



KURSPLAN

Konstruktionsmaterial, 7,5 högskolepoäng

Materials in Design, 7.5 credits

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|------------------------|----------------------------|---------------------------|-------------------|
| Kurskod: | TKMR22 | Utbildningsnivå: | Avancerad nivå |
| Fastställd av: | VD 2021-03-01 | Utbildningsområde: | Tekniska området |
| Reviderad av: | Utbildningschef 2023-10-25 | Ämnesgrupp: | MA2 |
| Gäller fr.o.m.: | 2025-01-01 | Fördjupning: | A1N |
| Version: | 6 | Huvudområde: | Produktutveckling |

Lärandemål

After a successful course, the student shall:

Kunskap och förståelse

- display knowledge of advanced engineering materials and manufacturing processes
- display knowledge on the dependencies between material properties, manufacturing processes and product design
- demonstrate comprehension of product testing and certification

Färdighet och förmåga

- demonstrate skills of selecting materials and production processes to fulfil requirements specifications of products.
- demonstrate the ability to propose a manufacturing process for a particular design and vice versa
- demonstrate skills in specifying products to direct user perception in given directions

Värderingsförmåga och förhållningssätt

- demonstrate the ability to understand the life cycle aspects of design, materials, and manufacturing processes
- demonstrate an understanding of the economical and sustainability impacts of product designs, materials, and manufacturing processes.

Innehåll

The course is about engineering materials and their relation to manufacturing processes and product design.

The course includes the following elements:

- Traditional as well as new materials in relation to manufacturing processes
- Additive Manufacturing
- Material properties
- Product sustainability
- Product cost calculation

- Product standards and testing
- Product user experience and customer acceptance
- Product examples

Undervisningsformer

Lectures, seminars and exercises.

Undervisningen bedrivs på engelska.

Förkunskapskrav

The applicant must hold the minimum of a bachelor's degree (i.e the equivalent of 180 ECTS credits at an accredited university) with at least 90 credits in Mechanical Engineering, Industrial Engineering and Management, Civil Engineering (with relevant courses in construction), or equivalent. The bachelor's degree should comprise a minimum of 15 credits in mathematics and 7.5 credits in CAD, or equivalent. Proof of English proficiency is required.

Examination och betyg

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

The final grade in the course is determined by weighing the grades from the project and the examination.

Poängregistrering av examinationen för kursen sker enligt följande system:

| Examinationsmoment | Omfattning | Betyg |
|--------------------|------------|---------|
| Tentamen | 4 hp | 5/4/3/U |
| Projekt | 3,5 hp | 5/4/3/U |

Kurslitteratur

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

Title: Materials Selection in Mechanical Design

Author: Michael F. Ashby

Publisher: Butterworth-Heinemann Ltd

ISBN: 9780081005996