Medicine & Engineering
Our strong combination at FAU Erlangen-Nürnberg

Welcome Master’s students Medical Engineering!

M.Sc. MT at FAU | Claudia Barnickel
Welcome by Heike Leutheuser  
(Director Central Institute for Healthcare Engineering /ZiMT)

Introduction to the program by Claudia Barnickel  
(Study Coordinator and Advisor Medical Engineering)

Welcome by FSI Medizintechnik  
(Student association Medical Engineering)

Presentation FAU initiatives

Group quiz: Fun facts about Erlangen and your studies

~ 11:00 – 11:30 am: Coffee break
- Group quiz: Solutions and prizes
- Introduction computer pools & creating your class schedule
  (blue computer science tower, first floor)

~ 1:00-1:45 pm lunch at the canteen (Mensa)

- 1:45 pm: Guided campus tour
  (starting point: round bench in front of “Mensa”, red square)

from 2:15 pm: get-together with drinks (same bench)
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
Strategic Cooperation of Faculties for Interdisciplinary Research & Teaching

- **Medicine**
  - 50 Clinics and Institutes:
    - Anatomy
    - Medical Physics
    - Molecular Medicine
    - Nuclear Medicine
    - Ophtalmology
    - Physiology
    - Radiology
    - ...

- **Science**
  - 60 Institutes/Chairs in 5 Departments:
    - Experimental Physics
    - Mathematics
    - ...

- **Engineering**
  - 58 Institutes/Chairs in 5 Departments:
    - Chemical Biological Engineering
    - Computer Science
    - Electrical Engineering
    - Materials Science
    - Mechanical Engineering
    - ...

Central Institute of Healthcare Engineering (ZiMT)
A: Neues HS-Gebäude, Ulmenweg 18
B: Audimax, Bismarckstr. 1
C: Anatomie, Universitätsstr. 19
D: Biochemie, Fahrstr. 17
E: Organische Chemie, Henkestr. 42
F: ZiMT/MVC, Henkestr. 91
G: Physikum, Staudtstr. 5
H: Südgelände, Egerlandstr. 3

⇒ „Bicycle Distance“
Persons in Charge
MedTech representatives

● Program Director
  (Pattern Recognition Lab/Inf 5)
  Prof. Dr.-Ing. Andreas Maier

● Directors ZiMT

  Dipl.-Phys. Heike Leutheuser
  Deputy: Dipl.-Ing. Tobias Zobel
Contact Persons

● Study Coordinator and Advisor

Claudia Barnickel
blue computer science tower, 2nd floor, room 02.158
Open consultation hours (drop-in):
Mon-Thu, 1-4 pm
Appointments: Claudia.Barnickel@fau.de

→ planning your studies
→ accreditation of coursework achievements
→ support with formalities
→ all kinds of questions regarding your studies
→ personal problems
Contact Persons

● 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

Helga Jahreis
Halbmondstraße 6
91054 Erlangen
Room: 1.042
helga.jahreis@fau.de

→ managing credits, grades, exams, hand in paper certificates („Scheine“)
→ withdrawal from exams (illness etc.)
→ report on conditional subjects/“Auflagen“
Contact Persons

- **International Office Faculty of Engineering/TechFak**

  Christine Mohr  
  Erwin-Rommel-Str. 60  
  91058 Erlangen  
  Room: U 1.250  
  christine.mohr@fau.de

  → Info about studying/interning abroad  
  → General help and support for international students
Contact Persons

- **Career Service**
  
  Susanne Winkelmaier, Nicole Jakob, Stefanie Rösch
  
  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
Contact Persons

● Office for Gender and Diversity

Bismarckstraße 6
91054 Erlangen

gender-und-diversity@fau.de

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

Psychological support Studentenwerk:

Psychologisch-Psychotherapeutische Beratungsstelle
Computer Science Tower, 4th floor, room 04.154
Open consultation
(anonymous drop-in sessions):
Tue, 1:00 - 2:00 pm
+49 9131 85-27935
Email: elizabeth.provan-klotz@werkswelt.de
Help with exam anxiety, procrastination, loneliness, stress…

Legal advisory service Studentenwerk:
Hofmannstraße 27, 2nd floor, Room 201
See website for consultation hours:
www.werkswelt.de
How to find information

One URL ➔
all Medical Engineering services:

● [www.medical-engineering.study.fau.eu](http://www.medical-engineering.study.fau.eu)
● [www.medizintechnik.fau.de](http://www.medizintechnik.fau.de)
How to find information

Too lazy to type URLs?
→ google “FAU“ + key word

e.g. FAU + language courses
FAU + examinations office
FAU + semester dates…
Program Structure
Structure Master’s Program Medical Engineering

Branches of Study

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

Academic Lab & Research Lab
10 ECTS

Master’s Exam
(exams taken during studies: 80 ECTS)

Master’s Thesis
Duration: 6 Months/30 ECTS

Master of Science (M.Sc.)
120 ECTS
What is “ECTS”? 

