Appendix 2

To the Programme Regulations 2020 of the
Master's degree programme in Computer Science

29 October 2019 (Version: 29 October 2019)

Applies to students who commence or re-enter the degree programme in Autumn Semester 2020 or later.

This English translation is for information purposes only. The German version is the legally binding document.

Subject and scope

This appendix sets out the academic and language prerequisites for and further details regarding admission to the Master's degree programme in Computer Science. 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 Computer Science (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 Computer Science comprising at least 180 ECTS credits[1] or an equivalent university degree in Computer Science

b. a Bachelor's degree in Computer Science from a Swiss university of applied sciences[2] comprising at least 180 credits

c. a university Bachelor's degree in a discipline other than Computer Science comprising at least 180 ECTS credits or an equivalent university degree which – provided that any pertaining additional requirements can be completed within the set framework – satisfies the academic prerequisites listed in Section 1.2. Said disciplines include, in particular (listed alphabetically):
   - Electrical Engineering (and Information Technology)
   - Mathematics
   - Mechanical Engineering
   - Physics

[1] ECTS: European Credit Transfer System. Credits describe the average time expended to achieve a learning goal. One credit corresponds to 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] 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 Computer Science presupposes basic knowledge and skills in the disciplines Mathematics and Computer Science which must in content, scope, quality and skill level be equivalent to those covered at ETH Zurich (discipline requirements profile).

[2] The **discipline requirements profile** comprises **75 ECTS credits** in total and is based on knowledge and skills covered in the ETH Bachelor's degree programme in Computer Science. This includes training in the relevant methodological scientific thinking. Details are set out in Para. 5 below.

[3] If a candidate 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 4 below.

[4] Admission to the degree programme is not possible if the academic gaps in the candidate's background are too extensive. For further details, see the Sections below.

[5] The **discipline requirements profile** is structured in the two parts set out below. Details regarding the content of these course units from the ETH Bachelor's degree programme in Computer Science are published in the ETH course catalogue (www.courses.ethz.ch).

Part 1: Basic knowledge and skills (59 credits)

Part 1 comprises 59 credits and covers basic knowledge and skills from the disciplines Mathematics and Computer Science. The substance of the following course units is required:

Mathematics (31 credits)

- Analysis I and II (12 credits)
  [*Analysis I und II*]
- Discrete Mathematics (7 credits)
  [*Diskrete Mathematik*]
- Linear Algebra (7 credits)
  [*Lineare Algebra*]
- Probability and Statistics (5 credits)
  [*Wahrscheinlichkeit und Statistik*]

Computer Science (28 credits)

- Data Structures and Algorithms (7 credits)
  [*Datenstrukturen und Algorithmen*]
- Formal Methods and Functional Programming (7 credits)
  [*Formale Methoden und Funktionale Programmierung*]
- Algorithms and Probability (7 credits)
  [*Algorithmen und Wahrscheinlichkeit*]
- Theoretical Computer Science (7 credits)
  [*Theoretische Informatik*]

Part 2: Subject-specific knowledge and skills (16 credits)

Part 2 comprises 16 credits and covers knowledge primarily related to the chosen specialisation in the Master's degree programme.

1.3 Language prerequisites

[1] The teaching language of the degree programme is English.

[2] For admission to the degree programme, proof of sufficient knowledge of English (level C1)([3] must be provided.

[3] Applicants to the degree programme who hold a Bachelor's degree from a university of applied sciences must, according to the pertaining additional requirements, also supply proof of sufficient knowledge of German (level C1).

[4] The required language certificates must be submitted by the application deadline. The ETH Zurich publishes a list of the language certificates accepted.

2 Specific stipulations for admission and entering the degree programme

2.1 Specific stipulations for admission to the degree programme

2.1.1 Candidates with a Bachelor's degree in Computer Science from ETH Zurich

Unconditional admission

The following persons are guaranteed unconditional admission to the degree programme:

a. Holders of a Bachelor's degree in Computer Science from ETH Zurich

b. Students enrolled in this ETH Zurich Bachelor's degree programme

[3] The required language level is measured according to the Common European Framework of Reference for Languages scale (CEFR)

2.1.2 Candidates with a Bachelor's degree in Computer Science from another Swiss university

Admission

[1] Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Computer Science from another Swiss university as long as this degree was a one-subject degree involving at least 180 credits.

[2] Admission is subject to fulfilment of the language prerequisites set out in section 1.3 above.

[3] Admission may be subject to additional requirements.

2.1.3 Candidates with a Bachelor's degree in Computer Science from a university outside Switzerland

[1] Holders of a Bachelor's degree or the equivalent in Computer Science from a university outside Switzerland must satisfy all of the academic and language prerequisites listed in Section 1.2 and 1.3 above for admission to the degree programme.

[2] Admission may be subject to additional requirements.

[3] Admission is not possible if any of the following apply

a. the language prerequisites are not satisfied
b. the content, scope, quality and skill level of the degree are not equivalent to those at ETH Zurich
c. the number of additional credits required to satisfy the academic prerequisites (listed in Section 1.2 above) exceeds
    1. 30 credits in total, or
    2. 15 credits from Part 1 of the discipline requirements profile

2.1.4 Candidates with a Bachelor's degree in Computer Science from a Swiss university of applied sciences

[1] Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Computer Science 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]
b. the language prerequisites set out in Section 1.3 above are satisfied

[2] Admission is always subject to the compensation of missing academic and methodological knowledge and skills with additional study achievements comprising 47 credits.

