

**ETH** zürich

**BIOMEDICAL  
ENGINEERING**



**ETH** zürich

**Master of Science in  
Biomedical Engineering**  
Orientation Day

Autumn Semester 2019

DITET

# MSc Biomedical Engineering (BME): Who We Are

## Administrative part



**Christian Frei**  
Coordinator MSc BME



**Reto Kreuzer**  
Coordinator of studies, D-ITET\*

## Scientific part

**Track Bioelectronics**  
**Janos Vörös**



**Track Bioimaging**  
**Klaas Prüssmann**



**Track Biomechanics**  
**Ralph Müller**



**Track Medical Physics**  
**Tony Lomax, Marco Stampanoni**



**Track Mol. Bioengineering**  
**Marcy Zenobi**



## BEEZ and AMIV

**BEEZ: Biomedical Engineering  
Student Association**

**Mavi Polatoglu**



**AMIV: Student's  
Association of D-ITET  
and D-MAVT**



## Incoming Class

49 students\*

Austria (1), China (2), France (1), Germany (1),  
Iceland (1), Italy (3), Romania (1), Spain (2),  
Switzerland (32), Turkey (1), UK (1) and USA (3)

31 ETH Bachelors



\* Not all students are matriculated yet

## Your Studies are Subject to Regulations

Study regulations (mostly available in German only)

[www.rechtssammlung.ethz.ch](http://www.rechtssammlung.ethz.ch)

(complete collection, German)

[www.master-biomed.ethz.ch](http://www.master-biomed.ethz.ch)

> Legal documents (BME regulations in English)

Rector's Directives (some available in German only)

[www.ethz.ch/students](http://www.ethz.ch/students)

> Studies > Legal basis > Directives Collection

International students, please contact Ms Annina Wanner at the Rectorate (HG F 22.3) or the D-ITET Department Secretariat (ETZ H 85) for help on regulations.

The image shows the cover page of the 'Studienreglement 2013 für den Master-Studiengang Biomedical Engineering'. It includes the ETH logo, the university name in German and English, the document number RSETHZ 324.1.0350.52, and the title. Below the title, it lists the departments involved: Informationstechnologie und Elektrotechnik (D-ITET), Maschinenbau und Verfahrenstechnik (D-MAVT), Physik (D-PHYS), and Gesundheitswissenschaften und Technologie (D-HEST). The date is 'vom 14. Mai 2013'. A table of contents follows, listing chapters from 'Allgemeine Bestimmungen' to 'Schlussbestimmungen' with their respective article ranges. The page ends with 'Anhang' and the publication date 'Ausgabe: 14.05.2013 - 0'.

		Artikel
1. Kapitel:	Allgemeine Bestimmungen	1 – 10
2. Kapitel:	Inhalt, Umfang und Struktur des Master-Studiengangs	11 – 21
3. Kapitel:	Zulassung zum Master-Studiengang	22 – 23
4. Kapitel:	Leistungskontrollen	24 – 32
5. Kapitel:	Erteilung des Master-Diploms	33 – 37
6. Kapitel:	Schlussbestimmungen	38 – 41
Anhang		
Ausgabe: 14.05.2013 – 0		

## 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 4<sup>th</sup> week)
- Enroll for exams – please enroll during the 3<sup>rd</sup> and 4<sup>th</sup> week of the semester (withdrawal possible until very late)

Notify us of your address changes

**Read your e-mails!**

#### Login

You must select the language before logging in.  
Die Sprachauswahl kann nur vor dem Login erfolgen.

Use your ETH Zurich account (nethz).

