

## Appendix 1

To the Programme Regulations 2018 of the  
Master's degree programme in Electrical Engineering and Information Technology

31.10.2017 (Version: 01.10.2020)

*Applies to students who commence or re-enter the degree programme in Autumn Semester 2021 or later.*

*The special provisions set out in section 2.2.1, Para. 2 below also apply.*

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

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### Subject and scope

This appendix sets out the academic, language and performance prerequisites for and further details regarding admission to the Master's degree programme in Electrical Engineering and Information Technology. 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 Electrical Engineering and Information Technology (subsequently «the degree programme») all of the following prerequisites must be satisfied.

**1.1 Degree qualifications**

<sup>1</sup> Admission to the degree programme presupposes a university Bachelor's degree comprising at least 180 ECTS<sup>1</sup> credits, an equivalent university degree, or a Bachelor's degree from a Swiss university of applied sciences<sup>2</sup> in a discipline the content of which – also with regard to any additional academic requirements within the given framework – satisfies the pertaining academic prerequisites.

<sup>2</sup> 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.

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

<sup>2</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.

## 1.2 Academic prerequisites

<sup>1</sup> Attendance of the Master's degree programme in Electrical Engineering and Information Technology presupposes basic knowledge and skills which must in content, scope, quality and skill level be equivalent to those covered at ETH Zurich (discipline requirements profile).

<sup>2</sup> The **discipline requirements profile** comprises **134 credits** in total and includes the significant knowledge and skills covered in the ETH Bachelor's degree programme in Electrical Engineering and Information Technology, including the corresponding methodological scientific thinking skills. Details are set out in Para. 5 below.

<sup>3</sup> 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 4 below.

<sup>4</sup> 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.

<sup>5</sup> The **discipline requirements profile** is structured in three parts set out below. Details regarding the content of the corresponding course units are published in the ETH Course Catalogue ([www.courses.ethz.ch](http://www.courses.ethz.ch)).

### Part 1: Basic knowledge and skills (104 credits)

Part 1 comprises 104 credits and covers basic knowledge. The substance of the following course units is required:

*Mathematics* (40 credits):

- Analysis I-III
- Discrete Mathematics
- Mathematical Methods<sup>3</sup>
- Linear Algebra
- Numerical Methods
- Probability Theory and Statistics

*Physics* (16 credits):

- Physics I-II
- Engineering Mechanics

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<sup>3</sup> Renaming of the course unit from «Complex Analysis» to «Mathematical Methods» as of spring semester 2025.

***Electrical Engineering*** (36 credits):

- Digital Circuits
- Electromagnetic Fields and Waves
- Semiconductor Devices
- Electronic Circuits
- Networks and Circuits I-II
- Signals and Systems I-II

***Computer Science*** (12 credits):

- Computer Science I-II
- Computer Engineering

**Part 2: Specialisation (18 credits)**

Part 2 comprises at least 18 credits from at least 3 of the following third year core courses. The substance of the following course units is required:

- Advanced Electromagnetic Waves
- Analog Integrated Circuits
- Communication and Detection Theory
- Communication Electronics
- Communication Networks
- Discrete Event Systems
- Embedded Systems
- Introduction to Electric Power Transmission
- High-Speed Signal Propagation
- High Voltage Engineering
- Communication Systems
- Power Electronics
- Optics and Photonics
- Power Semiconductors
- Control Systems
- Solid State Electronics and Optics
- VLSI I: From Architecture to VLSI Circuits and FPGAs
- Discrete-Time and Statistical Signal Processing

**Part 3: Independent project work (12 credits)**

Another requirement is the ability to conduct independent project work; here 12 credits must be earned in the framework of one or more Bachelor's degree projects.

### **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 (see Section 2.1.4), 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 Specific stipulations for admission to the degree programme**

#### **2.1.1 Candidates with a Bachelor's degree in Electrical Engineering and Information Technology from ETH Zurich**

##### *Unconditional admission*

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

- a. Holders of a Bachelor's degree in Electrical Engineering and Information Technology from ETH Zurich
- b. Students enrolled in this ETH Zurich Bachelor's degree programme

#### **2.1.2 Candidates with a Bachelor's degree in Génie Electrique et Electronique from EPF Lausanne**

##### *Admission*

<sup>1</sup> Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Génie Electrique et Electronique from EPF Lausanne.

<sup>2</sup> Admission is subject to fulfilment of the language prerequisites set out in section 1.3 above.

<sup>3</sup> Admission may be subject to additional requirements.

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

### **2.1.3 Candidates with a Bachelor's degree in Electrical Engineering and Information Technology from a university outside Switzerland**

<sup>1</sup> Holders of a Bachelor's degree or the equivalent in Electrical Engineering and Information Technology 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.

