

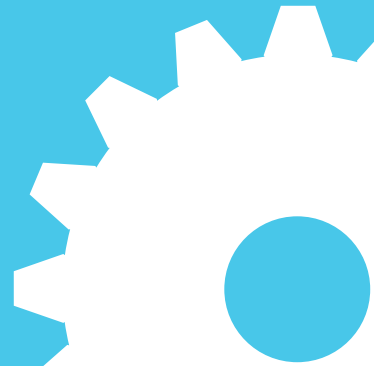
# MEDIZINtechnik

Inter-university bachelor's degree programme in Medical Technologies Tübingen / Stuttgart



**Universität Stuttgart**

EBERHARD KARLS  
UNIVERSITÄT  
TÜBINGEN



# For scientists with an enthusiasm for technology



## Interuniversity Bachelor's Degree Programme

The inter-university bachelor's degree programme in Medical Technologies was developed by the University of Tübingen and the University of Stuttgart. It is a research-oriented programme with a flexible study design and diversified basic study period. The programme is unique in Germany, integrating the specific expertise of two universities: technical sciences and engineering at the University of Stuttgart and natural and medical sciences at the University of Tübingen.

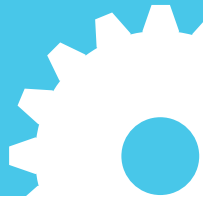


To ensure that the students feel at home at both universities and to satisfy a wide variety of interests, study courses at both universities were fixed in the curriculum from the outset.

We offer:

- an inter-professional and inter-university study programme,
- 100 university places per annum
- a research-oriented, diversified basic study period in years one and two
- a flexible study design for the specialisation phase in year three
- four new professorships in Medical Technologies
- access to central facilities at both universities, including libraries, PC pools and laboratories
- extensive support and services with excellent study conditions
- a strong network of companies and research institutes in Medical Technologies and Biotechnology,
- the Inter-University Center for Medical Technologies Stuttgart-Tübingen (IZST).

# ...and for technicians with an enthusiasm for medicine



## Two universities with the same target

### Our target group

We are looking for first-year students with a pronounced affinity for natural sciences and engineering and a deep interest in biomedical questions.

### Degrees

The bachelor's programme lasts three years (six semesters). After completion, our students are awarded a Bachelor of Science (B.Sc.) degree.

Successful graduates of Medical Technologies may choose to continue their academic education in one of our two master's programmes and subsequently pursue a doctorate. The University of Tübingen offers the master's degree programme "Biomedical Technologies", while University of Stuttgart graduates may attend the master's degree programme "Medical Engineering". In addition, a variety of inter-university courses will be available to both groups.

### Career opportunities and competences

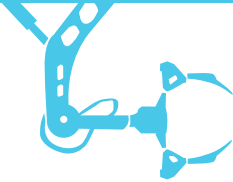
The flexibility of the curriculum allows students to organize their individual degree course to suit their talents and interests. They can focus on specific career paths or choose an optional field of specialisation. Graduates enjoy many different career opportunities in economics, research, public administration and the health-care sector.

Possible professional activities include:

- Design and development of medical devices for clinical application,
- Design, development and production of endoprosthesis, bio-artificial organs and vital/avital implants,
- Planning, construction and production of medical devices and instruments,
- Operation and maintenance of laboratory, diagnostic and therapeutic equipment,
- Development and production of biological surfaces for implant materials,
- Tissue engineering for regenerative medicine.



# Curricular content



## Curriculum design

The Bachelor of Science in Medical Technology provides an integrated curriculum taught by faculty of both universities for those preparing to enter the fields of Medical Engineering or Biomedical Technology.

### Curriculum design

Studies begin at the basic level. The objective is to introduce students to scientific subjects like engineering and medicine and to familiarise them with the fundamentals of natural sciences. All students proceed through the same curriculum during the first two years.

The bachelor's programme Medical Technologies comprises the following basic study courses, respectively:

- Natural sciences, e.g. higher mathematics, physics, chemistry and biochemistry
- Technical sciences and engineering, e.g. mechanical engineering, medical systems design, electrical engineering, optical design, system dynamics for automatic control
- Medical sciences, e.g. cellular and human biology, physiology and pathophysiology of organs
- Medical technologies, e.g. biosensor technology and biomedical techniques.

After the standardised basic level, the specialisation phase in the third year offers a broad, individually focused programme with a maximum degree of freedom. In particular, students may choose from a broad range of established courses (competency subjects and specialisation courses) and additional courses (complementary subjects) to define their fields of specialisation. The academic courses are structured in a Y model<sup>1</sup> to facilitate flexible study design. The Y model allows the student to choose a specialisation in "Medical Engineering" (University of Stuttgart) or "Biomedical Technologies" (University of Tübingen), or a combination of the two.