- **European Credit Transfer and Accumulation System**
  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
Semesters & Exams

• Regular duration of studies: 4 semesters/two years (can be extended to 5 just by re-registering)

• 1 semester consists of the lecture period (12-14 weeks) + holidays/lecture-free period (~12 weeks)

• Two exam periods: first 2 weeks and last 3 weeks of the holidays

• Failing an exam: 2nd + 3rd chance in the following two semesters (mandatory registration) – exception: conditions/”Auflagen” (max. 2 chances = 1 year)

• You can/must only take exams if you register for them.

• You can withdraw from registered exams until the 3rd working day before the exam date without any reason - or even later in case of illness/severe reasons (medical or other certificate).
Semesters & Exams

Summer semester 2018 (01/04 – 30/09):

Lecture Period: 09/04 – 14/07
Exam Registration: 21/05 – 08/06, 12:00 (noon) (Reminder via email!)
Re-Registration for WS 18/19: 02/07 – 09/07 (Reminder via email!)
Semester break (no lectures): 15/07 – 14/10
Exams: 16/07 - 27/07 and 21/09 - 13/10

www.fau.eu/study/current-students/semester-dates/

Concrete dates for the exams in SS 18: Medical Engineering website → „Exams“/“Prüfungen“
Conditional subjects/”Auflagen”

● Must be passed within **one year (deadline: 31/03/19)**. 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 (after the deadline for conditional subjects).
  If this is your case contact Mrs. Jahreis (Examinations Office) in due time and ask for a **fast correction!**
Conditional subjects/“Auflagen“

Lectures are only offered once a year (summer or winter):

- **Grundlagen der Elektrotechnik II**: SS
- **Algorithmen und Datenstrukturen**: MT: WS (exercise classes and exam also in SS)
- **Mathematik A3**: WS, exam also in SS (contact lecturer for course materials and study on your own)
- **Engineering Mathematics**: SS
- **Advanced Programming Techniques**: lecture, project and exam in WS → start studying C++ intensively now (e.g. C++ Primer online course)
# Master Course Scheme (from examinations regulation/FPO)

<table>
<thead>
<tr>
<th>No.</th>
<th>Module groups</th>
<th>ECTS credits</th>
<th>Recommended semester distribution</th>
<th>Type and scope of the course and examination achievement</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>Medical specialisation modules according to the catalogue of elective modules for all branches of study</td>
<td>10</td>
<td>5 5</td>
<td>EA: written examination (Klausur) 60/90 min. /oral examination 30 min.</td>
</tr>
<tr>
<td>M2</td>
<td>Engineering core modules according to catalogue of elective modules for specific branch of study</td>
<td>20</td>
<td>10 10</td>
<td>EA: written examination (Klausur) 60/90 min. /oral examination 30 min.</td>
</tr>
<tr>
<td>M3</td>
<td>Medical Engineering core modules according to catalogue of elective modules for specific branch of study</td>
<td>20</td>
<td>10 10</td>
<td>EA: written examination (Klausur) 60/90 min. /oral examination 30 min.</td>
</tr>
<tr>
<td>M4</td>
<td>Medical Engineering core skills according to basic curriculum in catalogue of elective modules for specific branch of study</td>
<td>10</td>
<td>5 5</td>
<td>EA (reports + presentations acc. to dept. specifications)</td>
</tr>
<tr>
<td>M5</td>
<td>Medical Engineering specialisation modules according to catalogue of elective modules for specific branch of study</td>
<td>10</td>
<td>5 5</td>
<td>EA: written examination (Klausur) 60/90 min. /oral examination 30 min.</td>
</tr>
<tr>
<td>M6</td>
<td>Medical Engineering practical skills according to the catalogue of elective modules for all branches of study</td>
<td>10</td>
<td>10</td>
<td>uCA (reports acc. to module descriptions and dept. specifications)</td>
</tr>
<tr>
<td>M7</td>
<td>Flexible budget</td>
<td>10</td>
<td>10</td>
<td>EA: according to applicable examination regulations</td>
</tr>
<tr>
<td>M8</td>
<td>Master's thesis</td>
<td>30</td>
<td>30</td>
<td>EA (report + presentation)</td>
</tr>
<tr>
<td></td>
<td>Total ECTS credits</td>
<td>120</td>
<td>30 30 30 30</td>
<td></td>
</tr>
</tbody>
</table>
Module Catalogs (www.medizintechnik.studium.fau.de)

'C Grundcurriculum' / common catalog (for all students)
An updated version is published at the beginning of each semester!

