ETH zürich

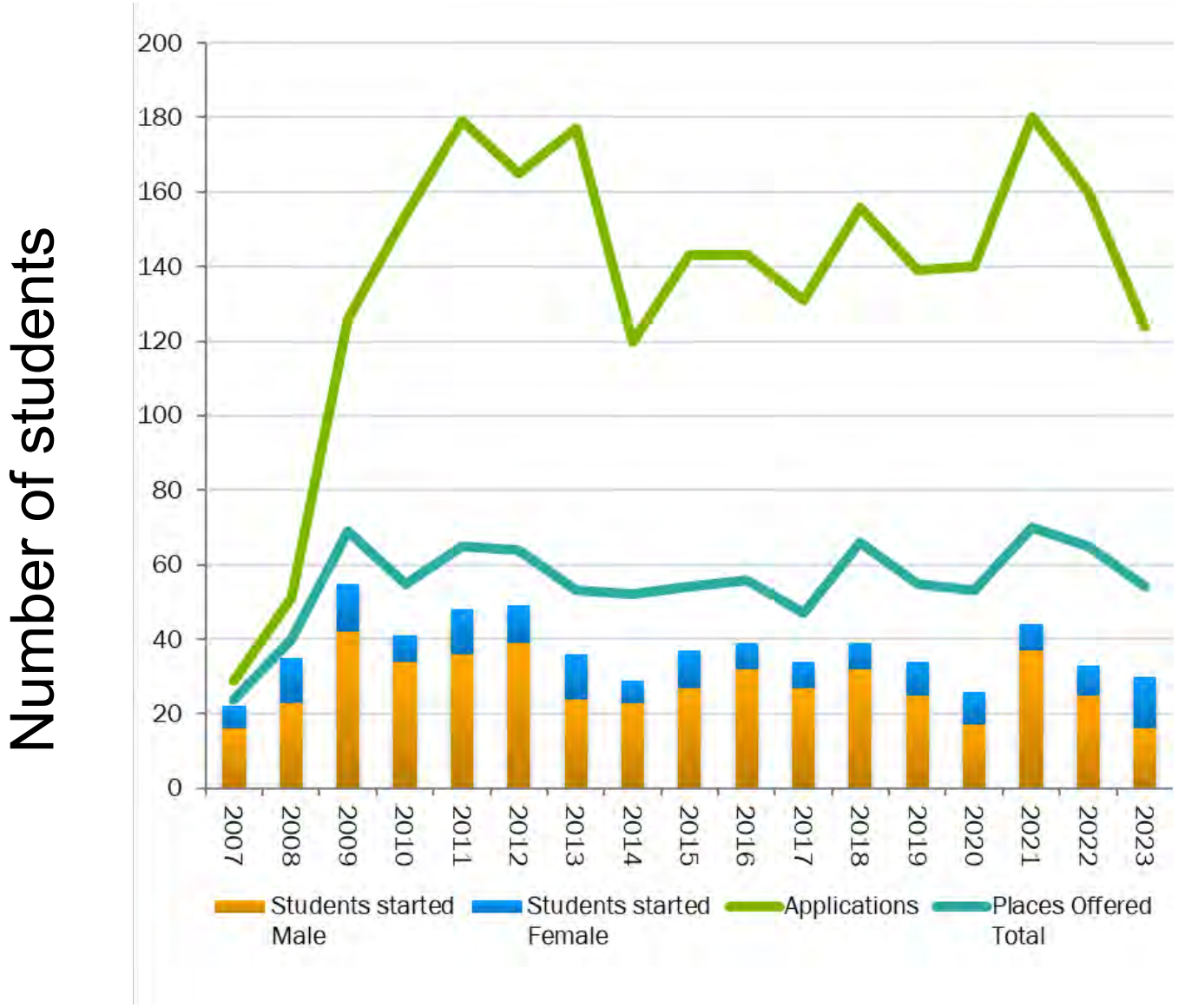
Master in Energy Science and Technology

Prof. Dr. Christian Franck
Programme Director
19 September 2023

DITET

Energy Science Center

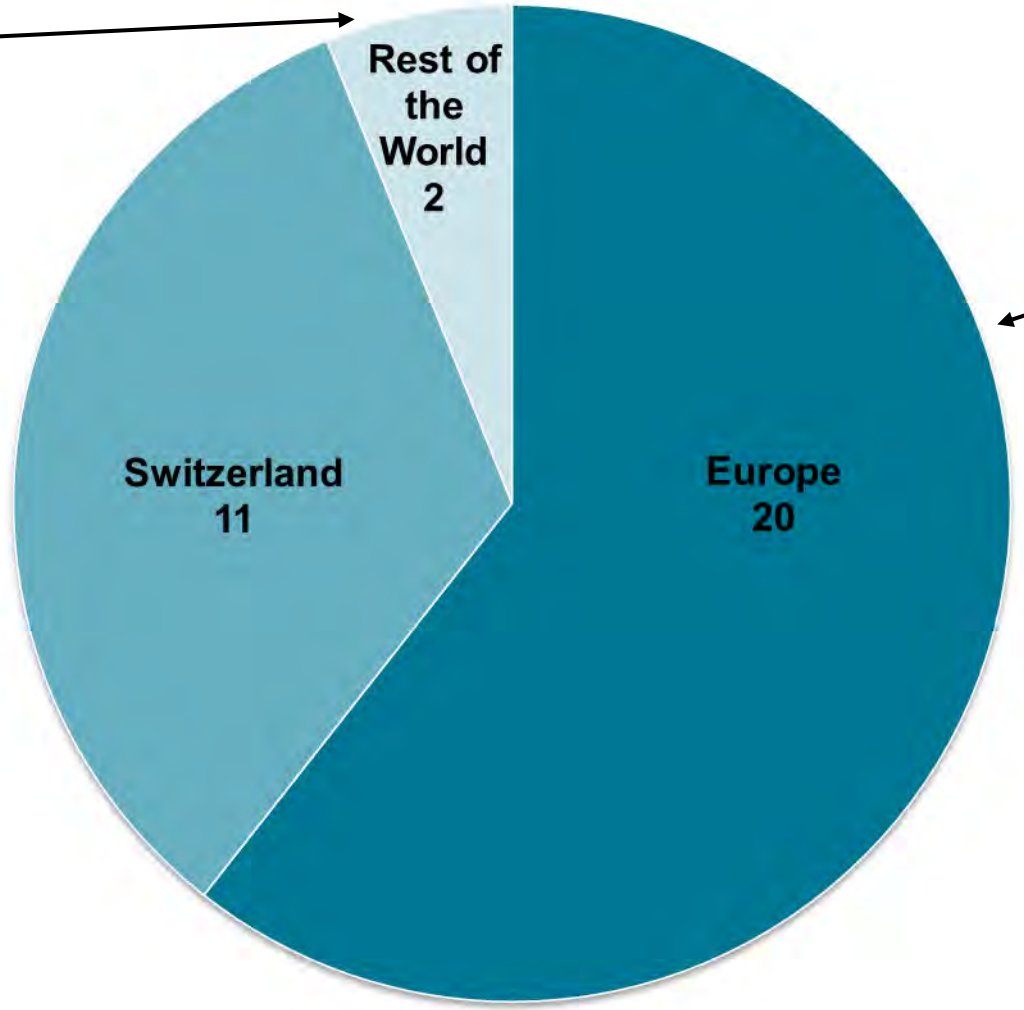
MEST Applicants since programme started in 2007



