



KURSPLAN **Konstruktionsmaterial, 7,5 högskolepoäng**

Materials in Design, 7.5 credits

Kurskod:	TKMR22	Utbildningsnivå:	Avancerad nivå
Fastställd av:	VD 2021-03-01	Utbildningsområde:	Tekniska området
Reviderad av:	Utbildningschef 2021-11-15	Ämnesgrupp:	MA2
Gäller fr.o.m.:	2022-01-01	Fördjupning:	A1N
Version:	2	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
- Product examples

Undervisningsformer

Lectures, seminars and exercises.

Undervisningen bedrivs på engelska.

Förkunskapskrav

Passed courses 180 credits in first cycle, at least 90 credits within the major subject Mechanical Engineering, Industrial Engineering and Management or Civil Engineering, and 15 credits in Mathematics. A bachelor level course in engineering materials or equivalent is required. 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:

Examinationsmoment	Omfattning	Betyg
Tentamen ¹	4 hp	5/4/3/U
Inlämningsuppgift	2 hp	U/G
Projekt	1,5 hp	U/G

¹ Bestämmer kursens slutbetyg vilket utfärdas först när samtliga moment godkänts.

Kurslitteratur

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

Title: Manufacturing engineering and technology

Author: Kalpakjian, S. and S. R. Schmid

Publisher: Singapore, Prentice Hall

Reference literature:

Materials Experience: Fundamentals of Materials and Design (2014)