SD2320 Challenge-based Railway Systems Design 7.5 credits

Utmaningsbaserad järnvägssystemdesign

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

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

Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

Grading scale

P, F

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Completed degree project on Bachelor level.

English B / English 6

Language of instruction

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

Intended learning outcomes

After successfully completing the course, the student should be able to:

- Understand and explain the railway system, including both the internal relationships of its different stakeholders, and its function and usefulness in the wider transport system.
- Solve open complex challenges in the wider transport system where railway solutions are a valid mobility option.
- Collaborate towards the sustainability goals in groups with diverse backgrounds (including stakeholders), facilitating discussions and, in turn, learning from peers.
- Analyse and judge the optimality of solutions to sustainability-related challenges, from normative restrictions to own personal motivations.

Course contents

Sustainability goals, railway system, transport, innovation, Design Thinking, solving open and wicked problems, interaction with stakeholders.

Examination

- PRO1 - Project task, 7.5 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.

Other requirements for final grade

The grading scale will be Fail/Pass/Pass with Distinction.

The assessment will be based on:

1. Technical Portfolio and Self-reflection - an individual journal where the students reflect on their own learning, from both technical aspects and more open ones.
2. Oral presentation - a group presentation where they present their work and reflect on the multidisciplinary collaboration.
3. Personal interview: the grading will be fine-tuned with a personal interview that intends to deepen in the analyses and answers provided in the Portfolio and Self-Reflection

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.