2023 MEST Students: Home Country

Rest of the World

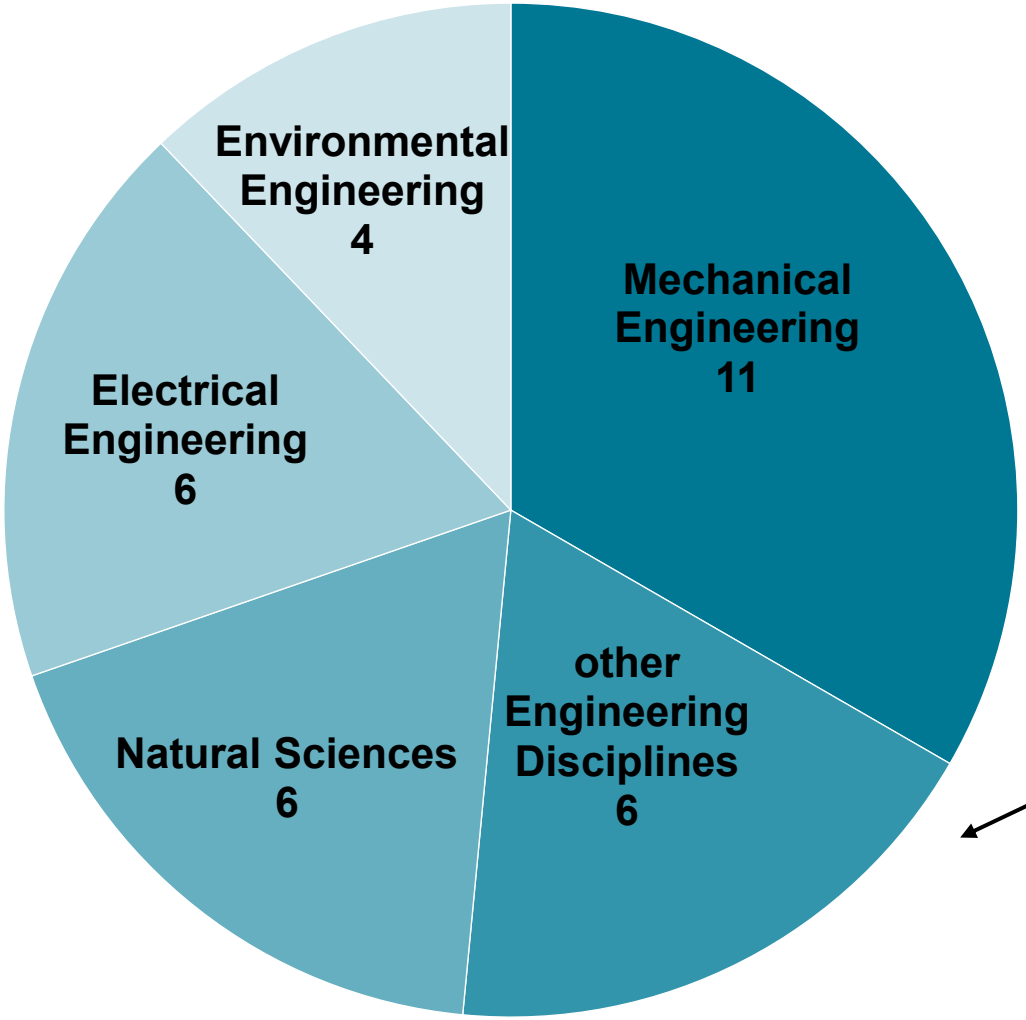
China	1
USA	1



Europe

Austria	3
Estonia	1
France	4
Germany	8
Italy	4

2023 MEST Students: Previous Study



other Engineering Disciplines	
Energy	2
Micro	1
Civil	2
Chemical	1

About the MEST

Jointly run by the departments

D ITET
Information Technology and Electrical Engineering

D MAVT
Mechanical and Process Engineering

With the participation of **D MTEC**
Management, Technology and Economics

Who is involved in the MEST?

Programme Director

Prof. Christian Franck

Energy Science Center (ESC): Content

Dr. Christian Schaffner

Katharina Bosina

D-ITET: Leading Department, Administration

Reto Kreuzer

Andrea Salow

Audrey Djouadi

Tali Scheiner

MEST Studies

120 ECTS – typically 4-5 semesters full time	**Credits**
A choice of Compulsory Courses	23 (minimum)
Elective Courses	
Total Compulsory and Elective	64 (minimum)
Humanities and Social Sciences Science in Perspective (D-GESS)	2
Semester project	12
Industrial Internship	12
Master Thesis	30
Total	**120**

Compulsory Courses - overview 23 credits (minimum)

	Credits Autumn	Credits Spring
Electrical Power Engineering (2 out of 3)		
Electric Circuits	4	
Introduction to Electric Power Transmission: System & Technology	4	
Optimization in Energy Systems		6
Energy Flows and Processes (2 out of 4)		
Energy Conversion	4	
Combustion & Reactive Processes in Energy and Materials Technology	4	
CO2 Capture and Storage and the Industry of CarbonBased Resources		4
Electrochemical Energy Conversion and Storage Technologies		4
Energy Economics and Policy (2 out of 3)		
Principles of Microeconomics	3	
Energy Economics and Policy		3
Energy Innovation and Management		3
Interdisciplinary Energy Management (mandatory)		
Case Studies: Energy Systems and Technology: Parts 1&2	2	2

Compulsory Courses

Interdisciplinary Energy Management

‘Case Studies: Energy Systems and Technology’

- Unique to the MEST programme
- Covers technical, economic and regulatory aspects of the challenges associated with building a sustainable energy system for the future
- Everyone allocated to a Case Study
- Coaches (senior MEST students) allocated to each Case Study
- Kick-off meeting:

Tuesday 26 September, 4.15-8pm, ETH Main Building HG E 3

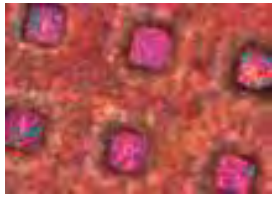
Energy Research at ETH Zurich

Renewable energies and hydropower
Prof. Boes
Prof. Kamgarpour
Prof. Pérez-Ramirez
Prof. Raubal
Prof. Robertsson
Prof. Stauffacher
Prof. Steinfeld
Prof. Saar
Prof. Tiwari
Prof. Wiemer
Prof. Zeilinger

Power generation and distribution
Prof. Farinotti
Prof. Franck
Prof. Giardini
Prof. Grossner
Prof. Hug
Prof. Kamgarpour
Prof. Kolar
Prof. McKenna
Prof. Müller
Prof. Zeilinger

Energy economics and policies
Prof. Bretschger
Prof. Filippini
Prof. Fleisch
Prof. Hoffmann
Prof. Patt
Prof. Tobias Schmidt
Prof. Schubert
Prof. Stauffacher

Energy conversion technologies
Prof. Bardow
Prof. Boulouchos
Prof. Guillén Gosálbez
Prof. Kovalenko
Prof. Manera
Prof. Mazza
Prof. Müller
Prof. Noiray
Prof. Pérez-Ramirez



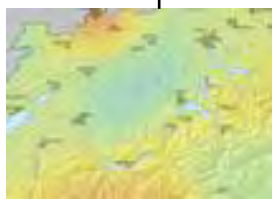
Material science and technology
Prof. Battaglia
Prof. Chatzi
Prof. Copéret
Prof. Ermanni
Prof. Habert
Prof. Kovalenko
Prof. Lukatskaya
Prof. Norris
Prof. Tiwari
Prof. Wood

Energy in domestic and industrial applications
Prof. Carmeliet
Prof. Deplazes
Prof. Dörfler
Prof. Fleisch
Prof. Lygeros
Prof. Mattern
Prof. Schlüter
Prof. Smith

Energy-efficient chemical products and processes
Prof. van Bokhoven
Prof. Habert
Prof. Mougel
Prof. Pérez-Ramirez
Prof. Thom. Schmidt

CO_2 mitigation technologies
Prof. Mazzotti
Prof. Müller
Prof. Steinfeld
Prof. Seneviratne

Energy for personal and freight transportation
Prof. Boulouchos
Prof. Guzzella
Prof. Onder



Sustainability and risk assessment
Prof. Burlando
Prof. Grêt Rega
Prof. Hellweg
Prof. Heinrich
Prof. Knutti
Prof. Sansavini
Prof. Stauffacher
Prof. Wenger

Thermal power plants
Prof. Boulouchos
Prof. Jenny
Prof. Noiray
Prof. Pérez-Ramirez

Tutors and Courses

All students have a confirmed tutor

- 40 tutors from 9 different ETH Departments were available to choose from
- 90% of students have their first-choice tutor

Role of the tutor

To supervise/support the students

- in putting together a study plan (called the Tutor Agreement / Learning Agreement)
- with master or the semester thesis
- profile is built by choosing courses from a catalogue of over 50 energy-related courses offered at ETH Zurich

Tutors Agreement

Ensure that your Tutor Agreement / Learning Agreement is completed no later than

Sunday 15th October 2023

Projects and Internships

- Your tutor
- MEST website: www.master-energy.ethz.ch/studies/internship.html
- MEST LinkedIn: https://www.linkedin.com/showcase/master-energy-science-and-technology/
- Polymesse (ETH Job Fair in April)
- International Organisations (IAESTE etc.)
- Direct contacts with industrial partners

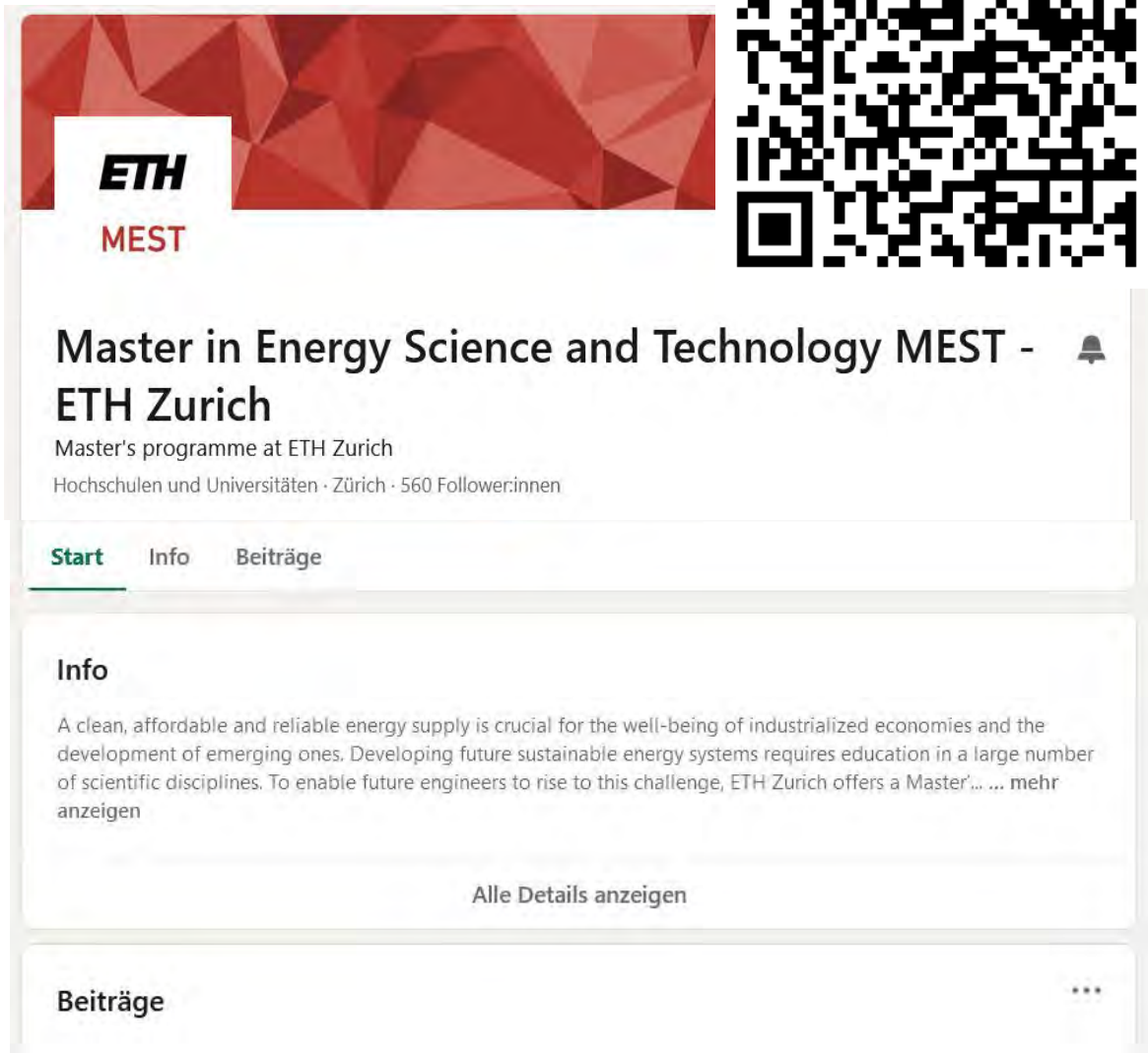
Note: Internships must be approved by ETH **beforehand** (teaching@esc.ethz.ch)