Start

# 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](http://www.vvz.ethz.ch) > Level: Master's Degree  
Programme > Department: ITET > Programme:  
Biomedical Engineering Master

Enrollment through the online-portal:

[www.mystudies.ethz.ch](http://www.mystudies.ethz.ch)

MSc in Biomedical Engineering "Bioelectronics Track" last update: June 27, 2019

Autumn semester 2019

Track Core Courses (Yellow), Recommended Elective Courses (Orange), Biology Courses (Green)

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:00		Physiology and Anatomy (Biomedical Engineers I)	Rehabilitation Engineering II		
09:00			Biomedical Engineering	Intro. to Neuroinformatics	Bio-compatible Materials
10:00	Frontiers in Nano-technology	Cross-Disciplinary Research & Development		Micro-robotics	Signal Analysis, Models, and Machine Learning
11:00				Nano-systems	Bioelectronics and Biosensors
12:00		Biomicrofluidic Engineering		Cell and Molecular Biology (Engineers I)	Analog Integrated Circuits
13:00	Neuromorphic Engineering I	Biomedical Imaging		Image Analysis and Computer Vision	Energy Conv. and Transport in Biocells
14:00			Micro-scale Acoustofluidics	Energy Conversion and Transport in Biosystems	Physics in Medical Research: From Atoms to Cells
15:00		Biomedical Imaging	Biological Engineering and Biotechnology		Frontiers in Nano-technology
16:00	Micro-robotics	Micro-systems I: Process Technology and Integration	Micro/Nano-technology Microfluidics for Biomedical Applications		Analog Integ. Circuits
17:00				Biological Methods Engineers (Basic Lab)	
18:00					

Spring semester 2019

Time	Monday	Tuesday	Wednesday	Thursday	Friday
08:00		Physiology and Anatomy for Biomedical Engineers II	Rehabilitation Engineering I		Rehabilitation Engineering I
09:00			Optics and Photonics		Principles in Tissue Engineering
10:00	Elements of Microscopy	Biomedical Photonics		Quantitative Big Imaging: From Images to Statistics	Physics Against Cancer: The Physics of Imaging
11:00		Nano-robotics		Development strategies Medical Implants	Advanced Topics in Control
12:00				Measuring on the Nanometer Scale	
13:00				Cell and Molecular Biology for Engineers II	
14:00	Orthopaedic Biomechanics	Micro-systems II			Physics in Medical Research: From Humans to Cells
15:00	Computer Simulations of Sensory Systems	Lasers in Medicine (not offered in 2019)	Neuro-morphic Engineering II	Micro-systems II	
16:00		Advanced Topics in Control	Finite Element Analysis in Biomedical Engineering		
17:00					
18:00					

June 2019: [Biological Methods for Engineers \(Advanced Lab\)](#) 227-0949-10L. Note: This list is an informal help for students. The official courses can be seen on the Course Catalogue of ETH ([www.vvz.ethz.ch](http://www.vvz.ethz.ch))

## How to Choose / Enroll for Lectures?

**All courses you wish to count towards your Master Diploma must be enrolled for (both the course and the exam)**

**Only courses agreed upon with the track advisor will count**

**In particular, do not forget to enroll for the Semester Project and the Master Project**



## Credits ECTS to Fulfill the MSc BME

### Currently: 90 ECTS

Track Courses	50 CP
- Track Core Courses, at least 12 CP	
- Recommended Elective Courses	
- Biology Courses	
Semester Project	<del>8 CP</del> 12 CP
Master Project	30 CP
Humanities (GESS/SIP)	2 CP
Total	90 CP

### Starting 2020: 120 ECTS

*You have the option to do this\**

Track Courses	52 to 76 CP
- Track Core Courses, at least 12 CP	
- Recommended Elective Courses	
- Biology Courses	
Semester Project	12 CP
Option: 2 <sup>nd</sup> Semester Project	12 CP
Option: Internship at Industry	12 CP
Option: Research Project	24 CP
Option: D-HEST Research Projects	5 to 15 CP
Master Project	30 CP
Humanities (GESS/SIP)	2 CP
Total	120 CP

*\*: Your decision by the end of the spring semester 2020*

## Learning Agreement / Individual Study Plan

Contains all core courses,  
recommended elective courses and  
biology courses

Track Medical Physics: Select Tutor

All other tracks: the track advisor is  
preselected as the tutor

*myStudies*: called “Learning Agreement”

