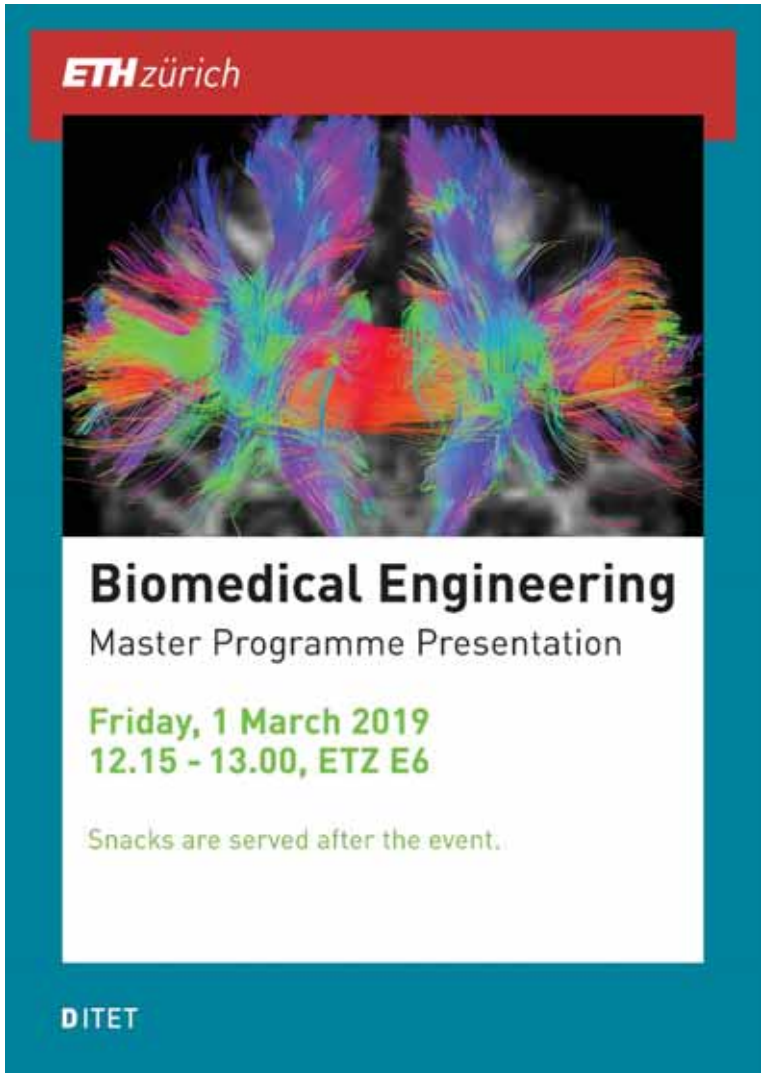
MSc Biomedical Engineering (BME)



ETH zürich

BIOMEDICAL ENGINEERING

MSc Biomedical Engineering (BME)