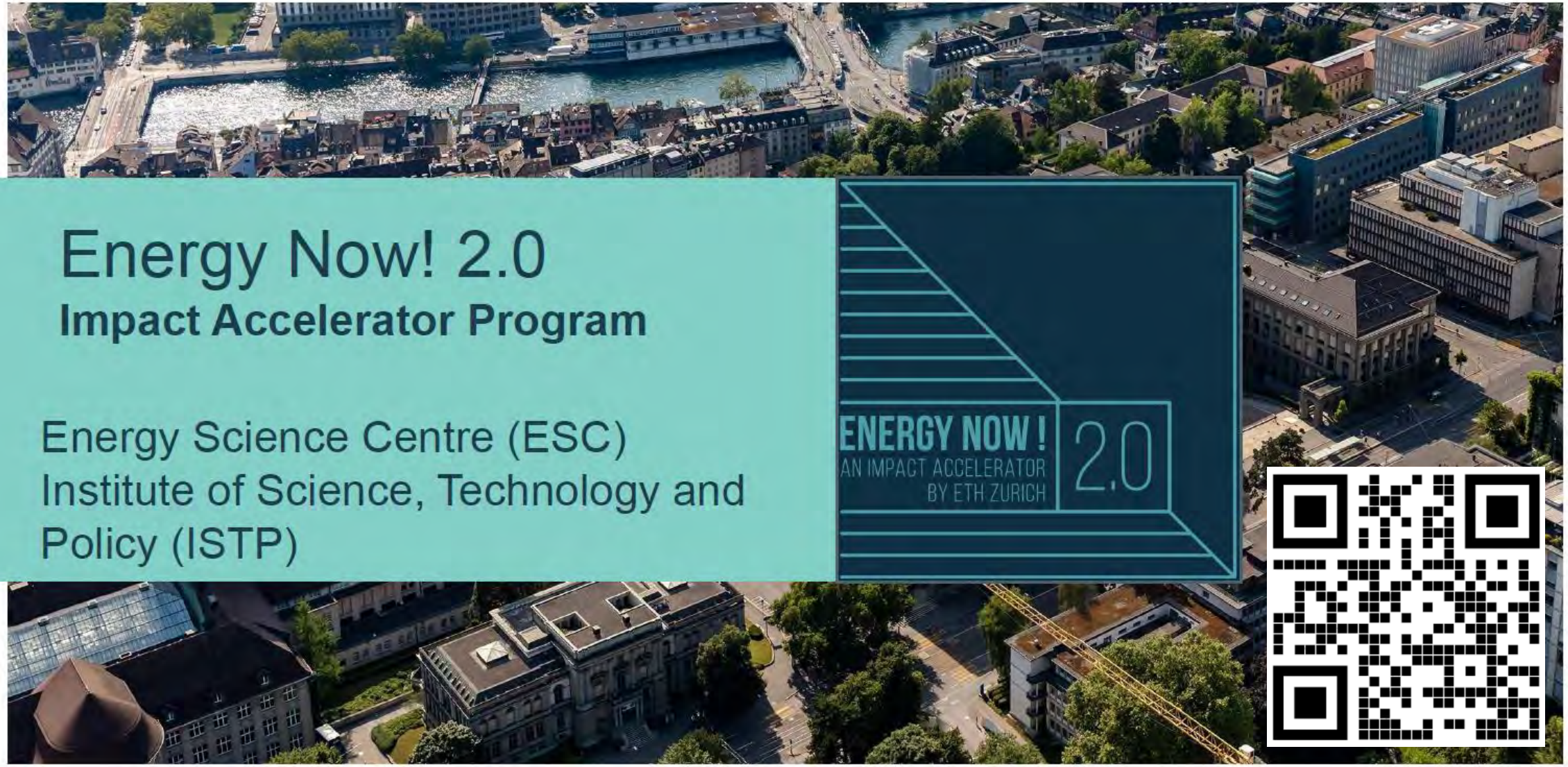
Case Studies

12 offered	6 chosen	Industry Partner	Title
CS A	CS 5	ABB	Sustainability of Battery Storage Solutions,
CS B	CS 6	Helion	Electric vehicles for ancillary services
CS C		Kyburz	End-of-life battery discharge and categorization
CS D		Hoprnet	Privacy in smart grid and local energy systems
CS E		Hoprnet	Privacy in advanced metering
CS F	CS 1	MAN Energy Solutions	Industrial Waste Energy for the Decarbonisation
CS G		Post	Battery Swap Technology
CS H		Energy 360°	Optimized valorization of waste water and waste biomass
CS I	CS 2	TBF	Geothermal Energy
CS J	CS 4	BKW	Cooling by PV-Rooftop
CS K	CS 3	Jura Zement	Cornaux Fuel Conversion
CS L		clemap	Grid Level 7 Demand Side Management

Energy Science Center (ESC)

- Student representative
  - Two students (main & deputy)
  - Contact from students to ESC
  - Organizing one student event per semester together with ESC (funding from ESC provided)
  - opportunity for bottom-up initiatives
- Follow us on LinkedIn to get the latest news, events and job listings
- …





Energy Now! 2.0

Impact Accelerator Program

Energy Science Centre (ESC)
Institute of Science, Technology and Policy (ISTP)

ENERGY NOW ! 2.0
AN IMPACT ACCELERATOR BY ETH ZURICH

blogs.ethz.ch/energy

@eth_energy_blog

MSc ETH in Energy Science and Technology

Dr. Christian Schaffner
schaffner@esc.ethz.ch, 044 632 72 55, SOI C 4

Mr. Reto Kreuzer
reto.kreuzer@ee.ethz.ch, 044 632 08 15, ETZ H 83

Prof. Christian Franck
cfranck@ethz.ch, 044 632 08 16, ETL H 28

Mrs. Katharina Bosina
teaching@esc.ethz.ch, 044 633 80 39, SOI C 5

www.master-energy.ethz.ch

Prof. Dr. Christian Franck
Programme Director
cfranck@ethz.ch

Deputy Head of Power Systems and High Voltage Lab.
ETL H 28
Physikstrasse 3
8092 Zurich
Switzerland

ETH zürich

Departement of Information Technology and Electrical Engineering

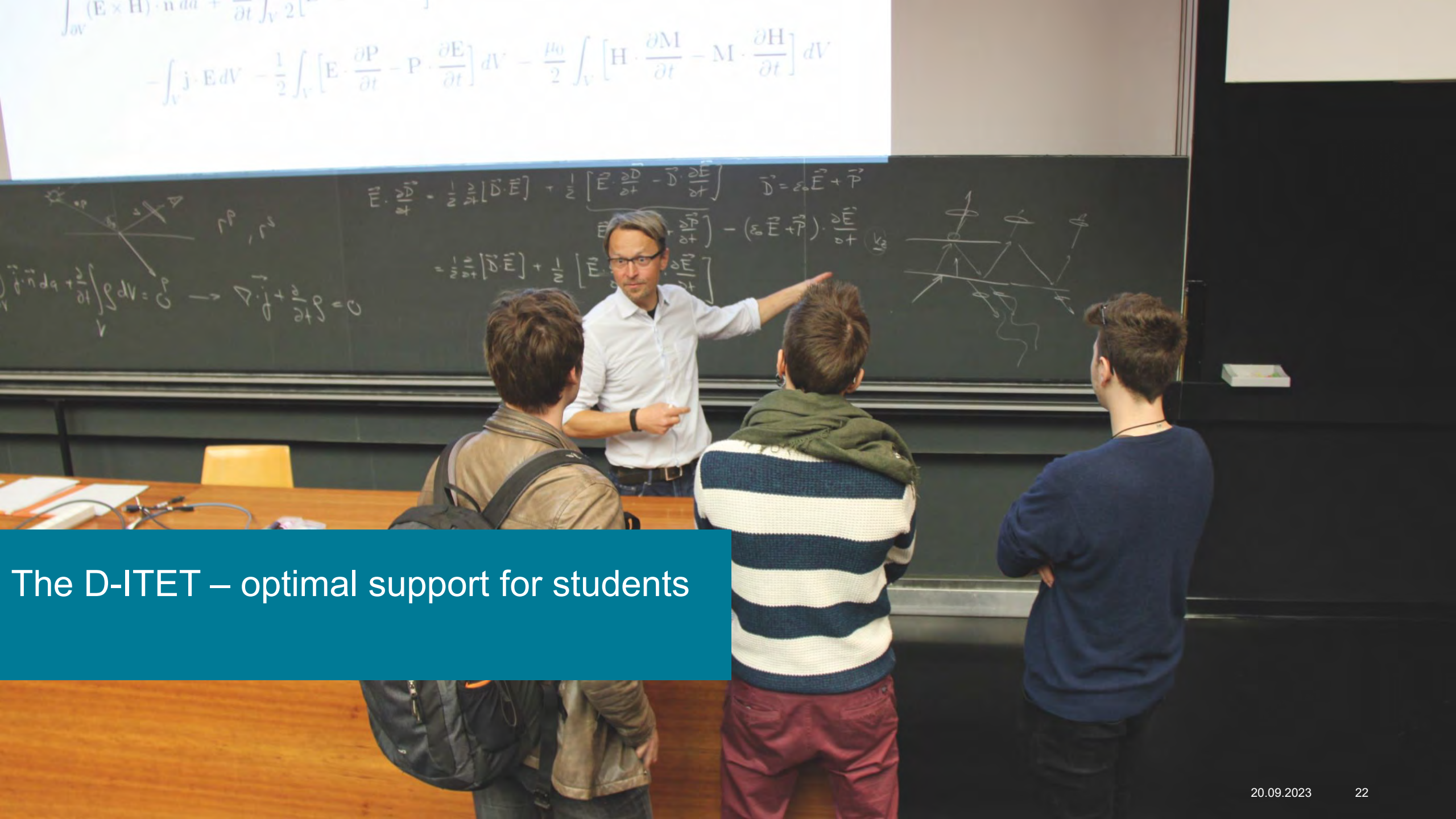
Contacts / Information for Students of the MSc Quantum Engineering

