



## COURSE SYLLABUS

# Environmental Impact Assessment of Castings, 3 credits

*Miljökonsekvensbedömning av gjutgoods, 3 högskolepoäng*

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|----------------------|------------------------------------|-----------------------------|---------------------|
| <b>Course Code:</b>  | TMKK11                             | <b>Education Cycle:</b>     | First-cycle level   |
| <b>Confirmed by:</b> | Dean Mar 1, 2021                   | <b>Disciplinary domain:</b> | Technology          |
| <b>Revised by:</b>   | Director of Education Jan 20, 2022 | <b>Subject group:</b>       | MA2                 |
| <b>Valid From:</b>   | Aug 1, 2022                        | <b>Specialised in:</b>      | G1F                 |
| <b>Version:</b>      | 2                                  | <b>Main field of study:</b> | Product Development |

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### Intended Learning Outcomes (ILO)

After a successful course, the student shall;

Knowledge and understanding

- demonstrate comprehension of how a cast component affects the environment and how the different phases of its life cycle contribute to consumption of energy
- display knowledge of how life cycle analysis must be produced, from raw material extraction to disposal or recycling
- demonstrate comprehension of how individual phases as well as the total environmental impact are calculated and analyzed

Skills and abilities

- demonstrate the ability to apply life cycle assessment and to use appropriate methods of conducting an environmental impact assessment

Judgement and approach

- demonstrate the ability to critically assess how to prevent and minimize environmental impact and energy consumption

### Contents

The course includes following elements:

- Identification of the various environmentally burdening phases related to cast components
- Evaluation of the environmental load associated with the different phases including the calculation of CO<sub>2</sub> emissions and the total consumption of energy using appropriate tools
- Case study

### Type of instruction

Lectures, online laboratory activities and exercises, quizzes, project work, discussion forum.

The teaching is conducted in English.

**Prerequisites**

General entry requirements, Physics 2, Chemistry 1, Mathematics 3c, and completed course in Component Casting, 6 credits, and proof of English proficiency is required (or the equivalent).

**Examination and grades**

The course is graded 5,4,3 or Fail.

Registration of examination:

| Name of the Test           | Value       | Grading |
|----------------------------|-------------|---------|
| Examination <sup>I</sup>   | 1.5 credits | 5/4/3/U |
| Exercises and Project Work | 1.5 credits | U/G     |

<sup>I</sup> Determines the final grade of the course, which is issued only when all course units have been passed.

**Course literature****Literature**

The literature list for the course will be provided 8 weeks before the course starts.