

**Programme Regulations 2018**  
**of the Master's degree programme in**  
**Energy Science and Technology**  
**Departments of**  
**Information Technology and Electrical Engineering<sup>(1)</sup> (D-ITET)**  
**and**  
**Mechanical and Process Engineering (D-MAVT)**

31 October 2017

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

		<b>Articles</b>
Chapter 1:	General regulations	1 – 9
Chapter 2:	Content, structure and scope of the Master's degree programme	10 – 18
Chapter 3:	Admission to the Master's degree programme	19 – 20
Chapter 4:	Performance assessments	21 – 30
Chapter 5:	Issuing of the Master's degree	31 – 35
Chapter 6:	Final clauses	36 – 39
Appendix 1	Admission	
Appendix 2	Qualification profile	

Version: **31.10.2017 – 0**

---

<sup>1</sup> Department in charge

**Programme Regulations 2018 of the  
Master's degree programme in Energy Science and Technology  
Department of Information Technology and Electrical Engineering  
Department of Mechanical and Process Engineering**

31 October 2017 (Version: 31 October 2017)

---

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

---

*The ETH Zurich Executive Board,*

pursuant to Art. 4, Para. 1, Subpara. a of the ETH Zurich Organisational Ordinance (*Organisationsverordnung ETH Zürich*) of 16 December 2003,<sup>(2)</sup>

*decrees:*

## **Chapter 1: General regulations**

### **Part 1: General**

#### **Art. 1 Subject and scope, Appendix**

<sup>1</sup> These Programme Regulations set out the requirements according to which the Master's degree in Energy Science and Technology at the ETH Zurich Departments of Information Technology and Electrical Engineering (D-ITET) and Mechanical and Process Engineering (D-MAVT) may be acquired.

<sup>2</sup> D-ITET and D-MAVT are joint sponsors of the specialised<sup>(3)</sup> Master's degree programme in Energy Science and Technology (subsequently 'the degree programme'). D-ITET is in charge of the programme.

<sup>3</sup> The Appendix is a part of these Programme Regulations.

<sup>4</sup> Any changes to these Programme Regulations or the appendix are undertaken only on the request of or in consultation with D-ITET and D-MAVT. Moreover:

- a. Changes to the Programme Regulations are subject to the approval of the Executive Board
- b. Changes to the Appendix are subject to the approval of the Rector

---

<sup>2</sup> RSETHZ 201.021

<sup>3</sup> A specialised Master's degree programme in the sense of Art. 3, Para. 3 of the Bologna Directives of 28 May 2015 (SR 414.205.1, *only available in German*).

## **Art. 2** Steering committee

<sup>1</sup> In addition to the normal D-ITET and D-MAVT bodies, a steering committee oversees academic matters relating to the degree programme. This committee also determines

- a. the professors who may be selected as tutors (see Art. 11) or as supervisors of papers and/or Master's theses (see Art. 28 and 30);
- b. the members of the admissions committee.

<sup>2</sup> The steering committee comprises

- a. one professor each from D-ITET, D-MAVT and D-MTEC, plus a representative from the Energy Science Center (ESC) (each department and the ESC select their representatives according to departmental or ESC procedures);
- b. the D-ITET study programme coordinator.

## **Art. 3** Academic title

<sup>1</sup> Graduates of the degree programme are awarded the academic title

Master of Science ETH in Energy Science and Technology  
(abbreviation: MSc ETH EST)

<sup>2</sup> This title may also be used in the abbreviated form 'MSc ETH'.

## **Art. 4** Legal basis

These Programme Regulations are based upon the stipulations set out in the following legal documents:

- a. Ordinance on Course Units and Performance Assessments at ETH Zurich of 22 May 2012<sup>4</sup> (ETH Zurich Ordinance on Performance Assessments)
- b. Ordinance on Admission to Studying at ETH Zurich of 30 November 2010<sup>5</sup> (*Zulassungsverordnung ETH Zürich*)

## **Part 2: Credit system**

### **Art. 5** Policy

<sup>1</sup> The degree programme follows a credit system which is aligned with the European Credit Transfer System (ECTS).

<sup>2</sup> ETH Zurich deploys the ECTS in accordance with the Rector's Credit System Guidelines (*Richtlinien zum Kreditsystem*).<sup>6</sup>

---

<sup>4</sup> RSETHZ 322.021en (in English), SR 414.135.1 (in German)

<sup>5</sup> (only available in German) SR 414.131.52, RSETHZ 310.5

<sup>6</sup> See [www.weisungen.ethz.ch](http://www.weisungen.ethz.ch) (in German only)

**Art. 6** Credits, basis for calculation

<sup>1</sup> Credits describe the average time expenditure required to achieve a learning goal.

