



## KURSPLAN

# Introduction to Engineering Sciences - Bridging Course, 15 högskolepoäng

*Introduction to Engineering Sciences - Bridging Course, 15 credits*

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<b>Kurskod:</b>	HIER20	<b>Utbildningsnivå:</b>	Avancerad nivå
<b>Fastställd av:</b>	Utbildningsrådet 2020-05-14	<b>Utbildningsområde:</b>	Tekniska området
<b>Gäller fr.o.m.:</b>	2020-08-17	<b>Ämnesgrupp:</b>	TE9
<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

- describe design principles of mechanical design
- explain various machine elements
- describe the working principles of Computer Aided Design (CAD) systems and various digital formats
- recognise the importance of styling in industrial design
- show familiarity with the working principles of Finite Element Method (FEM) programs.

#### Färdighet och förmåga

- create solid and surface models in CAD
- conduct basic finite element calculations
- select and analyse machine elements such as screws and bearings
- assess the styling of individual products or product lines.

#### Värderingsförmåga och förhållningssätt

- appreciate the role of the results of finite element calculations for assistive technology design.

### Innehåll

- introduction to mechanical design
- machine elements
- introduction to CAD
- CAD modeling using SolidWorks software
- principles of industrial design
- introduction to FEM including basic calculations

### Undervisningsformer

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

Undervisningen bedrivs på engelska.

### **Förkunskapskrav**

The applicant must hold the minimum of a Bachelor's degree or equivalent (i.e. the equivalent of 180 ECTS credits at an accredited university) in Prosthetics and Orthotics. 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 exam and individual assignments.

A 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	7,5 hp	A/B/C/D/E/FX/F
Individual assignments	7,5 hp	U/G

### **Kurslitteratur**

Ullman, D. (2017). The mechanical design process. Boston, MA: McGraw-Hill Education, Asia.  
ISBN 9780071267960