

Programme Regulations 2014
of the Master's degree programme in
Integrated Building Systems
Department of Architecture

10 February 2014⁽¹⁾

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

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Version: **08.12.2021 – 3**

¹ With changes pursuant to the Rector's directive of 01.08.2016 (re-naming of compulsory GESS electives) and the department conference resolutions of 03.10.2018 and 08.12.2021. This version of the Programme Regulations (08.12.2021 – 3) replaces the previous version (03.10.2018 – 2).

Programme regulations 2014 of the Master's degree programme in Integrated Building Systems Department of Architecture

10 February 2014 (Version: 8 December 2021)

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The ETH Zurich Executive Board,

Pursuant to Art. 4, Para. 1, Lit. a of the ETH Zurich Organisational Ordinance (*Organisationsverordnung ETH Zürich*) of 16 December 2003 (RSETHZ 201.021),
decrees:

Chapter 1: General regulations

Part 1: General

Art. 1 Subject and scope, Appendix

¹ These Programme Regulations set out the requirements according to which the Master's degree in Integrated Building Systems at the ETH Zurich Department of Architecture (D-ARCH) may be acquired.

² The Appendix is a part of these Programme Regulations.

³ Any changes to the Programme Regulations or the Appendix must proceed on request to or in consultation with D-ARCH. D-ARCH always consults with the Steering Committee⁽²⁾ (see Art. 3). In addition:

- a. Any changes to the Programme Regulations require the approval of the Executive Board.
- b. Any changes to the Appendix require the approval of the Rector.

Art. 2 Cooperation with other ETH Zurich departments

D-ARCH conducts the specialised⁽³⁾ Master's degree programme Integrated Building Systems ("the degree programme") in cooperation with the following ETH Zurich departments ("partners"):

² Re-naming according to the D-ARCH department conference resolution of 08.12.2021, in force since 01.12.2021. This change is applied throughout the document.

³ A specialised Master's degree programme in the sense of Art. 8, Para. 3 of the *Verordnung des Hochschulrates vom 29. November 2019 über die Koordination der Lehre an den Schweizer Hochschulen (SR 414.205.1)*.

- a. Department of Information Technology and Electrical Engineering (D-ITET)
- b. Department of Mechanical and Process Engineering (D-MAVT)
- c. Department Civil, Environmental and Geomatic Engineering (D-BAUG)
- d. Department of Management, Technology, and Economics (D-MTEC)

Art. 3⁽⁴⁾ Steering Committee

¹ Academic matters relating to the degree programme are dealt with by both the normal D-ARCH bodies and a Steering Committee. The Steering Committee also determines the members of the admissions committee (see Art. 25, Para. 2).

² The Steering Committee is composed of

- a. The Director of Studies of the degree programme.
- b. One professor each from D-ARCH, D-ITET, D-MAVT, D-BAUG and D-MTEC. The Director of Studies is also the representative of his department. Each department selects its Steering Committee representative according to its own departmental procedures.
- c. The coordinator of the degree programme and the D-ARCH study coordinator.

Art. 4 Academic title

¹ Graduates of the degree programme are awarded the following academic title by ETH Zurich:

Master of Science ETH in Integrated Building Systems
(abbreviation: MSc ETH IBS)

² This title may also be used in the abbreviated form “MSc ETH”.

Art. 5 ETH Zurich Ordinance on Performance Assessments and ETH Zurich Admissions Ordinance

These Programme Regulations are based on the provisions set out in the following legal documents:

- a. Ordinance on Course Units and Performance Assessments at ETH Zurich of 22 May 2012⁽⁵⁾ (ETH Zurich Ordinance on Performance Assessments);
- b. Ordinance on Admission to Studying at ETH Zurich of 30 November 2010⁽⁶⁾ (ETH Zurich Admissions Ordinance).

Art. 6⁽⁷⁾

⁴ Version according to the D-ARCH department conference resolution of 08.12.2021, in force since 01.12.2021.

⁵ SR **414.135.1**, RSETHZ **322.021**

⁶ SR **414.131.52**, RSETHZ **310.5**

⁷ Rescinded; effective since Autumn Semester 2016

Art. 7 Course Catalogue

¹ In consultation with the Steering Committee, D-ARCH determines the course units for the degree programme and enters them in the Course Catalogue every semester. The entries in the Course Catalogue are binding.

² Details regarding entries in the Course Catalogue are set out in Art. 4 of the ETH Zurich Ordinance on Performance Assessments⁽⁸⁾ and in the corresponding implementation stipulations⁽⁹⁾ of the Rector.

