Kursanalys

Kursens namn	Modelling, Simulation and Optimization of Sustainable Production	Kurskod	ML2302
Kurspoäng och poäng fördelat på examinationsform	4 ECTS PRO1 (A/F) 2ECTS LAB (P/F) 3 ECTS INL (A-F)	När kursen genomfördes	P3 VT2020
Kursansvarig	Jannicke Baalsrud Hauge		
Examinator	Jannicke Baalsrud Hauge		
Övriga lärare	Yongkuk Jeong , Seyoum Birkie; Albin Östman Eriksson, Karoly, Jayanth (Amita Singh was planned but sick)		
Kursupplägg • Kort beskrivning över kursen upplägg och innehåll • Läraktiviteter inkl. antal timmar	The course was given for the first time. It is an obligatory course for two master programs, however when planning, this was unknown. This lead to clashes and many reschedulings. The course examination is a lab (consisting of 5 lab –examination on site- pass/failed), INL 1 (conists of two parts 1a- calculation, 1b- understanding and critical thinking). 1 book was selected as main literature. Classes: 31h planned, 25 given. Labs: 20 h Project: Industrial visits half class 2x4h- project introduction, in addition each group went 1-3 times to the company Supervision: Upon request- variation between 5- 20 h. Redovisning: 4 (for feedback) +6h final- NB partly online, since examiner ill. The course is on 9 ECTS, ie. Each student should work around 24h weekly on it. The course started with a quick repetion		
Antal registrerade studenter	26 (but one Avstängd), so in practical 25.	Antal förstagångsregistrerade studenter (ffg) (ej obligatoriskt)	
Prestationsgrad efter första examinationstillfället*	Lab: 100% (50 ECTS) Project:100% (100 ECTS) INL. 15/25 =60%, (45 ECTS), Sum=195 ECTS, ie 86.7%	Prestationsgrad efter första examinationstillfället för ffg (ej obligatoriskt)	195 ECTS,
Examinationsgrad efter första examinationstillfället*	60%	Examinationsgrad efter första examinationstillfället för ffg (ej obligatoriskt)	
Svarsfrekvens vid kursvärdering	17 out of 25 i.e. 68%.		

	The course feedback was carried out with PAS. The course examiner/repsonsible was not available in that meeting because ill. PAS and Course examiner/repsonsible discussed the outcome on 1. April 9.30-10.30.
Kursvärdering • Sammanfattning av kursvärdering • Sammanfattning av studenternas åsikter inklusive de öppna frågorna • Anser studenterna att dom arbetar i en omfattning som motsvarar kursens poäng?	Regarding resource usage- 1 student use less than 10 h, 5 between 11-20, 9 21-30 (for this course this is the expected avarage) and 2 are using more than 31 h. The main issue is not the hours they used but the uneven distribution. *In addition, this was collected before the 10 candidates had resubmitted the not passed INL1, and also many not submitted INL1b (Course responsible's comment)* Achieving the ILO- the graphs shoes taht for ILO 1, we have 7 disagreeing and 9 agreeing. For ILO 5 we have 6 disagreeing vs. 10 agreeing. That is in both cases far too high and in line with the comments at the end. The course värdering clearly indicates that they miss a link between the theoretical classes and the applicable knowledge and have severe difficulties in seeing the relevance of the theory for the ILO (Which is actully fairly well seen in the fact that ILO 1 and 5 has a large number of students feeling that they did not achieve the ILO through the course as well is in how the course managed to support the ILOs (score 2.1/4) and in well they could translate the theory (as examples into practical (2.1/4). We here also see a lack in knowledge (2.2/4). Some comments that the book we chose is not good, and overall the literature was not seen as relevant (1.6/4). Even though the feedback shows that the topic was relevant, the labs were interesting, the course structure was also unclear to some students and it was stressful for them (as can be seen from the comments). A clear wish is to start the project earlier and reduce the number of softwares to get to know.
Sammanfattning av kursmöte	Course meetign was held on June 11. We were at that time not finished with the resubmissions. Changes agreed upon here: Need to ensure that the students understand the connection between statistics and simulation. Classes- revise them earlier (not last minutes)- get an example for the statisics and example production/class- also in finding more extra material- check if we should do it more linear Still prepare something for those who have not had statistics Create a check list for the students/quizzes to be prepared before the lab LAB- focus more on the connection between the lectures and the labs. - Going from a hands on to real lab. - Introduce more demanding tasks, making sure they are prepared before - Deliver a short analysis of the lab related to the lecture they had before

