



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Introduktion till riskanalys och riskhantering **Introduction to Risk Assessment and Risk Management**

VRSA01, 7 credits, G1 (First Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED BI/RH

Date of Decision: 2023-04-12

General Information

Compulsory for: R1

Language of instruction: The course will be given in Swedish

Aim

The course aims for the student to gain fundamental knowledge about risk analysis, risk evaluation and risk management. The course primarily introduces principles and tools for risk analysis, risk evaluation and risk management and how these can support risk-related decisions. Context specific applications of risk analysis and risk management will be further introduced in later courses. The course aims to provide a foundation for continuing studies in the field of risk analysis and risk management.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe the scientific and conceptual foundations for risk management and their historical developments.
- be able to describe methods for risk analysis, risk evaluation and risk management, as well as the methods' strengths and limitations.
- be able to describe various ways for presenting risk, their strengths and limitations, and how they can be applied to evaluate risk.
- be able to describe different types of uncertainty and how they can be addressed and handled in a risk analysis and risk evaluation context.

Competences and skills

For a passing grade the student must

- be able to critically, systematically and autonomously utilize concepts, methods and tools for risk analysis and risk evaluation, also in new situations.
- be able to utilize material in scientific publications relevant for risk management.
- be able to in writing and autonomously discuss the scientific and conceptual foundations for risk management.

Judgement and approach

For a passing grade the student must

- be able to reflect on scientific, societal and ethical issues concerning risk analysis, risk evaluation and risk management in an uncertain, complex and dynamic world.

Contents

The overall elements in the course are: introduction to general risk theory and the risk management process (including risk analysis, risk evaluation and risk treatment); detailed treatment of the concepts of risk, uncertainty, frequency, probability, event and scenario; general risk analysis methodology; the basics of uncertainty and sensitivity analysis; different ways of presenting risk.

Examination details

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

Assessment: The performance assessment represents a combination of results from a written examination and an individual paper. Participation in obligatory seminars and project assignment is required.

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.

Parts

Code: 0122. **Name:** Written Examination.

Credits: 3,5. **Grading scale:** TH. **Assessment:** Successfully completed written examination. **Contents:** Problem-solving and utilization of tools related to risk analysis, risk evaluation and risk management.

Code: 0222. **Name:** Individual Paper.

Credits: 3,5. **Grading scale:** TH. **Assessment:** Successfully completed individual paper **Contents:** Individual paper related to the scientific and conceptual foundations for risk management, as well as methods and tools for risk analysis, risk evaluation and risk management.

Admission

Assumed prior knowledge: Introduction to studies in risk, safety and crisis management

The number of participants is limited to: No

Selection: Completed university credits within the program. Within programs where the course is given as a compulsory course students are guaranteed admission. Thereafter priority is given to students enrolled in programs that include the course in the curriculum.

The course overlaps following course/s: VRSN05, VBRN45, VBRN01

Reading list

- Tehler, H.: En introduktion till risk och riskhantering. (Kurskompendium). Studentlitteratur. , 2023.
- Aven, T. & Thedki, S: Risk Science: An Introduction. Routledge, 2022.
- Johansen, Inger Lise & Rausand, Marvin: Foundations and choice of risk metrics. Safety Science, 62, 386–399, 2014.
- Lennerfors, T. T.: Etik för ingenjörer. Studentlitteratur, Lund, 2019.
- Slovic, Paul: The risk game. Journal of Hazardous Materials, 86, 17–24, 2001.
- Garrick, B. John: Technological stigmatism, risk perception, and truth. Reliability Engineering and System Safety, 59, 41–45, 1998.

Contact and other information

Course coordinator: Johan Ingvarson, johan.ingvarson@risk.lth.se

Course administrator: Linnéa Ekman, linnea.ekman@ebd.lth.se

Further information: Active participation in group work is mandatory. Each group member must be able to present and answer for the contents of the joint report. A student who does not meet the demands of active participation, or disregard their obligations, can be replaced to another group or failed by the examiner.