

SYLLABUS

Risk Assessment and Remediation of Contaminated Land 7.5 credits A7006B

Riskbedömning och sanering av förorenad mark

Course syllabus admitted: Autumn 2023 Sp 1 - Present

**DECISION DATE
2021-02-17**

Risk Assessment and Remediation of Contaminated Land 7.5 credits A7006B

Riskbedömning och sanering av förorenad mark

Second cycle, A7006B

Education level	Grade scale	Subject	Subject group (SCB)
Second cycle	G U 3 4 5	Miljöteknik	Environmental Care and Environmental Protection

Main field of study

Natural Resources Engineering

Entry requirements

90 ECTS basic level 7,5 ECTS Chemistry or soil mechanics, e.g. K0016K or G0003B.

Selection

The selection is based on 30-285 credits

Course Aim

The aim of the course is to help students acquire a basic understanding of how to evaluate environmental risks related to contaminated sites. The student will be able to select methods for risk assessment of contaminated land, plan and carry out practical tasks that, for example, are used in environmental consultants' and decision makers work.

As a result of the course, students should be able to plan the sampling of soil, calculate the spread of pollutants in soil and explain the importance of soil properties for pollution impact on the environment and human health. Furthermore, the student should be able to explain the basic requirements for selection of soil remediation methods for contaminated soil. In addition, the student should be able to analyze and explain the interactions and possible conflicts that (may) exist between different aspects (ecological, economic, social and technical) of the sustainable development of land.

Students should also get familiar with the work in an environmental laboratory, learn about the safety rules and carry out practical laboratory assignments. The student should be able to process the results and present them both in writing (report) and orally (presentation).

Contents

During the course the students will develop skills and knowledge about principles of pollutant transport in soil, soil properties and their influence on solubility and toxicity of pollutants, methods of a site investigation, deepen into problems related to contaminated soils, methods for risk assessment and evaluation of contaminated sites, the established and innovative remediation techniques such as soil washing, phytoremediation, stabilization, etc. Further technical aspects and the legislation in the field will be discussed.

Realization

Each course occasion's language and form is stated and appear on the course page on Luleå University of Technology's website.

The topic is presented in the form of class lectures by several lecturers. Focus on the specific subjects is made through individual student projects based on literature review, written and oral presentations and group discussions. Practical skills are trained through calculations in the classroom and generation of laboratory data. Work in the laboratory is conducted in groups, the results of the laboratory assignment are presented in writing and orally and discussed in the classroom during a seminar. To begin with the laboratory work students are required to pass a test in "General safety guidelines for working in a laboratory" at the beginning of the course. Laboratory work is linked to the lectures and carried out in parallel. All documentation is made available through CANVAS web tool .

Examination

If there is a decision on special educational support, in accordance with the Guideline Student's rights and obligations at Luleå University of Technology, an adapted or alternative form of examination can be provided.

Written exam with differentiated grades. Grade scale: 5 4 3 U.

To pass the course the students are required to get approved on the laboratory training and individual projects. The laboratory training and individual projects are assessed with an oral presentation and a written report. Laboratory and individual project reports must be submitted no later than one week before the oral presentations.

Unauthorized aids during exams and assessments

If a student, by using unauthorized aids, tries to mislead during an exam or when a study performance is to be assessed, disciplinary measures may be taken. The term "unauthorized aids" refers to aids that the teacher has not previously specified as permissible aids and that may assist in solving the examination task. This means that all aids not specified as permissible are prohibited. The Swedish version has interpretative precedence in the event of a conflict.

Course offered by

Department of Civil, Environmental and Natural Resources Engineering

Modules

Code	Description	Grade scale	Cr	Status	From period	Title
0001	Written exam	G U 3 4 5	3	Mandatory	A11	
0002	Individual projects	U G#	2	Mandatory	A11	
0003	Laboratory work	U G#	2.5	Mandatory	A11	

Study guidance

Study guidance for the course is to be found in our learning platform Canvas before the course starts. Students applying for single subject courses get more information in the Welcome letter. You will find the learning platform via My LTU.

Last revised

by Assistant Director of Undergraduate Studies Eva Gunneriusson, Department of Civil, Environmental and Natural Resources Engineering 2021-02-17

Syllabus established

by Department of Civil, Environmental and Natural Resources Engineering 2011-02-07