MJ1520 Statistics and Risk Assessment 6.0 credits

Statistik och riskhantering

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for MJ1520 valid from Autumn 2011

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Technology

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After having passed the course the student should:

- Be able to describe and explain the concept of risk from a socio-technical perspective
- Be able to describe the most common methods, qualitative and quantitative, for risk assessment and know where they are applicable
- Be able to describe the key EU legislation in the field of safety in process plants and for chemical hazards
- Be able to describe the fundamental principles of inherent safety in process systems
- Be able to describe important basic concepts in statistics
- Have knowledge of the principles of how risks can be evaluated and communicated to various stakeholders in decision making
- Be able to describe the strategies and techniques for conflict management and the environmental risks involved
- In a small group actievly take part in an oral and written presentation in a project completed in the field of risk management
- From the knowledge of the individual courses from the program, be able to give suggestions and justifications for how knowledge and information can be used to approach the opportunities and difficulties in describing and comparing risks of different energy systems and the use of chemicals in society.

Course contents

The course will examine the different paradigms that exist in research on risk and risk perception, which are also reflected in the difficulties of communicating and comparing risks of different energy systems in society.

The course will cover key concepts in the field of statistics with applications in risk management, particularly environmental risks.

In the course, the most common methods for qualitative and quantitative risk analysis will be described.

In the description of quantitative risk analysis the course will cover models based on statistical methods, such as statistical databases and Bayesian methods.

Chemical Hazards will be described and discussed from different current examples and from the EU's REACH legislation.

The course includes an individual qualitative assignment on risk management and an individual quantitative estimation assignment.

In an independent group work on various cases of conflicts around environmental risks, an analysis will show how conflicts are handled and how information is used by various interest groups.

Specific prerequisites

Course literature

To be described before course start

Examination

- INL1 - Assignment, 1.0 credits, grading scale: A, B, C, D, E, FX, F
- INL2 - Assignment, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- NÄR1 - Attendance, 0.5 credits, grading scale: P, F
- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

Attendance, 0.5 credits, grades: P, F (80% + project presentation)

Project, 3.0 credits, grades: A, B, C, D, E, FX, F

Individual Assignment1, 1 credit, grades: A, B, C, D, E, FX, F

Individual Assignment 2, 1.5 credits, grades: A, B, C, D, E, FX, F

Score averaging described in the course PM

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.