

Appendix

To the Programme Regulations 2006 of the
Master's Degree Programme in Civil Engineering

31 August 2010 (Version: 4 October 2011)

Applies to students who commence the degree programme in Autumn Semester 2012 or later. For those entering the programme in Spring Semester 2012 or earlier the stipulations of the previous Appendix apply.

This is an English translation only. The original German version is the legally binding document.

This appendix sets out the prerequisites for and further details regarding admission to the Master's degree programme in Civil Engineering. It supplements the stipulations of the Admission Regulations of ETH Zurich and the Directive on Admission to Master's Degree Programmes.

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1 Profile of requirements

Policy

For admission to the Master's degree programme in Civil Engineering (subsequently 'the degree programme') all of the following prerequisites must be satisfied.

1.1 Degree qualifications

¹ For admission to the degree programme one of the following is required:

- a. a university Bachelor's degree in Civil Engineering comprising at least 180 ECTS¹ credits or an equivalent university degree in Civil Engineering
- b. a Bachelor's degree in Civil Engineering from a Swiss university of applied sciences comprising at least 180² credits
- c. a university Bachelor's degree comprising at least 180 credits, an equivalent university degree, or a Bachelor's degree from a Swiss university of applied sciences in a discipline other than Civil Engineering which – provided that any pertaining additional requirements can also be completed within the set framework – satisfies the academic prerequisites listed in 1.2.

² A Bachelor's degree qualifies its holder for admission to an ETH Master's degree programme only if it also qualifies said holder to enter, without additional requirements, the desired Master's degree programme within the university system where the Bachelor's degree was acquired. The Rector may also demand proof of this, determining whether such proof must come from the home university or from another university in the country where the Bachelor's degree was acquired.

1.2 Academic prerequisites

¹ Attendance of the Master's degree programme in Civil Engineering presupposes basic knowledge and competences in the disciplines Mathematics, Mechanics and Computer Science which must in content, scope and quality be equivalent to those covered in the ETH Bachelor's degree programme in Civil Engineering (discipline requirements profile).

¹ ECTS: European Credit Transfer System. Credits describe the average time expended to achieve a learning goal. One credit corresponds to 25-30 hours of work.

² A Diploma from a Swiss university of applied sciences is considered equivalent to a Bachelor's degree in the same discipline. A Bachelor's degree from a German or Austrian university of applied sciences is considered equivalent to a Bachelor's degree from a Swiss university of applied sciences.

² The **discipline requirements profile** listed below comprises **156 ECTS credits** in total and is based on knowledge covered in the ETH Zurich Bachelor's degree programme in Civil Engineering. This includes training in the relevant methodological scientific thinking.

³ If an applicant does not completely satisfy the academic prerequisites, admission may be subject to the acquisition of the missing knowledge and skills in the form of additional requirements. Completion of additional requirements is expressed in credits. For further details, see Section 5 below.

⁴ Admission is not possible if the applicant demonstrates academic gaps which are too extensive. For further details, see Sections 2.3 and 3.1 (persons with a university background) and Section 2.4 and 3.2 (persons from a university of applied sciences background) below.

Discipline requirements profile

The discipline requirements profile is structured in three parts. The substance of the course units listed below, which belong to the ETH Bachelor's degree programme in Civil Engineering, is required. Information regarding the content of these course units is published in the Course Catalogue (www.vvz.ethz.ch).

Part 1: Basic knowledge (58 credits)

Part 1 comprises 58 credits and covers basic knowledge from the disciplines Mathematics, Mechanics, Computer Science, Physics, Chemistry and Geology.

