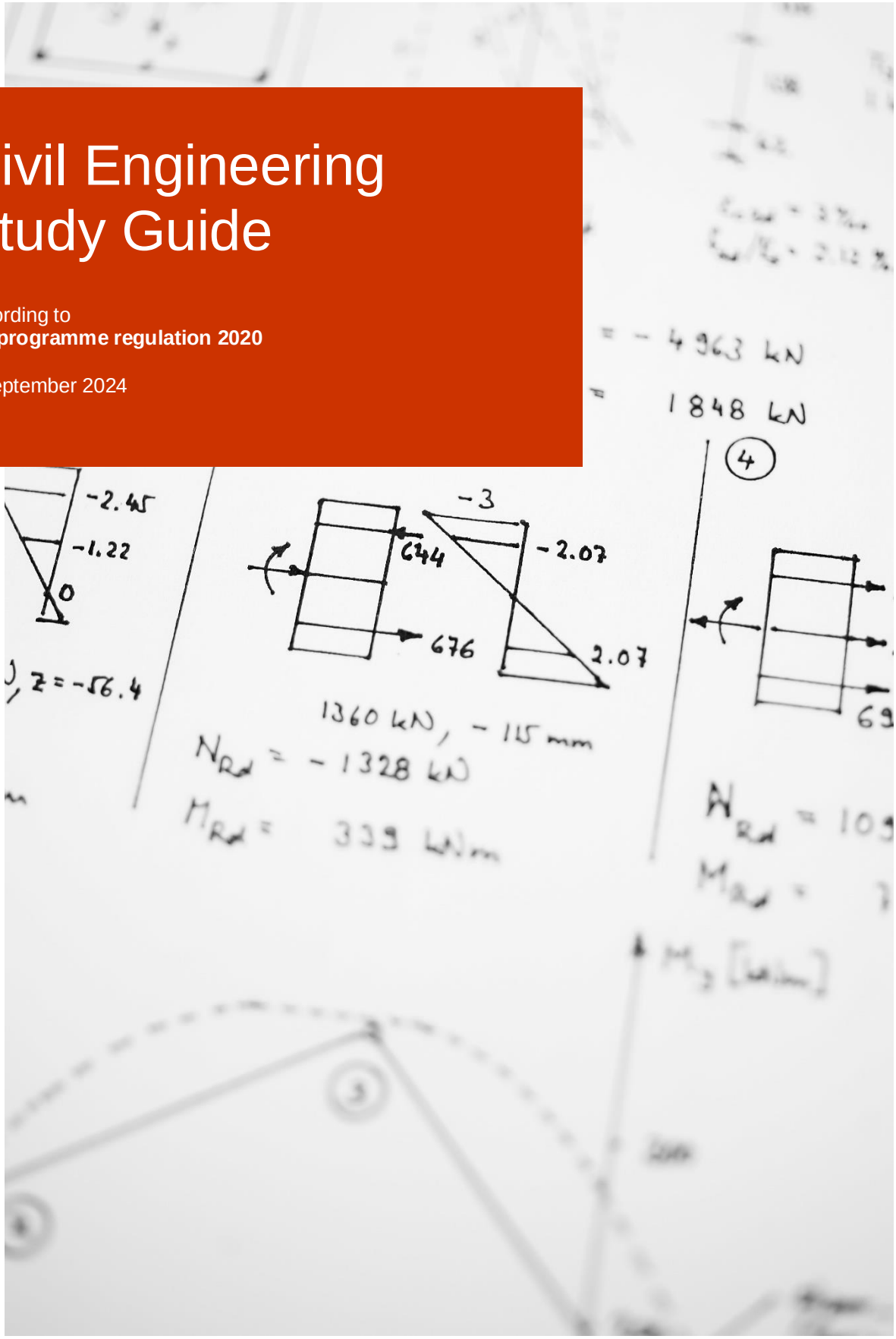
ETH zürich

Dept. of Civil, Environmental and Geomatic Engineering

Civil Engineering Study Guide

according to
the programme regulation 2020

1 September 2024



Introduction

This study guide for the Master's degree programme in Civil Engineering at the Swiss Federal Institute of Technology Zurich (ETH Zurich) provides information on the structure and procedure of the programme. This document is based on the rules and regulations of ETH Zurich, in particular, the Master's programme regulation in Civil Engineering. The study guide is provided solely for convenience as a translation and holds no legal authority.

Revised edition:
22.8.2024: Update Appendix A.5

Table of Contents

1 Study Programme

The Master's degree programme in Civil Engineering at ETH Zurich consists of 120 ECTS and takes two years to complete (max. four years). Successful completion of the programme is designated with the title MSc ETH Bau-Ing. or MSc ETH Civil Eng. This title qualifies students for independent practical or scientific professional activity as a civil engineer. In the Master's programme, students have the opportunity to focus on two specialisations from the broad professional field of civil engineering and can design their curriculum according to their personal interests.

Credits

The European Credit Transfer System (ECTS) is used to assess the study achievement. One credit point (CP) corresponds to an academic achievement, which can be completed in 25 to 30 hours of work. Credits are awarded for successfully completed performance assessments. The number of CPs is listed for each course in the currently valid course catalogue.

