



## KURSPLAN

# Gjutdesign och kalkylering, 3 högskolepoäng

*Cast Design and Calculation, 3 credits*

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<b>Kurskod:</b>	TGKS26	<b>Utbildningsnivå:</b>	Avancerad nivå
<b>Fastställd av:</b>	VD 2016-03-01	<b>Utbildningsområde:</b>	Tekniska området (95%) och samhällsvetenskapliga området (5%)
<b>Gäller fr.o.m.:</b>	2016-08-01	<b>Ämnesgrupp:</b>	MA2
<b>Version:</b>	1	<b>Fördjupning:</b>	A1F
<b>Diarienummer:</b>	JTH 2016/1291-313	<b>Huvudområde:</b>	Produktutveckling

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### Lärandemål

After a successful course, the student shall

Kunskap och förståelse

- demonstrate comprehension of factors that control the economic and environmental cost of castings
- display knowledge of how a casting should be designed to enable cost and material efficient manufacturing
- show familiarity with advanced product development methods as Finite Element Analyses and Topology optimization

Färdighet och förmåga

- demonstrate the ability to apply basic and advanced methods for design and manufacturing of castings with a low economic and environmental cost

Värderingsförmåga och förhållningssätt

- demonstrate an understanding of important factors that affects the economic cost and the environmental impact of a casting and a foundry

### Innehåll

The course aims to provide knowledge about how to design castings and casting processes in order to provide optimal functionality at a low economical cost and environmental impact. The students will learn about drivers for economic cost and environmental impact in a casting and in a foundry. Design and product development methods are introduced, both basic methods and advanced computer based simulation methods as Finite Element Analyses and Topology Optimization.

The course includes the following topics:

- Drivers of economic and environmental cost in a casting and in a foundry
- Basic design rules and casting process simulations
- Product development and simulation methods

- Advanced product development and structural optimization methods

### Undervisningsformer

The teachings consists of lectures and assignments.

Undervisningen bedrivs på engelska.

### Förkunskapskrav

Passed courses at least 90 credits within the major subject in Mechanical Engineering, and 21 credits Mathematics and Component Casting, 6 credits, Manufacturing Technology, 9 credits, and Failure Analysis, 6 credits, and English Language requirements corresponding to English 6 or English B in the Swedish upper secondary school (eller motsvarande kunskaper).

### Examination och betyg

Kursen bedöms med betygen 5, 4, 3 eller Underkänd.

The final grade will only be issued after satisfactory completion of all assessments.

Poängregistrering av examinationen för kursen sker enligt följande system:

Examinationsmoment	Omfattning	Betyg
Examination	3 hp	5/4/3/U

### Kurslitteratur

The literature list will be provided one month before the course starts.

#### *Recommended literature:*

“Design of Experiments: Principles and Applications” by L. Eriksson.