ME2314 Systems Engineering, Business and Management, Part 2 7.5 credits

Systemteknik, ekonomi och ledarskap, del 2

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-2025-0795).

Grading scale

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

Education cycle

Second cycle

Main field of study

Industrial Management

Specific prerequisites

SF1811 Optimization, SF2863 Systems Engineering, SF2868 Systems Engineering, Business and Management, Part 1, completed.

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. Define a system and reason about system boundaries and system levels with multiple modelling perspectives.

2. Through systems analysis, problematise a concept from multiple perspectives, including sustainability aspects.

3. Prepare and propose a decision basis for a selected stakeholder for a complex systems engineering problem using methods in systems engineering, optimisation and industrial management.

4. Apply systems engineering in project form and evaluate a systems engineering project for reliability and validity.

5. Communicate in writing and orally, both scientifically and according to a rhetorical work process.

Course contents

The course intends to give the students professional skills that are needed to identify and solve complex problems by means of systems theory, optimisation, systems engineering and industrial management. The course is carried out as seminars and in project form. Before seminars, a preparatory written assignment is carried out. The project is carried out in cooperation between KTH Royal Institute of Technology and a sponsor that can be a company, an organisation or an ongoing research project. The project further develops problems that initially have been solved with mathematical methods (mainly in the first part with Mathematics of the course). Submission of sub-tasks are done for a general systems engineering problem and based on basic knowledge, models and practical methods in systems engineering, optimisation and industrial management. The project is carried out in two parts, first a more general perspective and then a specialisation and specific part.

Business and management issues are thus about placing the mathematical problem and its solution in a wider context with new system delimitations that include organisation/industrial operation issues. Furthermore, the group should aim to function as a team and complete and deliver the project on time and according to specification from the company. The interaction with the project provider is important. Besides the final presentation that is to be delivered both in writing and orally, problem formulation seminars and other intermediate seminars are compulsory, The project group should give and reply to constructive criticism as review and oral feedback is part of the project.

The projects are normally carried out in groups of two or three students with a supervisor from the Department of Industrial Economics and Management with support from the Department of Mathematics.

Examination

- PRO2 - Project, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO3 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- INL1 - Assignments, 2.0 credits, grading scale: P, F
- RED1 - Reporting, 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

To get a pass grade, approved participation in all the parts and joint activities of the course is required. All written assignments and joint scheduled activities are regarded as 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.