

Appendix

To the Programme Regulations 2005 of the
Master's Degree Programme in Process Engineering

31 August 2010 (Version: 12 May 2015)

Applies to students who commence or re-enter the degree programme in Autumn Semester 2016 or later. For those entering the programme in Spring Semester 2016 or earlier the previous stipulations 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 Process 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 Process Engineering (subsequently "the degree programme") all of the following prerequisites must be satisfied.

1.1 Degree qualifications

¹ The requirement for admission to the degree programme is a university Bachelor's degree comprising at least 180 ECTS¹ credits, an equivalent university degree or a Bachelor's degree from a Swiss university of applied sciences² in another discipline which – provided that any pertaining additional requirements can also be completed within the set framework – satisfies the pertaining academic prerequisites.

² An engineering discipline in the sense of (1) means in particular (listed alphabetically)

- Chemical Engineering
- Mechanical Engineering
- Process Engineering

³ 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 Process Engineering 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).

² The **discipline requirements profile** comprises **103 credits** and is based on knowledge and skills covered in the ETH Zurich Bachelor's degree programmes in Mechanical Engineering and Chemical Engineering. This includes training in the relevant methodological scientific thinking.

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.

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 4 below.

⁴ Admission is not possible if the applicant demonstrates academic gaps which are too extensive. For further details see Sections 2.3 and 2.4 (persons with a university background) and Section 2.5 (persons with a university of applied sciences background) below.

⁵ The discipline requirements profile is structured in the two parts listed below. Information regarding the content of the corresponding course units is published in the Course Catalogue (www.vvz.ethz.ch).

Part 1: Basic knowledge

Part 1 comprises 73 credits and covers basic knowledge. The substance of the following course units is required:

Mathematics and Computer Science (30 credits)

- Analysis I, II, III, Linear Algebra (22 credits)
- Einführung in die Programmierung [Introduction to Programming], Numerische Mathematik [Numerical Mathematics], Statistics (8 credits)

Natural Sciences (19 credits)

- Physics, Chemistry, Biology (15 credits)
- Laboratory practicals (4 credits)

Engineering Sciences (24 credits)

- Thermodynamics, Transportphänomene [Transport Phenomena] (16 credits)
- Elektrotechnik [Electrical Engineering], Regelungstechnik [Control Engineering] (4 credits)
- Werkstoffe und Fertigung [Materials and Manufacturing] (4 credits)

Part 2: Subject-specific knowledge

Part 2 comprises 30 credits and covers knowledge in technical disciplines which should be acquired in the context of a project and by attending further course units. Here technical disciplines both general areas and areas of process engineering such as mechanics, applied thermodynamics and energy systems, reactive processes and combustion, and apparatus design and safety. This part of the discipline requirements profile is established by the tutor on behalf of the admissions committee.

1.3 Language prerequisites

¹ The language of instruction of the degree programme is English.

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

³ Applicants to the degree programme who hold a Bachelor's degree from a university of applied sciences must, for the purposes of additional requirements (see Section 2.5 (3)), also provide proof of sufficient knowledge of German (Level C1).

⁴ Any language certificates must be submitted by the time of entry to the degree programme at the latest. The language certificates recognised are published on the Rectorate website.

2 Specific stipulations for admission and entry to the Master's degree programme

2.1 Persons holding a Bachelor's degree in Mechanical Engineering or Chemical Engineering from ETH Zurich

Unconditional admission

¹ The following persons are guaranteed unconditional entry to the degree programme:

- a. Persons holding a Bachelor's degree in Mechanical Engineering from ETH Zurich
- b. Persons holding a Bachelor's degree in Chemical Engineering from ETH Zurich
- c. Persons enrolled in either of the above Bachelor's degree programmes ((a) or (b))

Entering the Master's degree programme

² Students of the Bachelor's degree programme in **Mechanical Engineering** or **Chemical Engineering** may enrol in the degree programme directly via www.mystudies.ethz.ch. The admission procedure outlined in Section 3 is dispensed with. Details:

- a. The normal ETH enrolment dates and deadlines apply.
- b. Students of the ETH Zurich Bachelor's degree programme in **Mechanical Engineering** may enrol in the degree programme directly as soon as both of the following apply:
 1. A total of at most 35 credits are pending towards the Bachelor's degree.