Performance Assessments

A performance assessment is a procedure by which the performance of students is evaluated. The following performance assessments are planned:

- Session examination: written or oral examination during the examination session
- End-of-semester examination: written or oral examination at the end of the semester
- Semester assignment: performance to be achieved during the semester

Course Catalogue

The course catalogue (www.vvz.ethz.ch) contains all binding information on all courses at ETH Zurich, e.g. course content, prerequisites, type of performance assessment, teaching and examination language, etc.

Language

The main language of the Master's programme is English.

Legal Basis

The Master's programme is based on the following legal foundations:

- Ordinance on Admission to Studying at ETH Zurich
  (ETH Zurich Admissions Ordinance)
- Ordinance on Course Units and Performance Assessments at ETH Zurich
  (ETH Zurich Ordinance on Performance Assessments)
- Programme regulations 2020 for the Master's degree programme in Civil Eng., 24.05.2023-1

1.1 Specialisations

Students must choose two of the following six specialisations at the beginning of the Master's degree programme and enter them in myStudies by the end of the 2nd week of the semester:

- Construction and Maintenance Management
- Geotechnical Engineering
- Structural Engineering
- Transport Systems
- Hydraulic Engineering and Water Resources Management
- Materials and Mechanics

Each specialisation offers a variety of courses (see Appendix A.5). Depending on the specialisation, certain of which courses are compulsory. These must be credited in the corresponding specialisation and may not be assigned to other categories. All other courses can be selected freely. A minimum of 24 CP must be acquired in each of the two chosen specialisations.

A performance assessment can be repeated once if it is not passed in the first attempt. For freely selectable specialisation courses, if a performance assessment within the specialisation is failed twice, it cannot be repeated and another course from the same specialisation must be completed. If a compulsory course is failed twice, the specialisation must be changed.

A specialisation can be changed upon request to the Study Administration for Civil Engineering. In case of change of specialisation, the regulations stated above also apply to the new specialisation.

1.2 Electives

The electives serve to broaden specialist knowledge or to acquire in-depth knowledge in selected subject areas. All courses from the entire range of courses offered by ETH Zurich and the University of Zurich (including the Language Center of both universities) are eligible to count as elective credits. A total of 12 CP must be earned in this category. It is up to the degree programme offering the elective course to decide whether students from other degree programmes meet the requirements for participation in the courses.

1.3 Digital Courses

Digital courses promote the confident use of new digital technologies and a thorough understanding of computer-aided tools so that they can be safely applied and further developed in the field of civil engineering.12 CP must be earned from this category. The selection of courses is marked with a "D" in Appendix A.5. The information in the course catalogue is always binding.

1.4 Seminar Work

The compulsory seminar paper "Project Management for Construction Projects" (101-0007-00L) teaches the basics of the various concepts, techniques and tools for successful project management. 4 CP are credited for a successful seminar paper.

1.5 GESS Science in Perspective (WiK/SiP)

In accordance with an ETH Zurich directive, students must complete courses with general educational content from the "Science in Perspective" course programme. Eligible courses are indicated in the course catalogue. A total of 2 CP must be earned in this category.

1.6 Compulsory Project Work

The compulsory project work must be carried out in one of the two chosen specialisations, lasts one semester (spring or fall semester) and is supervised by a professor. 11 CP are credited for a successfully completed project. A failed project can be repeated once. If it is repeated, a new topic must be worked on. The repetition can be carried out under a different professor than the first attempt.

Conditions and prerequisites

Conditions and prerequisites are described in the individual project work topics.

Registration procedure

The topics of the project work are punctually published by the last third of each semester. Students register for a specific topic as part of a registration procedure organised by the Study Administration Office. As soon as the registration list has been submitted to the professors, it is binding. The topic cannot be changed afterwards. Students can also determine their own topics with the approval of corresponding professorship and indicate this selection until the end of the semester preceding the project work. The project work must be registered in myStudies in the corresponding semester.

Group Work

Group work is possible and requires the approval of the responsible professors. The performance of each group member is generally assessed with the same grade.

Breaking off

Breaking off of the project work is only possible in exceptional cases. A written, justified request must be submitted to the Director of Studies immediately. From the second half of the processing time onwards, there must be a compelling reason for breaking off the project work, otherwise termination is not possible.

1.7 Project-based Courses

The courses in this category confront students with open questions and, depending on the topic, encourage them to organise their own work and work in groups. 11 CP must be earned from the specialisation other than the compulsory project work (section 1.6), whereby students can choose one of the following two options:

- Option 1: Additional project work
- Option 2: Project-based learning courses

Option 1: Additional Project Work

The additional project work must come from the other specialisation in which the compulsory project work is completed. This project work also lasts for one semester (spring or fall semester). Both project and research topics are possible. The project work can also be completed as preparation for the Master's thesis after consultation with the professorship. Topics on offer are advertised. Students can also

agree their own topics with the professorship until the end of the semester preceding the project work. The professorships are not obliged to offer topics.

One of the six projects listed in the course catalogue must be registered as an additional project ("Project on ..."). It can only be terminated in exceptional cases. A written, justified request must be submitted to the Director of Studies immediately. From the second half of the processing time, there must be a compelling reason for breaking off, otherwise breaking off is not possible.