September 19, 2023

Audrey Djouadi, schedule coordinator/ mobility advisor, D-ITET

Agenda

1. The D-ITET – your host department
2. Finding the right contact
3. Administrative matters
4. Counselling



The D-ITET – optimal support for students

Professors


Prof. Luca Benini
Prof. Jürgen Biela
Prof. Helmut Bölcskei
Prof. Colombo Bolognesi
Prof. Florian Dörfler
Prof. Christian M. Franck
Prof. Benjamin Grewe
Prof. Ulrike Grossner
Prof. Richard Hahnloser
Prof. Gabriela Hug
Prof. Giacomo Indiveri
Prof. Taekwang Jang
Prof. Lana Josipovic
Prof. Johann W. Kolar
Prof. Ender Konukoglu
Prof. Sebastian Kozerke
Prof. Amos Lapidoth
Prof. Jürg Leuthold
Prof. Hans-Andrea Loeliger
Prof. Mathieu Luisier
Prof. John Lygeros
Prof. Valerio Mante
Prof. Onur Mutlu
Prof. Lukas Novotny
Prof. Mickaël Perrin
Prof. Klaas P. Prüssmann
Prof. Daniel Razansky
Prof. Kaveh Razavi
Prof. Metin Sitti
Prof. Marco Stampanoni
Prof. Klaas Enno Stephan
Prof. Christoph Studer
Prof. Luc Van Gool
Prof. Laurent Vanbever
Prof. János Vörös
Prof. Hua Wang
Prof. Roger P. Wattenhofer
Prof. Vanessa C. Wood
Prof. Mehmet Fatih Yanik
Prof. Maksym Yarema
Prof. Fisher Yu

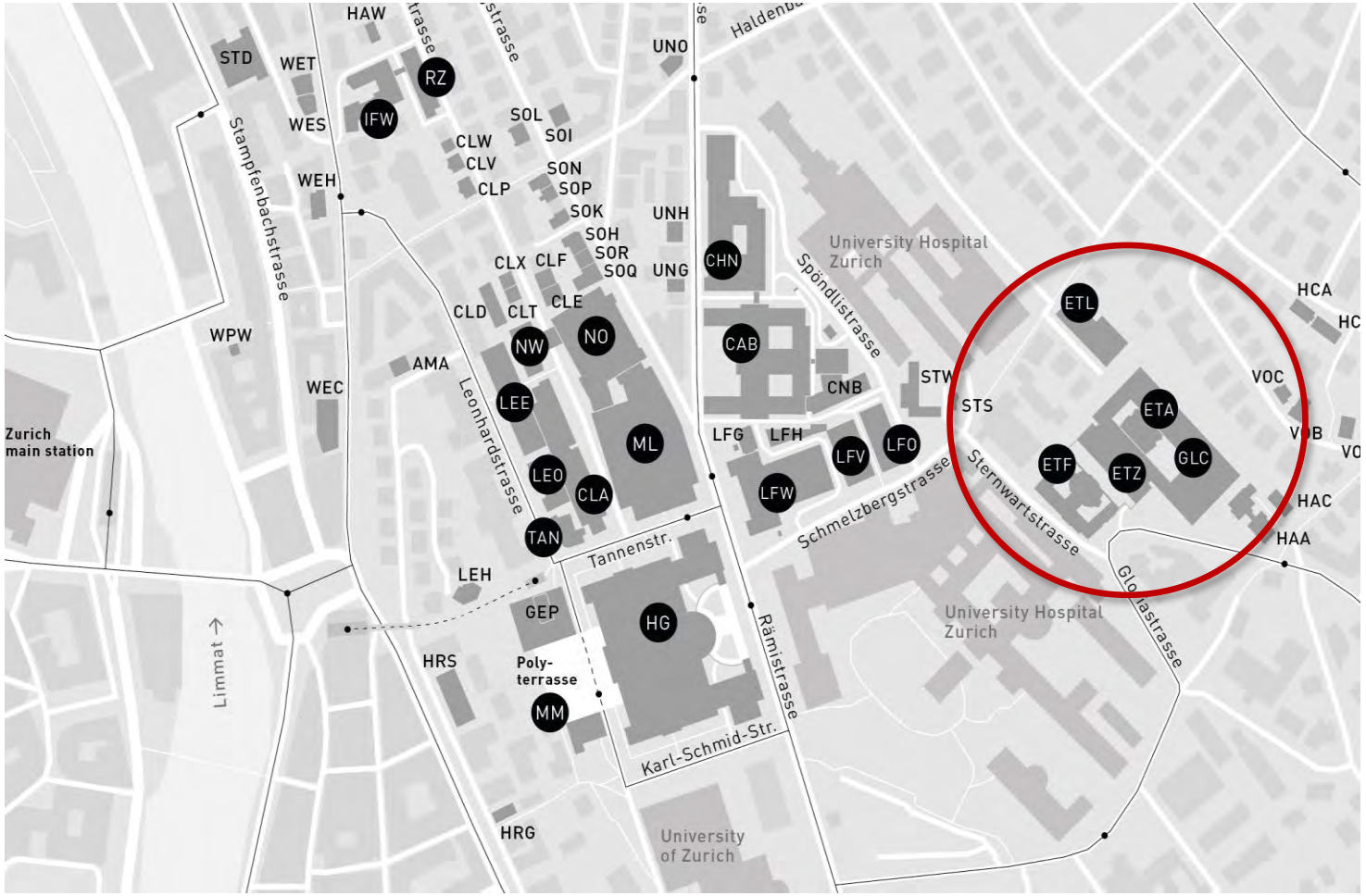
Numbers

BSc	ETH **D-ITET**	10'665 **786**
MSc	ETH **D-ITET** Electrical Engineering MSc Biomedical Engineering MSc Energy Science & Technology MSc Quantum Engineering MSc *Neural Systems & Comp. MSc (UZH)*	8'737 **1'031** 565 194 105 115 *52*
Exchange	ETH **D-ITET**	386 **49**

- **41 professors**
- **50+ other lecturers**
- **500+ PhD students**
- **Study administration**
- **AMIV (incl. LIMES)**
- **IT support**

Finding your contacts

Map of ETH and D-ITET



https://ethz.ch/staffnet/en/service/rooms-and-buildings/building-orientation.html

