

Note:

The following curriculum is a consolidated version. It is legally non-binding and for informational purposes only.

The legally binding versions are found in the University of Innsbruck Bulletins (in German).

Original version published in the University of Innsbruck Bulletin of 31 January 2024, Issue 21, No. 413

Curriculum for the University Programme
**University Course Summer School Numerical Modelling
in Geotechnical Engineering**
at the Faculty for Engineering Sciences at the University of Innsbruck

Table of contents

- § 1 Qualification profile
- § 2 Scope, duration and structure
- § 3 Admission and procedure
- § 4 Types of courses
- § 5 Compulsory module
- § 6 Examination regulations
- § 7 Certificate
- § 8 Coming into force

§ 1 Qualification profile

The graduates of the University Course Summer School Numerical Modelling and Geotechnical Engineering

- know different material models (elastoplastic and hypoplastic), the underlying concepts of soil mechanics and their current development and reflect on their use in finite element calculations,
- can calibrate the various material models,
- know which parameter in the model causes which behaviour in the calculation,
- can carry out finite element calculations of element tests (triaxial test, oedometer test, biaxial test) and boundary value problems with different material models and different software on the computer and interpret their results, and
- can systematically develop solutions for given problems.

§ 2 Scope, duration and structure

The University Course covers 2 semester hours (h) and 5 ECTS-Credits. One ECTS-Credit corresponds to a workload of 25 hours.

§ 3 Admission and procedure

- (1) Admission to the university course requires a relevant master's programme, another relevant degree programme at a recognised post-secondary educational institution or a relevant training at a recognised domestic or foreign post-secondary educational institution.
- (2) Master's programmes such as e.g. Building Engineering and Environmental Engineering are in any case relevant master's programmes.
- (3) The Director of the university course shall decide on admission to the university course on the basis of objective criteria such as previous specialist training and motivation as well as a balanced composition of the group of participants.
- (4) Persons who have been admitted to the university course and have paid the course fee shall be admitted as extraordinary students by the Rectorate of the University of Innsbruck.

§ 4 Types of courses

Courses with continuous performance assessment:

Lectures with practical elements (VU) focus on the practical treatment of concrete scientific tasks that are discussed during the lecture parts of the course. No maximum number of students per course.

§ 5 Compulsory module

The following compulsory module covering altogether 5 ECTS-Credits is to be passed:

1.	Numerical Modelling in Geotechnic Engineering	h	ECTS-Credits
	VU Numerical Modelling in Geotechnic Engineering	2	5
	Total	2	5
	Learning Outcomes: Students will be able to apply the finite element method to various geotechnical problems and special features of numerical geotechnical engineering. They understand critical soil mechanics and its implementation in different material models. They understand the background to the different material models (elastoplastic and hypoplastic models) and can calibrate the parameters of the different models. They will be able to carry out finite element calculations in the area of modelling element tests (triaxial tests/oedometer tests). They can analyse, interpret and understand the influence of the individual parameters in the element tests using various material models. They are able to work out which material models are capable of modelling critical states. They can implement finite element calculations in the area of modelling boundary value problems with various material models and software packages and are able to interpret and evaluate the results.		

Prerequisites: none

§ 6 Examination regulations

- (1) Performance evaluation of the courses of the module is based on course examinations. Course examinations serve to proof the knowledge and skills acquired during an individual course, whereby in the case of courses with continuous performance evaluation, the evaluation is based on at least two written, oral and/or practical tasks of the students.
- (2) At the start of the university course, the course instructor has to inform the students about the objectives, contents and the methods used in their courses as well as about the examination method (written and/or oral, paper) and evaluation criteria in a suitable way.

§ 7 Certificate

After successful completion of the university course, the graduates will receive a certificate.

§ 8 Coming into force

The curriculum comes into force on the first day of the month following its publication in the University of Innsbruck Bulletin.

For the Curriculum Committee:

Univ.-Prof. Dr. Christoph Adam

For the Senate:

Univ.-Prof. Dr. Walter Obwexer