Two courses out of a wide range of established courses must be taken (24 ECTS, each 12 ECTS). Within the programme of additional courses students can select further courses (12 ECTS).

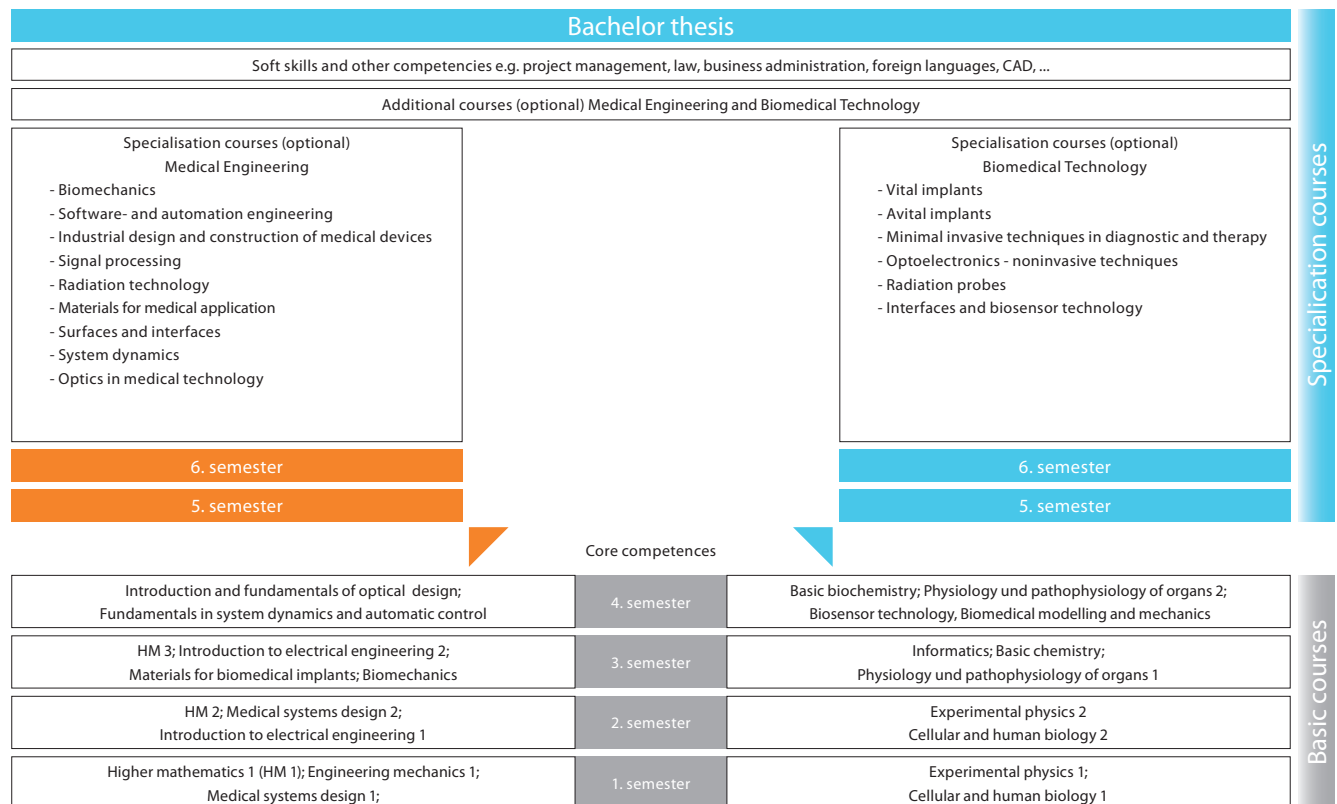
The bachelor's thesis is written in the last semester of the bachelor programme and comprises at least 360 hours with a maximum duration of five months.

<sup>1</sup>Y-model: see image on the right side.

