ML2308 CDIO course in Sustainable Production Development 15.0 credits

CDIO-kurs i Hållbar produktionsutveckling

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

On 15/10/2019, the Dean of the ITM School has decided to establish this official course syllabus to apply from spring term 2020 (registration number M-2019-2077)

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Completed courses:

ML2300 Sustainable Production, ML2301 Production Management and Development, ML2305 Production Logistics and Supply Chains, and ML2306 Industrial Analytics for Advanced Manufacturing, or the equivalent courses
ML2306 Industrial Analysis for Advanced Production, or the equivalent courses

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

On completion of the course, the students should be able to:

- demonstrate the ability to master the whole development process design - analyse - test - evaluate to methodologically develop solution proposals for a complex problem in the area of sustainable production development
- have knowledge of established design methods and tools, to be able to identify areas for improvements of new or existing solution for a complex problem in the area of sustainable production development
- plan and carry out a group-based technical development project in the area of sustainable production development with different roles within a given time frame and technical expertise in the project group
- in groups, both account orally and in writing, clearly discuss their concepts, prototypes, solutions, conclusions and the facts and arguments that these build on, with main stakeholders and other project groups, within the scope of the technical development work.
- show how the developed solution can be implemented and operated in an industrial production and logistics context.
- make assessments with regard to relevant social, socio-economic and ethical aspects, both from a local and a global perspective.
- show the skills that are required to participate in development work and the implementation and the operation of the developed solution, to independently be able to work in advanced industrial activities.

Course contents

This course is based on the generic curriculum and the methodology for CDIO (Conceiving — Designing — Implementing — Operating). That includes a set of activities to methodologically analyse and develop solution proposals in teams, in one of the sub-areas of sustainable production development. This can concern industrial design, design, analysis, optimisation, choice of material, manufacturing and operation of different technical systems and products in the area of sustainable production development.

The most important results will be a written report and an oral presentation. Relevant and valid results in the work require use of knowledge in different sub-domains that have been covered by previously completed courses, and additional reading and industrial experience, when necessary. The student develops proficiencies in the process of generating new knowledge, based on established theories and methods. The results of the CDIO work must have relevance for industrial application in addition to the academic contribution.

The course contains seminars to develop the CDIO work. The continuous discussion about the work with supervisor and in seminars is an important part of the course.

Examination

- PRO1 - Project, 15.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Completion of seminars or other activities that have been established by supervisor/examiner as milestones for progress in the thesis project work.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.