<sup>2</sup> One credit corresponds to a workload of 30 hours. This workload comprises all of the study-related activities required to obtain said credit.

<sup>3</sup> The curriculum is designed such that full-time students may obtain an average of 30 credits per semester.

**Art. 7** Allocation of credits

<sup>1</sup> D-ITET and D-MAVT allocate a certain number of credits to each course unit they offer.

<sup>2</sup> If an ETH Zurich course unit is found on the curriculum of more than one ETH Zurich degree programme, the department offering the course unit assigns it a standard number of credits in consultation with those integrating it into a programme. The Rector of ETH Zurich settles any cases of disagreement.

<sup>3</sup> If a course unit is offered by another university that university is responsible for allocating it a certain number of credits.

**Art. 8** Issuing of credits

<sup>1</sup> Credits are issued for satisfactory performance. Performance is considered satisfactory if it has been awarded a grade of at least a 4, or a 'pass'.

<sup>2</sup> No credits are issued for unsatisfactory performance.

<sup>3</sup> The full number of credits are always issued if the prerequisites of Para. 1 have been satisfied. Partial issue of credits is not permitted.

<sup>4</sup> The number of credits issued is that number published in the Course Catalogue valid at the time the respective performance assessment was undertaken.

**Art. 9** Recording, checking, registration

D-ITET records, checks and registers the credits acquired.

## **Chapter 2: Content, structure and scope of the Master's degree programme**

### **Part 1: Content, structure and scope**

#### **Art. 10** Programme content, structure

<sup>1</sup> Efficient, low-emission energy production and its conversion, transport, storage and use are not just a question of technical optimisation or innovation, but also depend on economic, social and political factors. The objective of the Master's degree programme in Energy Science and Technology (MEST) is to introduce the complexity and cross-disciplinarity of energy questions to its students and impart the methods and approaches of electrical engineering, mechanical engineering, economics and other disciplines in this regard.

<sup>2</sup> The Master's degree programme comprises compulsory and elective core courses, a semester project, a six-month Master's thesis and an internship in industry. The semester project and the Master's thesis provide students with experience in conducting research projects, and the internship gives them practical experience of the professional world. The Master's degree prepares the student for doctoral work or for entry to the labour market.

<sup>3</sup> Details of the progression of the programme and recommendations thereto are published on the degree programme website.

#### **Art. 11** Tutoring system, individual study plan

<sup>1</sup> The studies of every student in this degree programme are shaped and coordinated under the guidance of a professor, or 'tutor'. Possible tutors are listed on the degree programme website ([www.master-energy.ethz.ch](http://www.master-energy.ethz.ch)).

<sup>2</sup> After admission to the programme students must submit a list of three tutors, in order of preference. When they enter the programme they are allocated a tutor.

<sup>3</sup> In consultation with the student, the tutor assembles the target subjects in the form of a study plan, with attention to the predetermined allocation of courses to categories in the Course Catalogue (see Art. 17). D-ITET determines deadlines and further modalities for compiling and adapting the individual study plan.

<sup>4</sup> The director of studies settles any disputes between student and tutor regarding course selection.

<sup>5</sup> The individual study plan should guarantee a solid, varied educational foundation and at the same time take into account the student's talents and expectations. The tutor is available for guidance throughout the Master's degree programme.

<sup>6</sup> The study plan is binding. Courses may only be counted towards the Master's degree if they are listed in the individual study plan.

<sup>7</sup> Any student who wishes to change his/her tutor should submit a well-grounded request to the Director of Studies. The Director of Studies may, on cogent grounds, deny the request. A change of tutor is also subject to the following:

- a. Changes are only possible at the beginning of a semester.
- b. A change does not entitle the student in question to an extension of the maximum permitted duration of studies.
- c. Disagreements between the Director of Studies and the student are settled by the Rector.

## **Art. 12** Scope, duration, limits on duration of studies

<sup>1</sup> As stipulated in Art. 31, 120 credits are required to obtain a Master's degree.

<sup>2</sup> The normal duration of the degree programme is two years.

<sup>3</sup> The maximum permitted duration of studies is four years. The Rector may extend this if cogent grounds are provided in a request submitted by the specific deadline.

<sup>4</sup> If admission to the degree programme is granted subject to the acquisition of additional credits the maximum permitted duration of studies may be extended by half a year for required extra credits in the range of 21 – 30 and by one year for required extra credits in the range of 31 – 60. For fewer than 21 required extra credits no extension is granted.