[4] The method of computation of the final grade is stipulated in the Directive on Admission to Master's Degree Programmes (www.directives.ethz.ch).

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

Part 1 of the additional requirements: Compulsory courses (26 credits)

Part 1 comprises 26 credits and stipulates the completion of the following compulsory courses from the disciplines Mathematics and Computer Science. The corresponding examinations are integrated into two examination blocks:

Examination block 1 (14 credits, Autumn Semester)

- Data Structures and Algorithms (7 credits) [*Datenstrukturen und Algorithmen*]
- Theoretical Computer Science (7 credits) [*Theoretische Informatik*]

Examination block 2 (12 credits, Spring Semester)

- Algorithms and Probability (7 credits) [*Algorithmen und Wahrscheinlichkeit*]
- Probability and Statistics (5 credits) [*Wahrscheinlichkeit und Statistik*]

Part 2 of the additional requirements: Electives (21 credits)

Part 2 comprises 21 credits and stipulates the completion of courses from the disciplines Mathematics and Computer Science. Each individual examination must be sat and passed individually; their integration into an examination block is not allowed.

Mathematics (14 credits)

The completion of two out of the following three course units is required:

- Analysis I (7 credits) [*Analysis I*]
- Discrete Mathematics (7 credits) [*Diskrete Mathematik*]
- Linear Algebra (7 credits) [*Lineare Algebra*]

Computer Science (7 credits)

The completion of one out of the following three course units is required:

- Data Modelling and Data Bases (7 credits) [*Datenmodellierung und Datenbanken*]
- Formal Methods and Functional Programming (7 credits) [*Formale Methoden und Funktionale Programmierung*]
- Computer Networks (7 credits) [*Computer Netzwerke*]

2.1.5 Candidates with a university Bachelor's degree in a discipline other than Computer Science

[1] Holders of a university Bachelor's degree or the equivalent in a discipline other than Computer Science may be admitted to the degree programme if they can satisfy all of the following prerequisites

a. the academic requirements set out in Section 1.2 above are satisfied within the given framework
b. the language prerequisites set out in Section 1.3 above are satisfied
c. a very good academic performance during the Bachelor's degree studies

[2] Admission may be subject to additional requirements.

[3] Admission is not possible if any of the following apply

a. the language prerequisites are not satisfied
b. the performance prerequisites are not satisfied
c. the content, scope, quality and skill level of the degree are not equivalent to those at ETH Zurich
d. the number of additional credits required to satisfy the academic prerequisites (listed in Section 1.2 above) exceeds 30 credits

2.2 Specific stipulations for entering the degree programme

2.2.1 Candidates with an ETH Bachelor's degree in Computer Science

[1] Students of the ETH Zurich Bachelor's degree programme in Computer Science may enrol in the degree programme directly via *www.mystudies.ethz.ch*. The admission procedure outlined in Section 3 is waived. Further details:

a. The normal ETH enrolment dates and deadlines apply.
b. Students may enrol directly in the degree programme, as long as only a certain number of credits for the Bachelor's degree are pending. Listed in 1) and 2) below are the course unit categories in the Bachelor's degree programme where missing credits are admissible, and their permitted number.

1) Students whose programmes are subject to the Bachelor **Programme Regulations 2008**[5] may enrol on condition that **only 21 credits** are pending. Details:

Category	***Permitted number of missing credits***
− Electives from the major	15
− Science in Perspective (GESS Compulsory electives)	6

2) Students whose programmes are subject to the Bachelor **Programme Regulations 2016**[6] may enrol on condition that they have acquired at least **152 credits** in total in the following course unit categories. Details:

[5] RSETHZ **323.1.1600.11**
[6] RSETHZ **323.1.1600.12**

Category	*Minimal number of required credits*
− First Year Courses	56
− Basic Courses and Core Courses	84
− Seminar	2
− Bachelor's Thesis	10

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.

2.2.2 Candidates with an ETH Bachelor's degree in a discipline other than Computer Science

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

a. The normal ETH enrolment dates and deadlines apply.

b. 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.[7]

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.

2.2.3 Candidates with a Bachelor's degree from another university

Non-ETH graduates who have been granted admission may only begin the degree programme when they have completed the previous (Bachelor's) degree programme.

3 Application and admission procedure

[1] All candidates – with the exception of matriculated ETH Zurich students from the Bachelor's degree programme in Computer Science – must submit an application for admission to the degree programme. The binding specifications for application, in particular the documents required and the submission dates/deadlines, 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.

[7] The permitted number of missing credits is set out in the Programme Regulations of the respective consecutive Master's degree programme (e.g., BSc Mathematics → MSc Mathematics).

[3] Applications will not be considered if

a. they are submitted late or not in the correct form, or

b. the relevant fees have not been paid.

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

[5] On the request of the Director of Studies the Rector makes the final decision regarding admission or rejection.

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

4 Fulfilling additional admission requirements

4.1 General regulations

[1] Candidates who are admitted subject to the fulfilment of additional requirements must acquire the required additional knowledge and skills before or during the Master's degree 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 4.2 and 4.3 below).

4.2 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 by the end of the first year of the Master's degree programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within 18 months of the start of the Master's degree 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.

4.3 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 by the end of the first year of the Master's degree programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within two years of the start of the Master's degree programme at the latest.

[2] Session examinations may be combined in examination blocks. The examinations belonging to one examination block must always be undertaken during the same examination session.

[3] A pass grade in the examination block is achieved if the average of the individual grades is at least a 4.

[4] A failed performance assessment or a failed examination block may be repeated once. Repeating an examination block entails repeating all of the examinations belonging to it.