Report - ML2301 - 2021-02-03

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.

The course evaluation was done by utilizing an LEQ survey with general and specific questions about the course. The LEQ was sent out after the students had their written exam. The LEQ gave a response rate of 36,67% (11 out of 30), which seems to be improved from last year's LEQ (14,3%, to be exact).

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.)

A meeting was held with student representatives in the middle of the course, and further, follow-up with students representative was conducted via email. The same as the previous year, the whole section also had the opportunity to reflect on areas of improvement for the course.

COURSE DESIGN

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

The course was delivered in diverse formats including lectures, group exercises, seminars, and lab activities. Guest lectures were held on selected topics.

Following KTH guidelines for the fall period regarding COVID-19. The lectures, seminars and lab sessions were planned to be carried out online via ZOOM (47.73 % approx.) and on-site (52.27 % approx.), given the fact that our course has international students who depend on migration permit to stay in Sweden, a 50-50 percent rule needed to be secure for online and on-site sessions. Lab sessions and final exam were prioritized to be on-site due to the nature of the activities.

The course has seven intended learning objectives:
(ILO1)- Define and explain production management, Lean management and methods for follow up and control
(ILO2) - Describe production strategies for industrial production and relate these to management and control
(ILO3 - Describe and explain how incremental and radical development of production systems can be managed, as well as their connection to the operational phase and the production organisation
(ILO4) - Describe and analyse processes for introduction, industrialisation and scale up of production.
(ILO5) - Describe and compare theories about how company groups develop and control their production network and locate their production globally
(ILO6) - Relate the increased digitalisation in production to industrial production management and analyse how it can change management processes.
(ILO7) - Relate environmental, social and economic sustainability to industrial production management and how it is integrated in both the development and operational phases

The accomplishment of these ILOs was assessed through the following:
INL1 (A-F, 5hp). Group assignment. Case-based continuous activity in course with oral 1) presentation and 2) written hand-in (project report). A detailed project description was provided separately to students.

TEN1 (A-F, 4hp). Written final exam to assess theoretical understanding.
Closed book written exam.

Grading criteria
The overall grading of the course was a combination of INL1 and TEN1 according to the rule set in the table included in the course PM. Each assessment moment and the corresponding ILO is indicated.
The final passing grade is assigned on the condition that all mandatory activities are completed and it is set in a combination of both INL1 and TEN1 (table included in course PM).

Changes in connection to previous evaluation were targeted to the priority for course development:
Further clarification of the project assignment was delivered in the written project PM including peer review and team agreement, the assessing criteria was revised and reduced to only four specific ILOs assessed in the project with four corresponding thematic areas (ILO 1,2,6 and 7). A dedicated session to explain the project expectations was assigned where students would openly ask questions regarding each thematic area. All student groups carried out the same project, having interviews and contact with a company were not mandatory but encouraged if possible, this due to the fact COVID-19 restrictions could mean more challenges for students in conducting the project on time.
Only ILO 2 was assessed in two forms TEN1 and INL1, which help in reducing the load for students in preparation for the exam. In addition, assessment criteria was explained in detail at the start of the course.

Another change from the previous year was the Lab session, which was re-designed, a new teacher was assigned this session who in collaboration with teachers involved in the previous year's lab session in the course re-designed the session to integrate specific aspects from the course in a practical way. The students attending this course often have previous experience in the lab therefore, it was desired to design a unique experience targeting the themes in the course instead of a general lab, practical session. Teamwork and discussion were key and enhanced looking to explode the physical meeting opportunity as much as possible.

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 extent of students' work is estimated to correspond to the course's points (40 hours / 1.5 credits). However, the responses in the LEQ indicated highly varied effort from students ranging from 6-8 hrs in the low side to more than 41 hours on the high side.
The assumption is related to the time dedicated to prepare for each session e.g. reading the assigned material mandatory or recommended.

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?

The course had 30 registered students from which only one student did not attend the full mandatory sessions. Five students in total did not attend the mandatory lab session, a complimentary assignment was designed for those who decided not to attend due to being in a risk group, sickness, or personal decision due to COVID-19. Four out of five submitted the complementary assignment on time to compensate for the lab session. All students except one engaged in the delivery of formative assignments along the course (same student mentioned above).
In INL1 10 students scored A, 5 students scored B, and 15 scored C.
In TEN1 2 students scored A, 6 students scored B, 11 students scored C and 2 students scored D. 9 students did not take the written exam at the moment of this analysis. The principal motive for this is that the students will have a second chance to take the written examination and most of the missing students in the exam decided to wait for that chance reasons vary e.g. personal reasons, sickness, or risk group.
The final course grades of the students are: 4 A's, 5 B's, 12 C's, 9 students have an incomplete score at this moment.
This is the second time the course takes place, from comparing with the previous year we can see that INL1 results improved consistently having more students scoring A and none scoring D.
The exam also shows better results from the students, the range of grades stay from A to D, and more than one student scored A.
Naturally, the final score for the complete course grades shows improvement as well, something to highlight is the range of grades from A to C and the distribution on A and B grades, improved by having more students scoring A compared to last year.
One reason for this improvement could be the revisions made on the assessment criteria i.e. ILOs included on each assessment moment and the improvement in the project task.

STUDENTS´ANSWERS TO OPEN QUESTIONS

What does students say in response to the open questions?