Information sites

- **General Information on studies at ETH**

  ETH students' website: www.ethz.ch/students

- **Information on the MSc Energy Science and Technology**

  Programme website: https://master-energy.ethz.ch/

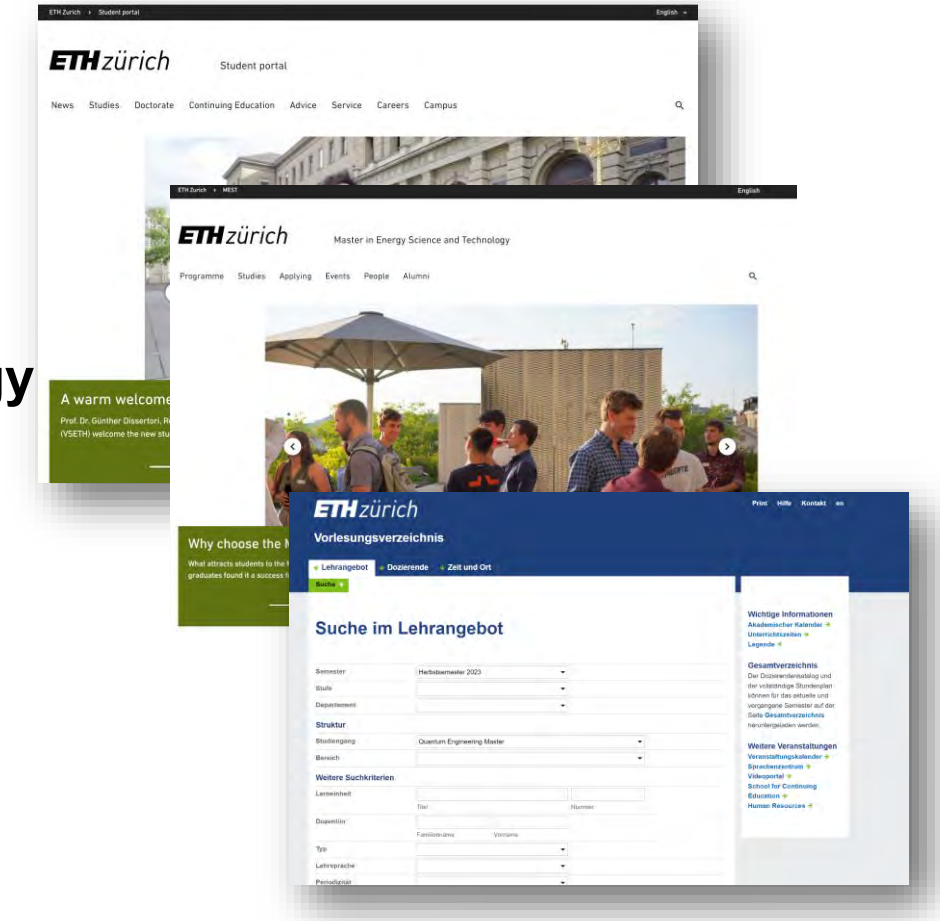
- **Course catalogue**

  Online: www.vvz.ethz.ch > Programme >
  Energy Science and Technology

- **Messages from ETH and the Department**

  Email on your ETH-Address (username@student.ethz.ch)

  → **check your mailbox regularly and read the messages carefully!**

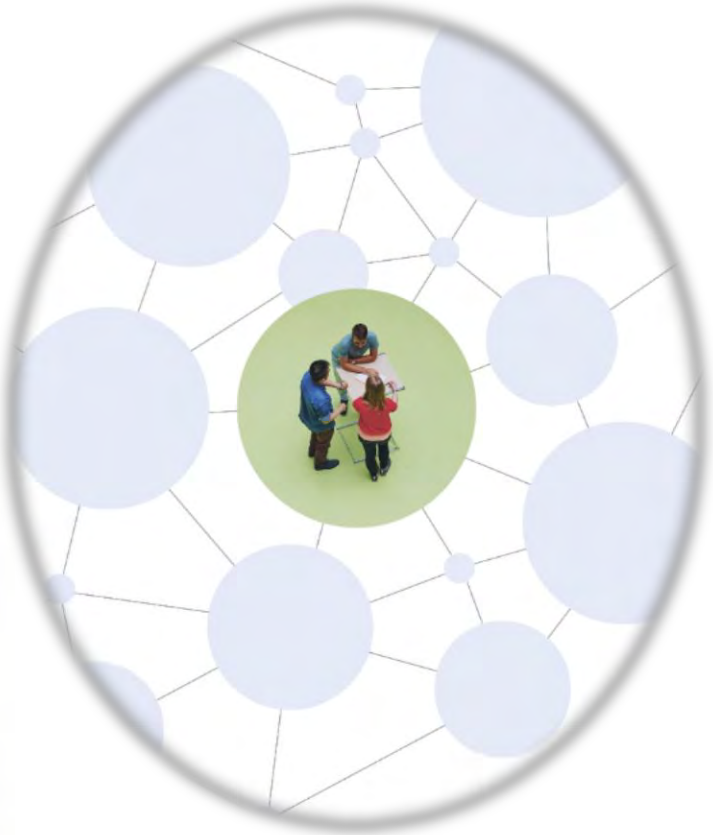


Important contacts

ETH / Rectorate

Registrar's Office (HG F 19)

General administrative questions
e.g. matriculation, address changes, residence etc.



D-ITET / student admin

Student Admin (ETZ H 85)

Study specific admin. questions
e.g. grades/transcripts, waivers, counselling

Students' association

AMIV (CAB E 37)

Social contacts, networking

Tutors / Lecturers / TA

Course specific questions, study plan

Your contacts at the D-ITET

Prof. Sebastian Kozerke

Director of studies D-ITET

ETZ F 94
+41 44 632 53 25
kozerke@biomed.ee.ethz.ch

Reto Kreuzer

Study coordinator/ Student advisor

ETZ H 83
+41 44 632 08 15
info@ee.ethz.ch

Andrea Salow / Tali Scheiner

Student Administration

ETZ H 85
+41 44 632 50 03
info@ee.ethz.ch

Audrey Djouadi

Course scheduling / Student exchange advisor

ETZ H 87
+41 44 632 89 57
exchange@ee.ethz.ch

Administrative matters

myStudies – do not forget to…

… register for courses and exams

- register for each **semester** until the end of the second week
- register for **courses** early in the semester; you need to be registered for a course to enroll for an exam
- submit the **learning agreement** until the **end of the 4th week**
- register for **exams** during **week 3+4** of the semester, withdrawal is possible until very late

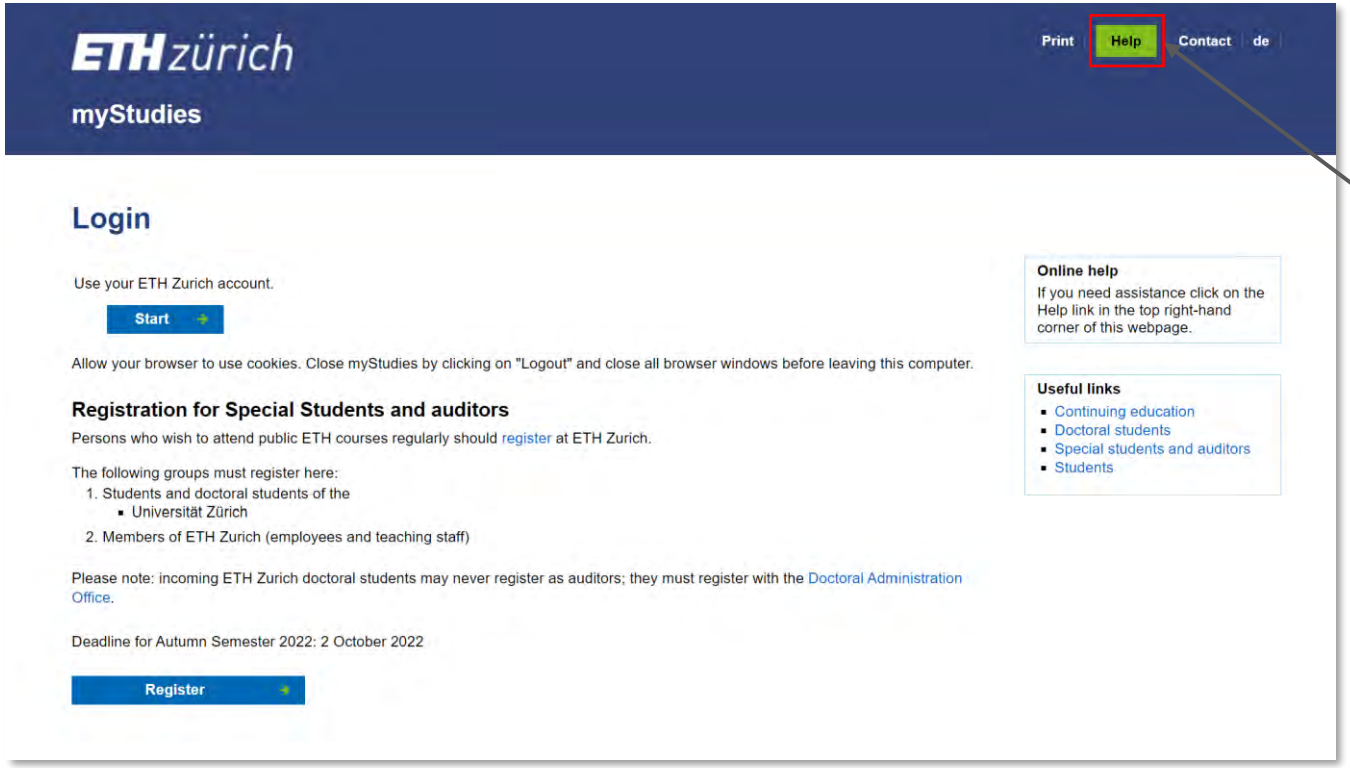
… notify us of your address changes

… and read your E-Mails!

myStudies – how to?

