

Appendix

To the Programme Regulations 2008 of the
Master's degree programme in Electrical Engineering and Information Technology

31 August 2010 (Version: 1 November 2011)

Applies to students who commence the degree programme in Autumn Semester 2011 or later. For those entering the programme before Autumn Semester 2011 the stipulations of the previous Appendix apply.

This appendix sets out the 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

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

- a. a university Bachelor's degree in Electrical Engineering and Information Technology comprising at least 180 ECTS⁽¹⁾ credits or an equivalent university degree in Electrical Engineering and Information Technology
- b. a Bachelor's degree in Electrical Engineering from a Swiss university of applied sciences comprising at least 180 ECTS⁽²⁾ credits
- c. a university Bachelor's degree comprising at least 180 ECTS credits, an equivalent university degree, or a Bachelor's degree from a Swiss university of applied sciences comprising at least 180 ECTS credits in a discipline whose content covers 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 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.

1.2 Academic prerequisites

1.2.1 Knowledge and competences

¹ Attendance of the Master's degree programme in Electrical Engineering and Information Technology presupposes basic, subject-specific and methodological knowledge and competences which must in content, scope and quality be equivalent to those covered in the ETH Bachelor's degree programme in Electrical Engineering and Information Technology (discipline requirements profile).

² The **discipline requirements profile** comprises **146 ECTS credits** in total and is based on knowledge and competences covered in the ETH Bachelor's degree programme in Electrical Engineering and Information Technology. This includes training in the relevant methodological scientific thinking.

³ The discipline requirements profile is structured in the following three parts. Details regarding the content of the corresponding course units, which come from the ETH Zurich Bachelor's degree programme in Electrical Engineering and Information Technology, are published in the course catalogue (www.vvz.ethz.ch).

Part 1: Basic knowledge and competences (110 credits)

Part 1 comprises 110 ECTS credits and covers basic knowledge from the disciplines Mathematics, Physics, Electrical Engineering and Computer Science. The substance of the following course units is required:

Mathematics (35 ECTS credits):

- Analysis I - III
- Komplexe Analysis [Complex Analysis]
- Lineare Algebra [Linear Algebra]
- Numerische Methoden [Numerical Methods]
- Wahrscheinlichkeitstheorie und Statistik [Probability Theory and Statistics]

Physics (17 ECTS credits):

- Physik [Physics] I-II
- Technische Mechanik [Engineering Mechanics]

Electrical Engineering (38 ECTS credits):

- Digitaltechnik [Digital Circuits]
- Felder und Komponenten [Fields and Components] I - II
- Halbleiterbauelemente [Semiconductor Devices]
- Netzwerke und Schaltungen [Networks and Circuits] I - II
- Signal- und Systemtheorie [Signal and Systems Theory] I - II

Computer Science (20 ECTS credits):

- Informatik [Informatics] I - II
- Technische Informatik [Computer Engineering] I - II

Part 2: Specialisation (36 ECTS credits)

Part 2 comprises at least 36 ECTS credits from at least 6 of the following specialised subjects. The substance of these course units is required:

- Antennas and Propagation
- Communication and Detection Theory
- Communication Electronics
- Diskrete Ereignissysteme [Discrete Event Systems]
- Eingebettete Systeme [Embedded Systems]
- Elektrische Antriebssysteme [Electrical Drive Systems] I
- Hochspannungstechnik [High Voltage Technology]
- Communication Networks
- Kommunikationssysteme [Communication Systems]
- Leistungselektronik [Power Electronics]
- Leitungen und Filter [Transmission Lines and Filters]
- Mechatronik [Mechatronics]
- Microsystems Technology
- Optoelectronics and Optical Communications
- Regelsysteme [Control Systems]
- Solid State Electronics
- VLSI I: von Architektur zu hochintegrierter Schaltung und FPGA [VLSI I: From Architecture to VLSI Circuits and FPGAs]
- Zeitdiskrete und statistische Signalverarbeitung [Discrete-Time and Statistical Signal Processing]

Part 3: Independent project work

The ability to conduct independent project work, wherein performance shown in the framework of practical exercises, projects and/or seminars is verifiable, is also required.

1.2.2 Admission with additional requirements

¹ 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 credits (admission with additional requirements).

² The candidate must provide proof of the acquisition of the additional knowledge and competences required by passing the pertaining performance assessments by set deadlines (see Section 5).

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

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 (see Section 2.2.4, Subsection 2), also supply proof of sufficient knowledge of German (level C1).

2 Specific stipulations for persons holding a Bachelor's degree in Electrical Engineering and Information Technology

2.1 Bachelor's degree in Electrical Engineering and Information Technology from ETH Zurich

Unconditional admission

¹ Holders of a Bachelor's degree in Electrical Engineering and Information Technology from ETH Zurich are unconditionally admitted to the degree programme.