## **Art. 13** Course Catalogue

<sup>1</sup> Every semester, after consulting with the steering committee, D-ITET lists the course units of the degree programme in the Course Catalogue. This list is binding.

<sup>2</sup> The details of the entries in the Course Catalogue are set out in Art. 4 of the ETH Zurich Ordinance on Performance Assessments<sup>(7)</sup> and in the corresponding implementation stipulations<sup>(8)</sup> of the Rector.

## **Art. 14** Language of instruction

Course units and the corresponding performance assessments are normally conducted in English. The language of instruction of ETH course units is also subject to the pertaining Rector's directives<sup>(9)</sup>.

---

<sup>7</sup> RSETHZ 322.021en (in English), SR 414.135.1 (in German)

<sup>8</sup> See [www.directives.ethz.ch](http://www.directives.ethz.ch)

<sup>9</sup> See [www.directives.ethz.ch](http://www.directives.ethz.ch)

## **Art. 15** Admission to course units

Special admission prerequisites may apply to a course unit. If these are not specified in these Programme Regulations, they are specified by that ETH Zurich department or the university which offers the respective course unit.

## **Art. 16** Student exchange (ETH Master's degree students)

<sup>1</sup> During the Master's degree programme credits may be acquired at other universities (mobility credits). Of these mobility credits a maximum of 30 may be recognised towards the Master's degree. The stipulations of Para. 3 and 4 below still apply.

<sup>2</sup> Credits from course units of other universities do not qualify as mobility credits if said course units belong to the degree programme curriculum.

<sup>3</sup> Students who did not complete the preceding (Bachelor's) degree at ETH Zurich may not take part in ETH Zurich exchange programmes. Individual exchange stays are possible, but the recognition of mobility credits towards the Master's degree is not possible.

<sup>4</sup> If admission to the degree programme is subject to the acquisition of additional credits (admission with additional requirements) an exchange stay is only possible after all additional requirements have been fulfilled. Mobility credits may not be counted towards fulfilment of additional requirements.

<sup>5</sup> For an exchange stay the student draws up a written study plan in advance with the help of the Tutor. This plan includes the credits to be acquired at the host university. It must be approved by the Director of Studies in consultation with the D-ITET Student Exchange Coordinator.

<sup>6</sup> The Director of Studies decides whether mobility credits will be recognised. Art. 16 of the ETH Zurich Ordinance on Performance Assessments<sup>(10)</sup> and the pertaining implementation stipulations<sup>(11)</sup> of the Rector set out how proof of academic achievement is handled.

<sup>7</sup> Questions regarding student exchange may be referred to the D-ITET Student Exchange Coordinator.

---

<sup>10</sup> RSETHZ 322.021en (*in English*), SR 414.135.1 (*in German*)

<sup>11</sup> See [www.directives.ethz.ch](http://www.directives.ethz.ch)

## **Part 2:                    Grouping by category**

### **Art. 17    Grouping by category**

<sup>1</sup> To obtain a Master's degree, study achievements are required in the following categories. The minimum number of credits required in each category is set out in Art. 31.

- a.    Core courses
  1.    Electrical Power Engineering
  2.    Energy Flows and Processes
  3.    Energy Economics and Policy
  4.    Interdisciplinary Energy Management
- b.    Electives
- c.    Semester project
- d.    Industrial Internship
- e.    Science in Perspective
- f.    Master's thesis

<sup>2</sup> In consultation with the Steering Committee, D-ITET assigns course units to the categories in Para. 1 and publishes them in the Course Catalogue.

### **Art. 18    Overview of categories**

#### **<sup>1</sup> Core courses**

Core courses of the Master's degree programme provide a foundation in the three main areas in the field of energy: 'Electrical Power Engineering', 'Energy Flows and Processes' and 'Energy Economics and Policy'. They also address 'Interdisciplinary Energy Management'. Tutors support the students in selecting their core courses, subject to the stipulations set out in Art. 31, Para. 2. Details of performance assessments are provided in Art. 27.

#### **<sup>2</sup> Electives**

Electives enable the student to deepen degree-specific knowledge or extend knowledge in areas of economics and the humanities. The tutor helps the student to select elective courses. Further details, e.g. regarding performance assessments, are given in Art. 27.

#### **<sup>3</sup> Semester project**

In the semester project the student deploys the subject and social skills acquired to gain experience of solving a technical problem independently. Further details are given in Art. 28.



