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 22 April 2009, Issue 71, No 263
Modification published in the University of Innsbruck Bulletin of 06 May 2015, Issue 24, No 384
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Complete version from 1 October 2020

Curriculum for the
Doctoral Programme in Engineering Sciences
at the Faculty of Engineering Sciences of the University of Innsbruck

§ 1 Qualification profile

(1) On the basis of § 54 para 1 University Organisation Act 2002, the Doctoral Programme in Engineering Sciences at the Faculty of Engineering Sciences of 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) Graduates of the Doctoral Programme in Engineering Sciences are able to solve complex scientific problems in basic and applied research in the engineering sciences corresponding to acknowledged scientific standards. They are in particularly prepared for research in the industrial, economic and public sector and for occupational careers at universities and outside the university to educate highly qualified junior professionals.

(3) By presenting a dissertation, which serves as evidence of solving scientific problems in engineering sciences on a high level of expertise in an independent, scientifically correct, and methodically flawless, graduates have made an individual contribution to research, which widens the boundaries of science and stands assessment by expert scientists. In order to achieve these objectives during the doctoral programme, students deepen and expand the knowledge acquired in a subject-specific master or diploma programme by special courses and self-study.

(4) Graduates of the Doctoral Programme in Engineering Sciences develop a systematic understanding of their research discipline and master the methods applied in this field of research. 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.

(5) 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 in 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's Programme Civil and Environmental Engineering, Civil Engineering as well as Environmental Engineering completed at the University of Innsbruck,
3. the joint Master's Programme Mechatronics of the University of Innsbruck and the UMIT - The Health & Life Sciences University
4. the Master's Programme Domotronics completed at the University of Innsbruck.

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

(1) Courses without continuing performance assessment:

Lectures (VO) are courses held in lecture format. They introduce the research areas, methods and schools of thought for a given subject. No maximum number of participants.

(2) Courses with continuing performance assessment:

1. Seminars (SE) provide in-depth treatment of scientific topics through students' presentations and discussion thereof. Maximum number of participants: 10
2. Lectures with integrated practical parts (VU) focus on the practical treatment of concrete scientific tasks that are discussed during the lecture parts of the course. No maximum number of participants for the lectures; maximum number of participants for the practical parts: 10, for laboratory and equipment tutorials the maximum number is 5.

§ 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 Compulsory and elective modules

(1) The following compulsory modules with a total of 25 ECTS-Credits are to be taken:

1.	**Compulsory Module: Concept of Doctoral Thesis**	**h**	**ECTS-Credits**
	SE Concept of Doctoral Thesis Conveyance of rules of good scientific practices, in particular with regard to scientific integrity, self-critical attitude to scientific results gained and openness to critical assessment; discussion of different dissertation architectures (monographic vs. Cumulative) and strategies for implementation; discussion of different dissertation concepts. Students become acquainted with the dissertation subject, make a concept of their work and present it within the course in front of the supervisor.	2	2.5
	Total	**2**	**2.5**
	Learning Outcomes: 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.		

	Students are able to create a concept of doctoral thesis, to write an exposé and to present it within the scope of a course.
	Prerequisites: none

2.	**Compulsory Module: Scientific Methods and Presentation Skills**	**h**	**ECTS-Credits**
a.	**VO Publish Research Work** Build-up of publications; conveyance of publication processes, selection and assessment of the publication medium; description of the review process.	1	2.5
b.	**SE Seminar for Doctorate Students** Students report on the state of their dissertation in the second or third academic year.	1	2.5
	Total	**2**	**5**
	Learning Outcomes: Students are acquainted with the practice of scientific writing as well as the publication and review process. They are able to present their research results in plenary and to subject the results to a critical evaluation.		
	Prerequisites: successful completion of compulsory module 1		

3.	**Compulsory Module: Scientific Specialisation**	**h**	**ECTS-Credits**
	VU Thematic Specialization One of the courses offered by the research centres of the Faculty of Engineering Sciences which is relevant for the field of the dissertation;	2	2.5
	Total	**2**	**2.5**
	Learning Outcomes: Students become acquainted with the latest results and methods developed in the research centres of the Faculty of Engineering Sciences; having completed the courses in question, students are able to utilize these results and methods for their own research work.		
	Prerequisites: successful completion of compulsory module 1		

