AL2521 Life cycle assessment of IT products, services, and systems 7.5 credits

Livscykelanalys av IT-produkter, tjänster och system

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 2025 according to the Head of school decision: A-2023-2417, 3.2.2. Decision date: 2023-10-10

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering,Environmental Engineering

Specific prerequisites

- Completed basic level course in mathematics which shows that the applicant has experience in mathematical problem solving. For example SF1624, SF1625, or equivalent

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- Completed basic level course in statistics and probability theory which shows that the applicant has experience in reasoning mathematically about uncertain outcomes. For example SF1912, SF1935 or equivalent
- Completed course AL1523, AL1504, DM2573 or equivalent in environment, sustainable development and digitalization
- Courses from upper secondary school corresponding to the courses Eng B/6 according to the Swedish upper secondary school system or 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:

- Explain the purpose and applications of the LCA method in general and with a focus on the environmental impact of IT products, services and systems in particular
- Explain the analytical phases and central concepts of the LCA method and apply these to IT products, services, and systems
- Show basic knowledge of current research and development within the scope of the course, with a focus on the environment but also other aspects of sustainability.
- Identify uncertainties in the LCA method and data in general and with a focus on the environmental impact of IT products, services, and systems in particular, and evaluate how these affect the results of the analyses
- Report in writing the completed LCA study according to ISO's standard for LCA.
- Use LCA software.
- Give an account of the results orally of the completed LCA the study.
- Work in a collaborative project setting
- Report in writing and give an account of a critical review orally of an LCA report.

Course contents

The course covers

- Applications of LCA with a focus on IT products, services, and systems
- LCA methodology and standards
- Use of LCA databases
- Use of LCA software
- Current research and development in the field

The course consists of lectures, seminars, computer exercises, a group project, and a home exam.

Examination

- PR01 - Project, 5.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Home exam, 2.5 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.

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.