Option 2: Project-based Learning

A total of 11 CP must be earned from project-based courses (marked with a "P" in Appendix A.5). The course catalogue governs course and respective conditions and requirements. Of the 11 CP, at least 8 CP must be earned in the other specialisation than the specialisation with the compulsory project work. The remaining CP come from project-based courses from the other specialisations.

1.8 Master's Thesis

The Master's thesis in the last semester of study must come from one of the two specialisations. It lasts a total of 18 weeks and is supervised by a professor. The 18 weeks are made up of 16 weeks of actual completion time and 2 weeks to compensate for public holidays, sick days and other short-term absences. The exact dates for issuing and submitting the thesis are published on the Civil Engineering department website.

20 CPs are awarded for satisfactory completion and defense of the Master's thesis. An unsatisfactory Master's thesis can be repeated once, and a new topic must be selected. The professor underwhich the new Master's thesis is completed can likewise be changed. For further information and binding regulations pertaining to the Master's thesis, see the relevant information sheet on the website.

Conditions and Prerequisites

- The Bachelor's degree programme has been completed.
- Any additional requirements have been fulfilled.
- 90 CP of the remaining Master's degree programme have been successfully completed (regardless of the category).
- The compulsory project work has been successfully completed.

Registration Procedure

No specific topics are advertised. Students determine the topic with a professor by the end of the semester before the Master's thesis. The Master's thesis must be registered in myStudies in the section "Projects/papers/theses" in on time before the start and both the title of the thesis and the name of the professor must be listed. The professor must then confirm the enrolment. Subsequently, the registration for the Master's thesis is binding and can no longer be changed or deleted by the student.

Group Work

Group work is possible, provided that the individual contributions of each student are clearly defined and can be assessed individually. Group work requires the approval of the responsible professors.

Breaking off

The Master's thesis cannot be terminated without consequences. In the event of breaking off, students must contact the Study Administration for Civil Engineering immediately.

2 Completion of Studies

The Master's degree qualifies graduates to carry out the activities of a civil engineer and is a prerequisite for a possible doctoral thesis.

Degree Request

Once students have provided proof of the 120 CP required for the Master's degree, they can apply for a diploma within four years of starting the Master's programme. The degree request must be submitted in myStudies. All performance assessments must be assigned to the corresponding categories and specialisations. Minimum requirements regarding the number of CP apply for the various course categories (see Appendix A.2).

Deadlines

The binding deadline to complete studies is specified in myStudies. If there is the potential that the deadlines will not be met, a written, reasoned request for an extension must be submitted to the Student Administration Office of the Academic Services as soon as possible.

Final Documents

- Final academic record with all performance assessments (German/English), incl. no shows
- Bilingual Diploma Supplement (German/English)
- Bilingual ranking (German/English) with personal overall average grade resp. grade point average and standard deviation of the degree programme of a year
- Degree certificate (German, French or Italian)

Grade Point Average

The grade point average is calculated based on the weighting of the individual performance assessments. The weighting corresponds to the CPs. Ungraded semester assignments are not taken into account in the calculation of the grade point average.

3 Internship

An internship is not compulsory. However, students are recommended to familiarise themselves with practical tasks on a construction site or in a project planning company. Completion of an internship cannot be accepted as CP towards the educational degree coursework. During the internship semester, students remain enrolled at ETH Zurich and indicate this action to take a semester off in myStudies.

4 Student Exchange

Students who hold an ETH Bachelor's degree and have a grade point average of 4.50 or higher have the option of completing one or two semesters at another university and, after consultation with the degree programme, have the credits credited to their ETH studies. Students who successfully complete their studies are awarded the ETH degree.

Preparation

If you are interested in an exchange programme, please check the ETH Zurich website www.outgoing.ethz.ch well ahead of applying. For the preparation and planning of an exchange programme, it is recommended to contact the departmental exchange coordinator of the Civil Engineering programme (see Appendix A.6). Before starting the exchange programme, a study plan must be defined and approved by the departmental exchange coordinator.

General Principles

- Participation at the exchange programme is not possible for Master's students without a Bachelor's degree from ETH Zurich.
- The minimum requirement for all degree programmes is an average grade of 4.50 in the first-year examinations or the Bachelor's degree at ETH Zurich. Students who have not achieved this grade can still qualify for the exchange if they have obtained at least 20 CP in their Master's degree at the time of application and have a weighted grade point average of 4.50 across all subjects.
- An exchange programme is possible for one or two semesters, whereby a maximum of 60 CP can be credited.
- If any credits during the Bachelor's degree were not completed at ETH Zurich, then only 40 CP can be credited.

Master’s Thesis

Writing a Master's thesis at a host university is possible for all Master's students. The consent of the relevant civil engineering professor must be obtained. When registering for the Master's thesis in myStudies, the relevant details of the host university must be provided.

Time Frame

From the second semester onwards, an exchange programme is possible, as there are no longer any compulsory courses in the specialisations.