Part 2: Credit system

Art. 8 Policy

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

² The application of ECTS credits at ETH Zurich is subject to the Rector's *Richtlinien zur Kreditsystem* [guidelines on the credit system; in German]⁽¹⁰⁾.

Art. 9 Credits, basis for calculation

¹ ECTS credits describe the average time expenditure required for a student to earn a study achievement.

² One credit corresponds to a workload of 30 hours. The workload includes all course-related activities required to obtain credits.

³ The curriculum is designed in such a way that full-time students can acquire an average of 30 credits per semester.

Art. 10 Allocation of credits

¹ D-ARCH and the four partner departments listed in Art. 2 each allocate a certain number of credits to each of the course units they offer.

² 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 settles any disputes.

⁸ SR 414.135.1, RSETHZ 322.021

⁹ See www.weisungen.ethz.ch

¹⁰ See www.weisungen.ethz.ch

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

Art. 11 Issuing of credits

¹ 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”.

² No credits are issued for unsatisfactory performance.

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

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

Art. 12 Recording, checking, registration

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

Chapter 2: Content, structure and scope of the Master’s degree programme

Part 1: Range of courses, structure and scope

Art. 13 Range of courses, structure

¹ The degree programme offers scientific education in the area of integrated building systems and technologies, with a focus on the energy efficiency of buildings. A central element is accordingly the integration of sustainable energy sources at building and community level, with the goal of continually improving the operation and administration of technologies.

² The four-semester degree programme is interdisciplinary and combines methods and knowledge from the disciplines of architecture, civil engineering, mechanical engineering and electrical engineering. It is structured into foundation, core and specialised courses and also offers interdisciplinary design and project courses. It concludes with a Master’s thesis on a current research theme.

³ The training of every student in the degree programme is supervised and coordinated by a professor, who is known as the “tutor”. For details of the tutor system see Art. 20.

Art. 14 Scope, duration, limits on duration of studies

¹ As stipulated in Art. 36, 120 credits are required to obtain the Master's degree.

² The normal duration of the degree programme is two years.

³ 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 pertaining deadline.

⁴ If admission to the degree programme is granted subject to the acquisition of additional credits (admission with additional requirements), the maximum permitted duration of studies may be extended by one semester for required extra credits in the range of 21 – 30 and by two semesters for required extra credits in the range of 31 – 60. For fewer than 21 required extra credits no extension is granted.

Art. 15 Language of instruction

Course units and the corresponding performance assessments are normally conducted in English. The language of instruction of course units offered by ETH Zurich is also subject to the pertaining Rector's directives⁽¹¹⁾.

Art. 16 Admission to course units

Registration for a course unit may be subject to admission prerequisites. If these are not set out in these Programme Regulations, they will be determined by the ETH Zurich department or the university offering the course unit.

Art. 17 Student exchange (outgoing Master's degree students)

¹ During the Master's degree programme credits may be acquired at other universities (mobility credits). Of these, a maximum of 10 credits⁽¹²⁾ may be counted towards the Master's degree. The stipulations of Para. 3 and 5 still apply.

² If the course units of another university belong to the curriculum of the degree programme, the associated credits do not count as mobility credits.

³ Students who did not acquire the previous (Bachelor's) degree at ETH Zurich are subject to the following:

- a. They may not participate in ETH Zurich exchange programmes. This does not apply if they undertake the semester project or the Master's thesis project at another university (see Para. 4).

¹¹ See www.weisungen.ethz.ch

¹² Version according to the D-ARCH department conference resolution of 08.12.2021. It applies to all students who enter the degree programme from Autumn Semester 2022 onwards. Students who entered the degree programme up to and including Autumn Semester 2021 are subject to the previous version, according to which a maximum of 30 mobility credits may be counted.

- b. Individual exchange stays are possible, but recognition of the associated credits towards the Master's degree is not permitted.

⁴ The semester project or the Master's thesis project may be conducted at another university and recognised towards the Master's degree if the written permission of the tutor is obtained in advance.

⁵ If admission to the degree programme is subject to the acquisition of additional credits (admission with additional requirements) an exchange stay is only possible when the additional requirements have been completed. Nor do credits earned during an exchange count towards fulfilment of additional requirements.

⁶ For an exchange stay the student first draws up a written study plan 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.

⁷ The Director of Studies decides whether mobility credits will be recognised. Art. 16 of the ETH Zurich Ordinance on Performance Assessments⁽¹³⁾ and the pertaining implementation stipulations⁽¹⁴⁾ of the Rector set out how proof of academic achievements should be handled.

