LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Människa, teknik, organisation och hantering av risker
People, Technology, Organization and Risk Management

MAMN45, 7,5 credits, A (Second Cycle)

Valid for: 2023/24
Faculty: Faculty of Engineering, LTH
Decided by: PLED C/D
Date of Decision: 2023-04-18

General Information

Compulsory for: RH4-rh
Elective for: BI4, BME5-bdr, C4-da, C4-sec, BR4
Language of instruction: The course will be given in Swedish

Aim

The goal of the course is for the students to acquire knowledge of man, technology and organisation and their interplay when it comes to safety related demands for efficiency and quality of working life. The students will increase their ability (individually and as a group member) to systematically identify and analyse an organisation's risk management and propose measures for improved safety and sustainability. The course relates to the UN:s Sustainable Development Goals through its overall focus on safety and good conditions for people and environment.

Learning outcomes

Knowledge and understanding
For a passing grade the student must

- Be able to describe inherent human physical and cognitive possibilities and limitations and relate these to human interaction with organisation and technology.
- Have acquired knowledge and understanding of different models and theories describing safety aspects in systems.
- Have acquired knowledge and understanding of different models and theories

describing latent conditions and how organisational accidents occur.
- Be able to analyse and evaluate how the design of a human-machine interface affects the determination of risk.
- Be able to describe and discuss issues concerning an organisation's safety management (system), and give suggestions on its improvement with regard to efficiency and sustainability.

Competences and skills
For a passing grade the student must

- Be able to apply models and use concepts and terms to evaluate/assess/analyse an organisation's risk management from human and organisational perspectives.
- Independently identify and assess relevant human and organisational problems from a risk management perspective and propose measures for improved safety.

Judgement and approach
For a passing grade the student must

- Independently, as well as with other students, identify knowledge requirements, search for and evaluate needed information on the basis of human and organisational problems.

Contents

The student is first introduced to the pedagogical strategy used during the course. The course emphasises the students' understanding of his/her own knowledge development. The course includes lectures, individual written reflections after reading selected literature, and a group student project. In the project, a study visit is carried out in a real setting/organisation and related to course content. After the first visit, the students will present problems/issues relevant to the organisation's safety management, propose a research method for data collection and during a second visit, actively gather information in relation to the problems/issues and analyse the results according to the concepts, theories and models presented in the course. The work in the project is compiled in a written report. The project work is presented at a seminar and is peer-reviewed. Supervisor meetings are arranged to support students during their project work.

The course includes the following subjects:

- Inherent human possibilities and limitations on the basis of: cognition (perception, memory, learning), human error, stress, Yerkes Dodson's law (inverted U), psychosocial and physical factors and risks.
- How organisational accidents occur on the basis of: latent conditions, unsafe acts, safety barriers, complexity, situational factors and Rasmussen's SRK model.
- Rasmussen's system view model and a holistic view of risk management, safety culture, and human and organisational factors in risk analysis.
- Human-machine interface and interaction on the basis of: product development and interface design for safety, usability tests, standards and guidelines.
- Brief overview of laws related to safety and health at workplaces.

Examination details

Grading scale: TH - (U,3,4,5) - (Fail, Three, Four, Five)

Assessment: Written course examination.

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

The number of participants is limited to: 70
Selection: Admission guaranteed for students for whom the course is mandatory. Selection rules for the remaining places: Completed university credits within the program. Priority is given to students enrolled on programmes that include the course in their curriculum.
The course overlaps following course/s: MAM090

Reading list

- Course book: Människa, teknik, organisation och hantering av risker. Ergonomi och Aerosolteknologi, Latest edition.
- If the student have no access to the compendium the following book can be used: Work and Technology on Human Terms. Prevent 2009. ISBN:978-91-7365-058-8.
- Lecture notes and other reading material handed out in the course containing extracts of scientific articles and book chapters.

Contact and other information

Course coordinator: Jonas Borell, jonas.borell@design.lth.se
Examinator: Docent Åsa Ek, asa.ek@design.lth.se
Course homepage: http://www.eat.lth.se
Further information: Obligatory parts in the course: Introductory lecture. Study visits in safety critical organisations. Group project with written report and presentation at a seminar with peer assessment. Supervisory meetings. Individual written reflections after reading selected literature.