HN2023 Ergonomics in Product Development 7.5 credits

Ergonomi i produktutvecklingen

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for HN2023 valid from Autumn 2019

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Technology and Health

Specific prerequisites

180 university credits (hp) in engineering or natural sciences, and documented proficiency in English corresponding to English B/English 6.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The overall objective of the course is that the students shall be able to contribute to the development of solutions to meet the UN Sustainable Development Goals (SDGs). This is to a large extent achieved by acquiring experience-based knowledge and skills by applying Design Thinking methodology and Ergonomics methods on open-ended societal challenges.

After fulfilling the course requirements, each student shall be able to:

1. In own words explain fundamental concepts, areas, and methods addressed in the course, e.g. the UN sustainability goals, challenge-driven development, product development, ergonomics, human physical and cognitive possibilities and constraints, the Human-Technology-Organisation (HTO) perspective, personal injuries, and ergonomics methods, and reflect upon them
2. Explain and practically use some methods used in Challenge driven projects and in Ergonomics, e.g. Design Thinking, subjective rating scales and risk assessment methods
3. Methodically and in a structured way work in a project aiming at finding a solution to a societal challenge, including formulating, planning, leading part of, and carrying out a development project, collaborating and communicating with stakeholders and intended end-users, develop a prototype, let intended users test it, and evaluate it from the SDGs, challenge driven, and ergonomics perspectives
4. Document and communicate the development process and the results of the work orally and in writing; study, judge and exchange feedback on the project work in a structured way, and reflect on their own development and learning process.

Course contents

Lectures, workshops, seminars, laboratory work, supervision, reflections and other assignments, and an applied project, which together provide theoretical knowledge and experience-based knowledge and skills on solving challenge based problems with focus on the SDGs and ergonomics in product development.

Topics include:

- The sustainability concept, SDGs, and challenge-driven development
- Physical, system, and cognitive ergonomics, the HTO-perspective, Injury risks and their effects, and risk management,
- Design Thinking and Ergonomics methods
- Creativity, group dynamics, collaboration, project management, and evaluation methods

Examination

- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- ÖVN1 - Exercises, 1.5 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Written exam (TEN1; 3 cr.), grading scale A-F

Passed project (PRO1; 3 cr.), oral and written presentation, grading scale A-F

Lab assignments and report on scientific paper (ÖVN1; 1.5 cr.), grading scale P/F

Final course grade according to grading scale A-F

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.