Christian Frei

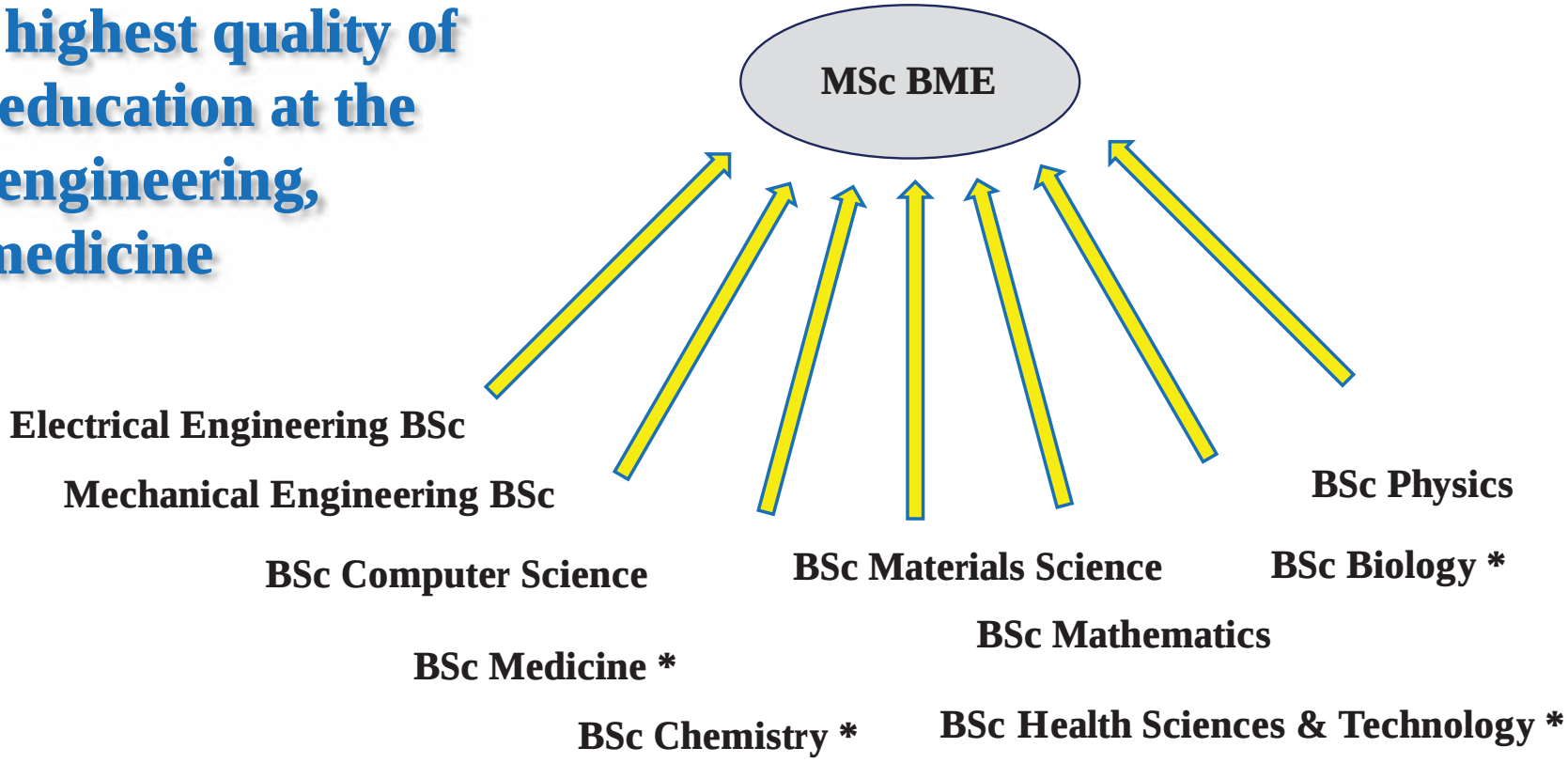
Coordinator MSc BME

Reto Kreuzer

Coordinator of Studies, D-ITET

MSc Biomedical Engineering (BME)

Our mission: highest quality of research and education at the interfaces of engineering, biology and medicine



*: does not qualify for all tracks (see below)

MSc Biomedical Engineering (BME)

4 Departments of ETH: D-ITET (leading house), D-HEST, D-MAVT and D-PHYS

5 different tracks:

- **Bioelectronics**
- **Bioimaging**
- **Biomechanics**
- **Medical Physics**
- **Molecular Bioengineering**

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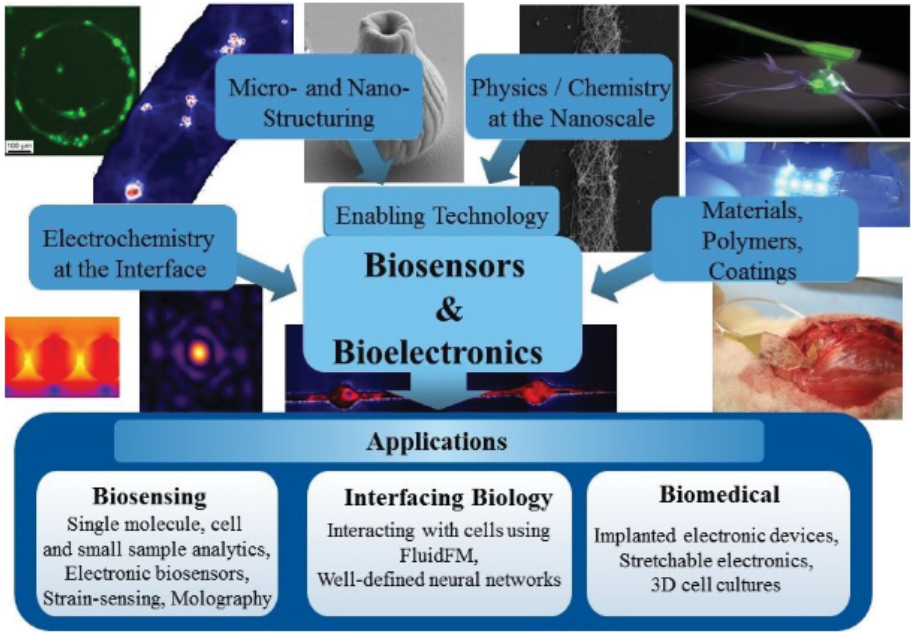
Janos Vörös
Track Advisor
(Fachberater)

