GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2017-2018

Risk Management (E051550)

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

Credits 6.0	Study time 180 h	Contact hrs	30.0 h

Course offerings and teaching methods in academic year 2018-2019

A (semester 2)	English	lecture	30.0 h
		seminar	7.5 h
		project	7.5 h

Lecturers in academic year 2018-2019

Caspeele, Robby	TW14	lecturer-in-charge
Van Coile, Ruben	TW14	co-lecturer

Offered in the following programmes in 2018-2019	crdts	offering
Bridging Programme Master of Science in Fire Safety Engineering	6	A
Master of Science in Fire Safety Engineering	6	A

Teaching languages

English

Keywords

Risk, Danger, Safety, Risk Management, Safety Management Systems, Fault-tree, Event tree, Risk Analysis

Position of the course

Students learn what safety, risk and risk management is. Risk management takes place by combining quantifiable and qualifiable aspects of hazard and risk with other aspects, such as social and psychological, in a trade-off that leads to a situation which is assessed to be safe. For the measurable aspects of risk techniques are available that can be used for the determination of these aspects. These need to be applied, whereby the advantages, but also the limitations on the methods must be recognized in relation to the decision that has to be taken. Students are asked to apply the theory to a specific case study. This application must show that the student masters the necessary techniques (fault- and event tree analysis, Hazop, assessment) and can apply these. In addition they must demonstrate that they can defend the choices that were made with regard to the design and its implications for security.

Contents

- Introduction to risk and safety
- Risk analysis and risk management
- Qualitative risk assessment
- Reliability of systems
- Quantitative risk assessment
- Risk acceptance
- Bayesian decision theory
- Reliability analysis of level 3 - analytical methods and Monte Carlo simulations
- Reliability analysis of level 2 - FORM

Initial competences

Some understanding of the design of a system (machine / chemical plant / building).
Some knowledge of basic probability theory and statistics.

Final competences

1 Being able to recognize and describe risks
2 Being able to apply decision theory in order to arrive at justifiable decisions in the framework of risk management

3 Being able to refect critically about the appropriateness and limitations of available statistical data, risk analyses and risk acceptance criteria
4 Being able to analyse system behaviour and construct fault, event and decision trees
5 Being able to execute qualitative and quantitative risk analyses on practical relevant situations
6 Being able to execute simple reliability analyses of level 2 and 3

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Lecture, project, seminar

Extra information on the teaching methods

For the exercises partly use is made of computer software (Excel, COMREL,...)

Learning materials and price

Syllabus (15 euro)

References

Course content-related study coaching

The lecturer and assistents can be contacted before or after the lectures, through e-mail or after making an appointment.

Evaluation methods

end-of-term evaluation

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

Written examination, oral examination, report

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

Written examination, oral examination, report

Examination methods in case of permanent evaluation

Possibilities of retake in case of permanent evaluation

not applicable

Extra information on the examination methods

End-of-term assessment: oral closed-book examination with written preparation about the theory and defense of the project report; written open book exam about the exercises

Calculation of the examination mark

40% on the theory exam; 20% on the exercises exam; 40% on the project work and defense