ETH zürich

# MSc Biomedical Engineering

**Orientation Day**

Christian Frei, Coordinator MSc BME

September 16, 2024

# MSc Biomedical Engineering (BME): Who We Are

**Administrative part**

Christian Frei

Coordinator MSc BME

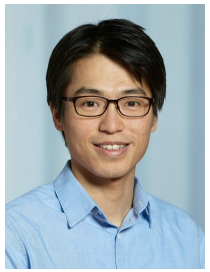
Reto Kreuzer

Coordinator of studies, D-ITET*

*Other ETH-departments involved: D-HEST, D-MAVT and D-PHYS

# MSc Biomedical Engineering (BME): Who We Are (Track Advisors)

- Bioelectronics
  - Taekwang Jang
  - Janos Vörös
  - Hua Wang
  - Mehmet Fatih Yanik



- Biomechanics
  - Ralph Müller

- Bioimaging
  - Klaas Prüssmann

- Medical Physics
  - Tony Lomax
  - Marco Stampanoni

- Mol. Bioengineering
  - Mark Tibbitt
  - Marcy Zenobi

- Representative D-MAVT
  - Brad Nelson

# Student’s associations: BEEZ and AMIV

- BEEZ: Biomedical Engineering Student Association
  - Lorenzo Petrella

  - Pau Altur Pastor

- AMIV: Student’s Association of D-ITET and D-MAVT

# Incoming Class HS24

- 86 students
  - Belgium (1), Canada (1), China (1), Finland (1), Germany (4), Hungary (1), India (1), Italy (10), Netherlands (6), Spain (2), Switzerland (55), UK (2) and USA (1)

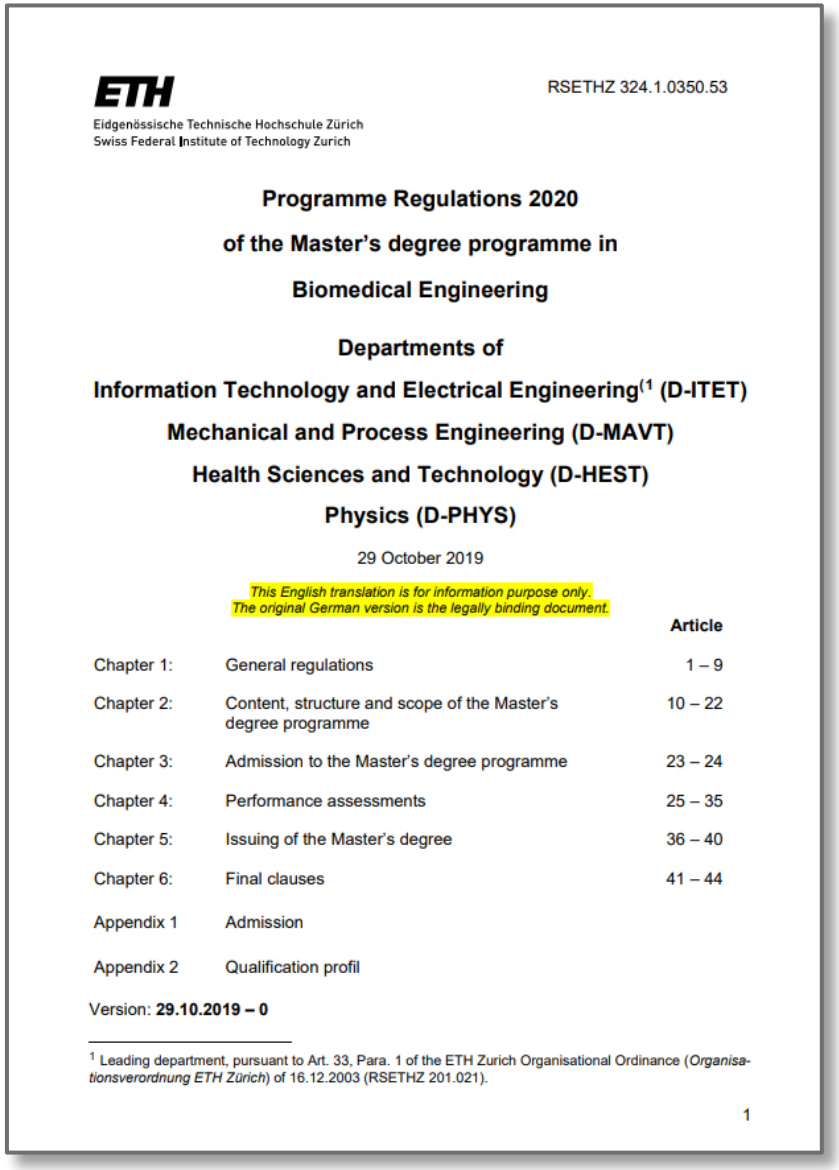
ETH Zurich Bachelors (51)

