Medicine & Engineering

Our strong combination at FAU Erlangen-Nürnberg

Welcome, Master Students of Medical Engineering!

Master Welcome Day, April 2020
Felix Schmutterer & Tino Haderlein
Welcome by Prof. Björn Eskofier (Program Director)

Introduction to the Study Program (Study Coordinators for Medical Engineering)

Welcome by FSI Medizintechnik (Student Association Medical Engineering)

Coffee Break

Introduction to Computer Pools & Creating Your Class Schedule (blue computer science tower, room 01.155)

Guided Campus Tour and Get-Together
The Diversity of Medical Engineering at FAU
Growth Market Medical Technology

● Increase in population and diseases
  ● Demographical development until 2050:
    More people, longer life expectancy:
    - Diabetes: +50%
    - Infarction: +100%
    - Cancer: +50%
    - Dementia: +100%
    - Stroke: +100%

● Increasing demand for diagnostic and therapeutic treatment
Central Institute of Medical Engineering (ZiMT)

**Medicine**
65 Clinics, Chairs and Institutes

**Science**
60 Chairs in 5 Departments

**Engineering**
58 Chairs in 5 Departments

Prof. Dr. med. Dr. h. c. Jürgen Schüttler
Prof. Dr. Ben Fabry
Prof. Dr. Björn Eskofier
Persons in Charge
Contact Persons
MedTech Representatives

● Program Director
  (Machine Learning & Data Analytics)
  Prof. Dr. Björn Eskofier

● Director of ZiMT
  Dr.-Ing. Heike Leutheuser
● Study Coordinators

PD Dr. Tino Haderlein
Dr. Felix Schmutterer
blue computer science tower (Martensstr. 3), room 02.158

Open consultation (drop-in without appointment):
Mon–Thu, 1–4 p.m.

Appointments: Studienberatung-Medizintechnik@fau.de

→ advice for your studies
→ accreditation of coursework achievements
→ support with formalities
→ all kinds of questions regarding your studies
● **General Study Advisory** (Informations- und Beratungszentrum, IBZ)

Elisabeth Bächle-Grosso, Halbmondstr. 6-8, 91054 Erlangen, Room: 1.031
elisabeth.baechle-grosso@fau.de

→ general study-related problems
→ information about changing your study program
   (advisor for all engineering programs)
→ student visa issues (certificate for foreigners office)

● **Examinations Office Faculty of Engineering**

(Prüfungsamt TechFak; ‘Technical Faculty’ = Faculty of Engineering)

Helga Jahrreis, Halbmondstr. 6, 91054 Erlangen, Room: 1.042,
helga.jahrreis@fau.de

→ managing exams, credits, grades online by ‘mein campus’ or by paper certificates (‘Scheine’)
→ withdrawal from exams (due to illness etc.)
→ Report on conditional subjects/‘Auflagen’!
• **International Office Faculty of Engineering**

  **Christine Mohr**, Erwin-Rommel-Str. 60, 91058 Erlangen, Room: U 1.250 (basement), christine.mohr@fau.de

  ➔ Information about studies/internship abroad
  ➔ General help and support for international students

• **Career Service**

  career-service@fau.de ; www.career.fau.de

  ➔ Help with your job search (also student jobs)
  ➔ Support with applications
  ➔ Check of application documents
  ➔ Simulation of job interviews
  ➔ Useful workshops and seminars
Office for Gender and Diversity

Bismarckstraße 6, 91054 Erlangen

gender-und-diversity@fau.de

→ Advice for students with children
→ Help for students with a migratory background
→ Support for women (in cases of violence, harassment)
→ Support for students experiencing discrimination of any kind (due to gender, ethnicity, religion, sexual orientation etc.)
Advice for Students with Disabilities or Chronic Diseases

Dr. Jürgen Gündel, Schloßplatz 3/Halbmondstr. 6, 91054 Erlangen, Room: 1.032, juergen.guendel@fau.de

→ General advice and support (e.g. accessibility of buildings)
→ Compensation of disabilities during examinations (e.g. more time)

Disability: all physical and mental impairments lasting at least 6 months

Chronic diseases: illnesses that require at least one medical treatment per quarter over the course of one year
• Psychological Support:
  Psychologisch-Psychotherapeutische Beratungsstelle
  Computer Science Tower, Martensstr. 3, 91058 Erlangen, Room: 04.154
  Open consultation (anonymous drop-in sessions):
  Mon, 2:00–4:00 p.m.
  +49 9131 85-27935
  E-Mail: elizabeth.provan-klotz@werkswelt.de
  - Help with exam anxiety, procrastination, loneliness, stress…
  - Consultation in German and English