⁸ The departmental exchange coordinator of D-ARCH is available to answer questions with regard to student exchange.

Part 2: Grouping by category

Art. 18 Categories

¹ 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. 36.

- a. Foundation courses
- b. Core courses
- c. Specialised courses
- d. Project courses
- e. Semester project
- f. Science in Perspective⁽¹⁵⁾
- g. Master's thesis

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

¹³ SR **414.135.1**, RSETHZ **322.021**

¹⁴ See www.weisungen.ethz.ch

¹⁵ Re-naming of the category, in effect since Autumn Semester 2016 (earlier term: "Compulsory GESS electives"). This change is applied throughout the document.

Art. 19 Overview of categories

¹ **Foundation courses**

Depending on their disciplinary backgrounds, students are normally familiar with only a part of the mathematical, scientific and technical foundations required in the area of “Building Systems”. Foundation courses fill the gaps in the disciplines mentioned and in so doing provide the basis for a common language. Further details of foundation courses and the associated performance assessments are set out in Art. 21 and 32, respectively.

²⁽¹⁶⁾ **Core courses** (*applies to students entering up to and including Autumn Semester 2021*)

Core courses cover basic, broad knowledge in core areas of integrated building systems and form the basis of the Master’s degree course. Further details of core courses and the associated performance assessments are set out in Art. 22 and 32, respectively.

^{2bis(17)} **Core courses** (*applies to students entering from Autumn Semester 2022 onwards*)

Core courses cover basic, broad knowledge in core areas of integrated building systems and form the basis of the Master’s degree course. Some core courses are mandatory and others can be freely selected. Further details of core courses and the associated performance assessments are set out in Art. 22a and 32, respectively.

³ **Specialised courses**

Specialised courses give students the opportunity to acquire in-depth knowledge in certain areas of integrated building systems. Further details of specialised courses and the associated performance assessments are set out in Art. 23 and 32, respectively.

⁴ **Project courses**

Project courses allow students to apply the knowledge they have acquired from core and specialised courses in project work. Details regarding the performance assessment are set out in Art. 33.

⁵ **Semester project**

The semester project provides students with their first experiences of interdisciplinary research project work. Further information, including details of the performance assessment, are set out in Art. 34.

⁶ **Science in Perspective**

Students are required to complete course units from the “Science in Perspective” programme. The details are set out in the directive “Science in Perspective”⁽¹⁸⁾. Stipulations regarding performance assessments are set out in Art. 32 of these Programme Regulations.

¹⁶ Version according to the D-ARCH department conference resolution of 03.10.2018. The stipulation that every core course must be completed and the associated performance assessment taken has been rescinded. In effect since Autumn Semester 2018. Applies to all students who entered the degree programme *before* Autumn Semester 2022.

¹⁷ Inserted according to the D-ARCH department conference resolution of 08.12.2021, in force since Autumn Semester 2022. Applies to all students who enter the degree programme from Autumn Semester 2022 onwards.

¹⁸ See www.weisungen.ethz.ch

⁷ **Master's thesis**

The Master's thesis is supervised by a professor and normally concludes the Master's degree programme. With the Master's thesis students demonstrate their ability to produce independent, structured scientific work. Further details are given in Art. 35.

Part 3: Tutor system; individual curriculum; special provisions for the categories "foundation courses", "core courses" and "specialised courses" and the recognition of previously acquired study achievements

Art. 20 Tutor system

¹ The Master's degree programme in Integrated Building Systems is a tutor-led programme (see www.master-buildingsystems.ethz.ch).

²(¹⁹) After admission to the degree programme students must submit a list of three tutors, in order of preference. When they enter the degree programme they are allocated a tutor.

³ In consultation with the student, the tutor determines the specialised courses in the individual curriculum as per the provisions of Art. 23. The tutor supervises the student throughout the Master's degree programme and is available to provide guidance if required.

⁴ If students wish to change tutors they should submit a request to the Director of Studies providing grounds. The Director of Studies may refuse the request if there are cogent grounds for doing so. The following stipulations also apply to a change of tutors:

- a. A change of tutors is normally only possible at the beginning of a semester.
- b. A change does not entitle the student to an extension of the maximum duration of studies.
- c. The Rector settles any disputes between the Director of Studies and the affected student.

Art. 21 Foundation courses

¹ The admissions committee determines foundation courses for each student individually and lists them in the individual curriculum. These courses are mandatory.

