

Appendix

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

31 August 2010 (Version: 01 October 2020)

*Applies to students who commence or re-enter the degree programme in Autumn
Semester 2021 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, language and performance 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 Admission to the degree programme presupposes a university Bachelor's degree comprising at least 180 ECTS⁽¹⁾ credits, an equivalent university degree, or a Bachelor's degree from a Swiss university of applied sciences⁽²⁾ in a discipline the content of which – also with regard to any additional academic requirements within the given framework – satisfies the pertaining academic prerequisites.

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

- Chemical Engineering
- Mechanical Engineering
- Process Engineering

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 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** in total and is based on knowledge and skills covered in the ETH Bachelor's degree programme in Mechanical Engineering, including the corresponding methodological scientific thinking skills. Details are set out in Para. 5 below.

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 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 two parts set out below. Details regarding the content of the corresponding course units are published in the ETH Course Catalogue (www.courses.ethz.ch).

Part 1: Basic knowledge and skills (73 credits)

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

Natural Sciences (19 credits)

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

Engineering Science (24 credits)

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

Part 2: Subject-specific knowledge (30 credits)

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 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, for the purposes of additional requirements, also provide 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 Mechanical Engineering or Chemical Engineering from ETH Zurich

Unconditional admission

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

- a. Holders of a Bachelor's degree in Mechanical Engineering or Chemical Engineering from ETH Zurich
- b. Students enrolled in either of the above ETH Zurich Bachelor's degree programmes

2.1.2 Candidates with a Bachelor's degree in Génie mécanique or Chimie et génie chimique from EPF Lausanne (EPFL)

Admission

¹ Admission to the degree programme is guaranteed for persons holding a Bachelor's degree in Génie mécanique or Chimie et génie chimique from EPFL.

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

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 Mechanical Engineering, Chemical Engineering or Process Engineering from a university outside Switzerland

¹ Holders of a Bachelor's degree or the equivalent in Mechanical Engineering, Chemical Engineering or Process Engineering 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 academic prerequisites.

2.1.4 Candidates with a Bachelor's degree in Mechanical Engineering, Chemical Engineering or Process Engineering from a Swiss university of applied sciences

¹ Holders of a Bachelor's degree in Mechanical Engineering, Chemical Engineering or Process 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])⁴.

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

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

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).

Part 1 (additional requirements)

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

- Analysis III (3 credits)
- Physics II (4 credits)
- Thermodynamics II (4 credits)
- Fluid dynamics I (6 credits)
- Control Engineering [*Regelungstechnik*] I (4 credits)
- Mass Transport [*Stofftransport*] (4 credits)
- Introduction to Process Engineering [*Einführung in die Verfahrenstechnik*] (4 credits)
- 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 acquired. 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 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

2.1.5 Candidates with a university Bachelor's degree in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering

¹ Holders of a university Bachelor's degree or the equivalent in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering 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 or performance 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 academic prerequisites

2.1.6 Candidates with a Bachelor's degree from a Swiss university of applied sciences in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering

¹ Holders of a Bachelor's degree from a Swiss university of applied sciences in a discipline other than Mechanical Engineering, Chemical Engineering or Process Engineering 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 is always subject to the compensation of missing academic and methodological knowledge with additional study achievements comprising at least 40 credits.

³ 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

2.2 Specific stipulations for entering the degree programme

2.2.1 Candidates with an ETH Bachelor's degree in Mechanical Engineering or Chemical Engineering

¹ Students of the ETH Zurich Bachelor's degree programme in Mechanical Engineering and Chemical Engineering 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 of the ETH Bachelor's degree programme in **Mechanical Engineering** may enrol in the degree programme as soon as only a maximum of 35 credits towards the Bachelor's degree are pending and 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 zweiten Studienjahres*] have been acquired.
- c. Students of the ETH Bachelor's degree programme in **Chemical Engineering** may enrol in the degree programme directly once they have acquired that number of

Bachelor's degree credits which would qualify them to enrol in the consecutive ETH Master's degree programme in Chemical and Bioengineering.

- 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.

2.2.2 Candidates with an ETH Bachelor's degree in a discipline other than Mechanical Engineering or Chemical Engineering

The following stipulations regarding entry to the Master's degree programme apply to students from an ETH Zurich Bachelor's degree programme (other than Mechanical Engineering or Chemical Engineering) 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.⁵
- 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 Mechanical Engineering or Chemical Engineering – 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.

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 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).

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 she/he 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.