	- Add 2 sessions for Sumo - Matlab – general data analysis - Remove the extend lab.
Analys • sammanfattande synpunkter från kursansvarig • kursens starka och svaga sidor utifrån kursvärderingen och kurslärarnas reflektioner, även i förhållande till de förändringar som gjorts inför kursomgången. • Reflektion om hur kopplingen mellan lärandemål, läraktiviteter och examination med målrelaterade betygskriterier fungerar i kursen. • Förslag på eventuella förändringar av kursen med motivering. • Finns det betydande skillnader i upplevelse av kursen mellan: Studenter som identifierar sig som kvinnor och män? Studenter med eller utan uppgiven funktionsnedsättning? • Vad i kursen kan utvecklas på kort och lång sikt?	Already in the beginning, it was problems here- first of all, we planned the course without knowing that it would be twice as many students. Secondly, the course was designed so taht theory would be before the lab. However, since we had to change the lab dates (and too late) so that also the students from Valhallavägen could attend, this was not so streamlined as intend. We are now aware, so next year will be very much better, but this first years students suffered a lot. 2. It is evident that we need to make sure that the course get more robust to illeness among the teachers. This could not be sufficienlty covered, and lead to cancelling of designed elements, having a negative impact on the students results as well as very long feedback times. It has to be pointed out that the student were very patient, even though this introduced a lot of stress for them not only in P3 but in P4 too. 3. LABs: Furthermore, it is clear that we have to test the infrastructure and that everything is working much more in advance. We had partly tested, but only on one PC and then just for experiencing that it did not work at all PCs, or what also happened, since we hadn't tested each funcitionality on the PCs, some plugins were simply not available. Next year each lab needs to be tested much better in advance, and it is required that at least 2 of the teachers could carry out the lab, if the other one is ill, preferable it would be to have the examiner and 2 teachers, since it is quite much supervision in the labs. LAB experiement- Besides the technical problems, which the teaching staff needs to fix, the lab did not really go as planned. Many had not read the provided material before, so that it ended up with a hands-on, and for those who were prepared, it was boring. Furthermore, it also lead to that we did not look into so much details as planned and as needed for the project. This needs to be better covered next year. This year they had 5 labs with 5 tools. We will keep 5 labs, but only 4 tools next year. 4. Lecturers- we did not manage to mediate why we focussed so much on statistics and why it is essential for simulation and optimisation (ILO 1). The connection was unclear, and this is not only seen in the students feedback but also in the project results and the INL1b. The suggestions of the students of having less theoretical foundation, can not be implemented next year, since 10 out of 25 did not pass the basic level (what we see as absolute minimum of understanding). However, we as teachers have to work on how this knowledge can be provided in a way so that the student can apply it. 5. Project- the project was distributed after 3 weeks, when we thought they would have sufficiently knowledge in the theoretical background and before they got sufficiently knowledge in the software, since we first wanted to give them good skills in developing simulation models and validate them, before

they started with the software. This lead to stress, but it can be discussed if the stress was more related to that we just had planned the first meeting with the companies, and not follow up meetings in groups, and secondly that this was just before half of the teachers got ill, two on sick leave and the examiner only able to do online. The students were also not well enough prepared for that they only would get the initial problem and then would need to apply the methods for developing simulation and optimisation models in their group. More information on the design of the project will therefore be needed to be provided and more slots needs to be planned before course start in order to ensure that they can spend sufficient time at the company.

Furthermore, this was at the time where the companies started to close for visits due to COVID-19, and thus some of the groups could not do the visits and data collections they had intended to. For the purpose of the learning (modelling with unsecure data) that is fine and welcomed, but from the perspective of the stress of the students who are not used to handle deviations and incomplete/uncertain information and replace with assumptions (which needs to be assessed and validated) was more stressful than it suited the learning outcome.

Related to betygskriterier- more emphasizes needs to be put on explaining the actually implication (i.e. A compared with C). A few students did not find that clear enough.

The project owners (industry) will be invited to explain the project before the industrial visit, so that the students know more what to look for.

What went extremely wrong:
All involved teachers reports a very high number of preparation hours (if the learning outcome would have been excellent, it would have been ok, but it was not, so we have to revisit to see where to change).

INL1a could only be marked by one single teacher. It was not given enough information on how to deliver, so that it was not easy for him to assess and it took a lot of work. We need to find a different way next year, so that the students get timely feedback.

3 teachers got ill, and we had no replacement. For one we could get a replacement from Flemmingsberg at short notice, so it saved the lab, for the two others not.

Since we were too late with the correction of INL1a which we needed for doing 1b, the students got that on the very last day, even though we still just had a vague knowledge of who passed and who not. This needs to be done better next time.

Furthermore the software issue and the lab prepardeness was a problem leading to frustration

What was good-
Based on the preparation beforehand, it was co-herent planned with all teachers involved (but we still missed some points which we will work on).
The students were engaged in most cases.

Övrigt	

*Med "prestationsgrad" avses antalet presterade högskolepoäng efter första examinationstillfället (för samtliga examinerande moment) för samtliga studenter dividerat med antalet möjliga högskolepoäng för alla registrerade studenter.

Med "examinationsgrad" avses antalet studenter som klarat alla moment i kursen efter första examinationstillfällena dividerat med antalet registrerade studenter.