² If a student fails a performance assessment in a foundation course twice, the degree programme is regarded as failed and the student is excluded from the degree programme.

¹⁹ Version according to the D-ARCH department conference resolution of 08.12.2021, in force since Autumn Semester 2021. Applies to all students who enter the degree programme from Autumn Semester 2021 onwards.

³ D-ARCH is responsible for checking whether foundation courses have been passed or failed.

Art. 22 Core courses (*applies to students entering up to and including Autumn Semester 2021*)⁽²⁰⁾

¹ ...⁽²¹⁾

² If students have already completed ETH Zurich core courses whose credits were recognised towards the Bachelor's degree and can thereby no longer earn the minimum 31 credits required, the tutor will determine additional courses which must be completed as core courses. A reduction in the minimum number of 31 credits is not permitted.

Art. 22a⁽²²⁾ Core courses (*applies to students entering from Autumn Semester 2022 onwards*)

¹ The following provisions apply to the "core courses" category:

- a. The "core courses" category includes both mandatory and freely selected core courses. These are respectively identified as such in the Course Catalogue.
- b. All mandatory core courses must be completed and the respective performance assessments passed. The provisions of Para. 2 still apply.
- c. If definitive failure (i.e. failure after two attempts) of mandatory core courses means that less than 31 credits have been acquired, the missing credits must be acquired through elective core courses.
- d. If definitive failure of both mandatory and elective core courses means that the minimum 31 credits required can no longer be acquired, the degree programme will be regarded as failed and the student in question will be excluded from the degree programme.

² If students completed core courses at ETH Zurich during the previous Bachelor's degree programme and these were counted towards the Bachelor's degree such that the credits of the remaining core courses will no longer supply the minimum 31 credits required, the following provisions apply:

- a. The tutor will determine additional courses to be completed as electives. This possibility falls away if the minimum 31 credits required can no longer be acquired due to definitive failure of core courses.
- b. Reducing the minimum number of required credits (31) is not permitted.

²⁰ Refined version according to the D-ARCH department conference resolution of 08.12.20218. Applies to all students who entered the degree programme *before* Autumn Semester 2022.

²¹ Rescinded pursuant to the department conference resolution of 03.10.2018. The stipulation that every core course must be completed and the associated performance assessment taken has been rescinded. In effect since Autumn Semester 2018. Applies to all students who entered the degree programme *before* Autumn Semester 2022.

²² Inserted according to the D-ARCH department conference resolution of 08.12.2021, in force since Autumn Semester 2022. Applies to all students who enter the degree programme from Autumn Semester 2022 onwards.

Art. 23 Individual curriculum, specialised courses

¹ In consultation with the student, the tutor determines the specialised courses and lists them in the individual curriculum. Here the tutor takes into consideration the foundation courses which the student must complete, which are also listed in the individual curriculum.

² The curriculum should guarantee an excellent, varied course of studies and at the same time take into account the talents and expectations of the student.

³ The curriculum is binding. Specialised courses may only be recognised towards the Master's degree if they are listed in the individual curriculum.

⁴ Any disputes between the student and the tutor regarding course selection are settled by the Director of Studies.

⁵ D-ARCH sets the deadlines and modalities for creating and adjusting the individual curriculum.

Art. 23a⁽²³⁾ Recognition of study achievements earned before entry to the degree programme

The following provisions apply to recognition of study achievements / credits earned before entry to the degree programme:

- a. Credits are only recognised if they were acquired at ETH Zurich and have not been counted towards any other degree.
- b. Credits are only recognised if the knowledge and skills acquired in the respective course unit(s) are an integral part of the degree programme.
- c. A maximum of 10 credits are recognised. Credits from a course unit may not be divided up.
- d. Recognition of credits is only possible in the course unit categories "foundation courses", "specialisation courses" and "Science in Perspective" (Art. 36, Para. 1(a) and (d)). Recognition of credits in other categories is not possible.
- e. The Director of Studies rules on recognition. There is no automatic entitlement to recognition.

²³ Inserted according to the D-ARCH department conference resolution of 08.12.2021; in force since Autumn Semester 2022. Applies to all students who enter the degree programme from Autumn Semester 2022 onwards.

Chapter 3: Admission to the Master's degree programme

Art. 24 Prerequisites for admission

¹ Persons may apply for the degree programme if they hold a Bachelor's degree or the equivalent comprising at least 180 ECTS credits from a university or a Swiss university of applied sciences in a discipline qualifying them for the degree programme. The respective qualifying disciplines are listed in the Appendix.