# Course structure



## A new model of interuniversity study: the Y-model



Specialisation courses

Basic courses

Subject to modifications

# Innovation through education

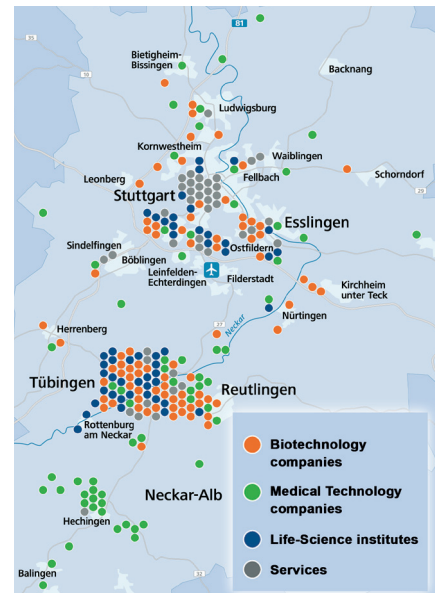


## Networking with the medical technology industry

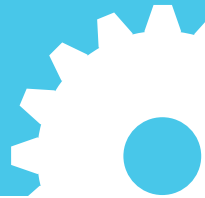
Medical technology continues to be a stable, fast-growing and very innovative industry in Germany, notably in the regions of Stuttgart and Neckar-Alb, which is home to a large and growing number of small businesses and medium-sized industries, universities, and research institutes specialized in medical technologies. The city of Tübingen, in particular, distinguishes itself among industry leaders in biomedical technologies, especially in regenerative medicine. This concentrated growth has resulted in establishing numerous collaborative research projects in the interdisciplinary fields of medicine, biotechnology, and engineering, and has further provided a unique opportunity for our students and graduates: the network fosters academic exchanges and joint career service activities.

IZST (Inter-University Center for Medical Technologies Stuttgart-Tübingen) covers the research activities of the University of Stuttgart and Eberhard Karls University Tübingen with several industrial partners. Our students have regular opportunities to engage with practitioners and to apply their learning where possible.

In addition they are able to tailor their educational experience to specific career objectives with an internship or by writing the bachelor thesis, at one of the companies or institutes of the IZST-network.



# The best of two worlds



## Studying in two cultures

Small steps, narrow alleys, and pointed gables shape the silhouette of old Tübingen on the way up to its castle.

The Swabian university town of 22.000 students combines the flair of a lovingly restored medieval centre of town with the colorful bustle and typical atmosphere of a young and cosmopolitan students' town.

Numerous sidewalk cafes, cozy student's pubs, special shops and restaurants and taverns invite visitors to stroll around and to pause here and there. Taking a boat trip in a famous „Sto-cherkahn“ - the boat exclusive to Tübingen navigated by a long wooden pole - offers a scenic view of the picturesque Neckar waterfront with the famous Hölderlin Tower.

Tübingen is full of culture for you to experience. It boasts the world-famous Kunsthalle with art exhibitions, the museum Schloss Hohentübingen, the Museum Boxenstrop and other art collections and galleries as well as festivals and theatrical performances.

Stuttgart, the state capital of regional state Ba-

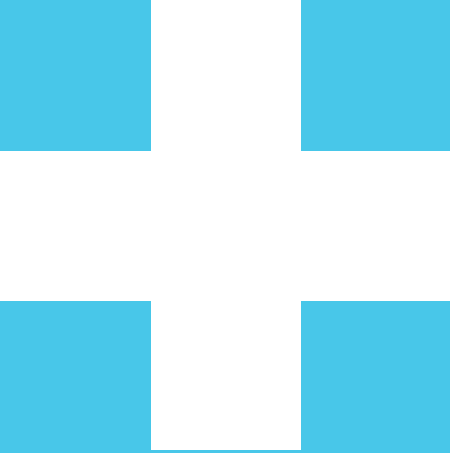
den-Württemberg, unifying both what is historical and contemporary. On one hand it is home to the famous Stuttgart Ballet, a world renowned opera house and theatre, top-class orchestras, as well as quality museums and exhibitions, and significant architecture. On the other hand, it is also the center of cutting edge modern car design as it is home to a few of the world's top car companies.

Perhaps you are active in sports or would like to learn a new type of sport? Stuttgart offers excellent opportunities for students: university sports, sports clubs, and stadiums.

Stuttgart is nestled in a region complete with rich natural settings from forests to fields to vineyards and mountains. For hiking and biking enthusiasts, there are numerous trails in the region itself and dozens more within the city. There are many places in Stuttgart to hang out in -such as student pubs, and the ubiquitous „Biergärten“. Throughout the year there are „Feste“ which are big organized festivals like the Spring and Summer Festivals and the „Cannstatt Folk Fest“, and the Wine Village.



Further information: [www.uni-medtech.de](http://www.uni-medtech.de)



For more detailed information on our study course  
Medical Technology visit: [www.uni-medtech.de](http://www.uni-medtech.de)

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