



# Report - ML2302 - 2022-02-11

Respondents: 1  
Answer Count: 1  
Answer Frequency: 100,00 %

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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.**

After the final presentation and before the final grade announcement, we published LEQ survey through the KTH system. The survey was opened between April 27 and May 10. We didn't ask for any personal information to ensure anonymity.

## 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.)**

Added the questions below to have more answers about the lab sessions.

A focus of the yearly improvements in the course will this year be on the Lab exercises. Please answer the additional questions:

1. We consider changing the lab preparation to flipped class room structure- what would be required for you in order to get a high learning outcome out of such an exercise, and what would you think is most important to then focus on in the lab (examination on site time will increase with more individual task)?
2. Some of the preparation material was not find to be constructive and informative. What are your suggestions from a user perspective to improve them?
3. You partly got very little time to deliver and prepare the lab. How many days in advance would you find suitable for you to get access to the material in order to be able to plan your studies in a suitable way?
4. The analysis of the lab reports and its connection to the theoretical foundations, shows some weaknesses. What would help you best in better connecting the theory with the simulations tool we have. Objective should be to understand the weaknesses and strengths of the different simulation tools and the underlying simulation method for specific problems.

## COURSE DESIGN

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

This course has five ILOs as below

(ILO1) Describe the central elements in and main application fields for modelling, simulation and optimisation at development of sustainable production and logistic.

(ILO2) Apply analytical heuristic and experimental methods and tools to analyse resource and flow efficiency of system for sustainable production and logistic.

(ILO3) Create analyse and critically evaluate different production and logistics solutions by modelling, simulate optimise and evaluate developments also with limited information, as well as considering sustainable development and to the preconditions and needs of people.

(ILO4) Reflect on difficulties with to model simulate and optimise during the different stages in a development process regarding production and logistic.

(ILO5) Reflect on role of modelling simulation and optimisation in a future development towards a digitalized production and logistics.

there are three assessments in this course which are INL1 (assignment), LAB1 (laboratory work), and PRO1 (project work).

INL1 is related to ILO1 and ILO 4, LAB1 is related to ILO2, and PRO1 is related to ILO3 and ILO5.

LAB1 is graded by P, F, INL1 and PRO1 have A, B, C, D, E, FX, F grading scale. the final grade is defined by INL1 and PRO1 grades.

Detailed assessment descriptions are as below.

The INL1 is divided in two parts (INL1a and INL1b) and it is individual work. The Lab exercises are examined on-site. A supplementary protocol answering a set of relevant questions needs to be submitted individual basis in Canvas. Each lab module needs to be passed in order to pass this examination moment.

The project work is a group delivery. It is scored based on the written report and the final presentation. The contribution of each group member to the assessed ILOs (ILO 3 & 5) needs to be clearly stated in the report and in the project presentation and will be assessed according to the expectation of what 120h work for each student should comprise.

We had online lectures, computer lab sessions, supervision sessions, workshop sessions, and final presentation in this 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?**

This course has 9.0 ECTS (3.0 for INL1, 2.0 for LAB1, and 4.0 for PRO1), so we expected the students to spend 240 hours (40 hours / 1.5 credits) in total. Based on the survey results, half of the students spent less than 24 hours per week, and around half of the students use more than 30 hours per week. - some students used 40 hours per week.

The students need to use around 27 hours per week (240 hours / 9 weeks) in principal and the average working hour from the survey was 25.2 hours. Therefore, there was no significant difference between our expectation and their workload. However, some students who answered they used more than 30 hours, commented about their heavy workload on their project work and lab sessions. We had some problems this year to get the data about project case from the industrial partners, and at the same time some teachers were sick during this course. So it was not 100% fully prepared for the project case and several lab sessions. I think that is the main reason why the students need to spend more time than their expectations.



## **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?**

There were 5 students suspended due to plagiarism. Some students could not pass the INL1 at the first time, but they had second chance to submit their assignment and they succeeded in the course. In their project work, we had 8 groups in this course and 4 groups got B in their project work. The other groups also succeeded to pass this course. It was surprising when 5 students were suspended due to plagiarism. They were supposed to do their assignment by themselves from the beginning to the end, but some of the students shared their data with other students. When we announced the assignment, it was clearly defined as an 'individual assignment'. However, we must emphasize again next time when we announce the assignment. On the other hand, many of the students failed at the first time in their written assignments. Also, they were struggling to fulfill the requirements from their project work as well. It is better to emphasize and clearly define the grading criteria in advance.

## **STUDENTS' ANSWERS TO OPEN QUESTIONS**

**What does students say in response to the open questions?**

There are several answers about the lab sessions, project work, assessment, and course structure. First, about the lab sessions answers were divided. Some students pointed out it was nice to have different software in the lab sessions. However, there was another aspect of the lab session as well. For example, they said the lab sessions were too hands-on and they didn't think it was worth spending some time if they will not use that software in their project work. Second, about the project work, some students mentioned their case from industry was not great. Bad communication with the contact person affected their project work. Third, about the assessment they wanted to have fast feedback about their assignment. They were frustrated about the last feedback from their assignment results. About the course structure, some students suggested improving the course structure in general.

## **SUMMARY OF STUDENTS' OPINIONS**

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

In general, students were satisfied with their topic and subject in this course. However, practically the project case was not fully ready and they were frustrated. Also, the students couldn't find a reason to have lectures on basic statistics in this course. They thought statistics parts are not related to other parts in this course. The students wanted more challenges in their lab assignments. Especially, many of the students were not happy about their grades. They didn't think there were proper criteria for their assignments. Also, the feedback process was too slow. Regarding the simulation software, some students thought it was not fair to have different software. Some students also mentioned they need more help from the teachers.

## **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.**

This course requires basic knowledge of statistics but some students didn't have enough knowledge of statistics. Project work should fulfill the related ILOs however, some students focused on following industrial partners' requirements.

## **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?

There was no significant difference between female and male students. Here are the stronger and weaker areas in this course.

Stronger areas

- Providing real cases from industry is a stronger area in this course. It can give the students how to solve the problems in the engineering field after their graduation
- Even though it has two sides, having different lab sessions with different software is a strength in this course. Students can understand the differences between the tools and methods.

Weaker areas

- Weak connection between the lectures and labs can be a weaker area in this course. Some students mentioned it was difficult to find a connection between them
- It seems that some international students lacked understanding in which cases could be plagiarism.

## **PRIORITIZED COURSE DEVELOPMENT**

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

Some simulation software need to have more lab sessions since it requires more background knowledge to use. For example, SUMO is open-source software and doesn't have a user-friendly interface. Also, SUMO will not be included in their project work. Need to have a better connection between the lectures and lab sessions. For the project case, it needs to be prepared in advance and have better communication with the industrial partners so the students can have better data and information for their project work.