

STUDY PROGRAM BIOMECHANICAL ENGINEERING



Answers to questions like...

The program benefits from its interdisciplinary nature. Accordingly, there are few restrictions regarding prior knowledge and previous studies. You can start the master's program with a bachelor's degree in mechanical engineering, industrial engineering, medical engineering, process engineering and many others.

It is possible to enroll under certain conditions. You can then make up the relevant modules at the beginning of the master's program.

You are well-positioned with these important basics: strong technical understanding, good English skills, interest in biomechanical systems, computer science and medicine, enjoyment of thinking in systems and structures as well as complex problem solving.

Interdisciplinarity means transferring, integrating and using methods, ways of thinking and knowledge from other disciplines. Closer cooperation between disciplines that at first glance appear to be foreign creates synergy effects and opens up new possibilities. Essential to cross-disciplinary collaboration is the process of understanding that takes place across disciplinary boundaries. The interdisciplinarity of the program is not only evident in the modules that can be taken, but is also reflected in the numerous different fields of study from which students come together and deepen their Bachelor's studies in the direction of biomechanical systems and related topics.

The Master's program in Biomechanical Engineering is primarily taught in English to help you enter an increasingly international professional field. Especially in the field of medical engineering, as a fast-moving and innovation-driven industry, international cooperation and agreements have become standard. Also from the point of view of professional research activities, English is the language of science. The program is also aimed at international students, who will find an attractive course of study here with few entry difficulties, e.g. due to communication problems.

The decision which specialization to choose does not have to be made at the beginning of the study program. The mandatory modules of the two specializations are scheduled in the second and third semesters, so there is enough time to gain impressions and make a decision in the first semester. The student advisor can also be of assistance here. When choosing a specialization, the modules of the other, not chosen specialization can also be attended in the area of free elective modules.

- **Specialization Exoprosthetics:** the focus is on medical assistance systems, i.e. support products on the body. In addition to orthopedic devices that function as body substitutes, these also include mechanical structures worn on the human body, so-called orthoses, which can support, reinforce or facilitate the wearer's movements. Limb replacements, such as artificial hand with nearly complete mechanical functionality or lower leg prostheses used in competitive sports, are also components of

exoprosthetics.

The focus of the compulsory modules provided for profiling exoprosthetics is on mechanics, mechatronics and product development and design.

► **Specialization Endoprosthetics:** the focus is on various forms of implants, i.e. medical devices that remain in the body as permanently as possible and completely take over or support the function of the component to be replaced (e.g. joint). These include in particular artificial knee, shoulder and hip endoprostheses.

The focus of the compulsory modules provided for the profiling of endoprosthetics is on the biological and chemical interaction of implants in the human body.



► **Here we present various medical devices of endo- and exoprosthetics**

(https://www.bime.ovgu.de/bime/EXOprosthetics+_+ENDOprosthetics+Gallery-p-154.html)