Male (34), female (52)

Note: some students are not enrolled yet

# Your Studies are Subject to Regulations

- Study regulations
  - www.rechtssammlung.ethz.ch
  - www.master-biomed.ethz.ch



ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

RSETHZ 324.1.0350.53

**Programme Regulations 2020**
**of the Master's degree programme in**
**Biomedical Engineering**

**Departments of**
**Information Technology and Electrical Engineering[1] (D-ITET)**
**Mechanical and Process Engineering (D-MAVT)**
**Health Sciences and Technology (D-HEST)**
**Physics (D-PHYS)**

29 October 2019

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


| | | Article |
|---|---|---|
| Chapter 1: | General regulations | 1 – 9 |
| Chapter 2: | Content, structure and scope of the Master's degree programme | 10 – 22 |
| Chapter 3: | Admission to the Master's degree programme | 23 – 24 |
| Chapter 4: | Performance assessments | 25 – 35 |
| Chapter 5: | Issuing of the Master's degree | 36 – 40 |
| Chapter 6: | Final clauses | 41 – 44 |
| Appendix 1 | Admission | |
| Appendix 2 | Qualification profil | |

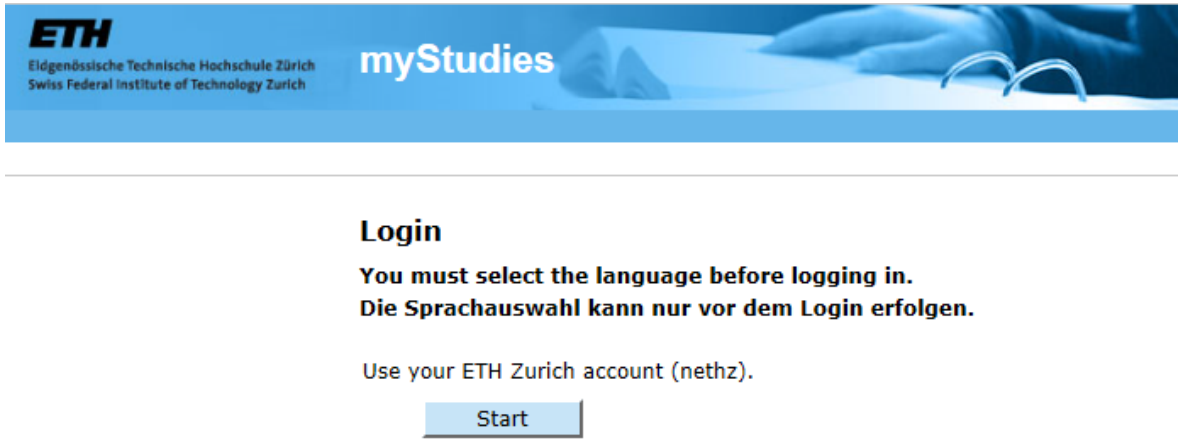

Version: **29.10.2019 – 0**

[1] Leading department, pursuant to Art. 33, Para. 1 of the ETH Zurich Organisational Ordinance (*Organisationsverordnung ETH Zürich*) of 16.12.2003 (RSETHZ 201.021).

1

# Reminder: Student Online Portal

- Your administrative duties on [www.mystudies.ethz.ch](http://www.mystudies.ethz.ch)
- Enrollment to 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 a study plan/learning agreement (until the end of the 4th week)
  - Enroll for exams – please enroll during the 3rd and 4th week of the semester (withdrawal possible until very late)
- **Read your email!**



# How to Choose / Enroll for Lectures?

- Consult your track advisor!
- Overview of lectures to choose from:
  - http://www.master-biomed.ethz.ch/education
- Course catalogue:
  - www.vvz.ethz.ch
  - Level:
    - Master's Degree Programme
    - Department: ITET
    - Programme: MSc Biomedical Engineering Master

