Environmental Geotechnics

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Module number	Credits	Workload	Semester[s]	Duration	Group size
SE-O-5	3 CP	90 h	2. Sem.	1 Semester[s]	no limitation

Courses	Contact hours	Self-study	Frequency
a) Environmental Geotechnics	a) 2 WLH (30 h)	a) 60 h	a) each summer

Module coordinator and lecturer(s)

Prof. Dr.-Ing. Torsten Wichtmann

a) Dr.-Ing. Wiebke Baille, Dr.-Ing. D. König

Admission requirements

Recommended previous knowledge:

completed module Soil and rock behaviour (including lecture: Soil behaviour and simple constitutive models for soils).

Learning outcome, core skills

After successfully completing the modules, the students are able to

- assess environmental pollutants with regard to their hazard potential and migration behaviour in soil and groundwater,
- develop strategies for the demobilization of pollutants and remediation of contaminated sites based on a comprehensive understanding of physical-chemical properties of soils,
- identify the design principles of technical barrier systems used for landfills and low contaminated soils.

Contents

a)

Interdisciplinary knowledge necessary for the safe disposal of environmentally hazardous substances and the remediation of contaminated soil is presented from the perspective of soil, groundwater and soil-air interactions. Furthermore, technical barriers for the encapsulation of landfills will be addressed.

The lecture contents cover the following topics:

- Relevant environmental pollutants and their respective industrial sectors
- Advective and diffusive transport of pollutants in porous media
- Methods for soil remediation and containment of pollutants
- Barrier systems for landfills and low contaminated soils
- Individual project work dealing with specific questions of environmental geotechnics
- Future challenges of environmental geotechnics

Educational form / Language

a) Project / Lecture (2 WLH) / English

Examination methods

• Term paper 'Environmental Geotechnics - Project work' (0 h., ungraded)

• Written exam 'Environmental Geotechnics' (90 min., Part of modul grade 100 %)

Requirements for the award of credit points

Passed final module examination: written examination

Presentation of the project

Module applicability • M.Sc. Subsurface Engineering
Weight of the mark for the final score Percentage of total grade [%] = 3 * 100 * FAK / DIV FAK: The weighting factors can be taken from the table of contents. DIV: The values can be taken from the table of contents.
Further Information