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

Art. 25 Application, admission procedure and entry to the Master's degree programme

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

² The admissions committee of the degree programme investigates candidates' academic backgrounds and suitability for the Master's degree programme and formulates a request for admission or rejection for the attention of the Director of Studies.

³ At the request of the Director of Studies the Rector decides whether to admit or reject the candidate.

⁴ If admission is granted, the admissions committee determines the foundation courses which must be completed by the individual candidate. These are listed in the individual curriculum.

⁵ Depending on the candidate's qualifications and previous knowledge the Rector may make admission conditional upon proof of the acquisition of additional knowledge and skills by the pertaining deadline during the Master's degree programme (admission with additional requirements).

⁶ 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. 26 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. 27 Admission to performance assessments

Conditions may apply to admission to performance assessments. Unless set out in these Programme Regulations, they are determined by the department at ETH Zurich or by the university which offers the course unit.

Art. 28 Registering for / deregistering from performance assessments

¹ The following rules apply to registration/deregistration for 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 ETH Zurich Ordinance on Performance Assessments⁽²⁴⁾ and the implementation stipulations of the Rector⁽²⁵⁾.
- b. If the performance assessments fall into another category, registration and deregistration are generally handled directly by the respective teaching faculty member.

² If the performance assessments concerned are those of another university, registration and deregistration are subject to the rules of that university.

Art. 29 Absence, interruption, late submission or non-submission

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

- a. ETH Zurich performance assessments are governed by the stipulations of the ETH Zurich Ordinance on Performance Assessments⁽²⁶⁾ and the implementation stipulations of the Rector⁽²⁷⁾.
- b. Performance assessments of another university are subject to the rules of that university.

²⁴ SR 414.135.1, RSETHZ 322.021

²⁵ See www.weisungen.ethz.ch

²⁶ SR 414.135.1, RSETHZ 322.021

²⁷ See www.weisungen.ethz.ch

Art. 30 Issuing of results, disputes

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

² Every communication explains the procedure to follow if newly visible results are disputed.

Art. 31 Dishonest conduct

The sanctions for dishonest conduct in the context of performance assessments are outlined in the ETH Zurich Ordinance on Disciplinary Measures (*Disziplinarverordnung ETH Zürich*) of 10 November 2020⁽²⁸⁾.

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

Art. 32 Foundation courses, core courses, specialised courses and Science in Perspective

¹ Every course unit in the categories “foundation courses”, “core courses”, “specialised courses” and “Science in Context” is subject to a performance assessment.

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

³ If a course unit is offered by another university that university determines the mode of the respective performance assessment.

⁴ A performance assessment is passed if it is awarded a grade of at least a 4 or a “pass”.

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

⁶ Once passed, a performance assessment may not be repeated.

Art. 33 Project courses

¹ Every project course is subject to a performance assessment.

² The respective mode of performance assessment is listed in the Course Catalogue.

²⁸ SR 414.138.1, RSETHZ 361.1

³ A project course is passed if it is awarded a grade of at least a 4 or a “pass”.

⁴ A failed project course may only be repeated once.

⁵ Once passed, a project course may not be repeated.

Art. 34 Semester project

¹ The semester project may be conducted either at ETH Zurich, in industry, or at a research institution in or outside of the ETH domain.

² Semester projects are supervised and assessed by one or more professors and sometimes further persons. At least one professor must belong to one of the departments involved in the degree programme (see Art. 2). This also applies to semester projects conducted outside of ETH Zurich.

³ The supervisor of the semester project

- a. determines the theme of the semester project in consultation with the student(s) involved;
- b. defines the tasks;
- c. sets out in writing the deadlines for starting and submitting the work, and the criteria governing its assessment.

⁴ The time allowed for the semester project is five weeks if students can work on it full-time (full-time studies). If the semester project is conducted in parallel with lectures, it should consume half of the time dedicated to full-time studies, meaning that the duration would be ten weeks. The Director of Studies may extend this on request if cogent grounds are provided.

⁵ The semester project is graded. If it is conducted as group work, the performance of each individual group member is graded.

⁶ The semester project is passed if it receives a grade of 4 or above.

⁷ A failed semester project may only be repeated once.

⁸ Once passed, a semester project may not be repeated.

Art. 35 Master's thesis

¹ Students may only commence the Master's thesis if all of the following apply:

- a. They have completed their Bachelor's degree studies.
- b. They have fulfilled any additional requirements for admission to the degree programme.

- c. With the exception of the categories “Specialised courses” and “Science in Perspective” they have completed all of the requirements to obtain the Master’s degree listed in Art. 36. On reasoned request the Director of Studies may approve exceptions.