The overall impression in the open questions seems positive, the response from the students indicate they find the topics in the course interesting, a couple of them highlighted the good organization in the course material, activities, and ILOs division on exam and project work.
The group work was commented to be of great value and one student highlighted the literature as good to follow in connection to the lectures.
Another student mentioned as positive the attitude of the teachers and the support for the project work. Lectures from the industry were appreciated due to the industrial examples.
The suggestions of improvement referred to fewer online lectures given that it can become quite impersonal and hard to connect with the students. Some contradictory comments appeared to the positive feedback for example topics too general, low connection with the teacher, the project group too extensive, and considering too many topics included and encouraged more interactive work for the project.
The responses on the LEQ questions were on the positive range scale with a few atypical responses in all questions which can make the average score misleading.

SUMMARY OF STUDENTS' OPINIONS

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

The LEQ survey achieved only 36,67 % (11 out of 30) even though this is higher than last year, a higher number of responses would be preferable in order to triangulate better the responses. A final survey on menti was not included in this course. This increased the LEQ response but did not capture the whole group of students. The opinion received at the meetings with students in supervision sessions was positive in general. Some students sent out their concerns often via-email regarding on-site sessions and requesting alternatively attending online, given this request an optional online room was offered in most on-site sessions which teachers kindly accepted to handle even though this was not mandatory given the 50-50 % to respect. Open feedback was requested during the physical lab session which was useful to get fresh insights from the experience.

Key aspects rated and expressed as positive in the LEQ and in meetings with students:
• Guest lectures good and useful, the mix was interesting and good to enhance the learning
• Some lectures were highlighted as easy to follow and informative for their learning
• Good connection of materials and literature
• Good organization of the course material and activities
• The project was described as of “great value”
• The topics and ILOs as highly relevant for their master program
• Lab session engaging, well organized and useful to connect the learning in other sessions

Aspects that could be improved considering students’ evaluations include:
• Increase lectures and seminars engagement in online sessions e.g. new ways to guide discussions, give recording and videos as homework, implement interactive activities
• A more practical approach in the final project work
• Make camera mandatory for students in discussion sessions given that only a few were activating it and this reduces the encouragement in other students who follow the camera recommendation
• Lab session could be longer

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.

From the students LEQ, they had a chance to reflect upon the responses, there was a particular interest in the implemented changes on one hand from the previous course and on the other hand regarding the new blended environment. Given that both teachers and students needed to adapt to the teaching and learning habits they were used to. Some reflections from the aspects suggested for improvement can be related to the change in the format of the delivery of the sessions, the format of most sessions needed to be adapted to an online format, most teachers are new to teaching digitally so new forms to raise engagement is perceived as necessary in addition to gain technical skills and new teaching methods.
Additionally, the option to join online to an on-site session was offered in request to students concern about traveling to campus. The flexibility came with extra challenges for the teachers and additional work to adapt teaching material and discussions, discussions in blended environments suffered on engagement, the teachers needed to cope with technical unexpected events while trying to engage both physical and digital attendees. The teachers were flexible and given that the course was in a blended environment recording of sessions and videos were implemented to support both teachers and students. This is the first time running the course in such a way and only the second time overall running the course, therefore areas to improve in connection to the teaching tools and digital tools were expected from the beginning.

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?

Future development of the course can include the following:
At program level

Coordination among teachers and courses in our program was implemented but could be improved in order to secure a smoother student load over the period. The transitions from session to session could be revised in order to reduce the reading load in a given week.

At course level

• For the next course the project could be re-assessed in order to improve the direction in the project PM, if external resources are not to be a guarantee at the beginning i.e. company visits, case-based projects, the session on practical examples in connection to project work could be made earlier in the course as complementary to the supervision sessions. The reason for that is to enhance the student's understanding of how to deliver and what is expected from the practical point of view.

• The course scope and reading material was highlighted as good and helpful to follow the sessions, some comments were made regarding the main literature in the course in terms of quantity. The suggestion is to be more specific on critical material to read before sessions.

• Encourage teachers to assess their teaching resources and material in order to enhance the interactions and engagement.

Other issues
There seems to be a mixed opinion in connection to students load both in reading and in the project, while some gain high value, others seem to find it too broad (project) and extensive (reading material). Given the total amount of 9 credits, this course comprehends, may not be recommended to reduce the amount of work expected from the tasks but rather: 1. Project: assess to find a more practical way for the students to conduct the work in addition to the theoretical work required. 2. Readings: in addition to the priorities in reading material, provide the full reading list at the start of the course with greater anticipation and assess with teachers the degree of priority of the provided material when creating the list of reading material.
On project teams, some students (new) found it hard to integrate into the teams given that the teams were to be formed by the students. Discuss the possibility to make the teams in a different way e.g. teacher assign team, by theme, etc.

PRIORITIZED COURSE DEVELOPMENT
What aspects of the course should be developed primaily? How can these aspects be developed in short and long term?

• Assess the project assignment (INL1), in content and length, evaluate opportunities for increasing practical work to encourage all students' engagement since the beginning. Prioritize potential ways to expose students to practical cases directly connected to the project work.

• Revise the reading material and give priority guidance at the general level considering students have a different background and previous knowledge.
• Discuss and apply teachers' lessons learned, on different tools and skills that are helpful to increase engagement in blended environments.