Watch the Video on myStudies at

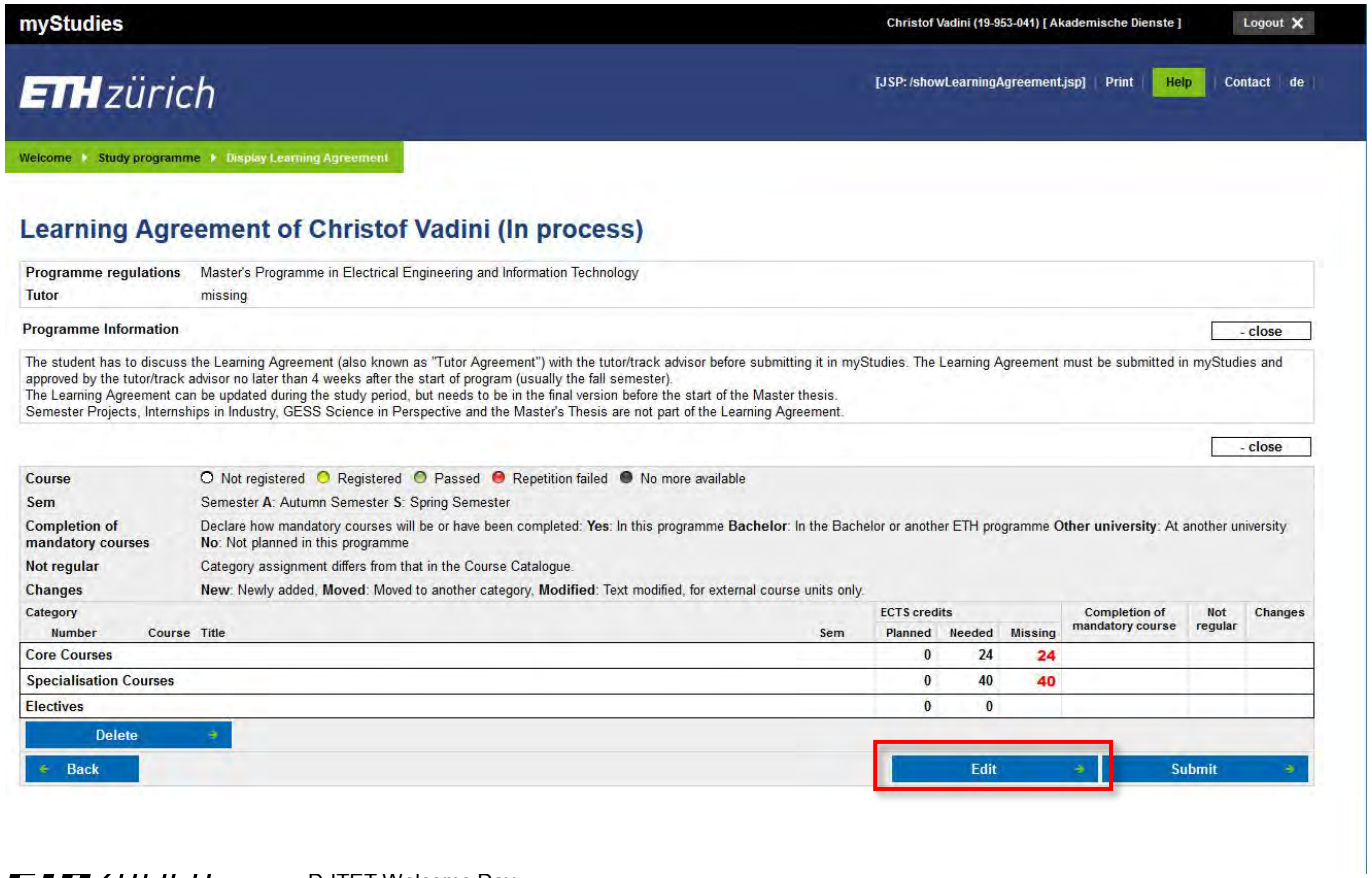
https://ethz.ch/en/studies/non-degree-courses/exchange/about-the-study-programmes/videos.html



Get Help

myStudies – create a learning agreement

The learning agreement is the agreement with your tutor on the courses to be taken during your studies. Select it from the main page in myStudies - you can select courses from the course catalogue, by using the "Edit" button

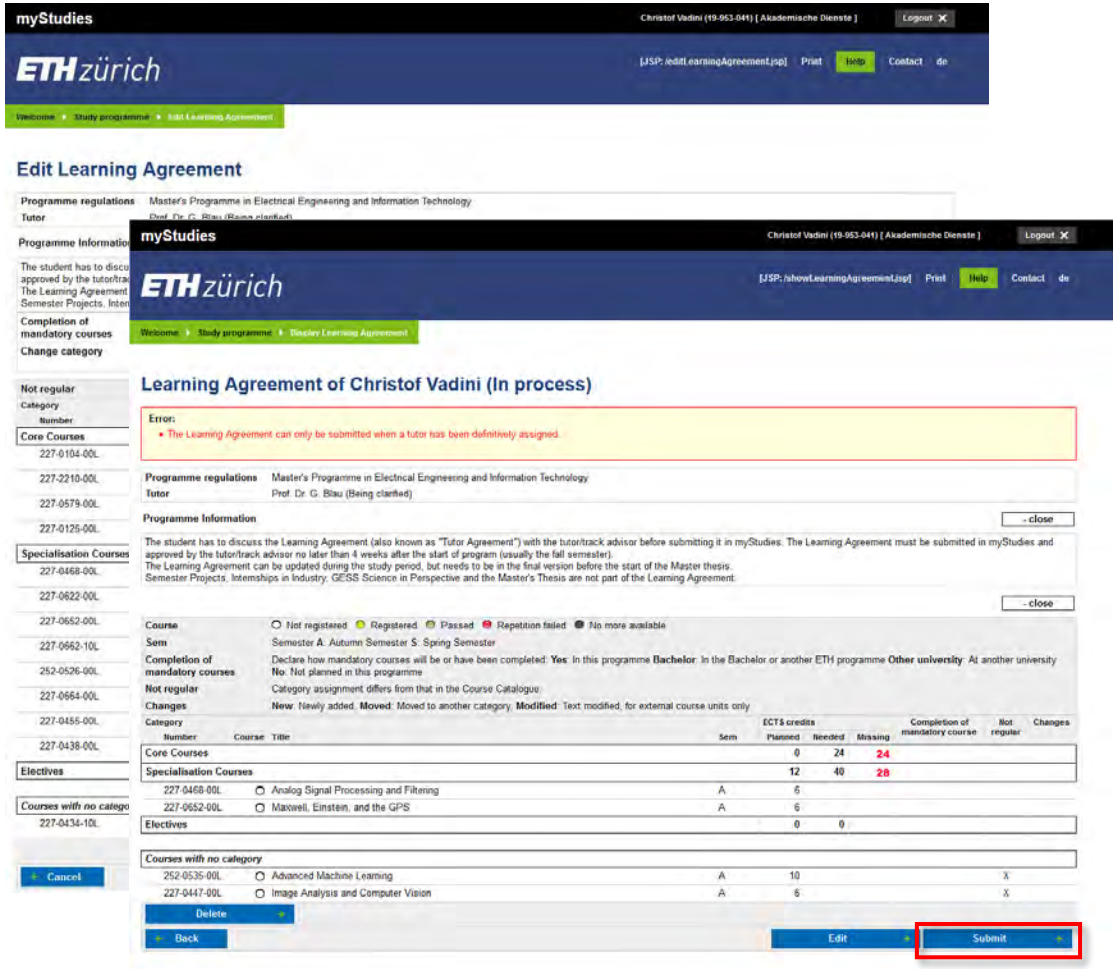


Note: you must submit a learning agreement for the **complete duration** of your studies, changes are possible in agreement with the tutor.

myStudies – edit and submit a learning agreement

Once **all the courses** you wish to enrol for during the upcoming semesters are entered, your learning agreement is ready for discussion with your tutor.

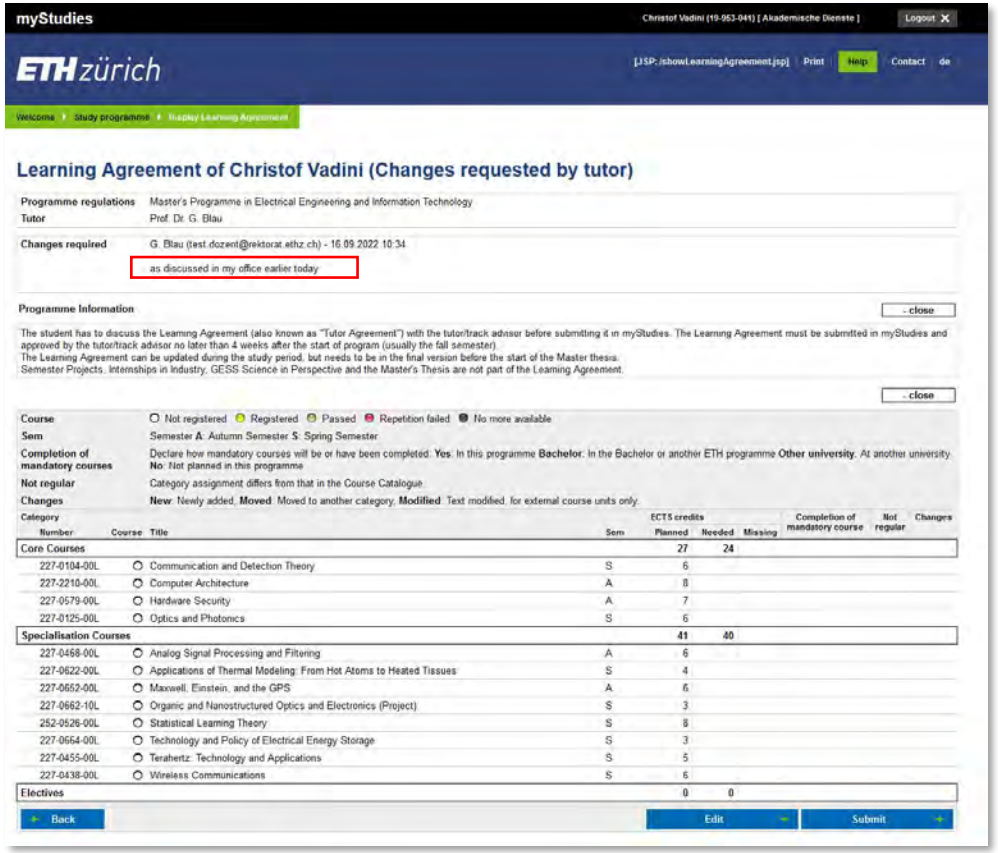
Note: the learning agreement can only be submitted if you have a tutor. If you do not, an error warning (see picture) will appear.



myStudies – changing the learning agreement

In the following cases, you may be invited to change the learning agreement **by the tutor.**

- You have not discussed your learning agreement before submitting it (and the tutor requires you to change it).
- The initial learning agreement must be changed for any reason at a later point in time (with the agreement of the tutor).