We conduct interdisciplinary research at the interface between engineering, nanotechnology, materials science, medicine, and biology. We are interested in answering basic research questions that are related to molecular and cellular processes at electrified interfaces and to **neural networks** →. We apply our knowledge for developing new nanoscale tools (e.g. the **FluidFM**) and methods for **biosensing, diagnostics** →, and **interfacing biology** →. We also develop new **biomedical devices** →using stretchable electronics.



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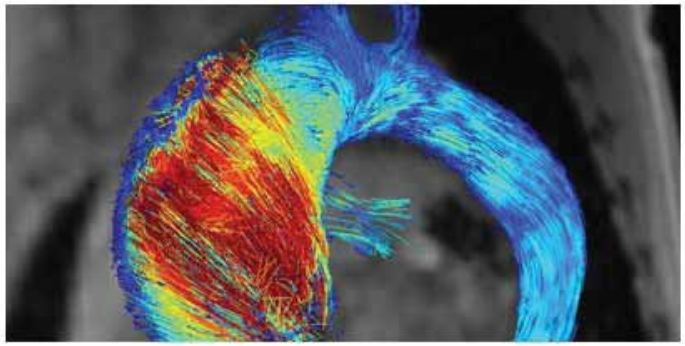
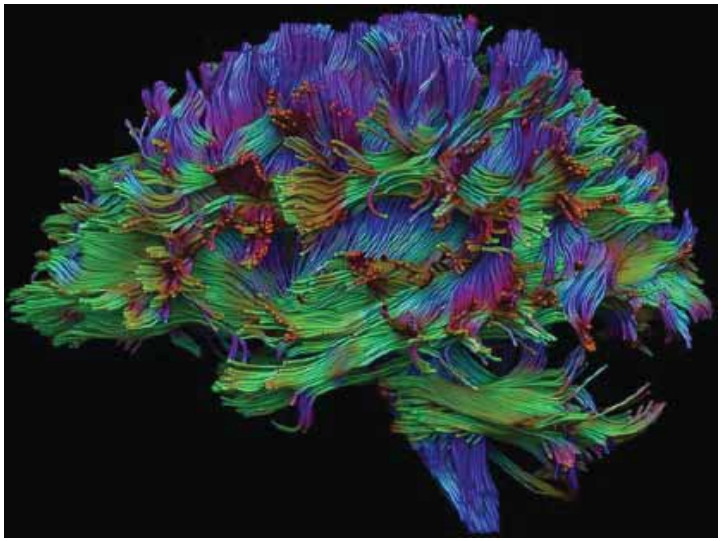
Klaas Prüssmann
Track Advisor
(Fachberater)

