GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2016-2017

Risk Assessment (E900304)

Course size (nominal values; actual values may depend on programme)

Credits 8.0 Study time 240 h Contact hrs 74.0 h

Course offerings in academic year 2018-2019

A (semester 2) English

Lecturers in academic year 2018-2019

Hassel, Henrik	LUND01 lecturer-in-charge
Abrahamsson, Marcus	LUND01 co-lecturer
Johansson, Jonas	LUND01 co-lecturer
Månsson, Peter	LUND01 co-lecturer
Svegrup, Linn	LUND01 co-lecturer

Offered in the following programmes in 2018-2019	crdts	offering
International Master of Science in Fire Safety Engineering	8	A

Teaching languages

English

Keywords

Risk Analysis, Risk Assessment, Risk Management, Uncertainty, Sensitivity, Methods

Position of the course

Introduction to risk assessment in a safety context (not only fire safety). Provide a broad basis for performing and using risk assessments for risk related decisions concerning safety issues.

Contents

The overriding elements in the course consist of: Introduction to the field of risk assessment and management, the concept of risk, risk assessment methodology within the field of fire safety engineering, uncertainty analysis, risk measures and risk evaluation. During the course, a number of individual home assignments, as well as a group project assignment, are to be completed. The project assignment contains relevant issues associated to the engineering field. The project assignment is to be reported in written form and also orally.

Initial competences

Calculus in Several Variables, Statistics with Decision Theory or equivalent.

Final competences

The aim of the course is that, in combination with earlier courses, the students gain the capability of utilizing tools for risk assessment and how they can support decisions in the area of risk management and especially in the area of fire safety engineering. Furthermore, the course is aimed at providing a foundation for continuing studies in the risk management field.
Knowledge and understanding
For a passing grade the student must:

- be able to describe different perspectives of the concept of risk and be aware of the implications of adopting the different perspecives in a risk management context.
- be able to describe risk assessment methods, their areas of applicability, especially in the area of fire safety engineering and their strengths and weaknesses.
- be able to describe relevant risk measures, 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 assessment context.

- be able to describe how input from risk assessments can be utilised as a basis for decision-making and emergency preparedness planning.
- demonstrate an understanding of various sources of information that can be used and the challenges in using them as input to risk assessments.

Skills and abilities

For a passing grade the student must:

- be able to utilize, the concepts, methods and tools used in risk assessment, in new situations and in situations related to fire safety.
- be able to evaluate the contents of existing risk assessments.
- 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 utilise material in scientific publications relevant for risk assessment.
- be able to utilise methods and tools for basic decision problems concerning risks.

Judgement and approach

For a passing grade the student must:

- be able to critically reflect on the benefits and limitations of risk assessments as an input to decision-making.
- be able to reflect upon ethical and subjective dimensions of risk assessments.

Conditions for credit contract

This course unit cannot be taken via a credit contract

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, lecture, seminar, self-reliant study activities

Extra information on the teaching methods

Lectures, individual assignment, project assignment, calculation seminars, literature seminars

Learning materials and price

All material needed can be found digitally on the course web (for free).

References

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- Garrick, B. J. (1998), Technological stigmatism, Risk perception and Truth, Reliability Engineering and System Safety, 59: 41-45.
- Pidgeon, N. (1998). "Risk assessment, risk values and the social science programme: why we do need risk perception research" Reliability Engineering & System Safety 59: 5-15.
- Slovic, P. (2001). "The Risk Game" Journal of Hazardous Materials 86: 17-24.
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- Frank ,W. and Jones, D. (2010), Choosing appropriate quantitative safety risk criteria: Applications from the new CCPS, Process Safety Progress 29(4): 293-298.
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- Evans, A. W. and Verlander, N. Q. (1997). "What Is Wrong with Criterion FN-Lines for Judging the Tolerability of Risk" Risk Analysis 17(2): 157-168.
- Hurley, M. J. and Rosenbaum, E. R. (2008). "Performance-Based Design". In SFPE Handbook of Fire Protection Engineering. Dinenno, P. J., Drysdale, D., Beyler, C. L., Walton, W. D., Custer, R. L. P., Hall Jr, J. R. and M., W. J. J. (eds.). Quincy, Society for Fire Protection Engineers. ISO (2009), ISO 31000 Risk Management – Principles and Guidelines, International Organization for Standardization, Geneva. ISO (2011), Fire Safety Engineering – Fire risk assessment, Part 1: General, ISO/FDIS 16732-1: 2011, International Organization for Standardization, Geneva.
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- Otway, H., von Winterfeldt, D. (1992). "Expert Judgement in Risk Analysis and Management: Process, Context, and Pitfalls" Risk Analysis 12(1): 83-93. Paté-Cornell, M. E. (1996). "Uncertainties in risk analysis: Six levels of uncertainty treatment" Reliability Engineering & System Safety 54: 95-111.
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- Slovic (1999), Trust, Emotion, Sex, Politics, and Science: Surveying the Risk-Assessment Battlefield, Risk Analysis 19(4): 689-701.

Course content-related study coaching

Evaluation methods

end-of-term evaluation and continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Oral examination

Examination methods in case of periodic evaluation during the second examination period

Oral examination

Examination methods in case of permanent evaluation

Skills test

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Extra information on the examination methods The examination of the course consists of three parts. First, an individual paper is to be written. In the paper the students must show an understanding of and an ability to summarize the most relevant parts of a number of scientific papers. They should also be able to critically reflect upon the material (see below for more details). Secondly, a written exam is to be completed. The exam will assess the students' ability to use various risk assessment methods and techniques. Third, a project assignment, in terms of a large-scale risk assessment, is to be completed where the students show an ability to apply and make a synthesis of the knowledge gained during the course. In order to pass the course, the students must pass each part of the examination (described above).

Calculation of the examination mark

20% project, 20% individual paper, 60% written exam.