² The Master’s degree project may be conducted at ETH Zurich, in industry or at a research institution (in or outside of the ETH domain).

³ Master’s theses are supervised and assessed by one or more professors and sometimes further persons. At least one professor must belong to one of the departments involved in the degree programme (see Art. 2). This also applies to Master’s thesis projects conducted outside of ETH Zurich.

⁴ The Master’s thesis supervisor

- a. determines the theme of the Master’s thesis in consultation with the student;
- b. defines the task; and
- c. sets out in writing the deadlines for starting the Master’s thesis and the criteria governing its assessment.

⁵ The maximum permitted period for completing the the Master’s thesis is 28 weeks⁽²⁹⁾. The Director of Studies may extend this on request if cogent grounds are provided.

⁶ The Master’s thesis must be innovative in the technical and scientific sense.

⁷ The Master’s thesis is graded. If it is conducted as group work, the performance of each individual group member is graded.

⁸ The Master’s thesis is passed if it receives a grade of 4 or above.

⁹ A failed Master’s thesis project may only be repeated once. If it is repeated, a new theme must be addressed. The repetition may be conducted under a new supervisor.

¹⁰ A Master’s thesis, once passed, may not be repeated.

²⁹ The 28 weeks comprise 26 weeks of work and 2 weeks of compensation for holidays, sick days and other brief absences.

Chapter 5: Issuing of the Master's degree

Part 1: Credits by category, and degree request

Art. 36 Credits by category

¹ The 120 credits required for the Master's degree must be earned in the following categories and subcategories in at least the numbers given. Further details are set out in Para. 2 and 3.

- | | |
|--|------------|
| a. Main courses | 70 credits |
| 1) Foundation courses (at least 4 credits) | |
| 2) Core courses (at least 31 credits) | |
| 3) Specialised courses (at least 13 credits) | |
| b. Project courses | 12 credits |
| c. Semester project | 6 credits |
| d. Science in Perspective | 2 credits |
| e. Master's thesis | 30 credits |

² Of the required 70 credits in the category "Main courses" (Para. 1 (a))

- At least 4 credits must stem from the subcategory "Foundation courses".
- At least 31 credits must stem from the subcategory "Core courses". Students who enter the degree programme from Autumn Semester 2022 onwards are also subject to the provisions of Art. 22a in the area of core courses.⁽³⁰⁾
- At least 13 credits must stem from the subcategory "Specialised courses".

³ Foundation courses and specialisation courses (Para. 1 (a) 1 and 3) may only be recognised towards the Master's degree if they are listed in the individual curriculum. See the details set out in Art. 23.

Art. 37 Degree request

¹ When they have fulfilled the requirements set out in Art. 36 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 ETH Zurich Rector may extend this deadline if cogent grounds are provided by the respective request deadline.

² The request should contain all those performance achievements with pass grades in the categories and sub-categories listed in Art. 36 which are to be listed in the final academic record. The sum of credits in each category must reach the minimums designated in Art. 36.

³⁰ Version according to the D-ARCH department conference resolution of 08.12.2021, in force since Autumn Semester 2022.

³ The credits earned by completing a course unit may not be recognised more than once, or divided up.

⁴ 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.

⁵ Mobility credits may be recognised towards the Master's degree. The limits stipulated in Art. 17 apply.

⁶(³¹) Recognition of study achievements or credits from preceding studies is not possible. The exceptions are:

- a. Students entering up to and including Autumn Semester 2021: Credits earned at ETH Zurich 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. The ETH Zurich Rector, at the request of the Director of Studies, decides whether credits will be recognised. There is no automatic entitlement to recognition.
- b. Students entering from Autumn Semester 2022 onwards are subject to the provisions set out in Art. 23a.

Part 2: Academic record, degree certificate and Diploma Supplement

Art. 38 Documents

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

Art. 39 Academic record

¹ The academic record verifies the successful completion of the Master's degree.

² The academic record lists

- a. the study achievements listed in the degree request as per Art. 37, 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.

³ A separate sheet of the academic record lists

- a. any additional requirements;
- b. all further study achievements as set out in the pertaining implementation stipulations⁽³²⁾ of the Rector.

³¹ Version according to the D-ARCH department conference resolution of 08.12.2021, in force since Autumn Semester 2021.

³² See www.weisungen.ethz.ch

⁴ D-ARCH records, checks and administers the grades and other measures of performance, and places the order for the printing of the academic records.

