



LUNDS UNIVERSITET
Lunds Tekniska Högskola

Course syllabus

Riskanalysens och riskhanteringsens grunder **Foundations for Risk Assessment and** **Management**

VRSN05, 7,5 credits, A (Second Cycle)

Valid for: 2023/24

Faculty: Faculty of Engineering, LTH

Decided by: PLED BI/RH

Date of Decision: 2023-04-12

General Information

Main field: Disaster Risk Management and Climate Change Adaptation.

Compulsory for: RH4-rh, MKAT1

Language of instruction: The course will be given in English

Aim

The aim of the course is that the students shall gain fundamental knowledge and understanding of risk analysis, risk evaluation and risk management, with applications in a broad array of areas including safety, environment and society. The course also aims that the students shall gain the ability to utilize tools for risk analysis, evaluation and management and how they can support risk-related decisions. Furthermore, the course is aimed at providing a foundation for continuing studies in the risk management field.

Learning outcomes

Knowledge and understanding

For a passing grade the student must

- be able to describe the scientific and conceptual foundation for risk management.
- be able to describe different perspectives of the concept of risk and be aware of the implications of adopting the different perspectives in a risk management context.
- be able to describe methods for risk analysis, evaluation and management, their areas of applicability, especially in the area of safety, environment and society.
- be able to describe different ways of presenting risk, their limitations and strengths and how they can be applied to evaluate risks.
- be able to describe different types of uncertainty and how they can be addressed and

handled in a risk analysis and 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 evaluation, also in new situations.
- be able to report, both orally and in writing, and discuss the implications of a performed risk assessment in a way understandable to persons with different knowledge backgrounds.
- be able to suggest risk reduction and risk management measures, also where there is a lack of information.
- be able to utilise material in scientific publications relevant for risk assessment.

Judgement and approach

For a passing grade the student must

- be able to critically reflect on the benefits and limitations of risk assessments as basis for decision making.
- be able to reflect upon ethical, subjective and societal dimensions of risk assessments.

Contents

The overriding elements in the course consist of: Introduction to the field of risk management, including risk analysis, risk evaluation and risk treatment, detailed treatment of the risk concept, general risk theory, risk analysis methods within safety, environment and society, basics of uncertainty and sensitivity, different ways of evaluation risk and introduction to risk perception and decision making concerning risk treatment.

During the course, obligatory seminars, as well as a group project, are to be completed. The project assignment is to be reported orally.

Examination details

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

Assessment: The examination represents a combination of results of a written examination, an individual home assignment and a project assignment. Participation in obligatory seminars 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: 2,5. **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: 5. **Grading scale:** TH. **Assessment:** Successfully completed Individual paper. **Contents:** Individual paper related to risk analysis, risk evaluation and risk management.

Code: 0322. **Name:** Group Assignment.

Credits: 0. **Grading scale:** UG. **Assessment:** Successfully completed group project assignment, including oral presentation. **Contents:** During the course, a group project assignment is to be completed. Supervision and consultations are offered for the project assignment. The project assignment is to be reported orally.

Admission

The number of participants is limited to: 50

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: VBR180, VBRN01, VBRN45

Reading list

- Aven, Terje: The call for a shift from risk to resilience: What does it mean?. 2019. Risk Analysis, 39(6), 1196-1203.
- Bier, Vicki M.: On the state of the art: Risk communication to decision-makers. 2001. Reliability Engineering and System Safety, 71, 151-157.
- Garrick, B. John: Technological stigmatism, risk perception, and truth. 1998. Reliability Engineering and System Safety, 59, 41-45.
- Johansen, Inger Lise & Rausand, Marvin: Foundations and choice of risk metrics. 2014. Safety Science, 62, 386-399.
- Slovic, Paul: Trust, emotion, sex, politics, and science: Surveying the risk-assessment battlefield. 1999. Risk Analysis, 19(4), 689-701.
- Slovic, Paul: The risk game. 2001. Journal of Hazardous Materials, 86, 17-24.
- Tehler, Henrik: An introduction to risk and risk management (course compendium). Division of risk management and societal safety, Lund university, 2020.

Contact and other information

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Further information: Active participation in group work and seminars 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. Guaranteed admission for 5 students from Graduate Schools enrolled at one of the programs; SADVS, SAGLS, SASSG, SASDA or SAMES.