Blood flow in the aorta



MRI technology



Connectivity in the brain

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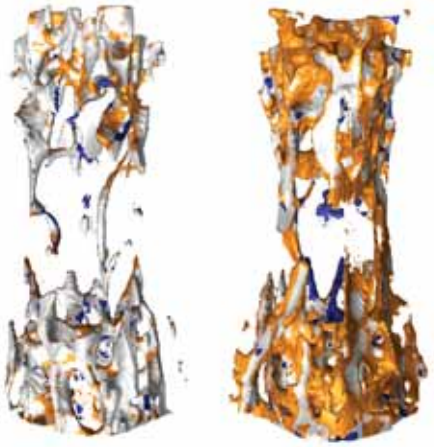
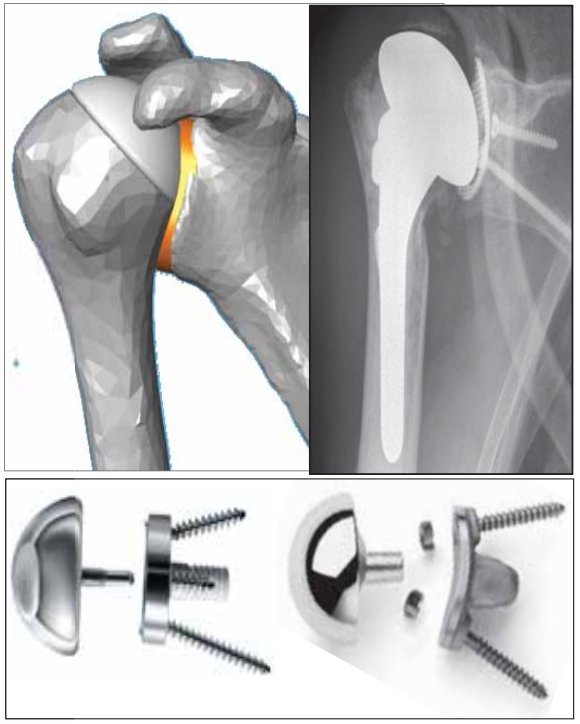
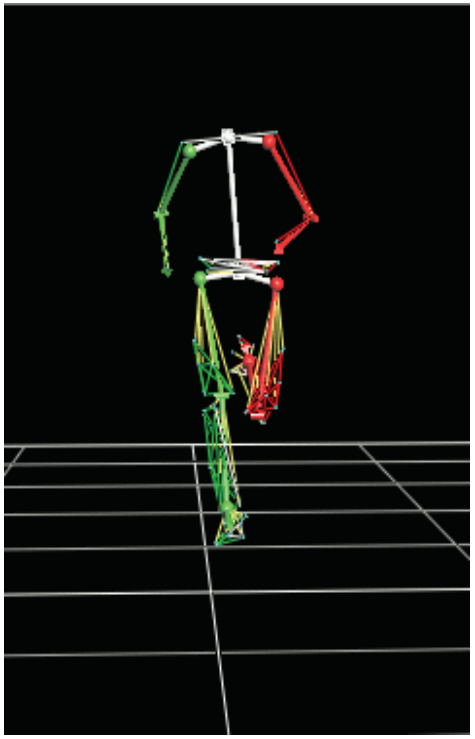
Ralph Müller
Track Advisor
(Fachberater)







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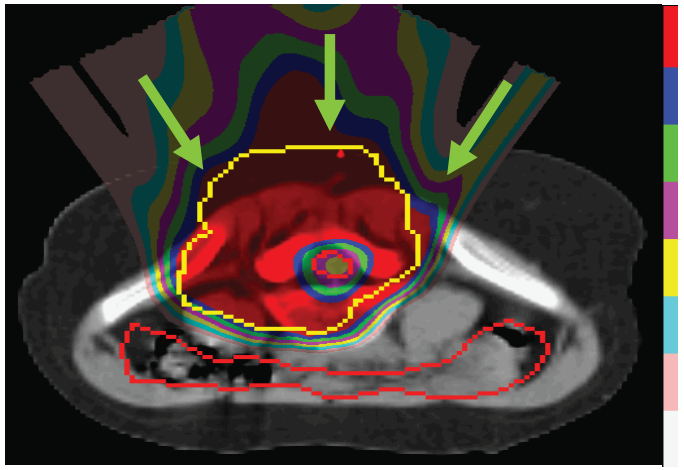

Track Advisors (Fachberater)

Tony Lomax Marco Stampanoni

The MSc runs in parallel with the MAS (Master of advanced studies) in Medical Physics

Fachanerkennung *Schweizerische Gesellschaft für Strahlenbiologie und Medizinische Physik* **(SGSMP)**

