



Faculty of Health, Science and Technology
Environmental and Energy Systems

Syllabus

Life Cycle Assessment

Course Code:	EMG180
Course Title:	Life Cycle Assessment <i>Livscykelanalys</i>
Credits:	7.5
Degree Level:	Undergraduate level
Progressive Specialisation:	First cycle, has at least 60 credits in first-cycle course/s as entry requirements (G2F)

Major Field of Study:
MEI (Environmental and Energy Systems)

Course Approval

The syllabus was approved by the Faculty of Health, Science and Technology 2021-09-13, and is valid from the Spring semester 2022 at Karlstad University.

Prerequisites

90 ECTS credits completed in Engineering, or equivalent

Learning Outcomes

The aim of this course in Life Cycle Assessment (LCA) is for students to acquire the basic competence required to carry out, evaluate, and interpret an LCA study, and develop skills in systems analysis and system thinking as regards environmental effects in various technical and societal contexts.

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

- Explain the purpose, method, and analytical steps of LCA methodology,
- Explain different areas of application of LCA methodology, and its limitations,
- Discuss different characterisation methods and reflect upon ways in which the choice of methods and models may affect the results,

- Apply LCA methodology to a product or service and write a report in accordance with guidelines in the ISO standard for LCA methodology, and
- Analyse and critically review an LCA report based on principles and requirements in the ISO standard for LCA methodology.

Content

The course includes lectures, seminars, computer-based exercises, and a group project.

Lectures cover for instance the following:

- Introduction to LCA - environmental systems analysis, life cycle philosophy, and priorities
- Different steps in LCA methodology - Aim, purpose, scope, life cycle inventory, quantification of environmental effects during a life cycle, and interpretation of results
- Writing and reviewing reports
- LCA software and databases
- LCA applications in society and industry

Reading List

See separate document.

Examination

Assessment is based on:

- a written exam
- a written report and an oral presentation of the group project

If students have a decision from Karlstad University entitling them to Targeted Study Support due to a documented disability, the examiner has the right to give such students an adapted examination or to examine them in a different manner.

Grades

One of the grades Distinction (VG), Pass (G), or Fail (U) is awarded in the examination of the course.

Quality Assurance

Follow-up relating to learning conditions and goal-fulfilment takes place both during and upon completion of the course in order to ensure continuous improvement. Course evaluation is partly based on student views and experiences obtained in accordance with current regulations and partly on other data and documentation. Students will be informed of the result of the evaluation and of any measures to be taken.

Course Certificate

A course certificate will be provided upon request.

Additional information

The local regulations for studies at the Bachelor and Master levels at Karlstad University stipulate the obligations and rights of students and staff.