



## KURSPLAN

# Gjutfelsanalys, 3 högskolepoäng

*Analysis of Casting Defects, 3 credits*

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|------------------------|---------------|---------------------------|---|
| <b>Kurskod:</b>        | TGAS22        | <b>Utbildningsnivå:</b>   | Avancerad nivå  |
| <b>Fastställd av:</b>  | VD 2022-03-01 | <b>Utbildningsområde:</b> | Tekniska området (95%) och samhällsvetenskapliga området (5%) |
| <b>Gäller fr.o.m.:</b> | 2022-08-01    | <b>Ämnesgrupp:</b>        | MA2   |
| <b>Version:</b>        | 1             | <b>Fördjupning:</b>       | A1F   |
|                        |               | <b>Huvudområde:</b>       | Produktutveckling   |

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### Lärandemål

After a successful course the student shall:

Kunskap och förståelse

- display knowledge of how the casting defects are identified and characterized
- display knowledge of how the casting defects can be minimized or eliminated, and how simulation tools can be used in that work

Färdighet och förmåga

- demonstrate skills of identifying casting defects and derive causes of defect formation
- demonstrate skills of applying and combining different analytical methods including casting simulation for defect characterization and elimination

Värderingsförmåga och förhållningssätt

- demonstrate the ability to make a proper defect assessment and critically evaluate the causes and mechanisms underlying the defect formation

### Innehåll

The course covers the most common casting defects, how they are identified and characterized, causes of their formations, the basic mechanisms and measures to minimize or eliminate their occurrence.

The course includes the following elements:

- Identification of different types of casting defects
- Defect formation - Causes and mechanisms
- Prediction of defects using simulation tools
- Practical examinations
- Root cause analysis
- Case studies

### Undervisningsformer

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

Undervisningen bedrivs på engelska.

### **Förkunskapskrav**

Passed courses at least 90 credits within the major subject Mechanical Engineering, 15 credits Mathematics, and completed course in Solidification Processing, 3 credits and proof of English proficiency is required (or the equivalent).

### **Examination och betyg**

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

Poängregistrering av examinationen för kursen sker enligt följande system:

| <b>Examinationsmoment</b>           | <b>Omfattning</b> | <b>Betyg</b> |
|-------------------------------------|-------------------|--------------|
| Examination <sup>1</sup>            | 2 hp              | 5/4/3/U      |
| Övningsuppgifter och Projekt arbete | 1 hp              | U/G          |

<sup>1</sup> Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

### **Kurslitteratur**

Litteratur

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