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

<sup>3</sup> Admission is not possible if any of the following apply

- a. the language prerequisites are not satisfied
- b. the content, scope, quality and skills level of the degree are not equivalent to those at ETH Zurich
- c. the number of additional credits required to satisfy the academic prerequisites exceeds
  1. 30 credits in total; or
  2. 12 credits from Part 1 of the academic prerequisites (see Section 1.2 above).

### **2.1.4 Candidates with a Bachelor's degree in Electrical Engineering from a Swiss university of applied sciences**

<sup>1</sup> Holders of a Bachelor's degree in Electrical Engineering from a Swiss university of applied sciences 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. 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])<sup>5</sup>.

<sup>2</sup> Admission is always subject to the compensation of missing academic and methodological knowledge with additional study achievements comprising at least 40 credits.<sup>6</sup>

<sup>3</sup> Admission is not possible if any of the following apply

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

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<sup>5</sup> The method of computation of the final grade is stipulated in the Directive on Admission to Master's Degree Programmes ([www.directives.ethz.ch](http://www.directives.ethz.ch)).

<sup>6</sup> The additional requirements are published on the D-ITET website ([www.ee.ethz.ch](http://www.ee.ethz.ch)).

### **2.1.5 Candidates with a university Bachelor's degree in a discipline other than Electrical Engineering and Information Technology**

<sup>1</sup> Holders of a university Bachelor's degree or the equivalent in a discipline other than Electrical Engineering and Information Technology 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

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

<sup>3</sup> Admission is not possible if any of the following apply

- a. the language or performance prerequisites are not satisfied
- b. the content, scope, quality and skills level of the degree are not equivalent to those at ETH Zurich
- c. the number of additional credits required to satisfy the academic prerequisites exceeds
  1. 30 credits in total; or
  2. 12 credits from Part 1 of the academic prerequisites (see Section 1.2 above).

## **2.2 Specific stipulations for entering the degree programme**

### **2.2.1 Candidates with an ETH Bachelor's degree in Electrical Engineering and Information Technology**

<sup>1</sup> Students of the ETH Zurich Bachelor's degree programme in Electrical Engineering and Information Technology may enrol in the degree programme directly via [www.mystudies.ethz.ch](http://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. Enrolment is possible as soon as only a maximum of 30 credits towards the Bachelor's degree are pending and the number of credits required for the Bachelor's degree in the categories 'First-year subjects' and 'Examination block subjects' have been obtained. This stipulation applies to all students who are subject to the Bachelor's degree Programme Regulations of 2012, 2016 or 2018<sup>7</sup>.
- 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.

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<sup>7</sup> RSETHZ 324.1.0350.10 / RSETHZ 324.1.0350.11 / RSETHZ 324.1.0350.11

<sup>2</sup> Transitional provision according to Art. 38, Para. 3 of the Programme Regulations: Students in the ETH Bachelor's degree programme in Electrical Engineering and Information Technology who are subject to the Programme Regulations 2012<sup>8</sup> or 2016<sup>9</sup> may, when progressing to Master's degree studies, choose whether they wish to obtain the degree according to the 2018 Programme Regulations (120 credits) or according to those of 2008<sup>10</sup> (90 credits). This choice is not open to students who leave ETH after their Bachelor's degree studies.

### **2.2.2 Candidates with an ETH Bachelor's degree in a discipline other than Electrical Engineering and Information Technology**

The following stipulations regarding entry to the Master's degree programme apply to students from an ETH Zurich Bachelor's degree programme (other than Electrical Engineering and Information Technology) 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.<sup>11</sup>
- 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.

### **2.2.3 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**

<sup>1</sup> All candidates – with the exception of matriculated ETH Zurich students from the Bachelor's degree programme in Electrical Engineering and Information Technology – 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](http://www.admission.ethz.ch)).

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

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<sup>8</sup> RSETHZ 323.1.0350.10

<sup>9</sup> RSETHZ 323.1.0350.11

<sup>10</sup> RSETHZ 324.1.0350.11

<sup>11</sup> The permitted number of missing credits is set out in the Programme Regulations of the respective consecutive Master's degree programme (e.g., BSc Physics → MSc Physics).



<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> On the request of the Director of Studies the Rector makes the final decision regarding admission or rejection.

<sup>6</sup> 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**

<sup>1</sup> 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.

<sup>2</sup> 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.

<sup>3</sup> 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**

<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 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.

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

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

### **4.3 Candidates with a 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 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.

<sup>2</sup> Session examinations may be combined in examination blocks. The examinations belonging to one examination block must always be undertaken during the same examination session.

<sup>3</sup> A pass grade in the examination block is achieved if the average of the individual grades is at least a 4.

<sup>4</sup> 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.