#### **<sup>4</sup> Industrial Internship**

Students are required to complete an industrial internship lasting at least 12 weeks. The goal of the internship is to familiarise students with the industrial work environment. Here they have the opportunity to get involved in the current projects of the respective institution. Further details are given in Art. 29 below and in the corresponding D-ITET guidelines.

#### **<sup>5</sup> Science in Perspective**

Students are required to complete course units from the “Science in Perspective” programme. Details are set out in the pertaining directive<sup>(12)</sup>; stipulations regarding performance assessments are listed in Art. 27 below.

#### **<sup>6</sup> Master’s thesis**

The Master’s thesis concludes the degree programme. With the Master’s thesis students demonstrate their ability to produce independent, structured scientific work. Further details are given in Art. 30.

### **Chapter 3: Admission to the Master’s degree programme**

#### **Art. 19** Prerequisites for admission

<sup>1</sup> Admission to the degree programme presupposes 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 in a discipline which qualifies the holder for the degree programme. The qualifying disciplines are listed in the appendix.

<sup>2</sup> Details of the academic, language and performance prerequisites for admission (profile of requirements) are provided in the Appendix.

#### **Art. 20** Application, admission procedure and entry to the Master’s degree programme

<sup>1</sup> All candidates should apply to the ETH Zurich Admissions Office for admission to the degree programme.

<sup>2</sup> The admissions committee of the degree programme investigates candidates’ academic backgrounds and suitability for the Master’s degree programme and submits a recommendation for admission/rejection to the Director of Studies.

<sup>3</sup> The Rector decides whether to admit/reject the candidate on the basis of the recommendation of the Director of Studies.

<sup>4</sup> The Rector may, depending on the candidate’s qualifications and previous knowledge, make admission conditional upon the acquisition of additional knowledge

---

<sup>12</sup> See [www.directives.ethz.ch](http://www.directives.ethz.ch)

and competences during the Master's degree programme (admission with additional requirements).

<sup>5</sup> Details regarding application, the admission procedure and entry to the Master's degree programme are determined by the Rector. They are set out in the Appendix.

## **Chapter 4: Performance assessments**

### **Part 1: General regulations**

#### **Art. 21** Performance evaluation

Performance in examinations is graded. Performance in other forms of performance assessment is either graded or evaluated on a pass/fail basis.

#### **Art. 22** Admission to performance assessments

Admission to performance assessments may be subject to conditions. If these are not specified in these Programme Regulations, they are specified by that ETH Zurich department or the university which offers the respective course unit.

#### **Art. 23** Registering for / deregistering from performance assessments

<sup>1</sup> The following provisions apply to registration for / deregistration from performance assessments at ETH Zurich:

- a. If the performance assessments in question are end-of-semester examinations or session examinations, registration and deregistration are governed by the stipulations of the ETH Zurich Ordinance on Performance Assessments<sup>(13)</sup> and the associated implementation stipulations of the Rector<sup>(14)</sup>.
- b. If the performance assessments fall into another category, registration and deregistration are generally handled by the respective lecturer in person.

<sup>2</sup> If the performance assessments concerned are those of another university, registration and deregistration are subject to the rules of the respective university.

#### **Art. 24** Absence, interruption, breaking off, late submission or non-submission

The following stipulations apply to absence from, interruption or breaking off of, and late submission or non-submission of performance assessments:

---

<sup>13</sup> SR 414.135.1, RSETHZ 322.021

<sup>14</sup> See [www.weisungen.ethz.ch](http://www.weisungen.ethz.ch)

- a. ETH Zurich performance assessments are governed by the stipulations of the ETH Zurich Ordinance on Performance Assessments<sup>15</sup> and the associated implementation stipulations of the Rector<sup>16</sup>.
- b. Performance assessments of another university are subject to the rules of the respective university.

#### **Art. 25** Issuing of results, disputes

<sup>1</sup> Students may view all of their performance results online via the corresponding ETH Zurich application. They are informed periodically by email as to which performance assessment results are now viewable.

<sup>2</sup> The procedure in cases of disagreement regarding newly documented results is outlined each time results are issued.

#### **Art. 26** Dishonest conduct

The sanctions for dishonest conduct in the context of performance assessments are outlined in the Disciplinary Code of ETH Zurich (*Disziplinarordnung ETH Zürich*) of 2 November 2004<sup>17</sup>.

### **Part 2: Performance assessments in the Master's degree programme**

#### **Art. 27** Core courses, Electives, Science in Perspective

<sup>1</sup> Every course unit in the categories 'Core courses', 'Electives' and 'Science in Perspective' is subject to a performance assessment.

