The English version of the curriculum for the „Doctoral programme Engineering Sciences“ is not legally binding and is for informational purposes only. The legal basis is regulated in the curriculum published in the University of Innsbruck Bulletin on 22 April 2009, issue 71, No. 263.

Decision of the Curriculum Committee of the Faculty of Civil Engineering Sciences on 26 March 2009, approved by Senate Decree on 16 April 2009:

On the basis of § 25 para. 1 no. 10 University Organisation Act 2002, BGBl. I (Federal Law Gazette) No. 120, most recently amended by Federal Law BGBl. I (Federal Law Gazette) No. 134/2008 and § 32 Section "Regulations of Study Law", republished in the University of Innsbruck Bulletin of 3 February 2006, Issue 16, No. 90, most recently amended by the University of Innsbruck Bulletin of 7 May 2008, Issue 42, No. 272, the following is decreed:

Curriculum for the **Doctoral programme Engineering Sciences** at the Faculty of Civil Engineering Sciences of the University of Innsbruck

§ 1 Qualification profile

(1) The Doctoral programme Engineering Sciences of the Faculty of Civil Engineering Sciences at the University of Innsbruck belongs to the group of studies in the engineering sciences. On an international level, the degree of a "Doctor of Technical Sciences" ("Dr. techn.") awarded by this programme is comparable to a subject-specific "Doctor of Philosophy" ("PhD").

(2) The objectives of the Doctoral programme Engineering Sciences are both the ability to solve complex scientific problems in basic and applied research in the engineering sciences corresponding to acknowledged scientific standards and to educate highly qualified junior professionals, especially for research and for particularly demanding occupational careers outside the university.

(3) In order to achieve these objectives, during the doctoral program students deepen and expand the knowledge acquired in pertinent master programmes by means of special courses and through self-study. Additionally, they acquire the competences to plan and carry out research work independently, to provide their own, original contributions to research topics in the engineering sciences, to publish their research results in international scientific journals, and to present as well as defend them at national and international conferences. In this context, the creation of the dissertation is regarded as highly relevant and serves as evidence that students are capable of solving scientific problems in engineering sciences on a high level of expertise in an independent, scientifically correct, and methodically flawless manner.

(4) The quality and international orientation of the programme promote the graduates' mobility and direct their perception beyond the boundaries of their special field. The key qualifications acquired empower them to adapt their expertise to fast-changing requirements.

§ 2 Length and scope

The Doctoral programme Engineering Sciences takes three years (six semesters), which equals 180 ECTS credits.

§ 3 Admission

(1) Valid proof of the necessary academic level for admission to the doctoral programme must be provided. This includes proof of completion of relevant diploma or master programmes, of completion of relevant diploma or Magister programmes at a university of applied science or completion of other equivalent studies at an accredited Austrian or non-Austrian post-secondary educational institution. If equivalency is given in principle, and only a few elements are missing for full equivalency, the rector's office is entitled to combine the determination of equivalency with the obligation to pass certain examinations in the course of the doctoral programme.

(2) Relevant studies are in any case

1. the Diploma Programme Civil Engineering completed at the University of Innsbruck,
2. the Master Programme Civil and Environmental Engineering completed at the University of Innsbruck,
3. the Master Programme Domotronics completed at the University of Innsbruck.

§ 4 Types of courses and maximum number of students per course

(1) **Lecture** (VO)

Lectures serve to convey content through lecture presentations, exemplary explanations, and demonstrations. Interaction between students and the lecturer is to be encouraged.

(2) **Tutorial** (UE)

1. Tutorials are courses, where, on the one hand, students are trained in the practical application of content conveyed in the corresponding lecture and, on the other hand, where students work on assignments independently. Depending on the subject, these tasks can, for example, include calculations, constructions, planning tasks, programming tasks, presentation and management tasks, but also laboratory work or a mixture of these tasks.
2. Tutorials are courses with continuous performance assessment.
3. As a rule, the maximum number of students is 10; for laboratory and equipment tutorials, as a rule, the maximum number is 5.

(3) **Lectures with integrated practical parts** (VU)

1. "VU" courses are a combination of lecture and tutorial. The lecture and practical parts can be designed flexibly, depending on the requirements of the content to be conveyed. If the number of participants makes it necessary to split tutorial groups, typically, VU courses use 50% of the hours for the lecture and 50% for the tutorial.
2. "VU" courses are courses with continuous performance assessment.
3. "VU" courses normally have a maximum number of students of 10 in the tutorial part; in laboratory and equipment tutorials, normally the maximum number is 5.