• Legal Advisory Service Studentenwerk:
  Hofmannstraße 27, 2nd floor, Room 201
  See website for consultation hours:
  www.werkswelt.de
How to Find Information

Weblink for all medical engineering-related services and information:

- www.medical-engineering.study.fau.eu
- www.medizintechnik.fau.de

...including today‘s presentation!
How to Find Information

General information on the internet: search the web for ‘FAU’ + key word

e.g.  FAU + language courses
FAU + examinations office
FAU + psychological services
FAU + semester dates…
Master‘s Program Medical Engineering
Program Structure
What is ECTS?

- **European Credit Transfer and Accumulation System**
  Assessment of student workload required for the learning outcomes of a program
  - 30 credits: recommended workload per semester
  - 1 credit: ≈30 working hours

- You will find information on ECTS in the module catalogs, in the online information system UnivIS, on your Master’s certificate/Transcript of Records
Master’s Program Medical Engineering: Structure

<table>
<thead>
<tr>
<th>Medical specialisation modules (10 credits)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Advanced Seminar Medical Engineering (5 credits)</td>
</tr>
<tr>
<td>Practical (lab) modules (10 credits)</td>
</tr>
<tr>
<td>Flexible budget Faculty of Engineering (10 credits)</td>
</tr>
<tr>
<td>Free choice Uni (all faculties) (5 credits)</td>
</tr>
</tbody>
</table>

Branches of Study (50 credits)

- Medical Electronics (German)
- Medical Image and Data Processing (German or English)
- Medical Production Technology, Device Engineering and Prosthetics (German)
- Health & Medical Data Analytics and Entrepreneurship (English)

Master’s Thesis (30 credits)

Master of Science (M. Sc.)

120 credits in total
● **Modules for all students:** 70 credits
  - M 1: Medical specialisation modules (10 cr.)
  - M 4: Advanced seminar Medical Engineering (5 cr.)
  - M 6: Medical engineering practical modules (academic laboratory, research laboratory; 10 cr.)
  - M 7: Flexible budget Faculty of Engineering (10 cr.): any *graded* course at the Faculty of Engineering on Master‘s level → see info in UnivIS
  - M 8: Free Choice Uni (5 cr.): any *graded* course at FAU or VHB (on-site exam): e.g. language course …
  - M 9: Master‘s thesis (30 cr.)

● **Modules specific to your branch of study:** 50 credits
  - M 2: Engineering core modules (20 cr.)
  - M 3: Medical Engineering core modules (20 cr.)
  - M 5: Medical Engineering specialisation modules (10 cr.)
# Master Course Scheme

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Course Description</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Medizinische Vertiefungsmodule/Medical specialisation modules gemäß § 44a Abs. 1</td>
<td>10</td>
</tr>
<tr>
<td>M2</td>
<td>Ingenieurwissenschaftliche Kernmodule/Engineering core modules gemäß § 44a Abs. 2</td>
<td>20</td>
</tr>
<tr>
<td>M3</td>
<td>Medizintechnische Kernmodule/Medical Engineering core modules gemäß § 44a Abs. 3</td>
<td>20</td>
</tr>
<tr>
<td>M4</td>
<td>Hauptseminar Medizintechnik/Advanced Seminar Medical Engineering gemäß § 44a Abs. 4</td>
<td>5</td>
</tr>
<tr>
<td>M5</td>
<td>Medizintechnische Vertiefungsmodule/Medical Engineering specialisation modules gemäß § 44a Abs. 5</td>
<td>10</td>
</tr>
<tr>
<td>M6</td>
<td>Medizintechnische Praxismodule/ Medical Engineering practical modules gemäß § 44a Abs. 6</td>
<td>10</td>
</tr>
<tr>
<td>M7</td>
<td>Flexibles Budget Technische Fakultät/Flexible budget Faculty of Engineering</td>
<td>10</td>
</tr>
<tr>
<td>M8</td>
<td>Freie Wahl Uni/Free choice Uni</td>
<td>5</td>
</tr>
<tr>
<td>M9</td>
<td>Masterarbeit/Master’s thesis</td>
<td>30</td>
</tr>
<tr>
<td><strong>Summe ECTS-Punkte</strong></td>
<td></td>
<td><strong>120</strong></td>
</tr>
</tbody>
</table>
Master Program Medical Engineering: Structure