- Analysis I (7 credits)
- Analysis II (7 credits)
- Lineare Algebra [Linear Algebra] and Numerische Mathematik [Numerical Analysis] (5 credits)
- Statistik [Statistics] and Wahrscheinlichkeitsrechnung [Probability Theory] (5 credits)
- Mechanik [Mechanics] I (4 credits)
- Mechanik II (4 credits)
- Mechanik III (3 credits)
- Informatik [Informatics] I (5 credits)
- Informatik II (4 credits)
- Physik [Physics] (7 credits)
- Chemie [Chemistry] (3 credits)
- Geologie [Geology] and Petrographie [Petrography] (4 credits)

Part 2: Subject-specific knowledge

Part 2 comprises 82 credits and covers subject-specific knowledge primarily related to the area of Civil Engineering. It is subdivided into 2 areas:

- a. General Civil Engineering knowledge (58 credits):
 - Bauverfahren [Construction Methods] (5 credits)
 - Bodenmechanik [Soil Mechanics] (5 credits)
 - Grundbau [Geotechnical Engineering] (5 credits)
 - Bahninfrastrukturen [Railway Infrastructures] (3 credits)
 - Hydraulik [Hydraulics] (5 credits)
 - Wasserbau [Hydraulic Engineering] (5 credits)
 - Werkstoffe [Materials] I and II (6 credits)
 - Baustatik [Structural Analysis] I (5 credits)
 - Baustatik II (4 credits)
 - Stahlbau [Steel Structures] I (5 credits)
 - Stahlbeton [Structural Concrete] I (5 credits)
 - Untertagbau [Tunnelling] (3 credits)
 - Strassenverkehrssysteme [Road Transport Systems] (2 credits)

- b. Specialised Civil Engineering knowledge (24 credits):
 - Stahlbau II (4 credits)
 - Stahlbeton II (5 credits)
 - Felsmechanik [Rock Mechanics] (2 credits)
 - Verkehrsplanung [Transport Planning] (3 credits)
 - Hydrologie [Hydrology] (3 credits)
 - Werkstoffe III (5 credits)
 - Projektmanagement [Project Management] (2 credits)

Part 3: Degree-specific knowledge

Part 3 comprises 16 credits and covers knowledge from various areas important for the Master's degree:

- Geodätische Messtechnik GZ [Geodetic Metrology Fundamentals] (6 credits)
- Systems Engineering (4 credits)
- Betriebswirtschaftslehre [Business Administration] (2 credits)
- Grundzüge des Rechts für Bauwissenschaften und Architektur [Introduction to Law for Civil Engineering and Architecture] (2 credits)
- Öffentliches Baurecht [Public Construction Law] (2 credits)

1.3 Language prerequisites

¹ The teaching language of the degree programme is German.

² For admission to the degree programme, proof of sufficient knowledge of German (Level C1³) must be provided.

³ The pertaining language certificates must be submitted by the time of entry to the degree programme at the latest.

2 Specific stipulations for persons holding a Bachelor's degree in Civil Engineering

2.1 Bachelor's degree in Civil Engineering from ETH Zurich or enrolled status in the ETH Zurich Bachelor's degree programme in Civil Engineering

Unconditional admission

¹ Holders of a Bachelor's degree in Civil Engineering der ETH Zürich from ETH Zurich are unconditionally admitted to the degree programme.

Entering the degree programme

² Students of the Bachelor's degree programme in Civil Engineering may enrol in the degree programme directly via www.mystudies.ethz.ch. The admission procedure outlined in Section 4 is dispensed with. Details:

- a. The normal ETH enrolment dates and deadlines apply.
- b. Students may enrol in the programme when the number of credits still required to obtain the Bachelor's degree is 60 or less. Listed below are the course unit categories in the Bachelor's programme where missing credits are admissible, and their permitted number. (In all course unit categories not listed here the full number of required credits must be obtained before enrolment can take place).

| <i>Category</i> | <i>Permitted number of missing credits</i> |
|---------------------------|--|
| Core subjects | 48 credits |
| Electives | 4 credits |
| Compulsory electives GESS | 2 credits |
| Bachelor's thesis | 10 credits |

- c. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

³ The required language level is measured according to the Common European Framework of Reference for Languages (EFR) scale: *The Common European Framework of Reference for Languages*, p. 23f. www.coe.int/t/dg4/linguistic/Source/Framework_EN.pdf

2.2 Bachelor's degree in Civil Engineering from another Swiss university or from an IDEA-League partner university

Unconditional admission

¹ Admission to the degree programme is guaranteed for those holding a Bachelor's degree or equivalent qualification in Civil Engineering from

- a. another Swiss university
- b. an IDEA-League partner university

² Admission is subject to fulfilment of the language prerequisites listed in Section 1.3.