What goes into the learning agreement?

- Only **courses agreed upon** by your **tutor** will count for the degree, other courses go on a separate sheet, attached to the final transcript

- Science in Perspective courses (D-GESS), the internship, the semester project, and the master thesis do **not** go into the tutor agreement

- Even though they do not go on the learning agreement, do not forget to **enroll** for the **Semester Projects** and the **Master Thesis** (special section in myStudies "Projects/Papers/Theses).

Performance Assessments

- Three types of performance assessments
  - **Session examination** (Winter session: January/February – Summer session: August), Attention to registration/deregistration deadlines
  - **End-of-semester examination (2 weeks before end of lectures until 2 weeks after end of lectures),** Attention to registration/deregistration deadlines
  - Graded/ungraded **semester performance (**e.g. semester project or internship in industry (performance during semester), Attention minimum/maximum allowed time/deadlines
- Important notice: passed exams **cannot be re-taken**, failed exams can be re-taken once
- Special rules may apply regarding allowed (written) aids
  - Course catalogue > see "Performance assessment"
  - Lecturer/examiner

Useful information

Computer hardware and software

- **Project Neptune** – during a short period (until October 3), laptops and tablet computers may be purchased through ETH at interesting prices

- **IDES** – ETH also offers software at very low cost, some products even for free.
  Remember: the use of non-licensed software is forbidden and subject to prosecution!

IT-support at D-ITET – https://infoposter.ee.ethz.ch

7 November 2023
16.00–19.00

ETH Library
InfoCenter
Rämistrasse 101, HG

- Get prepared to stay on time with your studies and your Master's thesis
- **Know where to find help** before the workload peaks
- Meet your peers, expand your **network**
- Enjoy **impro theatre** and a **free drink**

More information at:
library.ethz.ch/rock-your-masters

Counselling at ETH and the D-ITET

- Course selection ? → your tutor
- Studies at D-ITET, incl. deadlines, failures at examinations etc. ? → coordinator of studies
- General questions regarding your arrival at ETH ? → international student support
- Time management / motivation ? → ETH student coaching
- Difficult phases / personal problems ? → psychological counselling service (free of charge and confidential)

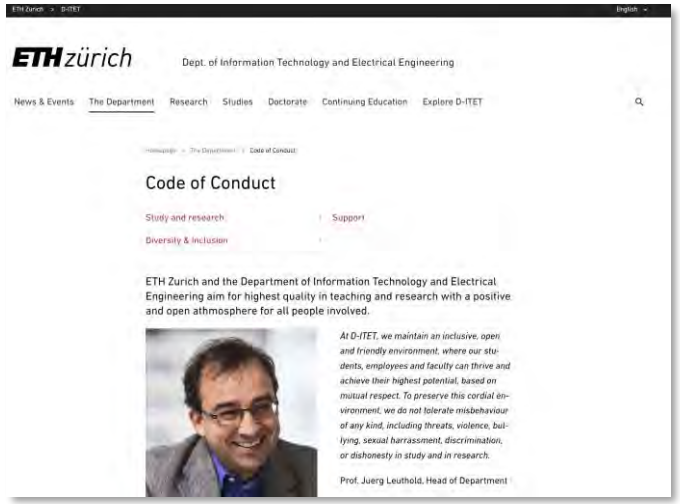
Code of conduct

« At D-ITET, we maintain an inclusive, open and friendly environment, where our students, employees and faculty can thrive and achieve their highest potential, based on mutual respect. To preserve this cordial environment, we do not tolerate misbehavior of any kind, including threats, violence, bullying, sexual harassment, discrimination, or dishonesty in study and in research. »

Prof. Jürg Leuthold, Head of Department

Further information on the Web:

- Our principles
- What is “inappropriate behavior”?
- How to react?
- Contacts / support



Enjoy your studies at ETH!

Zürich, September 18th 2023

High School Politics

Events

What we do

Study Documents

amiv

High School Politics

Representation of students‘ interests

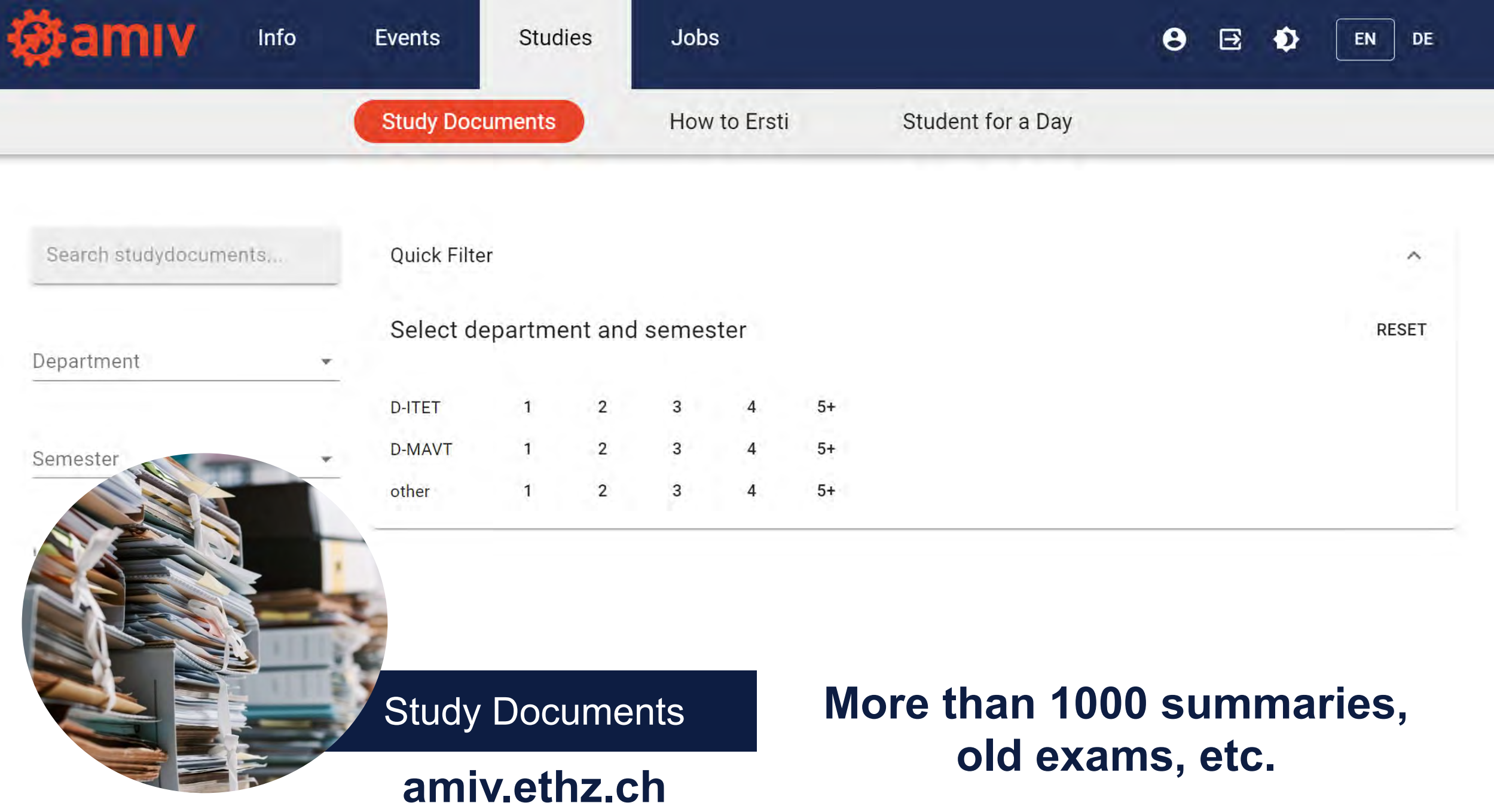
Questions or complaints to
info@amiv.ethz.ch

amiv

Offers and Activities

- Theater
- Poker- / Jass tournament
- Sushi-Night
- Graduationparty
- Skiweekend
- Lasertag
- Beachvolleyball tournament

Events



Study Documents

amiv.ethz.ch

More than 1000 summaries, old exams, etc.

