ME2057 Human Factors Engineering 6.0 credits

Människa-Tekniksystem: Utveckling och Design

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

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

Establishment

Course syllabus for ME2057 valid from Spring 2010

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Two years academic studies demanded. ME1013/ME1009 is recommended,.

Language of instruction

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

Intended learning outcomes

After completing the course the student should be able to:

- Describe the main areas within the subject human factors/ergonomics/human-machine system.
- Describe the relation between these and safety, efficiency and work satisfaction within technical systems applied to examples from industry.
- Discuss how it is possible to enhance human abilities and reduce human limitations by technical solutions and system design based on theories about human mental and physical capabilities.
- Explain a user oriented design process and front-end analysis and the answers expected for the different steps in the process for design of a new system, product or interface and improvements of an existing system.
- Present and discuss the work in a written report and an oral presentation as well as judge and structurally critique other students work.
- Plan and conduct an analysis of a human-machine system with regards of system design, automation level and work content as well as suggest improvements, make recommendations and argue for tradeoffs in the design.

Course contents

methods, human information processing (perception, cognition, action), displays and controls, anthropometry, decision making, automation, interface and cognitive engineering

Project: Written report, e.g. analyse a technical system or product with appropriate methods and suggest improvements on Human Factor aspects using design methods.

Tutorials 1: Methods.

Tutorials 2: Based on examples of accidents, discussion in class on resolution of problems and tasks of the operator in a human-machine system.

Laboratory work: Illustrations of various aspects of human information processing as well as human capabilities and limitations. Simple experimental psychology, computer tests on cognition, memory and perception

Course literature

Wickens, C. et al. "An introduction to Human Factors Engineering" (last edition), Pearson-Prenctic Hall.

Hand-outs.

Examination

- LAB1 - Laboratory Work, 1.0 credits, grading scale: P, F
- PRO1 - Project, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 1.0 credits, grading scale: P, F
- TEN2 - Examination, 2.0 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.

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.