**MSc Biomedical Engineering** **Track Biomechanics** **Autumn Semester 2024 (HS24)** last update: June 5, 2024

Core Course | Recommended Elective Course | Biology Course

| Time | Monday |
|---|---|
| 08:00 | |
| 09:00 | Micro and Nano-Tomography of Biological Tissues |
| 10:00 | |
| 11:00 | Frontiers in Nanotechnology |
| 12:00 | |
| 13:00 | |
| 14:00 | Biomedical Imaging |
| 15:00 | |
| 16:00 | Biomechanik von Sportverletzungen und Rehabilitation; Ultrasound Fundamentals and Applications in Biology and Medicine |
| 17:00 | Microrobotics |
| 18:00 | |

| Time | Tuesday |
|---|---|
| 08:00 | |
| 09:00 | Medical Technology Innovation - From Concept to Clinics; Rehabilitation Engineering II: Rehabilitation of Sensory and Vegetative Functions; Physiology and Anatomy for Biomedical Engineers I |
| 10:00 | |
| 11:00 | Application of MATLAB in the Human Movement Sciences*; Biostatistics |
| 12:00 | |
| 13:00 | |
| 14:00 | Biomedical Imaging |
| 15:00 | |
| 16:00 | Biostatistics |
| 17:00 | |
| 18:00 | |

| Time | Wednesday |
|---|---|
| 08:00 | |
| 09:00 | Biomedical Engineering; Colloquium in Biomechanics |
| 10:00 | Wearable and Mobile Technologies of the Future - Focus on Sports and Health |
| 11:00 | |
| 12:00 | Continuum Mechanics I |
| 13:00 | |
| 14:00 | Biocompatible Materials |
| 15:00 | Clinical and Movement Biomechanics |
| 16:00 | |
| 17:00 | Micro/Nanotechnology and Microfluidics for Biomedical Applications |
| 18:00 | |

| Time | Thursday |
|---|---|
| 08:00 | |
| 09:00 | |
| 10:00 | Trauma Biomechanics |
| 11:00 | Microrobotics |
| 12:00 | Rehabilitation and Inclusion |
| 13:00 | |
| 14:00 | Bone Biology: Basics, Research and Clinics; Trauma Biomechanics; Biological Methods for Engineers |
| 15:00 | Image Analysis and Computer Vision |
| 16:00 | |
| 17:00 | Seminar on Digital Humans |
| 18:00 | |

| Time | Friday |
|---|---|
| 08:00 | |
| 09:00 | Continuum Mechanics I |
| 10:00 | |
| 11:00 | |
| 12:00 | |
| 13:00 | |
| 14:00 | Multiscale Bone Biomechanics |
| 15:00 | Physics in Medical Research: From Atoms to Cells; Frontiers in Nanotechnology |
| 16:00 | |
| 17:00 | |
| 18:00 | |

*: not offered in HS24: Application of MATLAB in the Human Movement Sciences

Note: This is an informal help for students. The official courses can be seen on the Course Catalogue of ETH (www.vvz.ethz.ch)

# 120 Credits ECTS to Fulfill the MSc BME

- Mandatory credits

| | | |
|---|---|---|
| – Track Courses | 52 CP | Part of the learning agreement (see below) |
| – Track Core Courses, at least 12 CP | | |
| – Recommended Elective Courses | | |
| – Biology Courses | | |
| – Semester Project | 12 CP | |
| – Master Project | 30 CP | |
| – Science in Perspective (SiP) | 2 CP | |

- Sum 96 CP

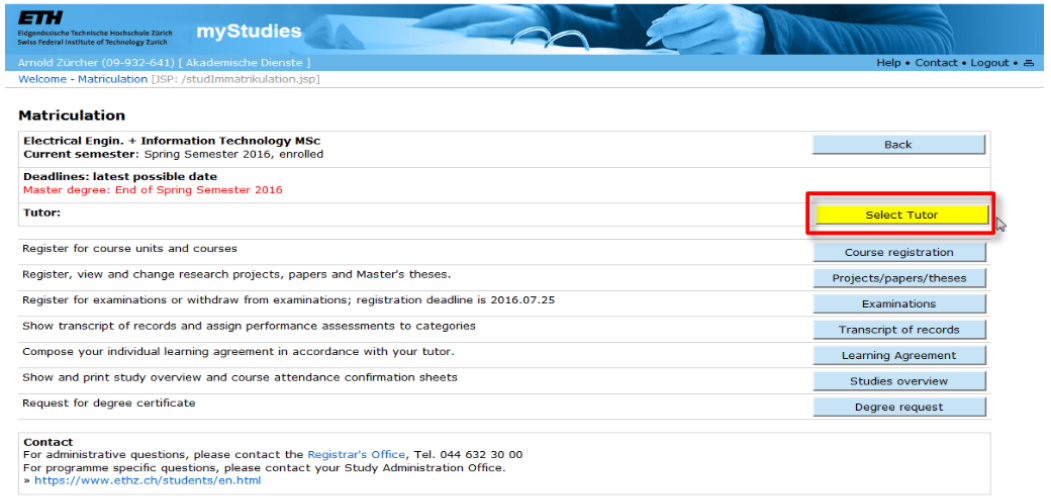
# 120 Credits ECTS to Fulfill the MSc BME