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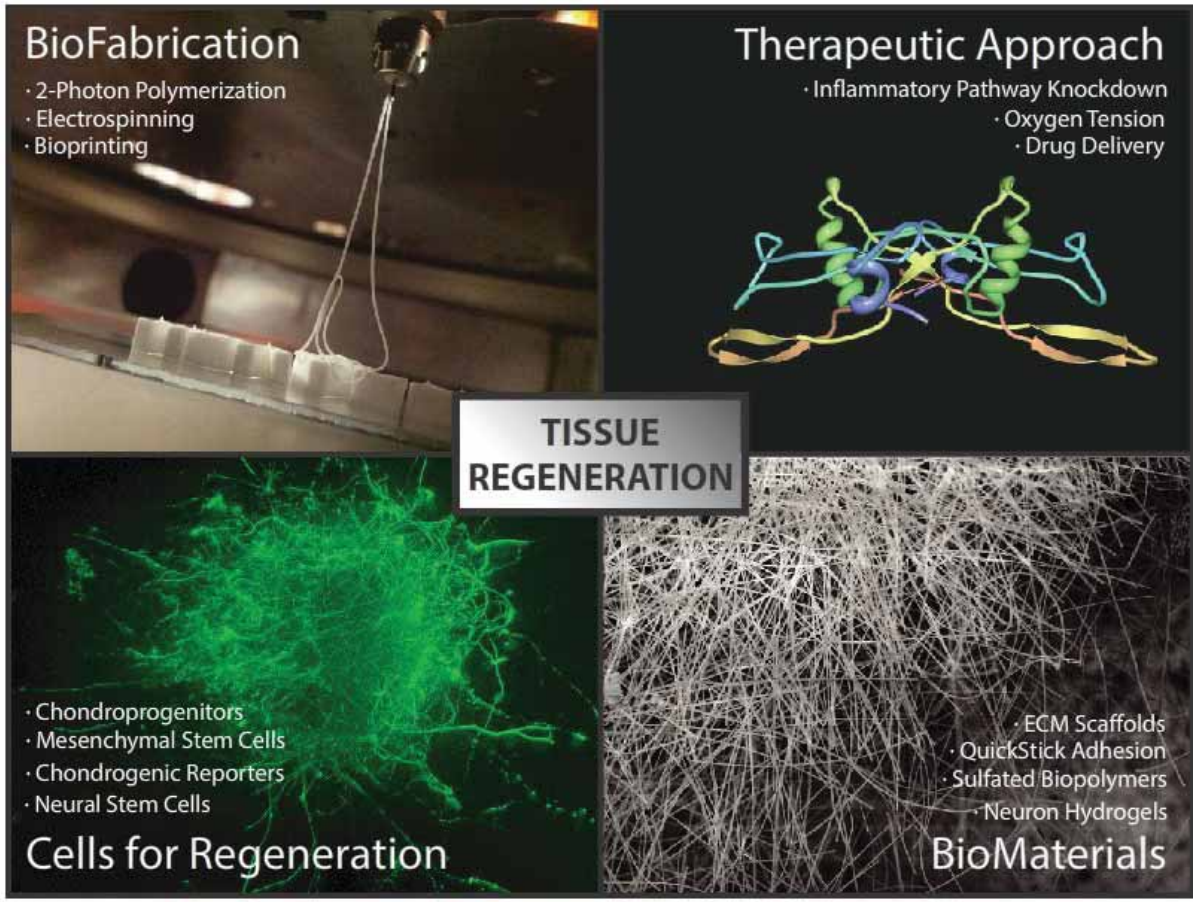
Marcy Zenobi-Wong
Track Advisor
(Fachberaterin)



MSc Biomedical Engineering (BME)

Interdisciplinary program

Ø 2013-2018: 38 new students / year

International program
(Ø 2013-2018: 47% CH-Bachelors)

How to enter BME

Merkblatt für an der ETH Zürich immatrikulierte Bachelor-Studierende

Übertritt vom ETH Bachelor- ins ETH Master-Studium zum Herbstsemester 2019 und Frühjahrssemester 2020

Übersicht

Kapitel 1 Vier Varianten des Übertritts in einen Master-Studiengang

Für den Übertritt ins ETH-Master-Studium mit einem ETH-Bachelor-Diplom oder nach Erreichen der Mindestanzahl Kreditpunkte in einem ETH Bachelor-Studiengang gibt es vier Varianten. Der Übertritt ist für diese **vier Varianten** unterschiedlich geregelt:

Variante 1: Übertritt in einen konsekutiven Master-Studiengang ohne Wechsel der Studienrichtung
s. Seite 2
Die Mehrzahl der Studierenden tritt nach dieser Variante in einen an ihr Bachelor-Studium anschliessenden konsekutiven Master-Studiengang ein.

