

## Appendix 1

To the Programme Regulations 2024 of the  
Master's degree programme in Computational Science and Engineering (CSE)  
12.10.2023 (Version: 12.10.2023)

Applies to students who commence or re-enter the degree programme in Autumn Semester 2024 or later.

This English translation is for information purposes 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 CSE. It supplements the stipulations of the Admission Regulations of ETH Zurich<sup>1</sup> and the Directive on Admission to Master's degree programmes<sup>2</sup>.

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<sup>1</sup> SR 414.131.52

<sup>2</sup> [www.directives.ethz.ch](http://www.directives.ethz.ch)

# 1 Profile of requirements

## Policy

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

## 1.1 Degree qualifications

<sup>1</sup> For admission to the degree programme one of the following is required:

- a. a university Bachelor's degree comprising at least 180 ECTS credits or an equivalent university degree
- b. a Bachelor's degree from a Swiss university of applied sciences<sup>3</sup> comprising at least 180 ECTS credits

in a discipline in the context of which the academic prerequisites have been satisfied.

<sup>2</sup> ETH Zurich may also demand written proof from applicants that their Bachelor's degree qualifies them to enter the Master's degree programme consecutive to it at their home universities or at a university in the country where said Bachelor's degree was acquired.

## 1.2 Academic prerequisites

### 1.2.1 Knowledge and competences

<sup>1</sup> Attendance of the Master's degree programme in CSE presupposes basic knowledge and competences in Mathematics, Computer Science and applied areas of Natural Sciences and Engineering which are in content, scope and quality equivalent to those covered in the ETH Bachelor's degree programme in CSE.

<sup>2</sup> The **discipline requirements profile** comprises **100 ECTS credits** in total and is based on knowledge and competences covered in the ETH Bachelor's degree programme in CSE. This includes training in the relevant methodological scientific thinking.

<sup>3</sup> The discipline requirements profile is structured in three parts. The substance of the following course units from the ETH Bachelor's degree programme in CSE is required. Information regarding the content of these course units is published in the course catalogue ([www.vvz.ethz.ch](http://www.vvz.ethz.ch)).

#### **Part 1: Basic knowledge and competences (67 ECTS credits)**

Part 1 comprises 67 ECTS credits and covers basic knowledge, as follows:

- Analysis I und II [Analysis I and II]
- Lineare Algebra [Linear Algebra]
- Informatik [Computer Science]

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<sup>3</sup> 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.

- Datenstrukturen und Algorithmen [Algorithms and Data Structures]
- Physik I und II [Physics I and II]
- Programmier Techniken [Programming Techniques]
- Numerische Methoden [Numerical Methods]
- Stochastik [Stochastics]
- Two lectures in a specialisation

**Part 2: Subject-specific knowledge and competences (12 ECTS credits)**

For Part 2 a total of 12 ECTS credits must be acquired from at least 3 of the following course units:

- Analysis III [Analysis III]
- Systems Programming and Computer Architecture
- Optimierungstechniken [Introduction to Optimization]
- Fluidodynamik [Fluid Dynamics]
- Chemie [Chemistry]
- Statistische Physik [Statistical Physics]
- Quantenmechanik [Quantum Mechanics]

**Part 3: Core knowledge (21 ECTS credits)**

Part 3 comprises 21 ECTS credits and covers knowledge and competences essential for the Master's degree.

- Numerical Methods for Partial Differential Equations
- High Performance Computing for Science and Engineering
- Software Engineering

**1.2.2 Admission with additional requirements**

<sup>1</sup> If the academic prerequisites listed in 1.2.1 are not completely satisfied, admission may be granted subject to the acquisition of the missing knowledge and competences in the form of additional ECTS credits (admission with additional requirements).

<sup>2</sup> The candidate must provide proof of the acquisition of the additional knowledge and competences required by passing the pertaining performance assessments by set deadlines.

<sup>3</sup> If the candidate fails said performance assessments or does not respect the set deadlines she/he will be regarded as having failed the degree programme and will be excluded from it.

### 1.3 Language prerequisites

<sup>1</sup> The teaching language of the degree programme is English.

<sup>2</sup> For admission to the degree programme, proof of sufficient knowledge of English (level C1<sup>4</sup>) must be provided.

<sup>3</sup> 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).

<sup>4</sup> 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 Bachelor's degree in CSE from ETH Zurich

#### Unconditional admission

Holders of a Bachelor's degree in CSE from ETH Zurich are unconditionally admitted to the degree programme.

#### Registration

Students of the Bachelor's degree programme in CSE already matriculated at ETH Zurich should enrol in the degree programme directly via [www.mystudies.ethz.ch](http://www.mystudies.ethz.ch). The admission procedure outlined in Section 3 is dispensed with.