Catalog for each branch of study

<table>
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</thead>
<tbody>
<tr>
<td>M 1.1 Grundlagen der Anatomie &amp; Physiologie für Nichtmediziner</td>
<td>4+0+0</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>60</td>
<td>VORRL Jin</td>
</tr>
<tr>
<td>Clinical Applications of Optical Technologies and Associated Fundamentals of Anatomy</td>
<td>4+0+0</td>
<td>5</td>
<td>5</td>
<td>45</td>
<td>KLIN</td>
<td>Prof. Dr. med. Michael Eichhorn</td>
<td>SS</td>
</tr>
<tr>
<td>M 1.2 Medizinische Verteilung 1</td>
<td>5+5+5+5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>60</td>
<td>KLIN</td>
<td>N N</td>
</tr>
<tr>
<td>M 1.2 Medizinische Verteilung 2</td>
<td>5+5+5+5</td>
<td>5</td>
<td>5</td>
<td>5</td>
<td>60</td>
<td>KLIN</td>
<td>N N</td>
</tr>
<tr>
<td>Interdisziplinäre Medizin</td>
<td>0+0+2+0</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td>IT-Unterricht im Prozess der diagnostischen Bildgebung</td>
<td>1+0+3+0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>45</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Klinische Neurologie</td>
<td>2+2+3</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>90</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medizinische Radiotherapie</td>
<td>MBT</td>
<td>3+1+3+0</td>
<td>5</td>
<td>5</td>
<td>120</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Augendiagnostik und Augentherapie</td>
<td>1+0+3+0</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>90</td>
<td></td>
<td></td>
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<tr>
<td>Augenoperationen</td>
<td></td>
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</thead>
<tbody>
<tr>
<td>M 2.1 Elektronische Systeme</td>
<td>EOS</td>
<td>2+2+0+0</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>INF</td>
<td>Dr.-Ing. Michael Gläß</td>
</tr>
<tr>
<td>M 2.2 Grundlagen der Systemprogrammierung</td>
<td>GSP (SP-1)</td>
<td>2+2+0+0</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>INF</td>
<td>Prof. Dr. Ing. Wolfgang Schröder-Preischatz</td>
</tr>
<tr>
<td>M 2.3 Digitale Übertragung</td>
<td>DÜ</td>
<td>3+1+0+4</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>EEB</td>
<td>Prof. Dr. habil. Johannes Huber, Prof. Dr. Ing. Robert Schöber</td>
</tr>
<tr>
<td>M 2.4 Signalverarbeitung</td>
<td>SSS II</td>
<td>2,5+1,5+0+0</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>EEB</td>
<td>Prof. Dr.-Ing. André Kraus</td>
</tr>
<tr>
<td>M 2.5 Computergrafik</td>
<td>CG</td>
<td>3+1+0+0</td>
<td>5</td>
<td>5</td>
<td>30</td>
<td>INF</td>
<td>Prof. Dr.-Ing. Marc Stimming, Prof. Dr.-Ing. Gisbert Opperman</td>
</tr>
<tr>
<td>M 2.6 Digitale Signalverarbeitung</td>
<td>DSV</td>
<td>3+1+0+0</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>EEB</td>
<td>Prof. Dr.-Ing. Walter Kowalke</td>
</tr>
<tr>
<td>M 2.7 Piloten</td>
<td>PR</td>
<td>3+0+0+0</td>
<td>5</td>
<td>5</td>
<td>30</td>
<td>INF</td>
<td>Prof. Dr.-Ing. Joachim Höhner</td>
</tr>
<tr>
<td>M 2.8</td>
<td>PA</td>
<td>3+0+0+0</td>
<td>5</td>
<td>5</td>
<td>30</td>
<td>INF</td>
<td>Prof. Dr.-Ing. Elon Huh</td>
</tr>
<tr>
<td>M 2.9 Statistische Signalverarbeitung</td>
<td>STASP</td>
<td>3+1+0+0</td>
<td>5</td>
<td>5</td>
<td>90</td>
<td>EEB</td>
<td>Prof. Dr.-Ing. Walter Kowalke</td>
</tr>
</tbody>
</table>

