



## COURSE SYLLABUS

# Environmental Impact Assessment of Castings, 3 credits

*Miljökonsekvensbedömning av gjutgods, 3 högskolepoäng*

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<b>Course Code:</b> TMGS27	<b>Education Cycle:</b> Second-cycle level
<b>Confirmed by:</b> Dean Feb 1, 2017	<b>Disciplinary domain:</b> Technology (95%) and social sciences (5%)
<b>Valid From:</b> Aug 1, 2017	<b>Subject group:</b> MA2
<b>Version:</b> 1	<b>Specialised in:</b> A1F
<b>Reg number:</b> JTH 2017/589-313	<b>Main field of study:</b> Product Development

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### Intended Learning Outcomes (ILO)

On completion of the course, the student should

Knowledge and understanding

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

Skills and abilities

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

Judgement and approach

- Show the ability that from a life cycle perspective identify and assess the most environmentally burdening phases
- Show the ability to critically assess how to prevent and minimize environmental impact and energy consumption.

### Contents

The course includes the following topics:

- 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, seminars, project work, laboratory activities and exercises.

The teaching is conducted in English.

### Prerequisites

Passed at least 90 credits within the major subject Mechanical Engineering, and 21 credits Mathematics, and completed course Component Casting, 6 credits, Melting and Casting of Ferrous Alloys, 3 credits and Moulding Materials in Foundry Technology, 3 credits. 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>1</sup>	1.5 credits	5/4/3/U
Exercises and Project Work	1.5 credits	U/G

<sup>1</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 one month before the course starts.