KURSPLAN
Gjutdesign och kalkylering, 3 högskolepoäng

Cast Design and Calculation, 3 credits

Kurskod:	TGKS26	**Utbildningsnivå:**	Avancerad nivå
Fastställd av:	VD 2016-03-01	**Utbildningsområde:**	Tekniska området (95%) och samhällsvetenskapliga området (5%)
Reviderad av:	Utbildningschef 2021-10-28	**Ämnesgrupp:**	MA2
Gäller fr.o.m.:	2022-01-01	**Fördjupning:**	A1F
Version:	2	**Huvudområde:**	Produktutveckling

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 (or the equivalent).

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 for the course will be provided 8 weeks before the course starts.

Recommended literature:
"Design of Experiments: Principles and Applications" by L. Eriksson.