ME2321 Engineering and Global Challenges 3.0 credits

Ingenjörsarbete och globala utmaningar

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

Establishment

On 2025-04-03, the Director of First and Second Cycle Education at the ITM School has decided to establish this official course syllabus to apply from autumn semester 2025 (registration number HS-2025-0796):

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management

Specific prerequisites

40 higher education credits in Industrial engineering

English B/English 6, or the equivalent.

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to:

1. Describe, explain and apply systems theory concepts and methods for analysing and developing complex systems.

2. Discuss and critically reflect on current global societal challenges from the point of view of the potential professional roles and impact of engineers in technology and business development and contribution to sustainable societal development.

3. Apply engineering methods of systems analysis by identifying a need that addresses a complex challenge, proposing a system change and evaluating it from multiple perspectives and problem formulations.

Course contents

The course raises awareness of the challenges that engineers in industrial engineering face, and gives the students training in, and understanding of, their role in the development of sustainable companies and a sustainable society. This is achieved through:

• Reflection and awareness raising of previous training in dealing with complex problems through overview and synthesis of previous courses.

• Reflection and awareness-raising on current global societal challenges, e.g. linked to the UN Sustainable Development Goals (SDGs) and identified knowledge areas for work towards the fulfilment of these goals.

• Practice in understanding systems and the relationships between system components through the application of engineering methods and work processes to identify and address complex problems in different types of development work.

• Exercise in collaboration and communication to highlight different perspectives on complex problems, e.g. through exercises in groups of students from the different engineering specialisations of the programme.

Examination

- SEM1 - Seminars, 0.5 credits, grading scale: P, F
- RAP2 - Report, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- INL3 - Assignment, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- KON1 - Partial exam, 0.5 credits, grading scale: P, 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

Attendance at course seminars is compulsory.

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.