Variante 2: Übertritt in einen konsekutiven Master-Studiengang *mit* Wechsel der Studienrichtung
s. Seite 4.

Variante 3: Übertritt in einen spezialisierten Master-Studiengang oder in einen Joint Master-Studiengang mit Einreichung der Bewerbung an der *ETH*, s. Seite 5.

Variante 4: Übertritt in einen Joint Master-Studiengang mit Einreichung der Bewerbung an einer *anderen* Hochschule, s. Seite 6.

How to enter BME

- **Application through the Rectorate (Admission's office)**

- **November 1 - December 15, or March 1 - March 31**
- **(ESOP; *Excellence Scholarship & Opportunity Award* : Application in Nov./Dez.)**

- **Start of the MSc: Autumn semester**

<u>Documents required</u>:

- **Bachelor degree (the same rules apply as in your consecutive BSc)**

- **Transcripts (Pdf of «Leistungsübersicht» from *mystudies*)**

- **Motivation letter, CV, GRE (Graduate Record Examinations; suggested) and two letters of reference (ETH-Bachelors are exempt)**

- **Holders of a Swiss matriculation certificate (Matura) and/or an ETH Bachelor: No English language certificate required**

- **ESOP: Additional documents**
- **Note: This list in not exhaustive. Please refer to the guidelines of the Rectorate**

Qualifying BSc degrees

a. For admission to the tracks "Bioelectronics" and "Bioimaging":

- **Electrical Engineering**
- **Mechanical Engineering**
- **Physics**
- **Material Science**
- **Computer Science**
- **Mathematics**
- **Chemical Engineering**
- **Biotechnology**
- **Computational Science and Engineering**
- **Biomedical Engineering**

b. For admission to the tracks "Biomechanics":

All disciplines listed in Subpara. a and:

- **Health Sciences and Technology**
- **Human Movement Sciences**
- **Life Sciences and Technology**

c. For admission to the tracks "Mol. Bioengineering":

All disciplines listed in Subpara. a and:

- **Biology**
- **Chemistry**
- **Health Sciences and Technology**
- **Human Movement Sciences**
- **Life Sciences and Technology**
- **Medicine**

d. For admission to the tracks "Medical Physics":

All disciplines listed in Subpara. a and:

- **Biology**
- **Chemistry**
- **Health Sciences and Technology**
- **Life Sciences and Technology**
- **Medicine**

How to enter BME

- **Selection committee (about 5 members): Evaluation of all applications**

- **Positive evaluation: Admission to one particular track**

Current structure of the program

Art. 37 Kreditpunkte je Kategorie

1 Die für den Erwerb des Master-Diploms erforderlichen 90 KP sind in den nachstehenden Kategorien in der angegebenen Mindestanzahl zu erwerben. Weitere Einzelheiten sind in Abs. 2 – 6 geregelt:

a.	Vertiefungsfächer	50 KP
	1) Kernfächer der Vertiefung (mind. 12 KP)	
	2) Wahlfächer der Vertiefung	
	3) Biologiefächer	
b.	Semesterarbeit	8 KP
c.	Pflichtwahlfach GESS	2 KP
d.	Master-Arbeit	30 KP

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

RSETHZ 324.1.0350.52

Studienreglement 2013

für den Master-Studiengang

Biomedical Engineering

Departemente

Informationstechnologie und Elektrotechnik[1] (D-ITET)

Maschinenbau und Verfahrenstechnik (D-MAVT)

Physik (D-PHYS)

Gesundheitswissenschaften und Technologie (D-HEST)

vom 14. Mai 2013

- **Vertiefungsfächer: Learning agreement in collaboration with the track advisor (outside courses can be approved)**
- **Semester project: 14 weeks at 50% or 7 weeks at 100%**
- **Master project: 6 months at 100%**

(both projects: supervised by any professor of D-ITET, D-HEST, D-MAVT or D-PHYS)

Current structure of the program

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d.	Master-Arbeit	30 KP

Differences to MSc Health Sciences and Technology at D-HEST:

- **Theoretical courses: 30 or 45 KP**
- **Praktika und / oder Semesterarbeit: 12 weeks; 15 KP**
- **Forschungspraktikum: 12 weeks; 15 KP**
- **Not an engineering degree**

