



## Life Cycle Assessment

### Livscykelanalys

7.5 credits

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**Ladok Code:** TK751C

**Version:** 3.0

**Established by:** Education Committee 2014-11-21

**Valid from:** Spring 2015

**Education Cycle:** Second cycle

**Main Field of Study (Progressive Specialisation):** Resource Recovery (A1N)

**Disciplinary Domain:** Technology

**Prerequisites:** Meets acceptance requirements for: masters programme in the field of energy and materials for sustainable development, or equivalent.

**These prerequisites do not apply to students within the programme Science without Borders.**

**Subject Area:** Chemical Engineering

**Grading Scale:** ECTS-credits

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### Content

- LCA – principles and structure
- Definition of goal and scope of LCA
- Functional unit
- Data sources
- Flow Chart
- System boundaries
- Allocation
- Inventory analysis
- Methods for impact assessment
- Classification
- Characterisation
- Weighting
- Interpretation
- LCA as support for activities such as green marketing and product development

### Learning Outcomes

Upon completion of the course, students must be able to:

- 1 Knowledge and understanding

1.1 Describe the weaknesses and strengths of life cycle assessment (LCA) and the need for transparency in a LCA report.

2 Skills and ability

2.1 Plan a LCA

2.2 Draw a flowchart for the process or product under investigation

2.3 Perform an inventory analysis using the flow chart's in and out flows

2.4 Interpret the results of the LCA

2.5 Present the LCA both orally and in writing

3 Ability to evaluate knowledge and put it into perspective

3.1 Describe how LCA can be used to support activities such as green marketing and product development

3.2 Describe LCA's limitations from a sustainable development perspective

### **Forms of Teaching**

Teaching consists of lectures, self-study, discussions and tutorials. Students also perform a detailed LCA, either individually or in pairs. This LCA will be presented in both a written report and as an oral presentation.

The language of instruction is English.

### **Forms of Examination**

The course will be examined through the following examination elements:

#### *Written exam*

Learning outcomes:

Credits: 2

Grading scale: ECTS-credits

#### *Project*

Learning outcomes:

Credits: 5.5

Grading scale: Fail (U) or Pass (G)

When all parts of the course are passed then the course grade is the same as the grade of the written examination.

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

### **Literature and Other Teaching Materials**

#### **Literature**

Baumann, Henrikke & Tillman, Anne-Marie (2004). The hitchhiker's guide to LCA: an orientation in life cycle assessment methodology and application. Lund: Studentlitteratur, ISBN 91-44-02364-2

### **Student Influence and Evaluation**

The head of department and course teacher have the responsibility to systematically and regularly monitor the students' assessments of the course. These assessments form the foundation for the course development.

### **Miscellaneous**

Study language: English