- Total of 120 ECTS credits **should** be evenly spread over four (or five) semesters; no strict rule but **highly recommended**: ≈30 ECTS credits per semester
- Few compulsory modules (conditional subjects, some mandatory subjects in the catalog, see footnotes there!)
- Mostly free choice within the list for each module group
- Not all lectures are offered in winter and summer (see catalog), time slots may differ from semester to semester; there might be time overlaps (→ video lectures: [www.video.fau.de](http://www.video.fau.de))
- Recommendation for going abroad: 3rd or 4th semester (start planning now)
Semesters & Exams

- Regular duration of studies: 4 semesters/two years (can be extended to 5 by re-registering + paying the fee)
- Semester: lecture period (14 or 15 weeks) + lecture-free period (‘semester holidays’, ≈12 weeks)
- Two exam periods: first 2 weeks and last 3 weeks of the lecture-free period
- Failing an exam: 2\textsuperscript{nd} + 3\textsuperscript{rd} chance in the following two semesters (mandatory registration) – exception: conditions/‘Auflagen’ (max. 2 chances, i.e. 1 year!)
- You can/must only take exams if you register for them.
- Withdrawal from registered exams: until 3 working days (Mon – Fri) before the exam without a reason – or later in case of illness/severe reasons (medical/other certificate)
Semesters & Exams


Lecture Period: Apr. 20, 2020 – August 7, 2020
Exam Registration: to be announced
(Reminder via e-mail!)

Re-registration for Winter 2020/21: beginning of July
( Reminder via e-mail!)

Semester break (lecture-free): August 8 – Oct. 11, 2020

Exams: to be announced

www.fau.eu/education/study-organisation/semester-dates/

Exact dates for the exams in Winter 2020:
Medical Engineering website → ‘Exams’/‘Prüfungen’
Conditional Subjects/‘Auflagen’

- Must be passed within one year (deadline: March. 31, 2021).
  Otherwise they will prevent successful re-registration for the 3rd semester. No exceptions!

- After successful completion of conditional subjects: Actively inform Mrs. Jahreis (Examinations Office)!

- Examination results of the 2nd semester might be published late.
  If this is your case, contact your lecturer to get a faster correction.
Conditional Subjects/‘Auflagen’

Lectures that are usually offered only once a year in summer semester (SS) or winter semester (WS):

- Grundlagen der Elektrotechnik II: SS, exam also in WS
- Algorithmen und Datenstrukturen für MT: WS (exercise classes and exam also in SS)
- Mathematik A3: WS
- Engineering Mathematics: SS, exam also in WS (contact lecturer for course materials and study on your own)
- **New:** “Advanced C++ Programming” online course at the Virtual University Bavaria (VHB): [www.vhb.de](http://www.vhb.de)

→ can be used in module group M8 (Free Choice Uni)
Types of Courses

- **V/L**: Vorlesung/lecture – generally no registration, attendance not mandatory
- **Ü/E**: Übung/tutorium; exercise class/tutorial – usually start in the 2\textsuperscript{nd} week, further details in the 1\textsuperscript{st} lecture, attendance usually not mandatory
- **P**: Praktikum/practical course (lab course) – attendance mandatory, early registration (see UnivIS) – not relevant for 1\textsuperscript{st} semester
- **S**: Seminar – attendance mandatory, early registration (see UnivIS) – not relevant for 1\textsuperscript{st} semester
Types of Exams/Course Achievement

- **Prüfungsleistung (PL)/Graded course achievement (gCA)**
  - schriftlich [written]
  - mündlich [oral]
  - Seminar (presentation and paper)

- **Studienleistung (SL)/Ungraded course achievement (uCA)**
  - e.g. exercise classes or practical courses
  - Hochschulpraktikum/academic laboratory
  - Forschungspraktikum/research laboratory
Module Catalogs (Available on the Webpage)

### Grundcurriculum / common catalog (for all students except HMDA)

An updated version is published at the beginning of every semester!

Catalog for each branch of study
Where can I find all the catalogs?