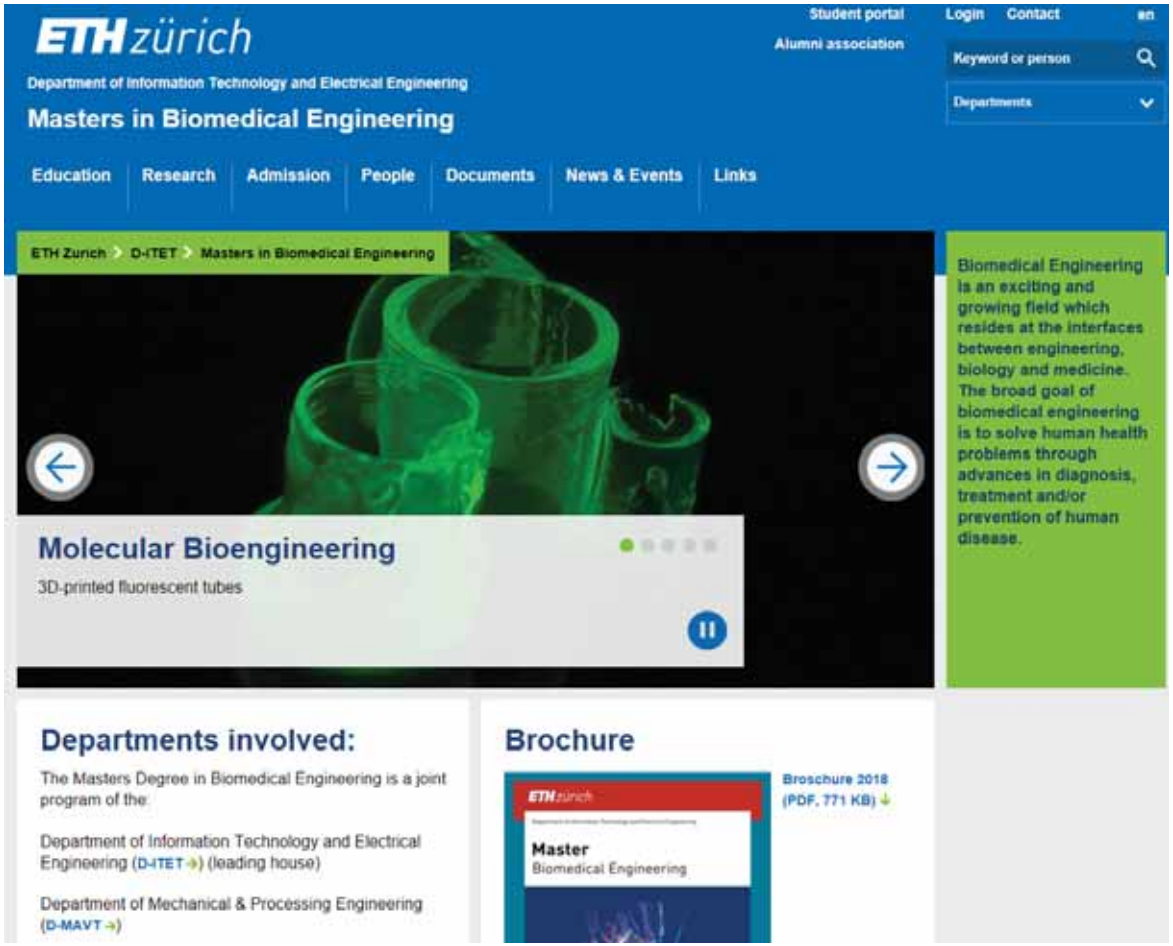
Project for HS19 *: Expansion to a 120 KP Master

Aim: Expertise with additional projects (industry, group projects etc.), more freedom for students to adapt the MSc to their personal needs

Vertiefungsfächer:	**mind.**	**52 KP**
Projekte & Praktika:	**mind.**	**12 KP**
Science in Perspective:		**2 KP**
Master-Arbeit:		**30 KP**
Vertiefungsfächer und/oder Projekt & Praktika:	**mind.**	**24 KP**
Total:		**120 KP**

***: Students that apply now how the choice for a 90 KP or 120 KP Master**

www.master-biomed.ethz.ch



Available at the BEEZ-store (BME student association)

«News/Events»: a Pdf of this presentation