(4) **Seminar** (SE)

1. Seminars serve to introduce scientific methods and provide an introduction to discourse in the field. Participants have to study and work on a given topic/project by means of scientific methods. Participants are required to make independent oral and/or written contributions.
2. Seminars are courses with continuous performance assessment.
3. As a rule, the maximum number of students is 10.

§ 5 Procedure for the allotment of places in courses with a limited number of participants

Students whose study time will be prolonged if they are not admitted are to be given priority.

§ 6 Mandatory and elective modules

(1) The following modules – equal to 55 ECTS credits – are mandatory:

1	**Mandatory Module: Scientific Methods and Communication**	**Sem. hours**	**ECTS credits**
a.	**VO Theory and Methodology of Science** Work on the pre-conditions, methods, and objectives of science and the way knowledge is gained scientifically;	1	2
b.	**SE Working Scientifically** Students become acquainted with the rules of good scientific practice, especially in terms of scientific integrity, self-critical attitude regarding the scientific results gained, and openness to criticism;	1	1.5
c.	**SE Dissertation Seminar 1** In the first year of the programme, students have to give a 30-minute presentation on the state of their dissertation in the course of this seminar.	1	2
d.	**SE Dissertation Seminar 2** In the second year of the programme, students have to give a 30-minute presentation on the state of their dissertation in the course of this seminar.	1	2
e.	**SE Intensive Dissertation Seminar** Guided instructions for working on the research topic, reflection on current questions related to the research project, as well as discussion of research results with the dissertation supervisors;	2	2.5
	Total	6	10
	Learning objectives of the module: Students are able to reflect on the research methods of their own subject area and position it in the overall context of the field. They feel committed to the rules of good scientific practice and are open to criticism of their research results. They are able to integrate insights gained in open discourse into their research project.		
	Admission requirements: none		

2	**Mandatory Module: Scientific Basics/Core Skills of the Thesis Topic**	**Sem. hours**	**ECTS credits**
	Courses, as defined in the dissertation agreement, equal to 10 ECTS credits have to be completed to develop the scientific basis/core competences for the dissertation topic.	-	10
	Total		10
	Learning objectives of the module: After the successful completion of this module, students possess the high level of interdisciplinary knowledge necessary for working on the dissertation.		
	Admission requirements: none		

3	**Mandatory Module: Scientific Specialisation**	**Sem. hours**	**ECTS credits**
a	**VU Thematic Specialization 1** One of the courses offered by the research centers of the Faculty of Civil Engineering Sciences which is relevant for the field of the dissertation;	2	5
b	**VU Thematic Specialization 2** One of the courses offered by the research centers of the Faculty of Civil Engineering Sciences which is relevant for the field of the dissertation;	2	5
	Total	4	10
	Learning objectives of the module: Students become acquainted with the latest results and methods developed in the research centers of the Faculty of Civil Engineering Sciences; having completed the courses in question, students are able to utilize these results and methods for their own research work.		
	Admission requirements: none		

4	**Mandatory Module: Presentation of Own Research Results**	**Sem. hours**	**ECTS credits**
a.	Students present their dissertation results in the form of a lecture or poster presentation at national or international scientific conferences;	-	15
	Total	-	15
	Learning objectives of the module: Students acquire subject-specific and other competences which enable them to independently prepare, design and carry out scientific lectures and poster presentations as well as to critically discuss and reflect on them with experts.		
	Admission requirements: none		

5	**Mandatory Module: Generic Skills**	**Sem. hours**	**ECTS credits**
	Courses, as defined in the dissertation agreement, equal to 5 ECTS credits have to be completed. One course may be chosen from the field of "Equality and Gender". Additionally, courses are offered which develop didactic skills and competences for subsequent knowledge transfer of the field. Suitable courses are marked in the course catalog.	-	5
	Total	-	5
	Learning objectives of the module: After the successful completion of this module, students possess advanced knowledge and skills beyond their subject-specific competences which empower them to pursue independent scientific activities and help them succeed in their future careers.		
	Admission requirements: none		

6	**Mandatory module: Doctoral Thesis Defense**	**Sem. hours**	**ECTS credits**
	Final oral dissertation defense before an examination board	-	5
	Total	-	5
	Learning objectives of the module: Presentation, reflection on, and analysis of the dissertation results in the overall context of the doctoral programme; the focus is on summarizing and explaining results of the research project, on presenting the increase in knowledge for the discipline, on demonstrating evaluation and methodical competences as well as on presenting the results.		
	Admission requirements: positive completion of all other modules and positive evaluation of the dissertation		

(2) One elective module – equal to 5 ECTS credits – has to be completed:

1	**Elective Module: Scientific Specialisation Subject 1**	**Sem. hours**	**ECTS credits**
	SE: Scientific In-depth Studies One of the courses offered by the research centers of the Faculty of Civil Engineering Sciences which is relevant for the field of the dissertation;	2	5
	Total	2	5
	Learning objectives of the module: After the successful completion of this module, students have advanced knowledge in those scientific disciplines that are particularly important for working on the dissertation.		
	Admission requirements: none		

2	**Elective Module: Scientific Specialisation Subject 2**	**Sem. hours**	**ECTS credits**
	Cooperation in a third-party-funded project that has a direct relation to the dissertation;	-	5
	Total	-	5
	Learning objectives of the module: Acquiring subject-specific and other competences for working in teams and for communicating research results to the scientific community;		
	Admission requirements: none		

3	**Elective Module: Scientific Specialisation Subject 3**	**Sem. hours**	**ECTS credits**
	Publishing the research results of the dissertation in a scientific journal or in conference proceedings;	-	5
	Total	-	5
	Learning objectives of the module: Acquiring subject-specific and other competences for working in teams and for communicating research results in the scientific community;		
	Admission requirements: none		

4	**Elective Module: Scientific Specialisation Subject 4**	**Sem. hours**	**ECTS credits**
	Participation in international scientific forums (in total, a minimum of five days), where internationally acknowledged experts familiarize students with the current state of research in the area of the dissertation topic (e.g. during a summer school);	-	5
	Total	-	5
	Learning objectives of the module: Acquiring subject-specific and other competences for working in teams and for communicating research results to the scientific community;		
	Admission requirements: none		

§ 7 Dissertation

(1) In the course of the doctoral programme, a dissertation has to be written, which equals 120 ECTS credits. The dissertation topic has to be chosen from one of the scientific subjects represented at the Faculty of Civil Engineering Sciences and has to show a scientific relation to an examination subject defined by the curriculum of the respective field of study. The dissertation is a piece of scientific work which – in contrast to a diploma or master thesis – serves to prove the student's ability to cope with scientific questions in an independent way.

(2) The dissertation can also consist of a minimum of three articles (peer-reviewed) that are related in terms of subject matter or methods and that have been accepted for publication by acknowledged scientific publications. The student must be the first author of a minimum of two of these articles.

(3) If the articles were written by several authors, the student's own contribution must be clearly shown and must be added to the dissertation.

(4) The student has to propose a team of supervisors, consisting of at least two people (dissertation committee), and to nominate one of them as the supervisor mainly responsible. It is permissible to propose supervisors (with the exception of the main supervisor) from subject-related fields. In justifiable exceptional cases it is possible for students to propose only one supervisor.

(5) Prior to beginning the work, the student has to communicate the dissertation topic and names of the supervisors in writing to the body responsible for study law. Topic and supervisors are considered as accepted, if the body responsible for study law does not veto them by means of a decree within one month after the receipt of the proposal.

§ 8 Examination regulations

(1) The evaluation of Mandatory Modules 1, 2, 3, and 5 as well as Elective Module 1 is based on course examinations.

(2) Lectures are evaluated by means of a single exam at the end of the course. The lecturer is required to communicate evaluation methods (oral and/or written) before the course starts.

(3) The evaluation of courses with continuous performance assessment is based on the student's regular, written and/or oral and/or experimental contributions. The lecturer is required to communicate evaluation methods and criteria before the course starts.

(4) The evaluation of Mandatory Module 6 - "Doctoral Thesis Defense" - is based on an oral exam taken before an examination board consisting of three examiners.

(5) Modules without courses are evaluated by the main supervisor. A positive grade has to read "participated with success"; a negative grade has to read "participated without success". The evaluation of the individual modules is defined as follows:

1. For a positive evaluation of Mandatory Module 4, students must provide evidence of their participation as a conference speaker by submitting the directory of conference speakers.
2. For a positive evaluation of Elective Module 2, students must be mentioned as co-author in the project report.
3. For a positive evaluation of Elective Module 3, students must prove that their article has been accepted for publication.
4. For a positive evaluation of Elective Module 4, a certificate of attendance from the event manager is necessary.

§ 9 Academic degree

Graduates of the Doctoral programme Engineering Sciences are awarded the academic degree of "Doctor of Technical Sciences" or "Dr. techn.", in brief.

§ 10 Implementation

This curriculum comes into force on 1 October 2009.

For the Curriculum Committee:
Ao. Univ.-Prof. Dipl.-Ing. Dr. Rudolf Stark

For the Senate:
Univ.-Prof. Dr. Ivo Hajnal