<sup>2</sup> The respective mode of each performance assessment is listed in the Course Catalogue if the course unit is offered by ETH Zurich.

<sup>3</sup> If a course unit is offered by another university that university determines the performance assessment mode of said course unit.

<sup>4</sup> A performance assessment is passed if it is awarded a grade of at least a 4 or a 'pass'.

<sup>5</sup> A failed performance assessment may be repeated once unless the ETH Zurich department or the university offering the respective course unit stipulates otherwise.

<sup>6</sup> A performance assessment, once passed, may not be repeated.

---

<sup>15</sup> SR 414.135.1, RSETHZ 322.021

<sup>16</sup> See [www.weisungen.ethz.ch](http://www.weisungen.ethz.ch)

<sup>17</sup> SR 414.138.1, RSETHZ 361.1

<sup>7</sup> The categories 'core courses' and 'electives' are also subject to the following special stipulations:

- a. The core courses and electives to be completed are listed in the individual study plan, which is binding.
- b. If students cannot earn credits in a core course because they have failed it twice, they may adjust the study plan once in each area (with the exception of the area 'Interdisciplinary Energy Management'). The change must be approved by the tutor. The provisions of Art. 31, Para. 2 also apply.
- c. If students cannot earn credits in an elective because they have failed the respective performance assessment twice, they must adjust the study plan. The change must be approved by the tutor.

## **Art. 28** Semester project

<sup>1</sup> The semester project is supervised by a professor (supervisor). The names of possible supervisors are listed on the degree programme website.

<sup>2</sup> The choice of theme and supervisor for the semester project require the approval of the tutor.

<sup>3</sup> The supervisor determines the starting date of the semester project and its evaluation criteria and sets these out in writing, and grades the student's performance.

<sup>4</sup> The semester project and the Master's thesis (see Art. 30) are supervised by two different professors respectively. The tutor may grant exceptions if cogent grounds are given.

<sup>5</sup> The semester project may take a maximum of 14 weeks if it is undertaken during the semester alongside lectures. This means that half of the total time allotted for full-time studies may be used. If all of the total time allotted for full-time studies is used, the project may take a maximum of 7 weeks. The Director of Studies may approve an extension if cogent grounds are given.

<sup>6</sup> The semester project is passed if it is awarded a grade of at least a 4.

<sup>7</sup> A failed semester project may be repeated once. If it is repeated, a new theme must be addressed. The repetition may be conducted under a new supervisor.

<sup>8</sup> A semester project, once passed, may not be repeated.

## **Art. 29** Industrial Internship

<sup>1</sup> The internship in industry lasts at least 12 weeks if the position is full-time. It usually takes place in an industrial firm and relates to an energy topic. The internship may be conducted before or during the Master's degree programme, either in Switzerland or abroad.

<sup>2</sup> In exceptional cases a research laboratory within or outside of the ETH domain may be selected for the internship. The Director of Studies rules on such exceptions.

<sup>3</sup> The internship is officially verified via a written confirmation (internship confirmation) from the firm or institution where it took place. It is up to the student to make sure that the internship confirmation is issued.

<sup>4</sup> The Director of Studies decides whether the internship will be recognised on the basis of the internship confirmation. A recognised internship receives a "pass" grade.

<sup>5</sup> Only approved internships may be recognised towards the Master's degree. The recognition of internships which have already counted towards a degree is not permitted.

<sup>6</sup> Further details regarding the industrial internship are provided in the pertaining D-ITET guidelines.

## **Art. 30** Master's thesis

<sup>1</sup> Students are only permitted to commence the Master's thesis if

- a. the Bachelor's degree programme has been completed
- b. any additional requirements for admission to the degree programme have been fulfilled
- c. the required minimum number of credits in the 'core courses' category (see Art. 31, Para. 1 (a)) has been acquired
- d. the semester project and the industrial internship (see Art. 31 Para 1 (b) and (c)) have been successfully completed, and the corresponding credits have been acquired

<sup>2</sup> The Director of Studies rules on any exceptions to Para. 1 (c) and (d). Exceptions require a well-grounded request from the Master's thesis supervisor and the consent of the tutor. Exceptions to Para. 1 (a) and (b) are not permitted.

<sup>3</sup> The Master's thesis is supervised by a professor (supervisor). Potential professors for this role are listed on the degree programme website.

<sup>4</sup> The student's choice of Master's thesis topic and supervisor must be approved by the tutor.

<sup>5</sup> The supervisor sets the date for beginning the Master's thesis, determines its evaluation criteria in writing, and grades it.

