



COURSE SYLLABUS

Materials and Production Processes, 6 credits

Materials and Production Processes, 6 högskolepoäng

Course Code: HMPR21	Education Cycle: Second-cycle level
Confirmed by: Utbildningsrådet Nov 17, 2020	Disciplinary domain: Technology
Valid From: Jan 25, 2021	Subject group: MA2
Version: 1	Specialised in: A1N
Reg number: Department of Rehabilitation	Main field of study: Product Development

Intended Learning Outcomes (ILO)

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

Knowledge and understanding

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

Skills and abilities

- 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.

Judgement and approach

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

Contents

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.

Type of instruction

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

The teaching is conducted in English.

Prerequisites

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 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 examination and one seminar.

A university 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	4 credits	A/B/C/D/E/FX/F
Seminar	2 credits	U/G

Course literature

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