5 Military and Civilian Service

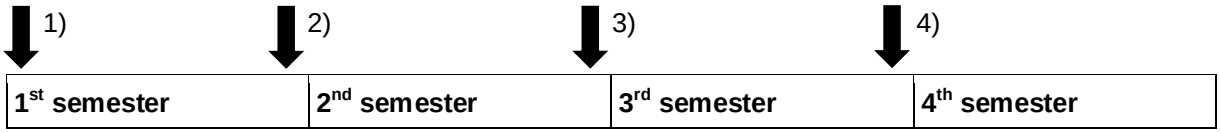
Swiss students who are called up for military or civilian service during their studies can apply for a deferment of service if there are compelling reasons for a deferment. The corresponding signature on the official military service deferment request can be obtained from the information desk for students or by e-mail. Guidelines for postponement have been developed to determine which cases are considered compelling. The corresponding overview and the deferment form can be found on the website of Civil Engineering under "Documents".

Please bring the following documents with you to sign at the information desk for students:

- Completed and signed military service deferment request
- Study plan for one year from the date of the request (see template on the website)
- Service request, if available
- Personal letter, if no compelling reason exists

6 Study Planning

In the Master's degree programme, it is important to plan the semesters leading up to graduation at the start of your studies in order to make certain decisions at the right time. Important decisions should be made as follows when planning the studies:



1) Determine the two specialisations, registration in myStudies
2) Determine the topic for the compulsory project work.
3) Eventually determine the topic for any additional project work or preparatory work for the Master's thesis
4) Determine the topic for the Master's thesis

7 Information and Guidance

The first point of contact for students is the information desk for students.

Information Desk for Students

HIL E 32.1
Hönggerberg Campus, 8093 Zurich

Opening hours:
Monday to Thursday
For counter opening hours see website www.bauing.ethz.ch.

The services at the information desk include:

- General information regarding enrolment, student ID card, leave of absence, scholarships, etc.
- Acceptance of documents (applications to the director of studies, degree request, etc.)
- Issuing official transcripts of records
- Assessment of military service transfer requests
- Room reservations for students (meeting rooms, lecture halls)

Study Administration Civil Engineering

The Study Administration Office will be happy to help you with further advice on your degree programme. It is worth making an appointment.

Specialist Advice

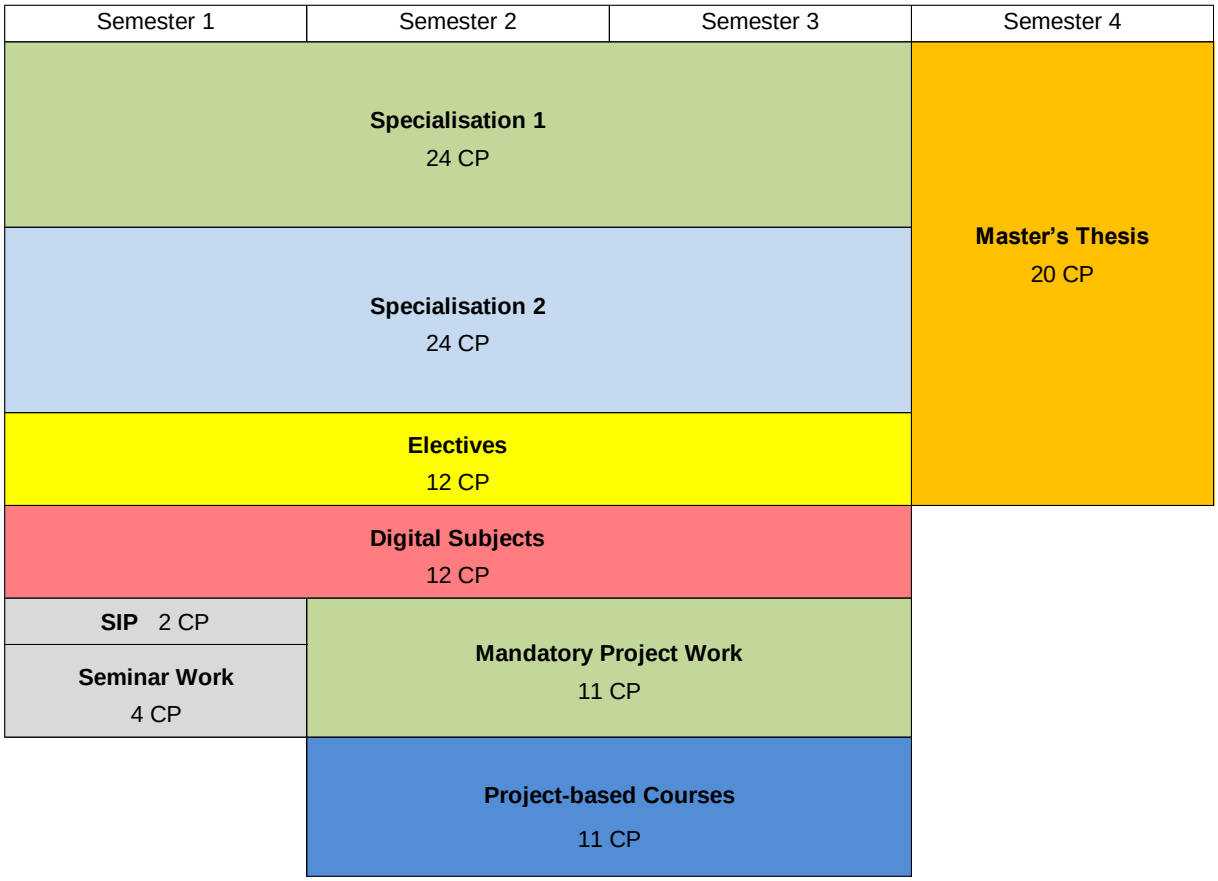
Assistants and professors are also available for specialist advice and support. It is important that students seek the support of these specialists at an early stage if they have problems with the subject matter.

