



COURSE SYLLABUS

Assistive Technology Design, 9 credits

Assistive Technology Design, 9 högskolepoäng

Course Code: HATR21	Education Cycle: Second-cycle level
Confirmed by: Utbildningsrådet Nov 17, 2020	Disciplinary domain: Technology
Valid From: Mar 1, 2021	Subject group: TE9
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

- demonstrate knowledge of general tools and methods in product development
- demonstrate specialised knowledge of assistive technology in the context of product development
- describe methods for risk analysis, evaluation and project management.

Skills and abilities

- apply methods for identification of customer needs and transfer these needs to technical criteria
- apply theoretical concepts and models to develop products which meet the needs of individuals
- apply product development and project management methods in practical work
- discuss the implications of a performed risk assessment
- work in a product development team.

Judgement and approach

- apply appropriate tools for product development in the context of assistive technology
- judge and suggest actions to improve products within the context of assistive technology
- show insight in the interests and expectations of different stakeholders on a product with focus on users, producers and society
- show an appreciation for the need to maintain a user perspective in the design and prescription of assistive technologies.

Contents

The course gives a basic understanding of product development in an assistive technology context, within the field of mechanical engineering. One important aspect is the user perspective, where the requirements on designed devices may change for individuals with differing impairments. Design theories and methods for product development in an assistive technology context are introduced, as well as the relation between manufacturing processes and

the low volume manufacturing assistive technology industry.

The course is divided in two parts, one theoretical part where tools and methods are introduced, and in parallel, a development project where the students work in groups to apply the methods when designing a real product.

The product design project will integrate tools and methods from the course content as well as knowledge from previous courses and the students will apply problem solving, critical and creative thinking. The project should, if possible, be done in collaboration with an external partner within the field of assistive technology.

The course includes the following elements:

- ideation
- the voice of the customer from a user perspective
- concept development
- analyzing existing products
- concept selection
- practical project work and planning

Type of instruction

The course gives different perspectives on product development through guest lecturers from companies working knowledgeable with the current theme. Students complete exercises in project groups.

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 on project work including presentation and documentation and one individual written exam.

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
Project work, presentation and documentation	6 credits	A/B/C/D/E/FX/F
Individual written exam	3 credits	A/B/C/D/E/FX/F

Course literature

Jackson, B., & Parry, K. (2011). *A very short fairly interesting and reasonably cheap book about*

studying leadership. Sage.

Oishi, M. M. K., Mitchell, I. M., & Van der Loos, H. M. (Eds.). (2010). *Design and use of assistive technology: social, technical, ethical, and economic challenges*. Springer Science & Business Media.