2.3 Bachelor's degree in Civil Engineering from a university outside Switzerland

¹ Students holding a Bachelor's degree or the equivalent in Civil Engineering from a university outside Switzerland must, to be admitted to Master's degree programme, satisfy the academic and language prerequisites set out in Section 1 above.

² Admission may be subject to additional requirements.

³ Admission is not possible if

- a. the language prerequisites have not been satisfied
- b. the number of additional credits required to satisfy the academic prerequisites exceeds
 - 1) 30 credits in total, or
 - 2) 20 credits from Part 1 of the discipline requirements profile (see Section 1.2), or
 - 3) 20 credits from Part 2 of the discipline requirements profile, category 'General Civil Engineering knowledge' (see Section 1.2).

Entering the Master's degree programme

⁴ Candidates who have been granted admission may enter the degree programme only when they have completed the preceding (Bachelor's) degree programme.

2.4 Bachelor's degree in Civil Engineering from a Swiss university of applied sciences

¹ Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Civil Engineering from a Swiss university of applied sciences, as long as

- a. the final Bachelor's degree grade is at least a 5 [according to the Swiss grading system, which involves grades from 1 (lowest) to 6 (highest)],⁴ and
- b. the language prerequisites set out in Section 1.3 are satisfied.

² Admission is always subject to the acquisition of missing specialist and methodological knowledge via additional study achievements comprising at least 40 credits.

³ The additional requirements to be fulfilled by candidates are structured in the following two parts:

Part 1: Standard additional requirements

To fulfil Part 1 of the standard additional requirements 12 credits from the following course units must be acquired. Details regarding the content of these course units, which belong to the curriculum of the ETH Bachelor's degree programme in Civil Engineering, are published in the Course Catalogue (www.vvz.ethz.ch).

- Lineare Algebra [Linear Algebra] and Numerische Mathematik [Numerical Mathematics] (5 credits)
- Mechanik [Mechanics] II (4 credits)
- Mechanik III (3 credits)

Part 2: Supplementary additional requirements

To fulfil Part 2 of the standard additional requirements 28 credits must be acquired from course units which are determined according to the candidate's chosen specialisation.

Entering the Master's degree programme

⁴ Candidates who have been granted admission may enter the degree programme only when they have completed the preceding (Bachelor's) degree programme.

⁴ The total grade is always calculated by ETH Zurich. The method of computation used, and other details such as how letter grades are transposed, are stipulated in the Directive on Admission to Master's Degree Programmes.

3 Specific stipulations for persons holding a Bachelor's degree in a discipline other than Civil Engineering

3.1 University Bachelor's degree or enrolled status in an ETH Zurich Bachelor's degree programme

¹ The following persons may also be admitted to the Master's degree programme if they can satisfy the academic and language prerequisites listed in Section 1 above within the given framework and have also demonstrated very good study performance in the Bachelor's degree programme:

- a. holders of a university Bachelor's degree or the equivalent in a discipline other than Civil Engineering
- b. students enrolled in an ETH Bachelor's degree programme in a discipline other than Civil Engineering

² Admission may be subject to additional requirements.

³ Admission is not possible if

- a. the language or performance prerequisites have not been satisfied
- b. the number of additional credits required to satisfy the academic prerequisites exceeds
 - 1) 30 credits in total, or
 - 2) 20 credits from Part 1 of the academic prerequisites (see Section 1.2), or
 - 3) 20 credits from category (a) 'General Civil Engineering knowledge' in Part 2 of the discipline requirements profile (see Section 1.2).