Further Advice Centers

The advice centers are listed in detail in Appendix A.6.

Appendix

A.1 Overview Master's Degree Programme



A.2 Master's Degree

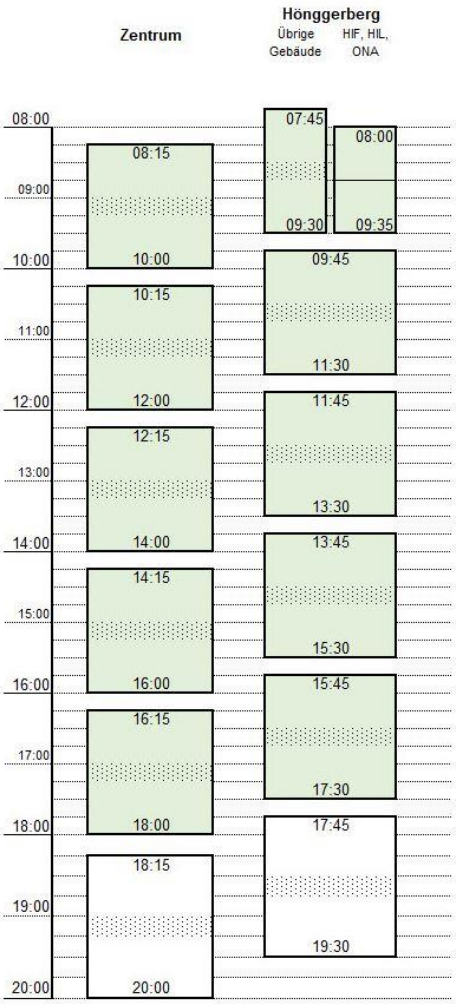
Category	Min. CP
Specialisations	2 x 24 = 48
Electives	12
Seminar Work and Project Work	15
Digital Courses	12
Project-based Courses	11
Science in Perspective	2
Master's Thesis	20
Total CP	120

A.3 Projects

		CP	Start	Submission
MSc 2nd sem.	**Compulsory Project Work**	11	Beginning of the 2nd week of the semester	End of semester
MSc 3rd sem.	**Additional Project Work** (optional)	11		End of semester
MSc 4th sem.	**Master's Thesis**	20		After 18 calendar weeks

A.4 Lecture Times

Lesson blocks generally last 45 minutes.



A.5 List of courses in the Master's degree programme

	Construction and Maintenance Management	Kateg.	S/K	Geotechnical Engineering	Kateg.	S/K	Structural Engineering	Kateg.	S/K
1. Sem.	**Infrastructure Management 1: Process**	O	2/6	Untertagbau I	D, E	2/3	**Theory of Structures III**	O	2/4
	An Introduction to Sustainable Development	O	2/3	Theoretical and Experimental Soil Mechanics	P, E	4/6	**Advanced Structural Concrete**	O	2/4
	in the Built Environment			Design and Construction in Geotechnical Engineering	D	3/4	**Steel Structures III: Adv. Steel and Composite Struct.**	O	2/4
	Building Physics: Theory and Applications		4/4	Forensic Geotechnical Engineering		2/3	Structural Reliability and Risk Analysis	D	2/3
	Design and Building Process MIBS		2/2	Granular Mechanics	D, P	4/4	Structural Dynamics and Vibration Problems		2/3
	Public Transport Design and Operations	P	4/6				Moisture Transport in Porous Media		2/3
							Fibre Composite Materials in Structural Engineering		2/3
							Timber Structures I (als Jahreskurs mit Timber Struct. II)		2/3
							Computational Science Investigation for Mat. Mechan.	D	2/4
2. Sem.	Infrastructure Management 2: Evaluation Tools	D,P,E	2/6	Untertagbau II	E	2/3	Bridge Design	P	4/6
	Re-/Source the Built Environment	E	2/3	Sprengtechnik		3/2	Hochbau		2/3
	Prospective Environmental Assessments		2/3	Constitutive and Numerical Modelling in Geotechnics	D, E	4/6	Method of Finite Elements I	D	3/5
	Infrastructure Systems in Urban Water Management		2/3	Soil Dynamics	D, P	2/4	Holzbau II (zusammen mit Holzbau I als Jahreskurs)		2/3
	Digital Transformation for Circular Construction	D, P	-/8	Clays in Geotechnics: Problems and Applications		2/3	Seismic Design of Structures I		2/3
				Planning of Underground Space	P	2/3	Uncertainty Quantification in Engineering	D, P	2/3
							Structural Identification and Health Monitoring	D	2/3
							Seismic Evaluation and Retrofitting of Existing Buildings	P	1/2
							Seismic Design and Evaluation of Bridges	P	2/2
							Advanced Analysis and Design of Steel Structures	P, D	2/3
							Fire Safety and Acoustics Engineering		2/3
3. Sem.	Materials and Constructions	P	2/4	Untertagbau III	P	2/4	Mauerwerk		2/3
	Design-Integrated Life Cycle Assessment	P	2/4	Environmental Geotechnics - Polluted Sites, Waste Disp.		2/3	Non Destructive Eval. & Rehabilitation of Existing Struct.	P	2/3
	Digital Creativity for Circular Construction	D, P	-/8	Geotechnical Eng. in Transportation and Pavement Design		2/3	Method of Finite Elements II	D	2/3
							Seismic Design of Structures II		2/4
							Seismic and Vibration Isolation		1/2
							Structural Design	P	2/3
							Holzbau III		2/3
							Structural Glass Design and Facade Engineering	D, P	3/3
							Scientific Machine and Deep Learning for Design/Constr.	D, P	4/3
							Bridge Design: Project Competition	D, P	2/4

