Numerical Simulation in Geotechnics and Tunneling

Numerical Simulation in Geotechnics and Tunneling

Module number	Credits	Workload	Semester[s]	Duration	Group size
BI-WP24/CE-WP09/SE-CO-3	6 CP	180 h	2. Sem.	1 Semester[s]	no limitation

Courses	Contact hours	Self-study	Frequency
a) Numerical Simulation in Geotechnics and Tunneling	a) 4 WLH (60 h)	a) 60 h	a) each summer

Module coordinator and lecturer(s)

Prof. Dr.-Ing. Torsten Wichtmann

a) Dr.-Ing. Christoph Schmüdderich

Admission requirements

Learning outcome, core skills

After successfully completing the modules, the students are able to

- implement numerical models of complex boundary value problems of tunnels and geotechnics, creating the adequate geometrical models,
- evaluate numerical models and their results in a critical way,
- acquire adequate knowledge in fundamentals of the finite element method to be able to adopt numerical simulation in design and control of geotechnical problems with focus on the interactions between the soil and structures.

Contents

a)

The course deals with the numerical modeling of tunnel structures and tunnel driving:

- basic aspects of numerical modeling of tunnel construction problems,
- practical application of FE software environments to model a conventional tunnel advance in 3D
- automatic and parameter-controlled generation of complex models

Educational form / Language

a) Lecture (4 WLH) / English

Examination methods

• Written exam 'Numerical Simulation in Geotechnics and Tunneling' (180 min., Part of modul grade 100 %, Language of the written examination in English or German by choice of the student)

Requirements for the award of credit points

- Passed final module examination: approved final written examination

Module applicability

- MSc Civil Engineering
- MSc Subsurface Engineering
- MSc Computational Engineering

Weight of the mark for the final score

Percentage of total grade [%] = 6 * 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