<sup>6</sup> The Master's thesis and the semester project (see Art. 28) are supervised by two different professors. The tutor may grant exceptions if cogent grounds are given.

<sup>7</sup> The Master's thesis project lasts six months (full-time). The Director of Studies may, on request, grant an extension if cogent grounds are given.

<sup>8</sup> The Master's thesis project concludes with a written report and an oral presentation.

<sup>9</sup> The Master's thesis is passed if the grade it receives is at least a 4.

<sup>10</sup> A failed Master's thesis project may be repeated once. If it is repeated, a new theme must be addressed. The repetition may be conducted under a new supervisor.

<sup>11</sup> A Master's thesis, once passed, may not be repeated.

## Chapter 5: Issuing of the Master's degree

### Part 1: Credits by category, and degree request

#### Art. 31 Credits by category

<sup>1</sup> The 120 credits required for the Master's degree must be earned in the following categories in at least the numbers given. Further details are set out in Para. 2.

- |  |                   |
|--|-------------------|
| a. <b>Core courses and electives</b>                       | <b>64 credits</b> |
| 1. Core courses (at least 23 credits)                      |                   |
| ▪ Electrical Power Engineering (at least 7 credits)        |                   |
| ▪ Energy Flows and Processes (at least 7 credits)          |                   |
| ▪ Energy Economics and Policy (at least 6 credits)         |                   |
| ▪ Interdisciplinary Energy Management (at least 3 credits) |                   |
| 2. Electives (-- credits)                                  |                   |
| b. <b>Semester project</b>                                 | <b>12 credits</b> |
| c. <b>Industrial internship</b>                            | <b>12 credits</b> |
| d. <b>Science in Perspective</b>                           | <b>2 credits</b>  |
| e. <b>Master's thesis</b>                                  | <b>30 credits</b> |

<sup>2</sup> A total of at least 64 credits must be acquired in the category 'Core courses and electives' (Para. 1 (a)). Of these, at least 23 must be earned in core courses. The following stipulations also apply to core courses:

- a. The student must acquire
  1. at least 7 credits in the sub-category 'Electrical Power Engineering';
  2. at least 7 credits in the sub-category 'Energy Flows and Processes';
  3. at least 6 credits in the sub-category 'Energy Economics and Policy';
  4. at least 3 credits in the sub-category 'Interdisciplinary Energy Management'.
- b. Two courses each must be passed in the sub-categories 'Electrical Power Engineering', 'Energy Flows and Processes' and 'Energy Economics and Policy' ((a) 1–3). It is immaterial whether the minimum number for credits required in a sub-category were earned in a single subject. D-ITET is responsible for checking whether this condition is met.

## **Art. 32** Degree request

<sup>1</sup> When they have fulfilled the requirements set out in Art. 31 students may request the issue of the Master's degree. The degree request must be submitted within four years of commencing the Master's degree programme. The Rector may extend this deadline if cogent grounds are provided by the respective request deadline.

<sup>2</sup> The request should contain all those study achievements with pass grades in the categories and sub-categories listed in Art. 31 which are to be listed in the final academic record. The sum of credits in each category and sub-category must reach the minimums designated in Art. 31.

<sup>3</sup> The following points also apply to recognition of study achievements for the Master's degree:

- a. In the categories 'cores courses' and 'electives', only course units listed in the individual study plan can be recognised. Further details are provided in Art. 11.
- b. A maximum of 130 credits may be recognised towards the Master's degree in the final academic record. All other study achievements are listed on a separate sheet of the academic record.
- c. A maximum of 30 mobility credits may be recognised towards the Master's degree. The stipulations of Art. 16 apply.

<sup>4</sup> The credits earned by completing a course unit may not be recognised more than once, or divided up.

<sup>5</sup> Recognition of study achievements or credits from preceding studies is not possible. The exceptions are:

- a. Credits earned at ETH Zurich before taking up Master's degree studies may be recognised as long as the knowledge and skills acquired thereby are integral to the degree programme and the credits in question have not already been recognised towards a degree.
- b. An industrial internship undertaken before Master's degree studies began may be recognised if the conditions set out in Art. 29 have been met and the internship has not already counted towards a degree.
- c. The Director of Studies decides whether credits mentioned in (a) and (b) will be recognised. There is no automatic entitlement to recognition.

## **Part 2: Academic record, degree certificate and Diploma Supplement**

### **Art. 33** Documents

Graduates of the degree programme receive three documents: an academic record, a degree certificate and a Diploma Supplement.