#### Entering the Master's degree programme

<sup>1</sup> For all Bachelor's degree students already matriculated at ETH Zurich who progress to the ETH Master's degree programme, the following applies:

- a. The normal ETH enrolment dates and deadlines apply.
- b. 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.

<sup>2</sup> Students of the ETH Bachelor's degree programme in CSE may enrol directly in the programme, as long as

- a. a total of only 30 ECTS credits maximum towards the Bachelor's degree are pending
- b. the minimum number of ECTS credits required for the Bachelor's degree in the Bachelor's degree programme categories 'First-Year Subjects' and 'Basic Subjects' have been acquired.

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<sup>4</sup> The required language level is measured according to the Common European Framework of Reference for Languages scale (CEFR).

## 2.2 Bachelor's degree in another discipline

### 2.2.1 General regulations

#### Application

Interested parties who hold a qualifying Bachelor's degree in a discipline other than CSE should apply for the programme via the ETH Zurich Admissions Office, and are subject to the admissions procedure set out in Section 3.

### 2.2.2 Bachelor's degree from ETH Zurich

#### Admission

<sup>1</sup> For admission to the programme all the prerequisites set out in Section 1 must be satisfied. Very good performance in the preceding course of studies is also required.

<sup>2</sup> Admission may be subject to additional requirements.

<sup>3</sup> Admission is not possible if more than 30 additional ECTS credits must be acquired in order to satisfy the academic prerequisites.

#### Entering the Master's degree programme

<sup>1</sup> For all Bachelor's degree students who are already matriculated at ETH Zurich and who progress to an ETH Master's degree programme, the following applies:

- a. The normal ETH enrolment dates and deadlines apply.
- b. 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.

<sup>2</sup> Students from an ETH Bachelor's degree programme who have been granted admission can enrol in the programme once they have acquired that number of ECTS credits which would qualify them to enrol in the Master's degree programme consecutive to their original subject<sup>5</sup>.

### 2.2.3 Bachelor's degree from another university

#### Admission

<sup>1</sup> For admission to the programme all the prerequisites set out in Section 1 must be satisfied. Very good performance in the preceding course of studies is also required.

<sup>2</sup> Admission may be subject to additional requirements.

<sup>3</sup> Admission is not possible if more than 30 additional ECTS credits must be acquired in order to satisfy the academic prerequisites.

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<sup>5</sup> The permitted number of missing ECTS credits is set out in the programme regulations of the respective consecutive Master's degree programme (e.g., BSc Physics > MSc Physics).

## Entering the Master's degree programme

Candidates who have been granted admission can enter the programme when they have completed the preceding Bachelor's degree programme.

### 2.2.4 Bachelor's degree from a Swiss university of applied sciences

#### Admission

<sup>1</sup> For admission to the programme all the prerequisites set out in Section 1 must be satisfied. Very good performance in the preceding course of studies is also required.

<sup>2</sup> Admission is always subject to the acquisition of additional study achievements comprising at least 40 and at most 60 ECTS credits.

<sup>3</sup> Admission is not possible if the number of additional ECTS credits required to satisfy the academic prerequisites exceeds 60.

## Entering the Master's degree programme

Candidates who have been granted admission can enter the programme when they have completed the preceding Bachelor's degree programme.

## 3 Application and admission procedure

<sup>1</sup> All interested parties – with the exception of matriculated ETH Zurich students from the Bachelor's degree programme in CSE – 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](http://www.admission.ethz.ch)).

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

<sup>3</sup> The admissions committee of the degree programme determines how far the background of the candidate corresponds to the profile of requirements. The Chair of the admissions committee<sup>6</sup> formulates and submits an application for admission/rejection to the Rector.

<sup>4</sup> On the basis of this application the Rector makes the final decision regarding admission without additional requirements, admission with additional requirements, or rejection.

<sup>5</sup> The candidate receives a written admissions decision which includes relevant information concerning any additional admission requirements.

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<sup>6</sup> The Chair of the admissions committee must be an ETH Zurich professor.

## **4 Fulfilling additional admission requirements**

### **4.1 General regulations**

<sup>1</sup> 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.

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

<sup>3</sup> The deadlines and conditions for undergoing said performance assessments depend upon the background of the candidate.

### **4.2 University Bachelor's degree**

<sup>1</sup> 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 programme at the latest. All additional requirements, including any assessment repetitions, must be fulfilled within one and a half years after the start of the Master's programme at the latest.

<sup>2</sup> A pass grade in each individual performance assessment is required.

<sup>3</sup> A failed performance assessment may be repeated once.

### **4.3 Bachelor's degree from a Swiss university of applied sciences**

<sup>1</sup> 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 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.

<sup>2</sup> 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.

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