



## KURSPLAN

# Materials and Production Processes, 6 högskolepoäng

*Materials and Production Processes, 6 credits*

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<b>Kurskod:</b>	HMPR21	<b>Utbildningsnivå:</b>	Avancerad nivå
<b>Fastställd av:</b>	Utbildningsrådet 2020-11-17	<b>Utbildningsområde:</b>	Tekniska området
<b>Gäller fr.o.m.:</b>	2021-01-25	<b>Ämnesgrupp:</b>	MA2
<b>Version:</b>	1	<b>Fördjupning:</b>	A1N
<b>Diarienummer:</b>	Department of Rehabilitation	<b>Huvudområde:</b>	Produktutveckling

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### Lärandemål

Upon completion of the course the student should have the ability to:

#### Kunskap och förståelse

- show familiarity with various manufacturing processes relevant to the assistive technology industry
- display knowledge of various engineering materials relevant to the assistive technology industry.

#### Färdighet och förmåga

- propose and assess solutions for materials and production processes in assistive technologies
- improve manufacturability related to the product design and production of assistive technologies
- assess economic viability in production of assistive technologies.

#### Värderingsförmåga och förhållningssätt

- identify problems and propose and evaluate interventions in assistive technologies design and production
- demonstrate an understanding of sustainability in production of assistive technologies.

### Innehåll

In this course materials and production processes related to assistive technologies are discussed. We predict the expected outcome of manufacturing processes and cover the areas of application of materials and discuss the role of material properties, surfaces and tolerances in assistive technologies. The course is focused on materials and production processes that are relevant for production of assistive technologies. Forming techniques for plastics, both thermo and reinforced as well as metal sheet and tube metal forming are covered. The course also discusses the application of additive manufacturing in assistive technologies. The course encompasses the automation of production processes and how to assess the economical and sustainability aspects of production.

### Undervisningsformer

The course is implemented through lectures, case studies, written assignments and individual and group tutorials.

Undervisningen bedrivs på engelska.

### **Förkunskapskrav**

The applicant must hold a minimum of a Bachelor degree or equivalent (i.e. the equivalent of 180 ECTS credits at an accredited university) in prosthetics and orthotics or mechanical engineering. Proof of English proficiency is required.

### **Examination och betyg**

Kursen bedöms med betygen A, B, C, D, E, FX eller F.

Examination of the course will be based upon one individual written examination and one seminar.

A university senior lecturer serves as examiner for the course.

In individual written examination FX will not be applied.

Poängregistrering av examinationen för kursen sker enligt följande system:

<b>Examinationsmoment</b>	<b>Omfattning</b>	<b>Betyg</b>
Individual written exam	4 hp	A/B/C/D/E/FX/F
Seminar	2 hp	U/G

### **Kurslitteratur**

Ashby, M. (2016). *Materials selection in mechanical design*. Butterworth-Heinemann.