- Mandatory credits
  - Track Courses 52 CP
    - Track Core Courses, at least 12 CP
    - Recommended Elective Courses
    - Biology Courses
  - Semester Project 12 CP
  - Master Project 30 CP
  - Science in Perspective (SiP) 2 CP
- Sum 96 CP

- Selected choice
  - More Track Courses up to 24 CP
  - Additional Projects and Laboratory Courses
    - Semester Project 2 12 CP
    - Research Project 6, 12, 18 or 24 CP
    - Industry Internship 12 CP
- Sum 24 CP

# Learning Agreement / Individual Study Plan

- Select tutor
- Discuss your choice with the track advisor, edit and submit the list in *myStudies* by the end of the fourth week of the semester




- Contains all core courses, recommended elective courses and biology courses
- Track advisors can allow courses not pre-defined for a particular track
- Only these courses can be accounted for the final degree

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- Sum 24 CP

Need to be supervised by a Professor from a predefined list

>100 Professors from 9 different departments at ETH Zurich

No approval by track advisor required

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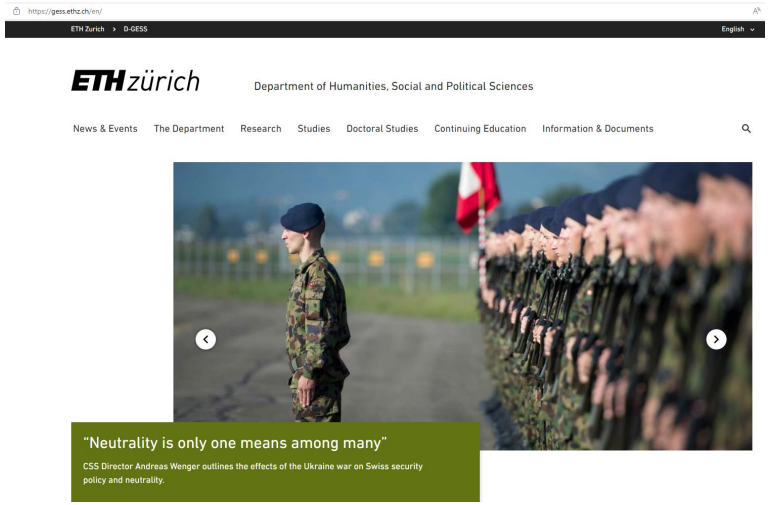



The SiP courses are mandatory for all students at ETH Zurich

SiP courses are selected and offered by the Department of Humanities, Social and Political Sciences (D-GESS)