Art. 40 Degree certificate, Diploma Supplement

¹ Details regarding the degree certificate are set out in Art. 28 of the ETH Zurich Ordinance on Performance Assessments⁽³³⁾.

² The Diploma Supplement comprises a standardised explanation of the degree.

Chapter 6: Final clauses

Art. 41 Definitive failure, exclusion from the degree programme

¹ The degree programme is regarded as definitively failed if

- 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. 36, or any other conditions) can no longer be satisfied due to failure of performance assessments or failure to respect academic deadlines⁽³⁴⁾;
- b. (for persons admitted with additional requirements) any additional requirements cannot be completed due to failure of performance assessments or failure to respect academic deadlines.

² Definitive failure results in exclusion from the degree programme.

Art. 42 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 on request a transcript of records for non-graduating students which lists all the study achievements generated and evaluated before exclusion or withdrawal.

Art. 43 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.

³³ SR 414.135.1, RSETHZ 322.021

³⁴ Academic deadlines are deadlines for conducting performance assessments; additional individual deadlines; and the maximum permitted duration of studies.

Art. 44 Entry into effect

¹ These Programme Regulations enter into effect on 15 February 2014.

² They apply to students who enter or re-enter the degree programme from Autumn Semester 2014 onwards.

On behalf of the Executive Board
President: Ralph Eichler
Secretary General: Hugo Bretscher

Appendix 1

To the Programme Regulations 2014 of the
Master's degree programme in Integrated Building Systems (MBS)

10 February 2014 (Version: 1 September 2019)

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

This is an English translation only. The original German version is the legally binding document.

This appendix sets out the academic, language and performance prerequisites for and further details regarding admission to the Master's degree programme in Integrated Building Systems. 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 Integrated Building Systems (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 and performance admission prerequisites.

² Said disciplines include, in particular (listed alphabetically):

- a. Architecture
- b. Civil Engineering
- c. Electrical Engineering
- d. Environmental Engineering
- e. Geomatic Engineering and Planning / Geospatial Engineering
- f. Mechanical 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 degree programme presupposes basic knowledge and skills in technical and natural sciences which must in content, scope, quality and level of mastery be equivalent to that covered in the ETH Bachelor's degree programmes (discipline requirements profile).

² The **discipline requirements profile** comprises **105 ECTS credits (credits)** in total and is based on knowledge and skills covered in the ETH Zurich Bachelor's degree programmes in the disciplines listed in Section 1.1. This includes training in the relevant methodological scientific thinking. Details are set out in Para. 5 below.

¹ 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.

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 the academic prerequisites for admission are not completely satisfied, admission may be granted subject to the acquisition of the missing knowledge and skills in the form of additional credits (admission with additional requirements). Details regarding the fulfilment of these additional requirements are set out in Section 4.

⁴ Admission to the degree programme is not possible if the academic gaps in the candidate's background are too extensive. For details applying to persons with a university qualification / a qualification from a university of applied sciences see Sections 2.1 and 2.2, respectively.

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.vvz.ethz.ch).

Part 1: Basic knowledge and skills (25 credits)

Part 1 comprises **25 credits** and covers basic knowledge and skills, differentiated according to the disciplinary backgrounds of candidates, as follows:

- a. Candidates with a **Bachelor's degree in Architecture** must master basic knowledge and skills in mathematics, physics or applied physics, and technical disciplines, based on the corresponding course units of the ETH Bachelor's degree programme in Architecture:
 - Mathematics [Mathematik] (at least 4 credits)
 - Physics or Applied Physics (e.g. Building Physics, Building Materials, Technical Installations etc.) (at least 10 credits)
[Physik oder angewandte Physik (bspw. Bauphysik, Baumaterialien, Technische Installationen usw.)]
 - Structural Design [Tragwerk], Construction [Konstruktion] (at least 11 credits)
- b. Candidates with a **Bachelor's degree in Civil Engineering, Geomatic Engineering and Planning, Electrical Engineering, Mechanical Engineering or Environmental Engineering** must have a command of basic knowledge and skills in mathematics, physics and mechanics, based on the corresponding course units of the respective ETH Bachelor's degree programmes:
 - Analysis I and II
 - Linear Algebra [Lineare Algebra]
 - Physics I and II [Physik I und II]
 - Mechanics [Mechanik]

Part 2: Subject-specific knowledge and skills (80 credits)

Part 2 comprises **80 credits** and covers subject-specific knowledge and skills in areas of technology and/or the natural sciences, depending upon the Bachelor's degree of the candidates:

