AG2800 Life Cycle Assessment 7.5 credits

Livscykelanalys

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

Establishment

Course syllabus for AG2800 valid from Autumn 2019

Grading scale

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

Education cycle

Second cycle

Main field of study

Environmental Engineering, The Built Environment

Specific prerequisites

- TSUTM year 2

- TMHIM year 2

- TCAEM year 2 , AL1301 or equivalent basic cours in environment and sustainable development

Others: Open for programme students at KTH with at least 180 ECTS or a Bachelor degree for other students, as well AL1301 or equivalent basic cours in environment and sustainable development

Language of instruction

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

Intended learning outcomes

The overall aim of this course is to develop your skills of systems thinking in environmental issues, related to your own area of expertise. This course will give you a basic analyst's competence in Life Cycle Assessment (LCA).
After completing the course, you should be able to:

- Explain the overall purpose and principles of LCA.
- Discuss possible applications and limitiations of LCA.-Describe the content and explain the purpose of the analytical steps of LCA.
- Carry out a complete LCA of a product or service system, including:
  1. identify and delimit the system,
  2. specify and handle allocation problems,
  3. identify and use relevant data from LCA databases,
  4. collect and use data from other sources,
  5. choose characterisation method based on coverage and relevance to the intended application,
  6. implement and use a computer model of the system in the LCA software SimaPro,
  7. analyse, explain, and interpret model results.
- Write a report of the performed LCA, applying to the reporting guidelines and terminology as defined in the ISO standard for LCA.
- Make a critical review of another LCA.

Course contents

The course includes lectures and a group project. Lectures will cover the following areas:

- LCA in relation to other environmental systems analysis tools.
- Methodology for the different phases of an LCA (goal definition and scoping, inventory analysis, impact assessment and interpretation).
- Methodology for simplified LCA.
- LCA software tools and databases.
- Critical review of an LCA study.
- Application areas of LCA and limitations.

Disposition

The course includes lectures and a group project. Groups of 2-4 students will perform projects in which an LCA is performed with the software SimaPro. Projects are presented in a report and at a seminar. Each group will also make a critical review of the LCA of another group.

Course literature

Curran, M. A. (ed) (2015) Life Cycle Assessment Student Handbook. Wiley

Examination

- PRO4 - Project Report, 4.5 credits, grading scale: A, B, C, D, E, FX, F
- TENA - Home Exam, 2.5 credits, grading scale: A, B, C, D, E, FX, F
- PRO3 - Critical Review, 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

Examination (TENA; 2,5 hp)
Critical review (PRO3; 0,5 hp)
Project report (PRO4; 4,5 hp)
Final grade is a weighted average of the written exam and the project report. Pass grade on the critical review is required to receive a final grade.

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.