MF2117 Circular Design and Business Models 6.0 credits

Cirkulär design och affärsmodeller

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

Establishment

Faculty Board at the School of Industrial Engineering and Management

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Bachelor of Science degree in Mechanical Engineering or equivalent.

Intended learning outcomes

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

1. Describe and evaluate the concept of circular economy and its implications for the development of product design and business models.

2. Apply methods and develop their own strategies for creating value in the form of products, services, or solutions in a circular economy.
3. Critically review and reflect on different strategies for circular economy with regard to sustainability and its opportunities and challenges.
4. Evaluate and assess the importance of technology and the development of products and services in relation to a circular economy and formulate recommendations for design and business model decisions.

Course contents

The course Circular Design and Business Models introduces the field of circular economy with a particular focus on design and product development. The course addresses the limitations and challenges of linear production and consumption from multiple perspectives, with constant consideration given to the role of engineers and technology. By introducing students to both fundamental concepts and principles as well as pragmatic industry-oriented tools, students gain an overview and understanding of the circular transition and practical means of applying it. The course also provides an opportunity for critical reflection and understanding of the possibilities and limitations of the circular economy, particularly with regard to sustainable development.

- The course focuses on the development of products and services in a circular context.
- The course introduces tools for designing circular business models and products.
- The course covers principles and ways of thinking such as life cycle thinking, systems thinking, eco-design, and cradle-to-cradle.
- The course includes discussions that require active engagement from students, and writing assignments that help to reveal tacit knowledge and promote critical examination and reflection.

Examination

- INL1 - Hand-in assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Hand-in assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- SEM1 - Seminar, 1.5 credits, grading scale: P, F
- INL3 - Hand in assignment, 1.5 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

The course requires active participation in SEM1.

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.