

The Master degree program Sports Engineering is dedicated to students who are interested in studies with practical relevance at the interface of mechanical engineering and sports science. This requires a high motivation to face new scientific evidences, actual research projects and the necessary theoretical-methodological approaches. The course demands furthermore the engagement to deal with the system sportsmen-equipment- environment and the deriving tasks.

What characterizes the Master degree program Sports Engineering?

The Master degree program Sports Engineering widens and deepens the methods and knowledge acquired within the bachelor's courses in the areas of human and engineering sciences. Therefore contents related to science and engineering with a strong focus on sports equipment are combined with contents related to biomechanics, movement sciences, training research, sports medicine and social sciences. One of the main components of the program is to acquire methodological competencies in addition to solid scientific knowledge. In addition to the common methods for the analysis and synthesis of complex systems in science and engineering also research methods in social sciences for the implementation and evaluation of measurements and analysis with human subjects are taught. These are of great importance in the development and testing of equipment for sports and human movement.

"The most fascinating concerning the Master degree program Sports Engineering is the combination of sport and mechanical engineering. This enables me to transfer my theoretic knowledge into practical results." (Philipp Amann, student)

Degree Structure

Adaptation Modules (1st - 3rd semester)

Adaptation modules must be selected from a given list: e.g. anatomy/physiology, basics of biomechanics and movement science, introduction to the design of sports equipment, computer-assisted design, basics of business administration and accounting, microcontrollers and electronics in sport, composite materials

Specialisation Modules: Sports equipment development (1st - 3rd semester)

- Research Methodology
- Design and Manufacturing of Sports Equipment
- Instrumentation Athlete/Equipment
- Field Testing
- Study Visit Sports Engineering

Main Modules (1st - 2nd semester)

Testing technology

- Mechanical Simulation
- Electric Motor Drives
- Industrial Control Technology
- Manufacturing Measuring Technology

Research and development

- Movement Modelling and MKS
- Simulation in lightweight structural Design
- Functional Materials

Production

- Outdoor textiles
- Integrative Lightweight Technologies
- Metallic, ceramic and glass Lightweight Materials
- Manufacturing of short fibre-reinforced Polymers

In-depth Modules (1st - 3rd semester)

- Scientific focus or Start-Up Project or Industrial Practice

Module Master Thesis (4th semester)

Career Opportunities

Thanks to the strongly application-oriented teaching graduates are enabled to be employed at a great variety of areas in national and international enterprises. By the combination of contents of engineering, sport technology and sport science graduates are qualified for manifold professional fields in the development, testing and maintenance of sport equipment, e. g.:

- Development of technical equipment for leisure time, prevention and fitness
- Maintenance and development of equipment for diagnostics and rehabilitation
- Operation of and service for technical equipment in training centers and Olympic training centers
- Employment at institutions for certification, standardization and testing
- Implementation of R&D-projects at scientific institutions and in enterprises

General information

Faculty of Mechanical Engineering

Admission requirements: in general vocationally-qualifying university bachelor's degree in technological engineering or sport-technological subjects or equivalent degree program with regard to content

Standard period of study: 4 semesters (Part-time-studies possible)

Degree: Master of Science (M.Sc.)

Start of the degree Program: usually in the winter semester

Language of tuition: German

Further information

Studying in Chemnitz

www.study-in-chemnitz.com

Online application:

www.tu-chemnitz.de/studienbewerbung

FAQ - Frequently Asked Questions

www.tu-chemnitz.de/studierendenservice/faq.php.en

Student Service Point

Straße der Nationen 62, room A10.043

+49 371 531-12125

admission@tu-chemnitz.de

Central Course Guidance Service

Straße der Nationen 62, room A10.046

+49 371 531-55555

studienberatung@tu-chemnitz.de

Academic Course Guidance

For an overview of all academic counsellors

www.tu-chemnitz.de/studienberater

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