LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Universal design, teori och projekt
Universal Design, Theory and Project

TNSF10, 7,5 credits, G2 (First Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED ID
Date of Decision: 2023-03-16

General Information

Main field: Virtual Reality and Augmented Reality.
Compulsory for: MVAR1
Elective for: BME4-bdr, C4-da, D4, M4, MD4
Language of instruction: The course will be given in English on demand

Aim

In a society for all products, services and environments are designed based on the knowledge that people are different and have different potential, and for the same person this will vary over time and with different situations. This course focuses on universal design (Universal Design), which can be explained as the design of products, services and environments that are usable by all people, to the greatest extent possible, withoutthe need for special adaptation or specialized design.

The aim of the course is that the students, in their future professional roles, can take into account people's different conditions and abilities and get a practical training in how to analyze and evaluate products, services and environments and determine how well they meet the criteria for universal and inclusive design.

Furthermore, the student is trained to propose and implement possible improvements to products, services and environments so that they better meet the criteria for universal and inclusive design. The course covers the process (how to generate new designs) and also the evaluation of results.

Diversity and inclusion are part of sustainable development, and link to several of the goals in Agenda 2030, eg 3: good health and well-being, goal 4: good education for all, goal 5: gender equality, goal 8: decent work and economic growth, goal 10: reducing

inequality, goal 11: sustainable cities and communities, goal 16: peaceful and inclusive communities.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- be able to account for inclusive design principles and evaluation methods (eg, based on Universal Design, Design for All, Inclusive design) that can be used as guidelines in the development or evaluation of products, services and environments
- be able to describe the benefits of universal and inclusive design in a society that supports and strives for diversity
- identify and analyze situations, products, services and environments from an inclusive perspective
- be able to describe how universal design, accessibility and social sustainability are interrelated and what the differences are.

Competences and skills
For a passing grade the student must

- be able to apply evaluation techniques for universal and inclusive design.
- identify shortcomings of products, services and environments and propose improvements according to the seven principles of universal design.
- be able to develop a product, service and environment taking people's different physical and cognitive conditions and abilities into account. Industrial design students and engineeering students carry this out in co-operation in groups.
- be able to apply the seven principles of universal design when developing products, services and environments.
- be able to identify wider application areas for developed products.
- be able to apply a user-centred design methodology.
- be able to combine subjective and objective methods when assessing products, services and environments.
- be able to present methods and results orally and in writing for a diverse audience.
- be able to present the results as a functional model, a visual model and in a poster.

Judgement and approach
For a passing grade the student must

- be able to describe the quest that lies in the design of products and services so they are aesthetic and useful to as many people as possible regardless of age and ability.
- to take into account that people are different with a great variety of conditions and abilities and that they have different desires and needs.
- be able to express how universal design contributes to an inclusive society.

Contents

The course consists of seminars and assignments on universal design, accessibility and social sustainability, as well as a project assignment that industrial design and engineering students carry out together.

The theory part focuses on the seven principles of universal design and how perspectives

and attitudes affect people with different abilities and their opportunities enjoy new developments is society. Empathy exercises will also be carried out.

The project assignment is assessed with a prototype that is a universally designed product, environment or service. The course is problem based and project oriented.

Examination details

Grading scale: UG - (U,G) - (Fail, Pass)
Assessment: The assessment is based on individual and group work. A passing grade will be given to students who pass individual compulsory assignments and a project carried out in groups.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Admission

Admission requirements:

- At least 120 credits awarded or credited within the engineering study programme OR at least 75 credits from an industrial design study programme OR at least three years approved full time education at university level (or a Bachelor degree) in architecture, landscape architecture or spatial planning

The number of participants is limited to: No
The course overlaps following course/s: TNSA01, TNSF01, TNSF02, TNX153

Reading list

- Handed-out material about the seven principles of universal design.
- Selected articles. All compulsory literature is available in the course learning platform.
- The HaptiMap project, editors: Charlotte Magnusson, Kirsten Rassmus Gröhn, Konrad Tollmar, Eileen Deaner: User Study Guidelines. HaptiMap project, 2009. Download from: http://www.certec.lth.se/fileadmin/certec/publikationer/HaptiMap_d12.pdf.
- Maisel & Steinfeld: Universal design and the built environment. CRC Press, 2022. Maisel, J., & Steinfeld, E. (2022). Universal design and the built environment. In A. Mihailidis & R. Smith, Rehabilitation Engineering (1st ed., pp. 295–318). CRC Press. https://doi.org/10.1201/b21964-16. PDF is available on Canvas.
- Hedvall, Price, Keller & Ericsson: Towards 3rd Generation Universal Design: Exploring Nonclusive Design. IOS Press, 2022. Hedvall, P.-O., Price, M., Keller, J., & Ericsson, S. (2022). Towards 3rd Generation Universal Design: Exploring Nonclusive Design. 85–92. https://doi.org/10.3233/SHTI220824. PDF is available on Canvas.

Contact and other information

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