3.2 Bachelor's degree from a Swiss university of applied sciences

¹ Persons holding a Bachelor's degree from a Swiss university of applied sciences in a discipline other than Civil Engineering may also be admitted to the Master's degree programme if they can satisfy the academic and language prerequisites listed in Section 1 above within the given framework and have also demonstrated very good study performance in the Bachelor's degree programme.

² Admission is always subject to the acquisition of missing specialist and methodological knowledge via additional study achievements comprising at least 40 credits.

³ Admission is not possible if

- a. the language or performance prerequisites have not been satisfied
- b. the number of additional credits required to satisfy the academic prerequisites exceeds 60.

3.3 Entering the Master's degree programme

¹ The following stipulations regarding entry to the Master's degree programme apply to students from an ETH Bachelor's degree programme (other than Civil Engineering) who have been granted admission:

- a. They can enrol in the programme once they have acquired that number of credits which would qualify them to enrol in the Master's degree programme consecutive to their original subject.⁽⁵⁾
- b. The normal ETH enrolment dates and deadlines apply.
- c. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

² All other candidates who have been granted admission may enter the Master's degree programme only when they have completed the preceding (Bachelor's) degree programme.

4 Application and admission procedure

¹ All interested parties – with the exception of matriculated ETH Zurich students from the Bachelor's degree programme in Civil Engineering – must submit an application for admission to the degree programme. The specifications for application, in particular the documents required and the dates/deadlines for submission, are published on the website of the ETH Zurich Admissions Office (www.admission.ethz.ch).

² Application may be made even if the required preceding degree has not yet been issued.

³ Applications will not be considered if

- a. they are submitted late or in improper form; and/or
- b. the pertaining fees are not paid.

⁴ The admissions committee of the degree programme determines how far the background of the candidate corresponds to the requirements profile and submits an application for admission/rejection via the Director of Studies.

⁵ On the basis of this application, the Rector makes the final decision regarding admission/rejection.

⁶ The candidate receives a written admissions decision which includes relevant information concerning any additional admission requirements.

⁵ The permitted number of missing credits is set out in the Programme Regulations of the respective consecutive Master's degree programme (e.g., B.Sc. Physics > M.Sc. Physics).

5 Fulfilling additional admission requirements

5.1 General regulations

¹ Candidates who are admitted subject to the fulfilment of additional requirements must acquire the required additional knowledge and competences before or during the Master's programme via self-study or by attending classes. The corresponding individual performance assessments must take place by set deadlines.

² If the candidate fails said performance assessments or does not respect the set deadlines he/she will be regarded as having failed the programme and will be excluded from it.

³ The deadlines and conditions for undergoing said performance assessments depend upon the background of the candidate (see Sections 5.2 and 5.3 below).

5.2 Candidates with a university Bachelor's degree

¹ Candidates holding a university Bachelor's degree must undertake all of the performance assessments pertaining to the additional admission requirements in the areas of 'basic knowledge' and 'subject-specific knowledge' (Section 1.2, Parts 1 and 2) by the end of the first year of the Master's programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within 18 months of the start of the Master's programme at the latest.

² A pass grade in each individual performance assessment is required.

³ A failed performance assessment may only be repeated once.

⁴ The student may only commence work on the Master's thesis when all additional requirements have been fulfilled.

5.3 Candidates with a Bachelor's degree from a Swiss university of applied sciences

¹ Candidates holding a Bachelor's degree from a Swiss university of applied sciences must undertake all of the performance assessments pertaining to the additional admission requirements in the areas of 'basic knowledge' and 'subject-specific knowledge' (Section 1.2, Parts 1 and 2) by the end of the first year of the Master's programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within two years of the start of the Master's programme at the latest.

² The performance assessments may be undertaken as examination blocks. A pass grade in the examination block is achieved if the average of the individual grades is at least a 4.

³ A failed performance assessment or a failed examination block may only be repeated once. Repeating an examination block entails repeating all of the performance assessments belonging to it.

⁴ The student may only commence work on the Master's thesis when all additional requirements have been fulfilled.