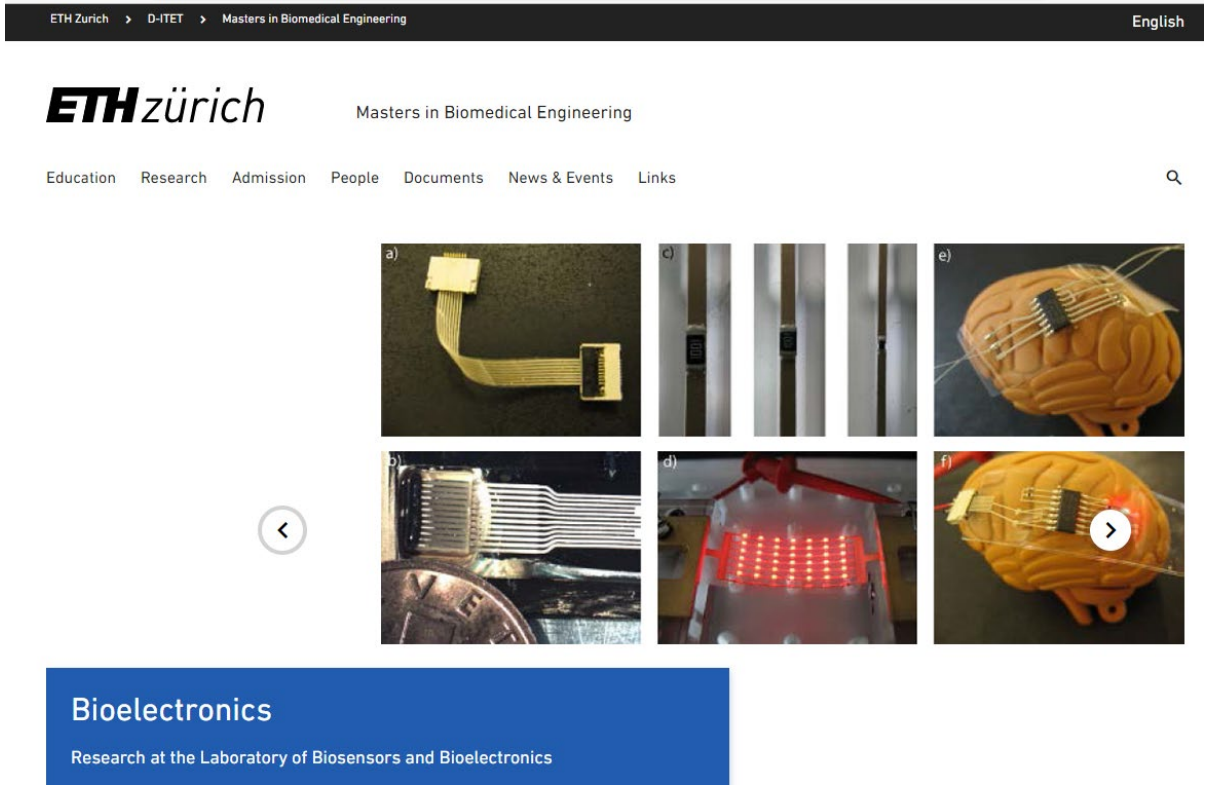
Contact: Study admin D-GESS, Malte Bachem, malte.bachem@gess.ethz.ch

https://gess.ethz.ch/en/studies/science-in-perspective.html

# Questions?

- Come to us

- This presentation can be downloaded from our website:
  - http://www.master-biomed.ethz.ch/




ETH zürich

BIOMEDICAL ENGINEERING

ETH zürich

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Coordinator MSc Biomedical Engineering
frei@biomed.ee.ethz.ch

