

Course analysis for course ML2300 Sustainable Production

Period: Period 1, 2023.

Course responsible: Seyoum Eshetu Birkie

Examiner: Magnus Wiktorsson; Seyoum Eshetu Birkie

Teachers in course: Seyoum Eshetu Birkie, Magnus Wiktorsson, Jannicke Baalsrud Hauge, Louise Maniette, guest lecturers

Examining moments:

- INL1 (A-F, 3 hp).
- ÖVN1 (P/F, 3 hp).
- TEN1 (A-F, 3 hp).

1. Description of the course evaluation process

Course evaluation has been in two steps. Before the final written exam, students filled anonymous Menti survey in a classroom, followed by discussion on key issues. ca. 91% response for those who attended the session has been achieved. After the final written exam, KTH-LEQ has been sent out. Despite reminders only 2 responses were registered, therefore, no report has been generated from the LEQ.

2. Statement of meetings held with students

- Continuous improvement meetings and tutoring sessions provided per group of students
- Student representatives as a means to capture and communicate collective opinions
- Meeting at course conclusion to discuss collected opinions
- Program council meeting and end of period meetings called coordinated by TITHM program responsibilities

3. Course design/structure

The course has six learning objectives:

1. *Describe how the different subject areas production management, production logistics and industrial operational reliability relate to sustainable production development.*
2. *Account for motives, driving forces and obstacles for sustainable production.*
3. *Explain and analyse the sustainable production system where environmental aspects and other sustainability aspects have connections to the system components and relations.*
4. *Evaluate, analyse and compare alternatives for development of production, considering economic, environmental and social sustainability, based on established methods and tools.*

5. *Relate a sustainable production to sustainability aspects regarding product supply chains and transport.*
6. *Discuss the role of production for an increased life-cycle perspective and circular material and energy flows.*

To assess the achievement of these learning objectives, three assessment moments have been set in the course. These are:

INL1 (A-F, 3 hp). Group assignment. Case based continuous in course with written hand-in.

ÖVN1 (P/F, 3 hp). Three exercises. Literature based seminar tasks in 3 sessions focusing on Production management, Production logistics and Sustainability.

TEN1 (A-F, 3 hp). Written final exam (digital) to assess theoretical understanding.

At least one assessment moment has been set for each of the ILOs. A spread of assessments was done combining the three assessment types which has been communicated at the start of the course together with evaluation scales for grading as well as how final course grades are computed combining the gradings in each assessment type.

4. Students' work effort time in relation to points

In 2023 majority of the responding students reported that they workload somewhat stressful; non classified it as very stressful or very relaxed . Some mentioned that the workload distribution was not as balanced over the period. Some of these comments seem to be connected to project work (topic selection, grouping etc) which might have taken longer to set up before actual work has started.

5. Students' results

Eleven students registered to the course. There was 1 re-registration due to previously incomplete tasks. Out of the total 2 (16.7 did not complete all or part of the assessments). The remaining 83.3% have completed the course with passing grade in all the three assessments.

6. Answers to open questions

The overall view of students about the course is very positive. This can be seen both from the Menti survey. It was described as well organised, good teacher support and relevant topic and course activities. They particularly appreciated the study visit and the guest lecture from one of the collaborating companies. While the high score on student support the course remains consistently high over the years, variance of responses have also generally reduced over the years. Areas of improvement and suggestions include details for project work and teaching (industry) case.

7. Summary of students' opinions

The students seem to agree that the number of guest lectures were enough, practical (numerical) exercises, quizzes and study visits could be further increased.

8. Overall impression

The students generally seem to appreciate the course content and structure. It is apparent from their final comments and suggestion to next cohort of students that a lot can be gained from the group tasks and that making use of teachers' support to get help or clarification as early as possible helps a lot.

9. Analysis

Content and delivery of the course has been continuously improving. However, student grouping for project work seems a bit of a concern. Since this is the first course the course participants come together, we have not found a better way to manage grouping. A key concern also is catering for a diverse background of participants. While the course does introduce the program focus areas, it also serves to refresh the courses they should have taken earlier, or would need in their subsequent courses of the master program. Some of these topics might appear easy or repetitive while others appreciated them. The teachers team shall keep the comments in mind while implementing course revisions/improvements.

10. Priority course development

While we focus on further improving the teaching case, we have to simultaneously address providing more study visits to the course participants. Administrative arrangements with industry partners are also an ongoing focus and priority to ascertain quality education.

11. Other information