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. The number of credits required for the Bachelor's degree in the categories "Compulsory first-year subjects" [Obligatorische Fächer des Basisjahres] and "Compulsory second-year subjects" [Obligatorische Fächer des 2. Studienjahres] have been acquired.
- c. Students of the ETH Zurich Bachelor's degree programme in **Chemical Engineering** may enrol in the degree programme directly as soon as both of the following apply:
 1. A total of at most 35 credits are pending towards the Bachelor's degree.
 2. The number of credits required for the Bachelor's degree in the category "Compulsory third-year subjects" [Obligatorische Fächer des 3. Studienjahres] have been acquired.
- d. 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 Persons holding a Bachelor's degree in Génie mécanique or Chimie et génie chimique from EPF Lausanne

Unconditional admission

¹ Persons holding a Bachelor's degree in Génie mécanique or in Chimie et génie chimique from EPF Lausanne are guaranteed unconditional entry to the degree programme, with the following provisos:

- a. Proof of sufficient knowledge of English (see Section 1.3 above) is required.
- b. A Bachelor's degree in Chimie et génie chimique entitles the holder to unconditional admission to the degree programme only if it also guarantees admission to the Master's degree programme in Génie chimique et biotechnologie at EPF Lausanne with no additional requirements.

Entering the Master's degree programme

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

2.3 Persons holding a Bachelor's degree in Mechanical Engineering, Chemical Engineering or Process Engineering from a university outside Switzerland

Admission

¹ Students holding a Bachelor's degree or the equivalent in Mechanical Engineering, Chemical Engineering or Process Engineering from a university outside Switzerland must, to be admitted to the 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
 - 1) exceeds 30 credits in total, or
 - 2) involves more than 15 credits from Part 1 of the academic prerequisites (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 Persons holding a university Bachelor's degree in another discipline or enrolled in a corresponding Bachelor's degree programme at ETH Zurich

Admission

¹ 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, the following persons may also be admitted to the Master's degree programme:

- a. Holders of a university Bachelor's degree or the equivalent in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering
- b. Students enrolled in an ETH Bachelor's degree programme in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering.

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
 - 1) exceeds 30 credits in total, or
 - 2) involves more than 15 credits from Part 1 of the academic prerequisites (see Section 1.2).

Entering the Master's degree programme

⁴ The following stipulations regarding entry to the Master's degree programme apply to students from an ETH Bachelor's degree programme (other than Mechanical Engineering or Chemical Engineering) who have been granted admission:

- a. They can enrol in the programme once they have acquired that number of Bachelor's degree credits which would qualify them to enrol in the Master's degree programme consecutive to their original subject.⁴
- 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.

⁵ All other candidates who have been granted admission may enter the degree programme only when they have completed the preceding (Bachelor's) degree programme.

2.5 Persons holding a Bachelor's degree from a Swiss university of applied sciences

Admission

¹ If the academic and language prerequisites listed in Section 1 above can be satisfied within the given framework and if they have also demonstrated very good study performance in the Bachelor's degree programme, persons holding a Bachelor's degree from a Swiss university of applied sciences in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering may also be admitted to the 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 The additional requirements are structured in the following two parts:

Part 1 (additional requirements)

To fulfil Part 1 of the additional requirements at least 43 credits must be acquired from the following course units, which belong to the curriculum of the ETH Bachelor's degree programme in Mechanical Engineering. Details regarding the content of these course units are published in the Course Catalogue (www.vvz.ethz.ch).

- Analysis III (3 credits)
- Physics II (4 credits)
- Thermodynamics II (4 credits)
- Fluid dynamics I (6 credits)

⁴ 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).

- Regelungstechnik [Control Engineering] I (4 credits)
- Stofftransport [Mass Transport] (4 credits)
- Einführung in die Verfahrenstechnik [Introduction to Process Engineering] (4 credits)
- ⁵⁾Bachelor's thesis (14 credits) or at least three further course units

Part 2 (additional requirements)

To fulfil Part 2 of the additional requirements up to 17 credits must be obtained. The knowledge to be acquired for Part 2 is drawn from the candidate's area of interest, decided by the respective tutor(s) and communicated to the admissions committee.

⁴ 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 60.

Entering the Master's degree programme

⁵ Candidates who have been granted admission may enter the degree programme only when they have completed the preceding (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 programmes in Mechanical Engineering and Chemical 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.masterbewerbung.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;
- 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 to the Rector via the Director of Studies.

⁵ According to the D-MAVT resolution, approved by the Rector on 25.10.2012. Applies to all candidates who apply on 01.11.2012 or later for admission to the degree programme.

⁵ On the basis of the application of the Director of Studies 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.

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 competences before or during the Master's programme via self-study or by attending classes. The corresponding individual performance assessments must be undertaken by the set deadlines.

² If the candidate fails said performance assessments or does not respect the associated 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 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.

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 first attempts at 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 If performance assessments involve session examinations these may be undertaken as examination blocks if conducted in the same examination session. Examinations belonging to an examination block must always be undertaken during the same examination session.

³ A pass grade in an 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 only be repeated once. Repeating an examination block entails repeating all of the performance assessments belonging to it.

⁵ The student may only commence work on the Master's thesis when all additional requirements have been fulfilled.