ETH Zürich
D-ITET
Gloriastrasse 37/39, GLC F 12.2
8092 Zürich

ETH zürich

Departement of Information Technology and Electrical Engineering

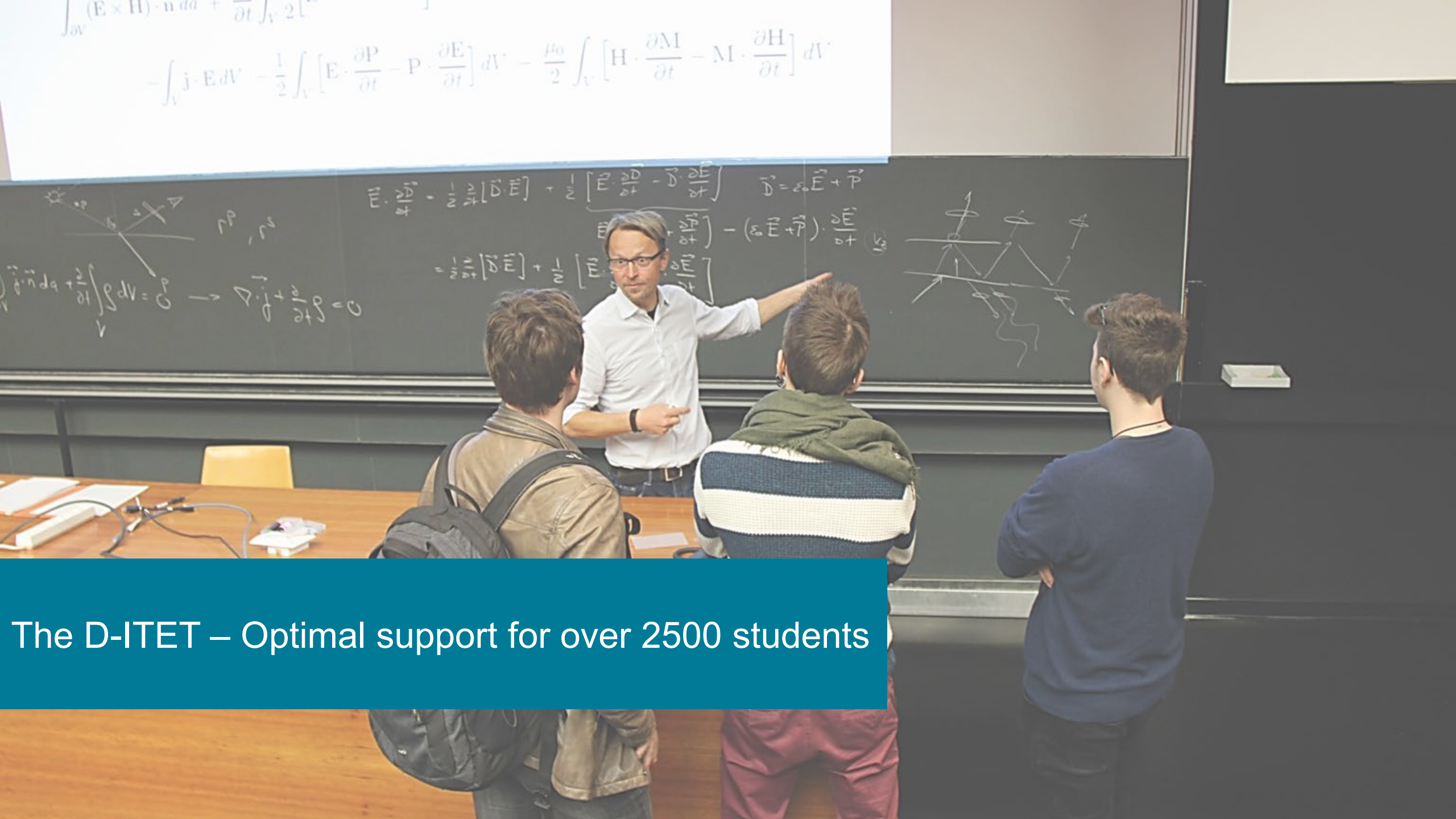
# D-ITET Contacts + Information – for MSc Biomedical Engineering students

September 16, 2024

Reto Kreuzer, Coordinator of Studies / Student Advisor, D-ITET

# Agenda

1. The D-ITET – your new host department
2. Finding the right contact
3. Courses, exams and credits
4. Useful information



# The D-ITET – Optimal support for over 2500 students

# Your home department in numbers (2023)

| | | |
|---|---|---|
| **BSc** | ETH<br>**D-ITET** | 10’948<br>**793** |
| **MSc** | ETH<br>**D-ITET**<br>Electrical Engineering MSc<br>Biomedical Engineering MSc<br>Energy Science & Technology MSc<br>Quantum Engineering MSc<br>Neural Systems & Comp. MSc (UZH) | 9’018<br>**1’031**<br>592<br>210<br>108<br>117<br>*53* |
| **Exchange** | ETH<br>**D-ITET** | 286<br>**39** |

- **41 professors**
- **60+ other lecturers**
- **ca. 500 doctoral students**
- **Study administration**
- **AMIV (incl. LIMES)**
- **IT support**