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

Track advisors can allow courses not  
pre-defined for a particular track

Only these courses can be accounted  
for the final degree



The screenshot shows the myStudies web interface. At the top, there is a blue header with the ETH logo and the text "myStudies". Below the header, there is a navigation bar with the text "Arnold Zürcher (09-932-641) [ Akademische Dienste ]" and "Welcome - Matriculation [ISP: /studimmatrikulation.jsp]". The main content area is titled "Matriculation" and contains a table with the following rows:

Electrical Engin. + Information Technology MSc Current semester: Spring Semester 2016, enrolled	Back
Deadlines: latest possible date Master degree: End of Spring Semester 2016	
Tutor:	Select Tutor
Register for course units and courses	Course registration
Register, view and change research projects, papers and Master's theses.	Projects/papers/theses
Register for examinations or withdraw from examinations; registration deadline is 2016.07.25	Examinations
Show transcript of records and assign performance assessments to categories	Transcript of records
Compose your individual learning agreement in accordance with your tutor.	Learning Agreement
Show and print study overview and course attendance confirmation sheets	Studies overview
Request for degree certificate	Degree request

Below the table, there is a "Contact" section with the text: "For administrative questions, please contact the Registrar's Office, Tel. 044 632 30 00. For programme specific questions, please contact your Study Administration Office. > <https://www.ethz.ch/students/en.html>".

## 90 Credits ECTS to Fulfill the MSc BME

**Track Courses** 50 CP

- Track Core Courses, at least 12 CP
- Recommended Elective Courses
- Biology Courses

**Semester Project** 8 CP

**Master Project** 30 CP

**Humanities (GESS/SIP)** 2 CP

**Total** 90 CP

**Semester Project: 14 week 50% or 7 weeks 100%**

**Master Project: 6 months 100%**

Register with *myStudies*

Projects must be supervised by a professor affiliated with one of the 4 participating departments: D-ITET, D-HEST, D-MAVT or D-PHYS

No need to submit a written document/project plan to D-ITET

Not part of the learning agreement

## 90 Credits ECTS to Fulfill the MSc BME

Track Courses 50 CP

- Track Core Courses, at least 12 CP
- Recommended Elective Courses
- Biology Courses

Semester Project 8 CP

Master Project 30 CP

Humanities (GESS/SIP) 2 CP

Total 90 CP

The screenshot shows the website for the Department of Humanities, Social and Political Sciences (D-GESS) at ETH Zürich. The header includes the ETH Zürich logo, navigation links for Student portal, Alumni association, and D-GESS Intranet, and a search bar. The main navigation menu lists News & Events, The Department, Research, Studies, Doctoral Studies, Continuing Education, and Information & Documents. The main content area features a photo of a researcher and a news item titled "Benoist Prize for ETH researcher".

The GESS/SIP "Compulsory Elective" courses are mandatory for all students at ETH

For language courses, special rules apply (see [directives collection](#))

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

Contact: Study admin D-GESS, Viola Gloor, [viola.gloor@gess.ethz.ch](mailto:viola.gloor@gess.ethz.ch)

On the web: [www.gess.ethz.ch](http://www.gess.ethz.ch)



## Questions?

Come to us

This presentation can be downloaded from  
our website

<http://www.master-biomed.ethz.ch/>

The screenshot shows the website for the Masters in Biomedical Engineering at ETH Zurich. The header is blue with the ETH Zurich logo and navigation links for 'Student portal', 'Alumni association', 'Login', 'Contact', and 'en'. Below the header, there is a search bar and a dropdown menu for 'Departments'. The main navigation bar includes 'Education', 'Research', 'Admission', 'People', 'Documents', 'News & Events', and 'Links'. The main content area features a green banner with the text 'ETH Zurich > D-ITET > Masters in Biomedical Engineering'. Below this is a large image of a biological tissue section. A white box over the image contains the text 'Biomechanics' and 'Research at Institute for Biomechanics IFB'. A green sidebar on the right contains the text: 'Biomedical Engineering is an exciting and growing field which resides at the interfaces between engineering, biology and medicine. The broad goal of biomedical engineering is to solve human health problems through advances in diagnosis, treatment and/or prevention of human disease.'