Legend: **O:** Compulsory specialisation courses; **D**: Digital courses; **P**: Project-based courses; **E**: Recommended courses; **S**: Weekly semester hours; **K**: Credits; **Ku**: Course over several days. The course catalogue is decisive for the assignment of courses (www.vvz.ethz.ch).

	Transport Systems	Kateg.	S/K	Hydraulic Engineering and Water Resources Manag.	Kateg.	S/K	Materials and Mechanics	Kateg.	S/K
1. Sem.	**Public Transport Design and Operations**	O, P	4/6	**Hydraulic Engineering II**	O	4/6	Concrete Technology	P	2/2
	Traffic Engineering	O, D	4/6	**Numerical Hydraulics**	O,D,P	2/3	Mechanics of Composite Materials		3/4
	Transport Planning Methods	D	4/6	**River Engineering**	O	2/3	Advances in Building Materials		2/4
	Introduction to Mathematical Optimization	D	3/5	Watershed Modelling	D	4/6	Computational Science Investigation for Mat. Mechan.	D	2/4
	Spatial Planning and Development		2/3	Solving Partial Differential Equations in parallel on GPUs	D, P	3/4	Moisture Transport in Porous Media		2/3
	Basics in Air Transport (Aviation I)		3/4						
	Eisenbahn-Systemtechnik I		4/6						
	Infrastructure Management 1: Process		2/6						
	Urban Systems and Transportation		2/3						
2. Sem.	Logistics and Freight Transportation		4/6	Flood Protection	P	2/3	Concrete Material Science		2/4
	Fuss- und Veloverkehr	P	4/6	Water Resources Management	D	2/3	Wood Physics & Wood Materials		2/3
	Infrastructure Management 2: Evaluation Tools	D,P,E	2/6	Physical Modelling in Hydraulics		2/2	Non-destructive Testing of Civil Engineering Structures		2/3
	Haushälterische Bodennutzung		2/3	Snow and Avalanches: Processes and Risk Manag.		2/3	Method of Finite Elements I	D	3/5
	Praktikum Siedlung und Verkehr	D, P	2/3	Groundwater II		4/6	Towards Efficient and High-Performance Computing	D, P	3/4
	Management & Sustainability of Air Transport		3/4	River Restoration	P	2/3	for Engineers		
	Regionalökonomie		2/4	River Morphodynamic Modelling	D	2/3			
	Eisenbahn-Systemtechnik II		4/6	Infrastructure Systems in Urban Water Management		2/3			
	Readings in Transport Policy		2/3	Groundwater I		4/4			
	Bahninfrastrukturen 1		2/2						
3. Sem.	Strassenverkehrssicherheit		4/6	Hydraulic Engineering III	P	2/3	Durability and Maintenance of Reinforced Concrete	P	2/4
	Agent Based Modeling in Transportation	D	4/6	Applied Glaciology		2/4	Shrinkage and Cracking of Concrete: Mechanisms and		2/3
	Microscopic Modelling and Simulat. of Traffic Operations	D, P	2/3	Hydraulics of Engineering Structures		2/3	Impact on Durability		
	Geotechnical Eng. in Transportation and Pavement Design		2/3	Siedlungswasserwirtschaft II		2/4	Wood Structure and Function		2/3
	Bahninfrastrukturen 2		2/2				Wood Processing		2/3
	Basics of Java and Best Practices for Scientific Comp.	D	1/1				Method of Finite Elements II	D	2/3

Legend: **O:** Compulsory specialisation courses; **D**: Digital courses; **P**: Project-based courses; **E**: Recommended courses; **S**: Weekly semester hours; **K**: Credits; **Ku**: Course over several days. The course catalogue is decisive for the assignment of courses (www.vvz.ethz.ch).