# Our professors

Prof. Morteza Aramesh

Prof. Laura Bégon-Lours

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. Ursula Keller

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. Marco Stampanoni

Prof. Klaas Enno Stephan

Prof. Christoph Studer

Prof. Laurent Vanbever

Prof. János Vörös

Prof. Hua Wang

Prof. Roger P. Wattenhofer

Prof. Vanessa C. Wood

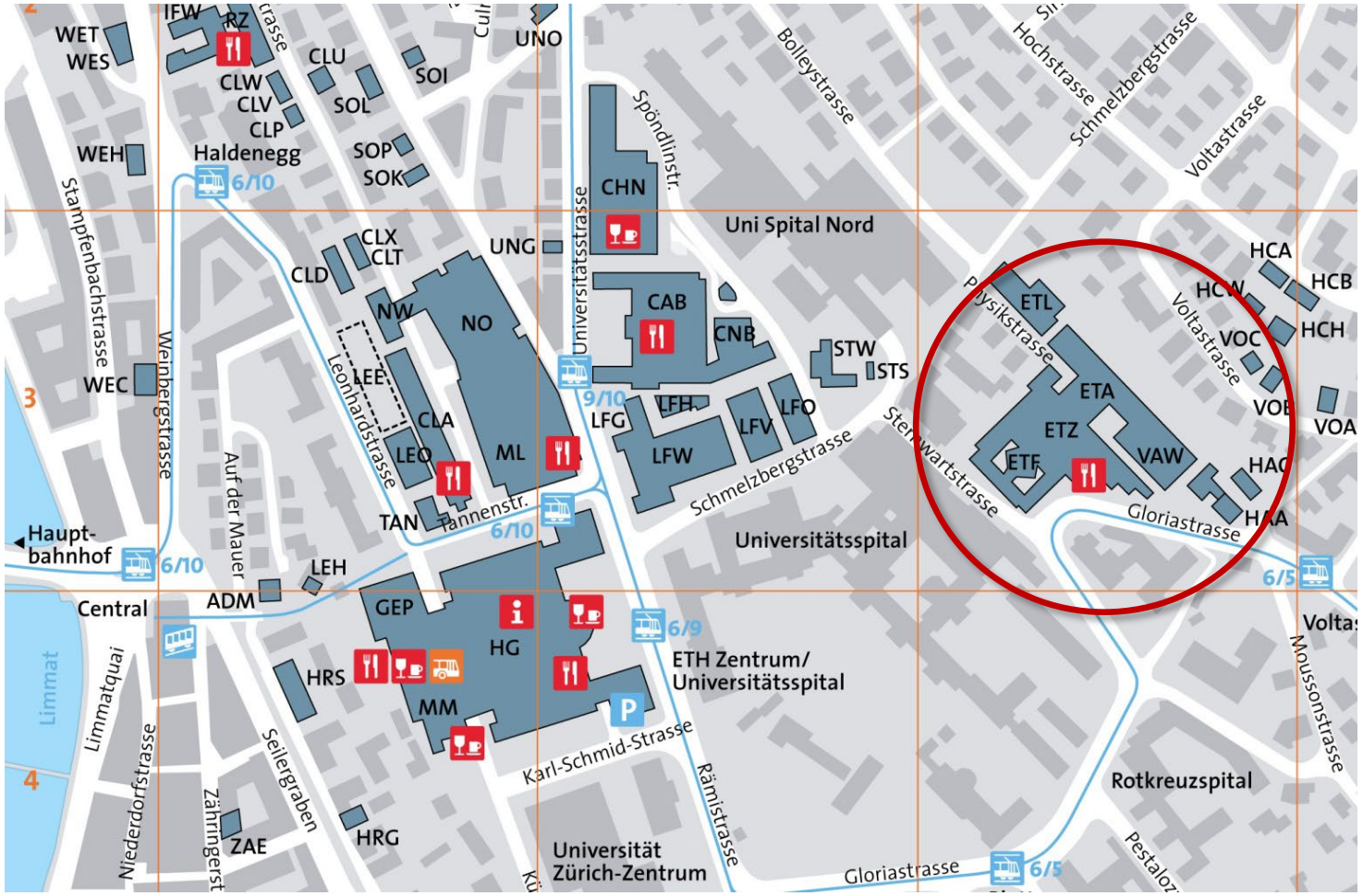
Prof. Mehmet Fatih Yanik

Prof. Maksym Yarema

Prof. Fisher Yu

# Finding your contacts

# Map of ETH and D-ITET



# Where do I find information on the web?

- **General Information on studies at ETH**

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

- **Information on the Master in Biomedical Engineering**

  D-ITET website: www.master-biomed.ethz.ch

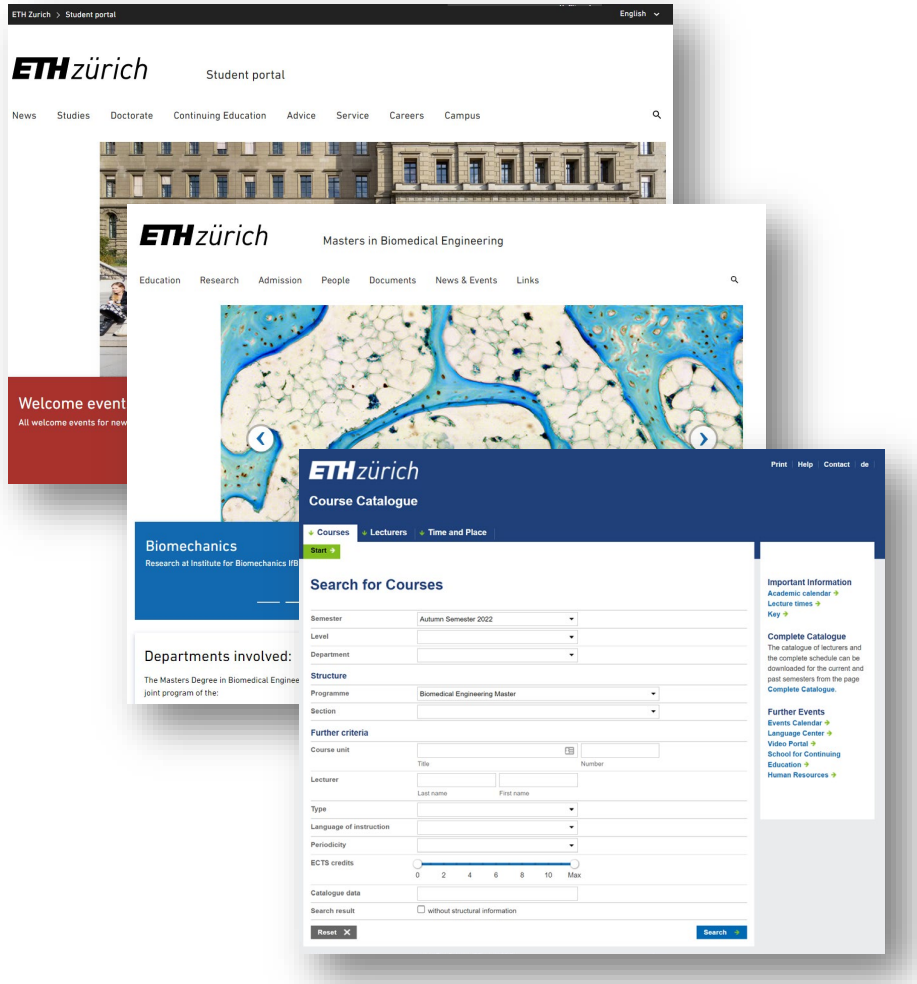
- **Course catalogue**

  Online: www.vvz.ethz.ch > Programme > Electrical Engineering (…) Master

– **Messages from ETH and the Department**

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

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



# Your most important contacts at ETH and the D-ITET

## ETH / Rectorate

**Registrar's Office (HG F 19)**

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

