the end of each MF2071 instance. There are typically not many answers, even if manual reminders are sent out in addition to the automated ones.
2. A mandatory questionnaire at the end of the master thesis course(s) MF214x and MF224x, which asks questions related to MF2071.
3. Opportunistic interviews with students at the end of MF2071, and during the master thesis course(s). JML aspects are to some degree covered by (1), but as not many students use this route to provide feedback it is an aim of (3). The course responsible thus asks other teachers and administrators to be on the lookout for students that might have feedback related to this, but who might not volunteer to share it without prompting.

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.)

See previous answer.

COURSE DESIGN

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

The course consists of 4 steps:

1. A seminar series for which the students self-study and answer quizzes before each session. At each seminar the students are then asked to discuss a number of relevant problems/concepts using examples from previous master thesis projects.
 2. A lecture series in which three methodologies (experiments, simulations, and case studies) are presented.
 3. A exercise report for a deeper understanding of experiments.
 4. An oral/written exam (depends on the outcome of (1)), either focusing on experiments or case studies.
- (1), (3) and (4) form part of a continuous assessment, to avoid a "big-bang" exam that might not be appropriate for all (most) students.

The main change since the last course offering was the setting of stricter deadlines, as the students last year felt that they kept putting the work off to "later" due to the demands of our capstone course.

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 nominal workload is expected to be aligned with the expected level (120 hours). This includes 40 hours for the literature search module, and 80 hours for:

- Introduction
- 4 seminars (seminars, pre-reading, and quizzes)
- 1 additional forward-looking seminar
- 4 lectures (lectures, pre-reading, and questions)
- 1 experiment exercise
- 1 exam (exam, and preparation)

Some students do not spend much effort on the course, while others spend (a bit) more than expected. The difference is mainly the time the students spend on the pre-reading and the exercise.

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 more students showed earlier that they have learnt what is expected. The reason was most likely the more strict deadlines. However, this has also led to much more stress among the students, as they had to juggle both the MF2071 exam and the capstone course.



STUDENTS' ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

- The opportunities for discussions and the varied topics are welcome. Otherwise, what one student finds positive is frequently mentioned as negative by another. (As an example, the perception of an uneven pace was welcomed by some students who preferred to focus on the capstone course in the middle of the semester, but not those that had a stressful end in that course.)

In any case, from a negative perspective, the comments were:

- That the pace of the course should be more even across the semester. (See (A) in "Prioritized Course Development" for response.)
 - That the fact that the course is critical to starting the master thesis (as a rule, but also because it relates to the proposal that has to be handed in before that course) is seen as very stressful (as a "threat"). (See (B) in "Prioritized Course Development" for response.)
 - That the descriptions of the exam and the experiment exercise should be more precise. (See (C) in "Prioritized Course Development" for response.)
 - That the course should be placed earlier in the program.
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SUMMARY OF STUDENTS' OPINIONS

Summarize the outcome of the questionnaire, as well as opinions emerging at meetings with students.

Two main outcomes can be mentioned, in addition to the answers to the open questions:

A) At the time of MF2071 students range from those that think it is too trivial, to those that struggle.

B) Students generally approve of the possibility to get fast feedback in the course, but think that too much of the course outcomes depend on this. They would rather have more precise instructions for the exam and exercises.

The relevant learning goals of the master thesis courses are:

LG1 "Knowledge of the scientific grounds of their chosen subject area, as well as in-depth insight into current research and development and in-depth knowledge of relevant methodology."

LG2 "The ability to search for, gather and integrate knowledge and identify their need for additional knowledge, all with a holistic, critical and systematic approach."

LG3 "The ability to identify, analyse, assess and handle complex phenomena, questions and situations, even with limited information"

LG4 "The ability to plan and, with adequate methods, carry out skilled tasks within a given time frame and evaluate this work."

LG6 "The ability to make assessments with regard to relevant scientific, social and ethical aspects."

For these the following percentage of the students thought that (a) they were sufficiently prepared by our master track for the learning goal and (b) specifically prepared by MF2071 for this learning goal. Additionally, (c) is included for comparison to who specifically thought they were "prepared" by the supervisor in the master thesis course for tackling this learning goal.

LG1 93%, 36%, 16%

LG2 98%, 47%, 9%

LG3 93%, 16%, 18%

LG4 91%, 27%, 7%

LG6 91%, 20%, 11%

As can be seen, considering that the relationship to MF2071 is not prompted for, MF2071 ranks high after-the-fact when the students think back regarding what it was useful for.

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.

Looking back the stricter deadlines were overall a success. However, it did put a larger stress on the students, which meant that the teacher-student interactions were thought to be too slow. (In earlier years there has been time for much more discussion throughout the exam process (from fail to re-try) between the examiners and students regarding what they find to be difficult to grasp.)

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?
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The need for a "flipped classroom" approach early in the course is still valid. The students do not know the basics of the subject well enough, and due to the (little) available time the course then has to skip past this and focus on the bare necessities for carrying out a master thesis study. Ideally, this should be solved by reclaiming the 3 ECTS from the HK course, and teaching parts of this subject earlier. However, before that happens, this problem of the learning environment has to be solved late and within MF2071. In earlier years this has largely been solved through picking up individual challenges, and discussing around them. (Often prompted by the exam process.)

However, when the students are also squeezed for time late in the course, then the learning becomes strained. Students have to solve associated challenges which are both affective (e.g. stress) and meta-cognitive (e.g. planning).

Perhaps surprisingly, this has not showed itself in regard to students with disabilities (that the teachers knew of). They might already be aware of that these challenges can be large, and act accordingly (more interactions with the teachers). This suggests that the level of teacher-student interactions that can be prompted by the students across the course should be kept high.

Interestingly, this year saw larger difficulties for international students. This might be because the course has been fully online, which might have aggravated language issues.



PRIORITIZED COURSE DEVELOPMENT

What aspects of the course should be developed primarily? How can these aspects be developed in short and long term?

Based on the previous issues and analysis, the following aspects will be prioritized next year:

(A) (1) A concise, complete reading guide will be developed for the entire course, which will be handed out and presented to the students early. In this reading guide it will be made clear what is expected early in the course to make sure there are no misunderstandings regarding the pace (i.e. especially in regard to pre-reading).

(A) (2) Each seminar will be preceded with an hour for asking questions.

(A) (3) A supervision meeting will be added for the experiment exercise in the middle of the course. This will allow students who want to perform the experiment exercise early to do that without going off on the wrong track.

(B) The reason the course is critical is quite obvious, but the framing for that will be reworked for the introductory lecture.

(C) The descriptions for the exercise and exam will be reworked. (Strictly speaking, the former is from MF2072, but there is probably room for updating it independently from that course.)