Registration

² Students of the Bachelor's degree programme in Electrical Engineering and Information Technology already matriculated at ETH Zurich should enrol in the degree programme directly via www.mystudies.ethz.ch. The admission procedure outlined in Section 4 is dispensed with.

Entering the Master's degree programme

³ 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.

⁴ Students of the ETH Bachelor's degree programme in Electrical Engineering and Information Technology der ETH Zürich may enrol directly in the Master's degree programme, as long as

- a. a maximum of 30 credits towards the Bachelor's degree are pending and
- b. the number of credits required for the Bachelor's degree in the categories 'First-year subjects' and 'Examination block subjects' have been obtained.

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 Other Bachelor's degrees in Electrical Engineering and Information Technology

2.2.1 General regulations

Application

¹ Interested parties holding a Bachelor's degree in Electrical Engineering and Information Technology which was *not* issued by ETH Zurich should apply through the ETH Zurich Admissions Office for admission to the degree programme and are subject to the admissions procedure set out in Section 4.

Entering the Master's degree programme

² Candidates who have been granted admission may enter the programme when they have completed the preceding Bachelor's degree programme.

2.2.2 Bachelor's degree in Génie Electrique et Electronique or in Systèmes de Communication from EPF Lausanne

Unconditional admission

¹ Holders of a Bachelor's degree in Génie Electrique et Electronique oder in Systèmes de Communication from EPF Lausanne are unconditionally admitted to the degree programme.

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

2.2.3 Bachelor's degree in Electrical Engineering and Information Technology from other universities

Admission

¹ For admission to the degree programme all the prerequisites listed in Section 1 must be satisfied.

² Admission may be subject to additional requirements.

³ Admission is not possible if the number of additional credits required to satisfy the academic prerequisites exceeds

- a. 30 credits in total, or
- b. 12 credits from Part 1 of said academic prerequisites (see Section 1.2.1).

2.2.4 Bachelor's degree in Electrical Engineering from a Swiss university of applied sciences

Admission

¹ Admission to the degree programme is guaranteed for those holding a Bachelor's degree in Electrical Engineering from a Swiss university of applied sciences, as long as the final Bachelor's degree grade is at least a 5 (Swiss grading system involving grades 1 to 6)⁴ and the language prerequisites set out in Section 1.3 are satisfied.

² Admission is always subject to the acquisition of additional study achievements comprising at least 40 and up to 60 credits.⁵

3 Specific stipulations for persons holding Bachelor's degrees in other disciplines

3.1 General regulations

Application

Interested parties who hold a qualifying Bachelor's degree in a discipline other than Electrical Engineering and Information Technology should apply for the Master's degree programme via the ETH Zurich Admissions Office, and are subject to the admissions procedure set out in Section 4.

3.2 Bachelor's degree from ETH Zurich

Admission

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

² Admission may be subject to additional requirements.

³ Admission is not possible if the number of additional credits required to satisfy the academic prerequisites exceeds

- a. 30 credits in total, or
- b. 12 credits from Part 1 of said academic prerequisites (see Section 1.2.1).

Entering the Master's degree programme

⁴ 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.

⁴ The final grade is always calculated by ETH Zurich. Details of how grades are computed and other points such as the handling of letter grades are set out in the Directive Concerning Admission to Master's Degree Programmes [Weisung über die Zulassung zum Master-Studium] (www.rektorat.ethz.ch/directives).

⁵ The additional requirements are listed on the D-ITET website (www.ee.ethz.ch).

⁵ Students from an ETH Bachelor's degree programme who have been granted admission can enrol in the programme as long as only that number of credits must be acquired which would qualify them to enrol in the Master's degree programme consecutive to their original subject.⁶

Entering the Master's degree programme

² Candidates who have been granted admission may enter the programme when they have completed the preceding Bachelor's degree programme.

3.3 Bachelor's degree from another university

Admission

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

² Admission may be subject to additional requirements.

³ Admission is not possible if the number of additional credits required to satisfy the academic prerequisites exceeds

- a. 30 credits in total, or
- b. 12 credits from Part 1 of said academic prerequisites (see Section 1.2.1).

Entering the Master's degree programme

⁴ Candidates who have been granted admission may enter the programme 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 Electrical Engineering and Information Technology – 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 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.

⁶ 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).

⁴ The Rector makes the final decision regarding admission without additional requirements, admission with additional requirements, or rejection.

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

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 degree 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).

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 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 be repeated once.

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 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 be repeated once. Repeating an examination block entails repeating all of the performance assessments belonging to it.