JÖNKÖPING UNIVERSITY
School of Health and Welfare

COURSE SYLLABUS

Introduction to Engineering Sciences - Bridging Course, 15 credits

Introduction to Engineering Sciences - Bridging Course, 15 högskolepoäng

Course Code:	HIER20	Education Cycle:	Second-cycle level
Confirmed:	Aug 17, 2020	Disciplinary domain:	Technology
Valid From:	Aug 31, 2026	Subject group:	Other Subjects within Technology
		Specialised in:	A1N Second cycle, has only first-cycle course/s as entry requirements
		Main field of study:	Product Development

Intended Learning Outcomes (ILO)

On completion of the course the student will be able to:

Knowledge and understanding

- 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.

Skills and abilities

- 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.

Judgement and approach

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

Content

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

Type of instruction

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

Language of instruction is English.

Entry requirements

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 and grades

The course is graded A, B, C, D, E, FX or 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.

Registration of examination:

Name of the Test	Value	Grading
Individual written exam	7.5 credits	A/B/C/D/E/FX/F
Individual assignments	7.5 credits	G/U

Course literature

Please note that changes may be made to the reading list up until eight weeks before the start of the course.

Ullman, D. (2017). *The mechanical design process* . McGraw-Hill Education