Website of the Medical Engineering programme:

http://www.medizintechnik.studium.fau.de/

→ Studierende → Master → Überblick und Modulkataloge

FPO 2019

http://www.medical-engineering.study.fau.eu/

→ Current students → General Study Information Master's Program → General Study Information & Course Syllabus (FPO 2019)

Catalogs are updated every semester! Read the footnotes in the catalogs!
What else is on the study programme website?

http://www.medizintechnik.studium.fau.de/  
http://www.medical-engineering.study.fau.eu/

- Study Guide (updated usually every semester) DELAYED
- Today’s presentation slides
- Module handbook with content descriptions of each course (generated via UnivIS) DELAYED
- Further information: on modules, Master’s Thesis, studying abroad, accreditation of coursework etc.
- Links to examination regulations (FPO, ABMPO)
- important forms
- exam dates
- FAQ section
M 9: Master’s Thesis

- independent execution of scientific tasks in Medical Engineering
  ➔ prepare yourself early on: e.g. lecture “Nailing your thesis” (SS)
  can be used for Flexible Budget Faculty of Engineering (M 7)
- Prerequisites: 75 ECTS credits, completing all conditional subjects and
  mandatory modules (footnotes in catalogs/exam regulations!)
- to be completed within 6 months
- Look for your topic in due time (end of your penultimate semester
  at the latest)!
  ➔ Select your modules in preparation of your thesis topic.
- Look for thesis topics on the labs’ websites, ask for personalized/
  non-advertised topics at the labs (professor, PhD students).
- Specific details, formalities, thesis form ➔ Medical Engineering website
Foreign Language Training

Sprachenzentrum (Language Center), Bismarckstraße 1
www.sz.fau.de

- Courses during the lecture period are **free of cost**.
- Intensive courses (with a fee) during the semester break
- **Registration** required for all courses
- Registration for **German courses**: online + in person (open as of now); **highly recommended for internships & future job!**
- Recommended languages to prepare for studying abroad:
  - e.g. English, Spanish, Portuguese
- Courses also suitable for module group **M8/Free Choice Uni**
Online Tools

- mein campus
- UnivIS
- IdM-Portal
IdM portal: [www.idm.fau.de](http://www.idm.fau.de)
Manage your personal data!

- An IdM login is required for nearly all personalized online services at FAU.
- Activate your **IdM Portal account** with the activation password mailed to you.
- Upload a photo to generate your student ID card – **it will be sent to your semester address**!
- Problems: service counter/‘Service-Theke’ RRZE (Computation Center): next to blue computer science tower (Martensstraße 1), 1st floor
IdM portal: [www.idm.fau.de](http://www.idm.fau.de)
Manage your personal data!

**E-mail Address**

- An FAU e-mail address has been generated for you.
- It is used as default recipient for e-mails from the university.

  To relay: IdM Portal → Self Service → Email → Click on the “…”-button → Field “Relay to”

- All important information regarding your studies will be sent to your FAU e-mail address!
MeinCampus: Manage Your Exams

- **Login**
  - [https://www.campus.fau.de](https://www.campus.fau.de)
  - “Single Sign-On”

- **Prüfungen (Exams)**
  - Exam registration
    (when active – registration: beginning of July)
  - Withdrawal from exams **until three working days** before the exam date (Mon–Fri)
  - Overview of registered exams
  - Overview of grades and acquired ECTS credits

**Detailed instructions: see Medical Engineering website**
StudOn: E-learning Platform

- [https://www.studon.fau.de](https://www.studon.fau.de)
- Often used for courses that require registration (seminars, practical courses)
- Platform for sharing course materials
What’s next?

1. **Compile your class schedule**
   → UnivIS (guided session later on today)

2. **Register for courses – only if needed** *(information in UnivIS):*
   usually via StudOn *(see registration link on the respective lecture page in UnivIS)*
   If registration is not required, simply go the first meeting.

3. **Register for exams** → MeinCampus *(beginning of July)*

4. **Re-register for Winter 2020/21**
   → bank transfer — details via e-mail *(t.b.a.)*

5. **Study & pass exams** → study groups, time management, practice with old exams from FSI, get advice from our psychologist if needed

6. **Actively report on your conditional subjects**
   → Examinations Office *(Mrs. Jahreis)*
Tips & Tricks

1. Be proactive, inform yourself, talk to people, search online. → Search, read, ask.
2. Read the study guide + examination regulations.
3. Read the footnotes in your module catalog.
4. If there is a problem, talk to your tutor/lecturer/study advisor/psychologic counsellor as soon as possible.
5. Engage in campus life (student organisations, parties, university sports, study groups, buddy program).
6. Take language classes/speak German in daily life.
7. Build a network through the workshops, summer schools, hackathons etc. offered/promoted by ZiMT.
Thank you very much!