



MG2043 Circular Manufacturing Systems 6.0 credits

Cirkulära tillverkningssystem

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

Establishment

On 15/04/2022, the Dean of the ITM School has decided to establish this official course syllabus to apply from autumn term 2022 (registration number M-2022-0431).

Grading scale

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

Education cycle

Second cycle

Main field of study

Mechanical Engineering

Specific prerequisites

Admitted to the Master's programme (two-year)

Language of instruction

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

Intended learning outcomes

After passing the course, the student should be able to:

1. Account for circular manufacturing systems (CMS) as an emerging field in study and research
2. Describe the fundamentals of the four pillars of CMS implementation, namely business model, product design, supply chain and information and communication technology (ICT)
3. Describe systematic and systemic perspectives on CMS implementation in the manufacturing industry
4. Describe how businesses can be transformed strategically and be able to develop strategies for a transition from a linear to a circular system

Course contents

The course covers the fundamentals of circular economy as well as the concept circular manufacturing systems (CMS) and the framework for its implementation. The student will be introduced to the four enabling pillars of CMS, i.e. business model, product design, supply chain and information and communication technology (ICT). The course also covers management (strategic and operational) and technical aspects including the modelling techniques to capture the systemic and systematic dependencies between the four pillars and can be used to assess the economic and environmental performance of a perceived CMS. Practical examples of successful CMS implementation strategies are also covered in the course.

Examination

- KONA - Quiz, 1.5 credits, grading scale: P, F
- PROA - Project assignment, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- SEMA - Seminars, 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.

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.