## **Art. 34** Academic record

<sup>1</sup> The academic record verifies the successful completion of the Master's degree.

<sup>2</sup> The academic record lists:

- a. The study achievements listed in the degree request as per Art. 32, Para. 2, including grades and other measures of performance
- b. The final grade, computed as the weighted average of all the grades listed in the degree request, with the corresponding credits as weighting.

<sup>3</sup> A separate sheet of the academic record lists:

- a. Any additional admission requirements
- b. All further study achievements as set out in the pertaining implementation stipulations<sup>18</sup> of the Rector

<sup>4</sup> D-ITET records, checks and administers the grades and other measures of performance, and issues the academic records.

## **Art. 35** Degree certificate, Diploma Supplement

<sup>1</sup> Details regarding the degree certificate are set out in Art. 28 of the ETH Zurich Ordinance on Performance Assessments<sup>(19)</sup>.

<sup>2</sup> The Diploma Supplement comprises a standardised explanation of the degree.

## **Chapter 6: Final clauses**

### **Art. 36** Definitive failure, exclusion from the degree programme

<sup>1</sup> The degree programme is regarded as definitively failed if one of the following applies:

- a. The conditions for obtaining the Master's degree (acquisition of the required number of credits for the Master's degree according to the stipulations of Art. 31, or any other conditions) can no longer be satisfied due to failure of performance assessments or failure to respect programme deadlines.<sup>(20)</sup>
- b. In cases of admission with additional requirements said additional requirements have not been fulfilled due to failure of performance assessments or failure to respect the deadlines set for them.

<sup>2</sup> Definitive failure results in exclusion from the degree programme.

---

<sup>18</sup> See [www.weisungen.ethz.ch](http://www.weisungen.ethz.ch)

<sup>19</sup> RSETHZ 322.021en (*in English*), SR 414.135.1 (*in German*)

<sup>20</sup> Academic deadlines are deadlines for conducting performance assessments, additional individual deadlines, and the maximum permitted duration of studies.

**Art. 37** Transcript of records after exclusion or abandonment of studies

Students who are excluded from the degree programme or withdraw from it before obtaining the Master's degree receive a transcript of records which lists all the study achievements generated and evaluated before exclusion or withdrawal.

**Art. 38** Special cases

The Director of Studies rules on cases which are not or are not sufficiently addressed by these Programme Regulations, their Appendix, or other relevant ordinances and directives.

**Art. 39** Entry into effect

<sup>1</sup> These Programme Regulations enter into effect at the beginning of Autumn Semester 2018.

<sup>2</sup> They apply to students who

- a. enter the degree programme from Autumn Semester 2018 onwards;
- b. entered the degree programme before Autumn Semester 2018. Such students may, on request, complete their studies according to the provisions of these Programme Regulations 2018. The Director of Studies rules on changes of programme regulations in consultation with Academic Services. If there is a change of programme regulations the maximum permitted duration of studies is extended by two semesters for the affected student.
- c. re-enter the degree programme from Autumn Semester 2018 onwards

<sup>3</sup> The Director of Studies, in consultation with Academic Services, rules on special cases relating to programme regulation assignment.

On behalf of the Executive Board

President: Lino Guzzella

General Secretary: Katharina Poiger Ruloff

## Appendix 1

To the Programme Regulations 2018 of the  
Master's degree programme in Energy Science and Technology

31 October 2017 (Version: 01 September 2020)

*Applies to students who commence the degree programme in Autumn Semester 2020 or later, including students who are re-entering the degree programme.*

*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 Energy Science and Technology. It supplements the stipulations of the Admission Regulations of ETH Zurich and the Directive on Admission to Master's degree programmes.

---

### Contents

- 1 Profile of requirements**
  - 1.1 Degree qualifications
  - 1.2 Academic prerequisites
  - 1.3 Language prerequisites
  - 1.4 Performance prerequisites
  
- 2 Specific stipulations for admission and entry to the Master's degree programme**
  - 2.1 Application with a university Bachelor's degree
  - 2.2 Application with a Bachelor's degree from a Swiss university of applied sciences
  - 2.3 Entering the Master's degree programme
  
- 3 Application and admission procedure**
  
- 4 Fulfilling additional admission requirements**
  - 4.1 General regulations
  - 4.2 Candidates with a university Bachelor's degree
  - 4.3 Candidates with a Bachelor's degree from a Swiss university of applied sciences

## 1 Profile of requirements

### *Policy*

For admission to the Master's degree programme in Energy Science and 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 and performance admission prerequisites.