4.	**Compulsory Module: Presentation of Own Research Results**	**h**	**ECTS-Credits**
	Students present their dissertation results in the form of a lecture or poster presentation at national or international scientific conferences (international Scientific Advisory Board);	-	5
	Total	**-**	**5**
	Learning Outcomes: 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.		
	Prerequisites: successful completion of compulsory module 1		

5.	Compulsory Module: Generic Skills	h	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 catalogue.	-	5
	Total	**-**	**5.0**
	Learning Outcomes: 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.		
	Prerequisites: successful completion of compulsory module 1		

6.	Compulsory Module: Doctoral Thesis Defence	h	ECTS-Credits
	Final oral dissertation defence before an examination board.	-	5
	Total	**-**	**5**
	Learning Outcomes: 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.		
	Prerequisites: successful completion of all compulsory and elective modules and positive evaluation of the dissertation		

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

1.	Elective Module: Scientific Basics/Core Skills of the Thesis Topic	h	ECTS-Credits
	Courses, as defined in the dissertation agreement, equal to 5 ECTS-Credits have to be completed to develop the scientific basis/core competences for the dissertation topic.	-	5
	Total	**-**	**5**
	Learning Outcomes: After the successful completion of this module, students possess the high level of interdisciplinary knowledge necessary for working on the dissertation.		
	Prerequisites: successful completion of compulsory module 1		

2.	Elective Module: Scientific Specialisation Subject 1	h	ECTS-Credits
	Cooperation in a third-party-funded project that has a direct relation to the dissertation;	-	5
	Total	**-**	**5**
	Learning Outcomes: Acquiring subject-specific and other competences for working in teams and for communi-		

	cating research results to the scientific community;
	Prerequisites: successful completion of compulsory module 1

3.	**Elective Module: Scientific Specialisation Subject 2**	**h**	**ECTS-Credits**
	Publishing the research results of the dissertation in a scientific journal or in conference proceedings;	-	5
	Total	**-**	**5**
	Learning Outcomes: Acquiring subject-specific and other competences for working in teams and for communicating research results in the scientific community;		
	Prerequisites: successful completion of compulsory module 1		

4.	**Elective Module: Scientific Specialisation Subject 3**	**h**	**ECTS-Credits**
	Participation in international scientific forums, where internationally acknowledged experts familiarize students with the current state of research in the area of the dissertation topic (e.g. during a summer or winter school);	-	5
	Total	**-**	**5**
	Learning Outcomes: Acquiring subject-specific and other competences for working in teams and for communicating research results to the scientific community;		
	Prerequisites: successful completion of compulsory module 1		

§ 7 Dissertation

(1) In the course of the doctoral programme, a dissertation has to be written, which equals 150 ECTS-Credits. The dissertation is a piece of scientific work which serves to prove the student's ability to cope with scientific questions in an independent way. The dissertation topic has to be chosen from one of the scientific subjects represented at the Faculty of Engineering Sciences and has to show a scientific relation to an examination subject defined by the curriculum of the respective field of study.

(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 journals listed in the web of science or Scopus. The student must be the first author of a minimum of two of these articles. If the articles were written by several authors, the student's own contribution must be clearly shown and must be added to the dissertation. The student has to compile a detailed summary of the working field, the methods used and the results gained whereas the articles included in the dissertation must be related. In addition, an outlook on the further scientific and methodical development of the subject is to be prepared.

(3) 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 (with venia docendi). 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.

(4) 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 de-

cree within one month after the receipt of the proposal.

§ 8 Examination regulations

(1) The evaluation of elective 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 elective module 6 - "Doctoral Thesis Defence" - is based on an oral exam taken before an examination board consisting of three examiners.

(5) Modules without courses, with the exception of compulsory module 6, 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 elective module 4, students must provide evidence of their participation as a conference speaker or participation at a poster session 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, confirmations of participation in the scope of 5 ECTS-Credits are required by the organising institutions.

§ 9 Academic degree

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

§ 10 Implementation

(1) This curriculum comes into force on 1 October 2009.

(2) Modification of the curriculum published in the University of Innsbruck Bulletin of 06 May 2015, Issue 24, No 384 is effective as of 1 October 2015 and applies to all students.

(3) The changes of the curriculum acc. to the version of the University of Innsbruck Bulletin of 23 July 2020, Issue 43, No. 492 come into effect on 1 October 2020 and are to be applied to all students.