M.Sc. MT at FAU  | Claudia Barnickel  | 4/9/2018  | 27
Structure – Master Medical Engineering

- Modules specific to your branch of study:
  - M 2: Engineering core modules: 20 ECTS
  - M 3: Medical Engineering core modules: 20 ECTS
  - M 5: Medical Engineering specialisation modules: 10 ECTS

- Modules identical for all students: 70 ECTS
  - M 1: Medical specialisation modules
  - M 4: Medical engineering core skills (law, economics, ethics)
  - M 6: Medical engineering practical skills
    (Academic Laboratory, Research Laboratory)
  - M 7: Flexible budget: any graded course at FAU or VHB/Virtual University Bavaria (VHB only with on-site exam)
  - M 8: Master‘s thesis

M.Sc. MT at FAU | Claudia Barnickel
Structure – Master Medical Engineering

- Total of 120 ECTS should be evenly spread over four (or five) semesters, no strict rule but highly recommended:
  +/- 30 ECTS per semester
- Very few compulsory modules (conditional subjects, some mandatory subjects, see footnotes in catalog!)
- Mostly free choice within the list for each module group
- Not all lectures are offered in winter and summer (see catalog), time slots differ from semester to semester; there might be overlaps
- Recommendation for going abroad: 3rd or 4th semester
Types of Courses

- **V/L** = Vorlesung/lecture – generally no registration, attendance not mandatory
- **Ü/E** = Übung/Tutorium; exercise class/tutorial – further info in the 1st lecture, attendance usually not mandatory
- **P** = Praktikum/Practical course (lab course) – attendance mandatory, early registration (see UnivIS) – not relevant for 1st semester
- **S** = Seminar – attendance mandatory, early registration (see UnivIS) – not relevant for 1st 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
Where can I find all the catalogs?

Website of the Medical Engineering program

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


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

→ „Current students“ → General Study Information Master's Program

Catalogs are updated every semester (info via email)!
Read the footnotes!
What else is there to find on the study program website?

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

- **Study Guide (updated every semester)**
- Today‘s presentation slides
- Module handbook with content descriptions of each course (generated via UnivIS)
- Further Information: on modules, Master’s Thesis, studying abroad, accreditation of coursework etc.
- Links to examination regulations (FPO, APO)
- important forms
- **FAQ-section**
M 8: Master’s Thesis

- independent execution of scientific tasks in Medical Engineering
  
  ➔ prepare yourself early on: e.g. lecture „Nailing your thesis“
  (SS+WS) ➔ can be used for Flexible budget

- Prerequisites: 75 ECTS and completing all conditional subjects
- to be completed within 6 months
- Look for your topic in due time (end of your penultimate semester at the latest!)
  ➔ meaning also: select your modules with prudence

- Look for thesis topics on the lab’s website/ask for personalized/non-advertised topics at the labs
- 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 **M7/Flexible budget**
Online Tools
IdM portal: 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 → guided session later on

- Problems: Service-counter/“Service-Theke“ RRZE (Computer Center): Martensstraße 1, 1st floor

Email address

- A FAU-mail address has been automatically generated for you.

- It is used as default recipient for mails from the university.

  **To relay: IdM Portal → Services → Click on the address → Field “Relay to“**
MeinCampus: manage your exams

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

- **Prüfungen (Exams)**
  - Exam registration (when active – registration: 21/05 – 08/06), withdrawal from exams until third working day before the exam date
  - Overview registered exams
  - Overview of grades/acquired ECTS credits

→ detailed instructions on the Medical Engineering website
StudOn: E-learning platform

- Often used for courses that require registration (seminars, practical courses)
- Platform for sharing course materials
- You will be introduced to it later on today.
What’s next?

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

2. Register for courses if needed (info in UnivIS), if registration is not required simply go the 1st meeting
   → if registration is required: usually via StudOn (see registration link in UnivIS)

3. Register for exams → MeinCampus (21/05 – 08/06)

4. Re-Register for WS 18/19
   → Bank info in MeinCampus + bank transfer (02/07 – 09/07)

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. → Don’t be afraid to google, ask, be critical.

2. If there is a problem talk to your tutor/lecturer/study advisor/psychologic counsellor as soon as possible.

3. Engage in campus life (student organizations, parties, university sports, study groups, buddy program).

4. Take language classes/speak German in daily life.

5. Read the study guide + examination regulations.

6. Read the footnotes in your module catalog.

7. Build a network through the workshops, summer schools, hackathons etc. offered/promoted by ZiMT.
Thank you for your attention!

Any questions?

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