- a. Candidates with a **Bachelor's degree in Architecture** must have a command of the following subject-specific knowledge and skills, based on the corresponding course units of the ETH Bachelor's degree programme in Architecture:
Design (Urban Design, Construction), Structural Design, Building Physics, Technical Installations etc.
[Entwurf (Städtebau, Konstruktion), Tragwerk, Bauphysik, Technische Installationen etc.]
- b. Candidates with a **Bachelor's degree in Civil Engineering, Geomatic Engineering and Planning, Electrical Engineering, Mechanical Engineering or Environmental Engineering** must have a command of the following subject-specific knowledge and skills, based on the corresponding course units of the respective ETH Bachelor's degree programmes:
Engineering Sciences, Mathematics, Physics, Computer Science, Natural Sciences etc.
[Ingenieurwissenschaften, Mathematik, Physik, Informatik, Naturwissenschaften etc.]

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, Subsection 2), also supply 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.

1.4 Performance prerequisites

Admission to the degree programme presupposes a very good study performance record in the preceding course of studies, in particular with regard to Part 1 of the discipline requirements profile.

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

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

2.1 Application with a university Bachelor's degree

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

² Admission may be subject to additional requirements.

³ Admission is not possible if

- a. the language or performance prerequisites set out in Sections 1.3 to 1.5 are not satisfied, or
- b. in the context of academic prerequisites (1.2)
 - 1) any credits from Part 1 of said academic prerequisites must be acquired, or
 - 2) more than 30 credits from Part 2 of said academic prerequisites must be acquired.

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

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

² 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).

³ Admission is not possible if

- a. the language or performance prerequisites set out in Sections 1.3 to 1.5 are not satisfied, or
- b. the scope of the additional requirements necessary to satisfy academic prerequisites exceeds 60 credits.

2.3 Entering the Master's degree programme

¹ 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.⁽⁴⁾

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).

- b. The normal ETH enrolment dates and deadlines apply.
- c. Admission is provisional until the Bachelor's degree is issued. Admission will be revoked if the Bachelor's degree is not or cannot be issued.

² 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

¹ 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).

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 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 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 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.

4.3 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 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.

Appendix 2

To the Programme Regulations 2014 of the
Master's degree programme in Integrated Building Systems

Qualification profile

Introduction

The Master's degree programme in Integrated Building Systems imparts scientific training in building systems and technologies, with a focus on energy efficiency and the environmental impact of buildings. It addresses the integration of sustainable energy technologies at the building and community level with the complex requirements for building operation which these generate. The programme is interdisciplinary, integrating methods and knowledge from architecture, civil engineering, mechanical engineering and electrical engineering. Its graduates are specialists in the area of integrated building systems and technologies. They have access to a wide range of professional fields, which include building services, energy supply, planning, consulting, real estate and facility management in companies, public authorities such as urban administration, and research institutions. Their training enables them to assume positions of significant responsibility.

Domain-specific knowledge and understanding

Graduates with a Master's degree in Integrated Building Systems

- have a foundation in architecture, mechanical engineering, civil engineering and electrical engineering and a basic understanding of physics, thermodynamics, fluid dynamics, applied mathematics, building technologies and structural engineering;
- are able to integrate state-of-the-art knowledge of building systems and technologies into the planning of complex buildings with an eye to comfort, security, and economic and ecological aspects;
- possess broad knowledge in the areas of building systems design, energy flow in and around buildings, energy technology for buildings, building operation, control and feedback control systems, building services and energy management systems.

Skills

Graduates with a Master's degree in Integrated Building Systems

- are able to define assumptions, formulate arguments, work with abstract concepts and data, and identify and understand the interaction of relevant components in order to make evaluations and develop appropriate approaches to the planning and operation of complex buildings;

- are able to apply advanced techniques of analysis, computation, diagnosis and modelling including static and dynamic building energy simulation and the modelling of building systems, and have mastered the associated programming techniques;
- are able to define a work programme, analyse a problem or task related to building operation and management, and develop technical solutions;
- are able to understand buildings as integrated systems by considering all of the relevant interactions with the environment of the area and city, and develop scenarios for the future.

Personal and social competences

Graduates with a Master's degree in Integrated Building Systems

- are able to work in interdisciplinary teams and coordinate the cooperation between various building technology disciplines;
- are able to report on findings and working methods orally and in writing using current specialist language and terminology, and present the advantages of new ideas and developments convincingly;
- are able to present ideas, problems and approaches to specialists and laypersons orally and in writing and tailor their communication to the respective audience.