## D-ITET / central services

**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. Christian Franck

Director of studies D-ITET

ETL H 24.1
+41 44 632 47 62
franck@eeh.ee.ethz.ch

## Reto Kreuzer

Head of Student Administration / 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
info@ee.ethz.ch

# Useful information

# Counselling at ETH and the D-ITET

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

# Computer infrastructure at ETHZ / D-ITET

- All public ETH-computers, e.g., Main Building HG D 11, or ET-Building ETZ D 61.1, require your **n.ethz** password, same as used for myStudies
- Only ITET students can access the computer infrastructure in the ET-building area, should you encounter a problem, contact D-ITET IT-support
- **Project Neptune** – during a short period (until September 30), 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

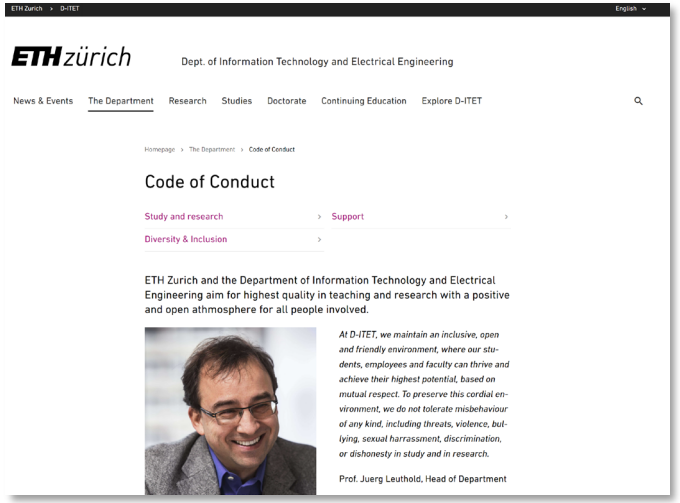
# Code of conduct

« 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



# More details?

- **My Office**
  Reto Kreuzer, Study Coordinator D-ITET, ETZ H 83
  Please send an email to fix an appointment (reto.kreuzer@ee.ethz.ch)

- **This presentation**
  Available tomorrow morning on www.ee.ethz.ch > Studies > Forms and Documents

# Enjoy your studies at ETH!