Oral exams

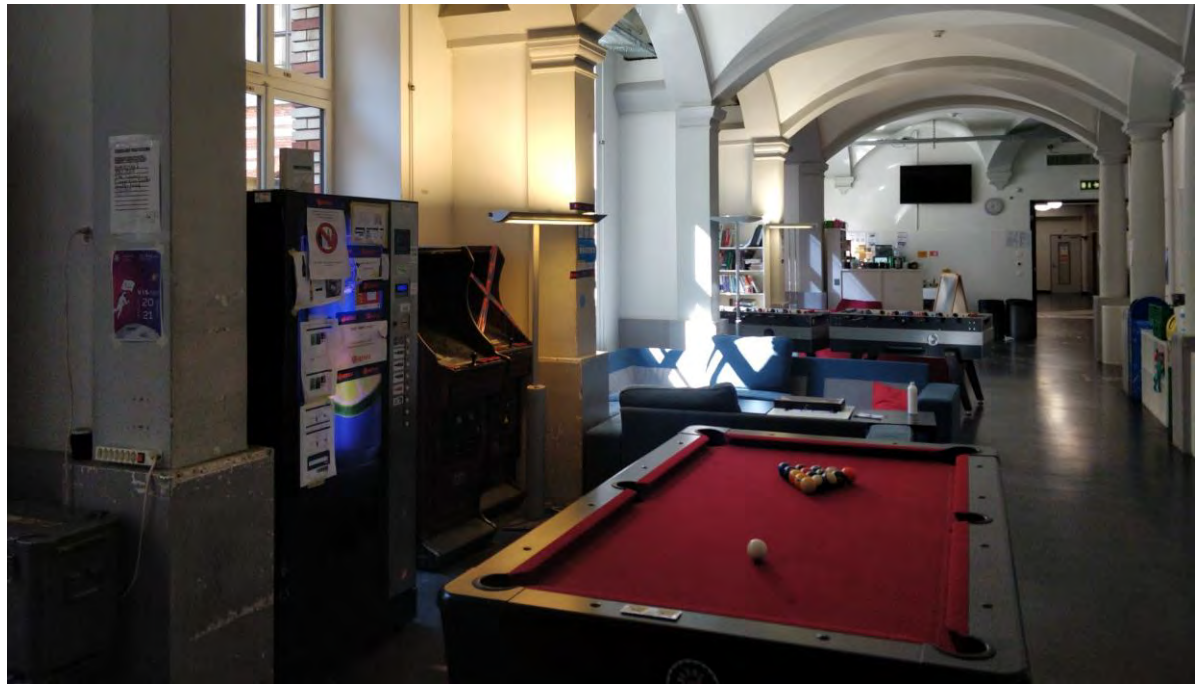
Written recollections of oral exams

extremely useful when preparing for an exam

Lounge

- Coffee machine
- Beer vending machine
- Table football
- Billiard table
- Mate tea machine

- Couches
- TV with game console
- microwaves



AMIV committees

Bastli

LIMES
WOMEN* IN ELECTRICAL AND MECHANICAL ENGINEERING AT ETH ZURICH

blitz
die Fachzeitschrift des amiv an der ETH

amiv-bräu

RRATIONAL Coffee

amivKONTAKT

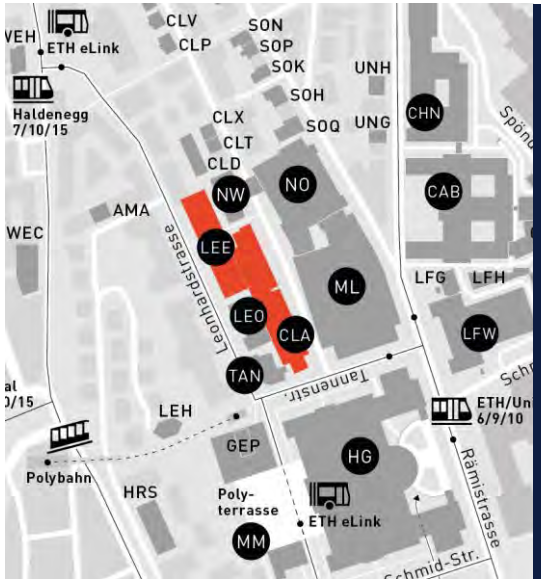
eestec
ELECTRICAL ENGINEERING STUDENTS' EUROPEAN ASSOCIATION

AMIV Kontakt.23:

The Job Fair for Engineers!

CLA & LEE Buildings

10. & 11.10.2023, 11:00–17:00



57 companies
2 days
Free CV-checks
Free photo shoots
Presentations &
Workshops

amiv

AMIV Kontakt.23:

Presentations and Workshops with free Apéros!

Lateral entry into Software Engineering

Tuesday, 27.09.2023, 18:15, HG E 5

Career Misconceptions

Thursday, 04.10.2023, 17:15, HG E 5

Register on amiv.ethz.ch/events

Join?

vseth member → Teams → Board member

Voluntary contributions for the Autumn Semester 2019

Note: If membership is selected, the personal and address data required for member administration and other club activities will be forwarded to the respective club.

	Yes	No
Solidarity fund for foreign students (CHF 5.-)	◉	○
SOSETH membership (CHF 5.-)	◉	○
VSETH membership (CHF 10.-; for doctoral students CHF 35.-)	◉	○

Save

amiv

Upcoming events

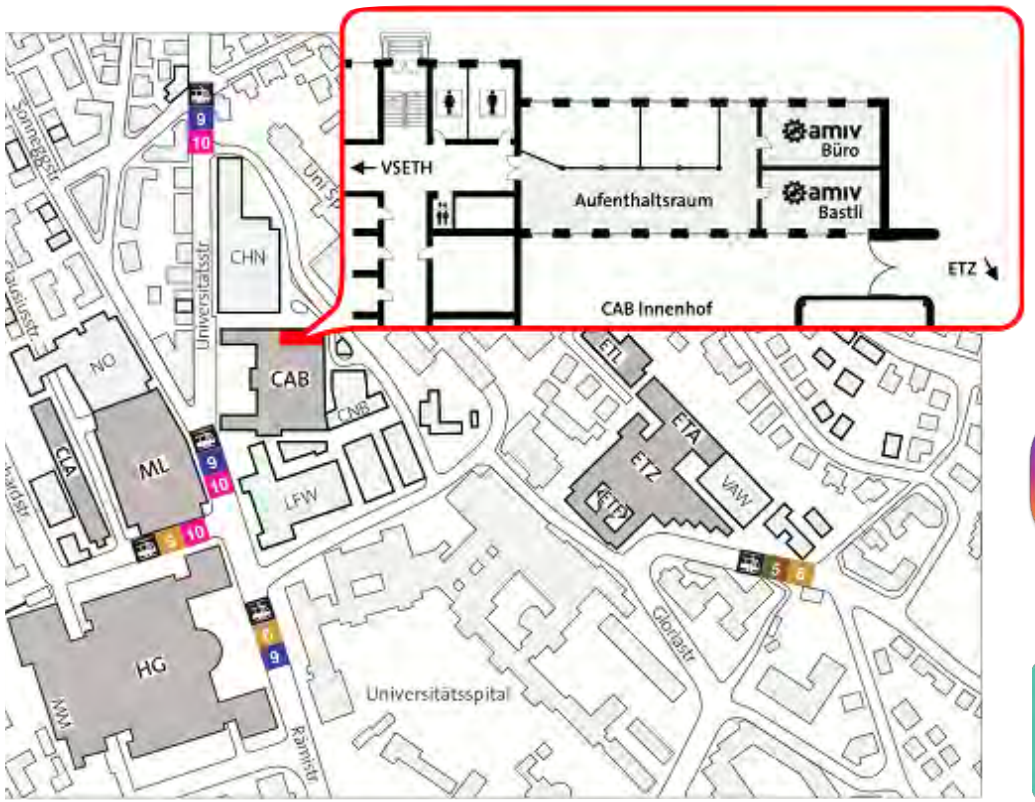
1 **Ersti-Rallye**
Wednesday, Sep 20

2 **Masterweekend**
Sign-up today 6pm
Sep 29 – Oct 1

More information on amiv.ethz.ch

Questions?

AMIV and der ETH
CAB E37
Universitätstrasse 6
8092 Zürich



@amiv_eth

facebook.com/AMIV.ETHZ

www.amiv.ch

info@amiv.ethz.ch

LIMES

WOMEN* IN ELECTRICAL AND MECHANICAL ENGINEERING AT ETH ZURICH

About us

LIMES is the women* student committee of AMIV, the association for students studying Information Technology and Electrical Engineering (D-ITET) and Mechanical and Process Engineering (D-MAVT).

*Our use of the term "women" includes all individuals who identify as women, non-binary, inter- and transgender and face gender-based discrimination.

Our mission

Insight

We equip our members with invaluable industry insights prior to their completion of studies.

Network

We connect women* engineering students, fostering a strong support network that goes beyond their academic pursuits.

Inspire

We seek to inspire high school students to pursue technical career paths.

What we do

Events

Projects

Meetings

Events

- Women*'s Evening
- LIMES Talk
- Regulars' table (Stammtisch)
- Summer Cocktail Night
- LIMES Cup - A Soccer Tournament
- Excursions
- Workshops
- Hackathons
- Team Events
- Schülerinnen*tag
- .. & many more!

Upcoming Events 2023

20.09. Ersti-Rallye LIMES Booth
For all new joiners

28.09. Welcome Aperitif
Grab your free welcome drink!

30.09. Workshop w/ ABB @WeTechTogether
Join our workshop at the WeTechTogether Conference in Technopark Zurich

04.10. Mentee-Mentor Dinner D-ITET
Spaghetti Dinner for D-ITET exclusive!

TBA LIMES goes Google
Let's visit the Google office together!

26.10. Workshop w/ FemmeInvest
Invest in yourself. In your financial education. In your future.

24.11. Schülerinnen*tag
Inspire the next generation!

30.11. Sensor-Challenge w/ Sensirion
Compete against other students at the sensor challenge!

TBA Dinner Event w/ Belimo & ETH Juniors
Evening with keynotes, talent acquisition scouts, drinks and dinner

Projects

In total, 23 dispensers which dispense free tampons and pads are installed in women's and gender-neutral toilets on ETH campus.

The aim of the project is help normalize and eliminate the stigma surrounding the subject of menstruation.

See: https://ethz.ch/staffnet/en/news-and-events/internal-news/archive/2021/09/free-menstrual-products-on-the-eth-campus.html

Meetings

Meetings are held bi-weekly during the semester on ETH campus.

You can simply come to one of our meetings and learn more about what we do - no strings attached!

The meeting schedule can be found on our website and social media.
Snacks are provided.

Become a member

Becoming a LIMES member is easy! If you are interested in joining our organization, write us or simply attend our next meeting to learn more.

Stay updated

https://limes.ethz.ch

@limes.eth

company/limes-eth

Any questions?

Send an email to:
limes@amiv.ethz.ch