A.6 Who - What - Where

Information Desk	**Information Desk for Students D-BAUG – HIL E 32.1** Mon-Thu, opening hours see website www.bauing.ethz.ch Jutta Westenhoeffer-Wagner
Study Administration	**Study Administration Civil Engineering** Enrico Manna, HIL E 32.2, Mon-Fri Tel. 044 633 26 53, manna@baug.ethz.ch Jutta Westenhoeffer-Wagner, HIL E 32.1, Mon-Thu Tel. 044 633 04 08, jutta.westenhoeffer@baug.ethz.ch ETH Zurich, Hönggerberg Campus www.bauing.ethz.ch
Director of Studies	**Directors of Studies Civil Engineering** Prof. Dr. Ueli Angst ETH Zurich, Hönggerberg Campus, HIF E 93.2 Consultation: hours by appointment ueli.angst@ifb.baug.ethz.ch
Student Association	**Akademischer Ingenieurverein (AIV)** ETH Zurich, Hönggerberg Campus, HXE C 23 vorstand@aiv.ethz.ch www.aiv.ethz.ch
Academic Services	**Registrar's Office ETH Zurich** ETH Zurich, Zentrum Campus, HG F 19 Tel. 044 632 30 00, kanzlei@ethz.ch Telephone times: Mon-Fri, 9 - 11 a.m. Opening hours: Mon+Thu, 11 a.m. - 1 p.m.
Admission	**Admissions Office ETH Zurich** ETH Zurich, Zentrum Campus, HG F 21 BSc: zulassungsstelle@ethz.ch MSc: master@ethz.ch Telephone times: Mon+Tue, Thu+Fri, 9 - 11 a.m. Opening hours: Wed, 9 - 11 a.m.
Exchange programme	**Student Exchange Office ETH Zurich** ETH Zurich, Zentrum Campus, HG F 24.3 exchange@ethz.ch Opening hours: Mon+Thu, 11 a.m. - 1 p.m. **Departmental Exchange Coordinator Civil Engineering** Enrico Manna (siehe above)
Performance assess-ments	**Examinations Office ETH Zurich** ETH Zurich, Zentrum Campus, HG F 18 Tel. 044 632 20 68, exams@ethz.ch

Military	**Deferment** www.armee.ch/de/militaerdienst-dienstverschiebung
Coaching	**Student Advisory Service and Coaching** Nicolas Ramer ETH Zurich, Zentrum Campus, HG F 68.4 Tel. 044 632 34 02 nicolas.ramer@sts.ethz.ch
Foreign Students	**International Student Office** ETH Zurich, Zentrum Campus, HG F 13 Tel. 044 632 20 95 internationalstudents@ethz.ch
Tuition Fee Waiver, Scholarship	**Financial Aid Office ETH Zurich** ETH Zurich, Zentrum Campus, HG F 22.1 Tel. 044 632 20 88/30 38 studienfinanzierung@sts.ethz.ch
Housing	**Housing Office of University/ETH Zurich** ETH Zurich, Zentrum Campus, Sonneggstrasse 27, 8092 Zürich Tue+Thu, 11 a.m. - 1 p.m. Tel. 044 632 20 37 zimmervermittlung@ethz.ch www.wohnen.ethz.ch
Psychological Counselling Services	**Psychological Counseling Services University/ETH Zurich** ETH Zurich, Zentrum Campus, Plattenstrasse 28, 8032 Zürich Tel. 044 634 22 80 pbs@sib.uzh.ch www.pbs.uzh.ch
Studying with a Disability	**Counselling Studying with a Disability** Counselling & Coaching Centre ETH Zurich, Campus Zentrum, HG F 67.3-69.3 counselling-coaching@ethz.ch
General Counselling	**Nightline Zürich** Tel. 044 633 77 77

A.7 Qualification Profile Master’s Degree

Introduction

The Master's degree programme in Civil Engineering offers a wide-ranging and scientifically engaging university education. Students in the Master's degree programme have the opportunity to focus on two areas of specialisations from the professional field of civil engineering. These subject areas are Construction and Maintenance Management, Geotechnical Engineering, Structural Engineering, Transport Systems, Hydraulic Engineering and Water Resources Management, as well as Materials and Mechanics. Graduates are able to work on challenging civil engineering-specific tasks in science and practice as civil engineers. Not only do they plan and design technically, ecologically and economically balanced solutions, they are responsible for cost-conscious and environmentally compatible planning and execution. Their scope likewise includes the long term economical and sustainable operation and maintenance of our critical structural infrastructure.

Subject-specific Knowledge and Understanding

Graduates with a Master's degree in Civil Engineering have
- in-depth specialist knowledge in the chosen subject areas;
- specific specialist knowledge and/or a greater breadth of knowledge both from the electives completed and from the scientific or practice-oriented project work and the Master's thesis.

Skills

Graduates with a Master's degree in Civil Engineering from ETH Zurich are able to
- efficiently obtain the basic information required to find appropriate solutions;
- apply scientific and civil engineering-specific working methods and calculation models correctly and develop them further independently;
- recognise and take into account uncertainties when finding solutions;
- analyse novel and complex tasks and develop solutions that meet the given boundary conditions;
- plan and design technologically reliable, safe, ecologically and economically balanced solutions that meet social and political requirements;
- understand, confidently apply and further develop digital technologies and computer-aided tools in the field of civil engineering;
- competently use modern information technologies in the disciplines of civil engineering for data acquisition and transmission, data processing and evaluation as well as for planning, project planning and presentation;
- develop new fields of work and application for civil engineering-specific processes;
- apply civil engineering-specific project management methods, divide complex tasks according to the situation and solve them in teams.

