



TECHNISCHE UNIVERSITÄT
CHEMNITZ

Sports Engineering

Faculty of Mechanical Engineering

Master degree program



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

Basic Modules (1st-2nd semester)

- Research Methodology
- Industrial Engineering/Ergonomics
- Interaction human – environment
 - Cognition
 - Attention and Perception
- Sport equipment in practice
 - Compact Course Winter Sport Equipment
 - Compact Course Summer Sport Equipment

In-depth Modules (1st-4th semester)

- Applied movement science
 - Research Project Biomechanics
- Special fields of sports equipment technology
 - Fluid Mechanics
 - Functional Materials
 - Instrumentation (athlete/

One of the two following modules shall be chosen:

- Modeling
- Design

Supplementary Module (2nd-4th semester)

- Specialization in engineering (7 offers may be chosen)
 - Technical Thermodynamics
 - Production Measurement Technology
 - ceramic and metallic Light Weight Materials
 - