UNIVERSITY OF BORÅS

Life Cycle Assessment
Livscykelanalys
5 credits

Ladok Code: A505TA
Version: 8.1
Established by: Committee for Education in Technology 2024-04-12
Valid from: Autumn 2024

Education Cycle: Second cycle
Main Field of Study (Progressive Specialisation): Resource Recovery (A1N)
Disciplinary Domain: Technology
Prerequisites: Bachelor of Science in Engineering
Subject Area: Chemical Engineering
Grading Scale: Seven-degree grading scale (A-F)

Content
The main goal of the course is that, from a critical perspective, the students must gain an understanding of the principles and structure of a life cycle assessment (LCA). The course covers important concepts such as goal and scope, system boundaries, flow charts, functional units, allocation, inventory analysis, classification, characterisation and weighting. Special importance is placed on the students ability to use LCA as a support for selecting between different material and energy systems.

Learning Outcomes
After passing the course the student will be able to:

Knowledge and understanding
1.1 describe strengths and weaknesses with LCA and the need for transparency in LCA reports.

Skill and ability
2.1 plan a LCA,
2.2 develop a flow chart for the system under study,
2.3 perform a life cycle inventory based on the inputs and outputs in the flow chart,
2.4 interpret the results of an LCA,
2.5 present, both in writing and orally, the LCA performed by the student.

Critical reflection and attitude
3.1 appraise the importance of transparency of LCAs and how they can be used for product development,
3.2 reflect over the limitations of LCA from a sustainable development perspective.

Forms of Teaching
Teaching in the course consists of lectures, self study, discussions and exercises.
The students must also perform and present (in writing and orally) a fairly large LCA that contains all important parts.

The language of instruction is English.

Forms of Examination
The course is examined using the following:
- Written examination Learning Objectives 2.2-2.4 Higher Education Credits: 1 Grading Scale: E7
- Project (LCA) Learning Objectives (All goals) Higher Education Credits: 4 Grading Scale: UG.

The written examination determines the final grade of the course, which is given when both parts of the course are passed.

If the student has received a decision/recommendation regarding special pedagogical support from the University of Borås due to disability or special needs, the examiner has the right to make accommodations when it comes to examination. The examiner must, based on the objectives of the course syllabus, determine whether the examination can be adapted in accordance with the decision/recommendation.

Student rights and obligations at examination are in accordance with guidelines and rules for the University of Borås.

Literature and Other Teaching Materials

The course literature is in English
All compulsory material is in the university's teaching platform
Recommended:
Baumann, Henrikke & Tillman, Anne-Marie (2004). *The hitchhiker's guide to LCA: an orientation in life cycle assessment methodology and application*. Lund: Studentlitteratur
Klöpffer, Walter & Grahl, Birgit (2014). *Life Cycle Assessment (LCA) [electronic resource] : A Guide to Best Practise*. Weinheim: Wiley

Student Influence and Evaluation

The course is evaluated according to the rules for course evaluation at the University of Borås, were the students' views are collected. Analysis of these views results in a course report that is published and shared with students of subsequent 'Introduction to life cycle assessment' courses. The report also forms the base for developing the course. The person responsible for the course is responsible for this evaluation.

Miscellaneous

The course is part of the Masters program in Resource Recovery, 120 hp, but can also be studied as a non-program course.