<sup>2</sup> Said disciplines include, in particular (listed alphabetically):

- Civil Engineering
- Communications Systems
- Computer Science
- Electrical Engineering (and Information Technology)
- Environmental Engineering
- Geomatic Engineering
- Mathematics
- Mechanical Engineering
- Microtechnology
- Physics

<sup>3</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.

### 1.2 Academic prerequisites

<sup>1</sup> Attendance of the degree programme presupposes basic knowledge and skills in Mathematics, Physics and Engineering which must in content, scope, quality and level of mastery be equivalent to that covered in the ETH Bachelor's degree programmes in Electrical Engineering and Information Technology or Mechanical Engineering (discipline requirements profile).

---

<sup>1</sup> ECTS: European Credit Transfer System. Credits describe the average time expended to achieve a learning goal. One credit corresponds to 25-30 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.

<sup>2</sup> The **discipline requirements profile** comprises **141 ECTS credits (credits)** in total and is based on knowledge and skills covered in the ETH Zurich Bachelor's degree programmes listed in Para. 1. This includes training in the relevant methodological scientific thinking. 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 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](http://www.courses.ethz.ch)).

#### **Part 1: Basic knowledge and skills (63 credits)**

Part 1 comprises 63 credits and covers basic knowledge and skills from the disciplines Mathematics, Physics, Engineering and Economics. The substance of the following course units is required:

- Mathematics (26 credits)
- Physics (10 credits)
- Engineering (24 credits)
- Economics (3 credits)

#### **Part 2: Subject-specific knowledge and skills (78 credits)**

Part 2 comprises 78 credits and covers subject-specific knowledge and skills in the disciplines of Physics and/or Engineering. Acquisition of this knowledge may be verified via written work or a Bachelor's thesis.

### **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>(3)</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 2.2, Subsection 2 and 3), 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.

---

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

## 1.4 Performance prerequisites

Admission to the degree programme presupposes a very good study performance record in the preceding course of studies.

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

### 2.1 Application with a university Bachelor's degree

<sup>1</sup> Holders of a university Bachelor's degree or an equivalent university qualification must satisfy all of the prerequisites set out in Section 1.

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

<sup>3</sup> Admission is not possible if

- a. the language prerequisites set out in Section 1.3 are not satisfied, or
- b. the performance prerequisites set out in Section 1.4 are not satisfied, or
- c. the number of additional credits required to satisfy the academic prerequisites exceeds
  - 1) 22 credits from Part 1 of the academic prerequisites (see Section 1.2 above),  
or
  - 2) 30 credits in total.

### 2.2 Application with a Bachelor's degree from a Swiss university of applied sciences

<sup>1</sup> Holders of a Bachelor's degree from a Swiss university of applied sciences must satisfy all of the prerequisites set out in Section 1.

<sup>2</sup> Admission is always subject to the acquisition of the missing academic and methodological knowledge and skills in the form of additional studies comprising at least 40 credits from Parts 1 and 2 of the academic prerequisites (see Section 1.2 above).

<sup>3</sup> Admission is not possible if

- a. the language prerequisites set out in Section 1.3 are not satisfied, or
- b. the performance prerequisites set out in Section 1.4 are not satisfied, or
- c. the number of additional credits required to satisfy the academic prerequisites exceeds 60 credits.

## 2.3 Entering the Master's degree programme

<sup>1</sup> To students from an ETH Bachelor's degree programme who have been granted admission, the following applies:

- a. Said students can enrol in the Master's degree 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>(4)</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.

<sup>2</sup> All other candidates who have been granted admission may only enrol in the Master's degree programme when they have completed the preceding (Bachelor's) degree.

## 3 Application and admission procedure

<sup>1</sup> All interested parties must submit an application for admission to the degree programme to the ETH Zurich Admissions Office. 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> 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.

---

<sup>4</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 in Physics → MSc in Physics).

## **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.



## Appendix 2

To the Programme Regulations 2018 für den  
Master-Studiengang Energy Science and Technology

---

### Qualification profile

#### Introduction

The Master of Science ETH in Energy Science and Technology prepares students for positions at the gateway of science and society, and entitles them to pursue doctoral studies (PhD) in an engineering-related field.

#### Graduates:

- are ideally positioned to judge which technological aids best serve their companies under existing economic, environmental, and societal constraints;
- have the expertise to improve or substitute for existing technology, taking environmental, safety, societal, human constraints, and economic considerations into account;
- can advise governments and international institutions and act as catalysts for society through their competent and multifaceted approach to energy problems, future challenges, and technical or organisational opportunities.