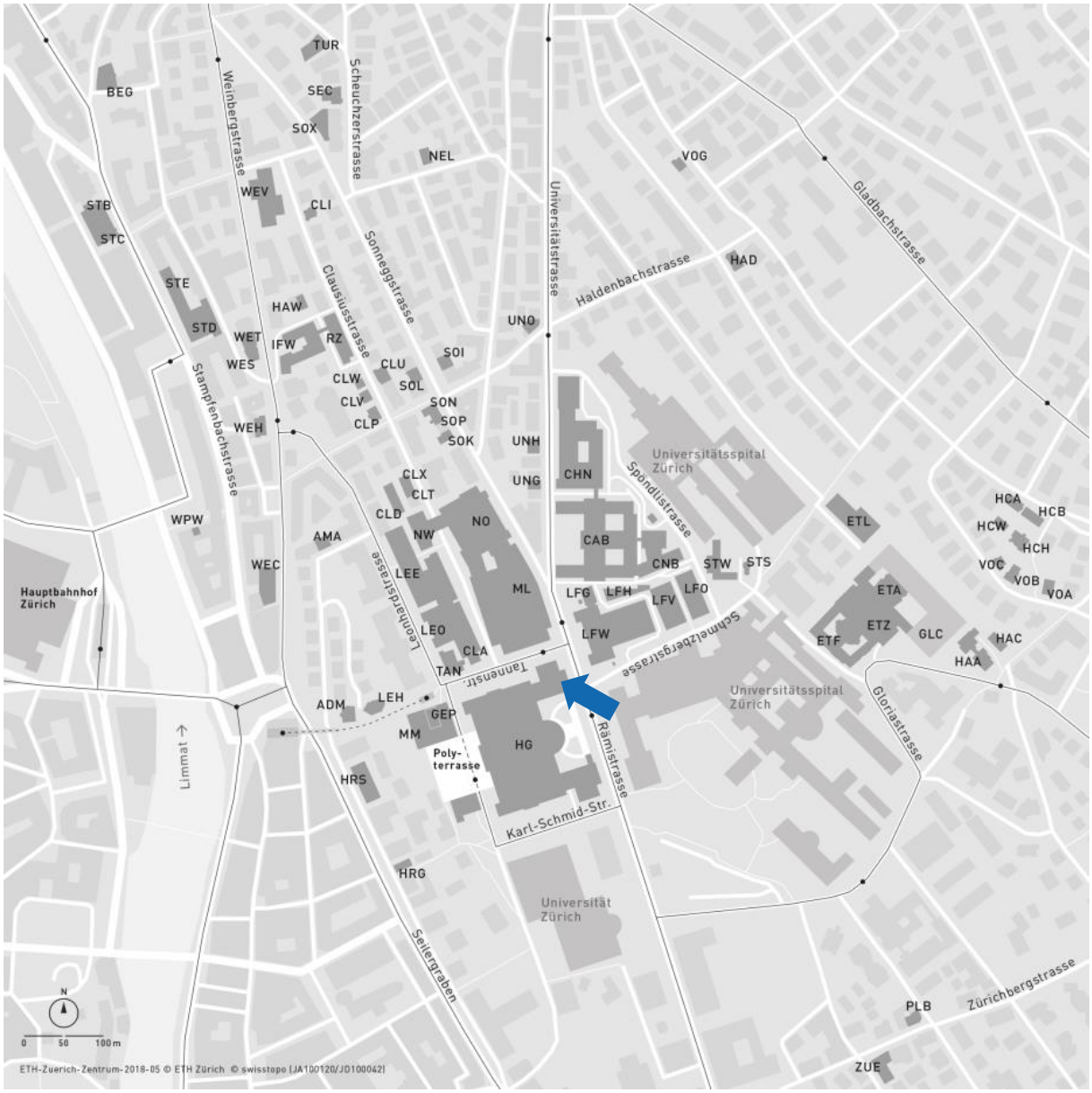
Personal and Social Skills

Graduates with a Master's degree in Civil Engineering are able to
- continuously and independently add to their personal knowledge of the state of the art in science and technology and apply new findings professionally to real tasks;
- cooperate with specialists from related fields such as geology, architecture, mechanical engineering, electrical engineering, environmental sciences, law and economics;
- communicate the results of their work in an understandable way, both verbally and in writing, to both specialists and laypersons;
- recognise and reflect on the needs of society, the economy and the natural environment and to incorporate them into the search for solutions.

A.8 Situation Plans

Hönggerberg Campus

Zentrum Campus



Academic Services on floor F
(Registrar's Office, Student Exchange Office, Examinations Office, Admissions Office, …)

ETH Zurich
Dept. of Civil, Environmental and Geomatic Engineering
Stefano-Franscini-Platz 5
8093 Zürich

www.bauing.ethz.ch

Publisher: Study Administration Civil Engineering
Editor: Enrico Manna
Edition: online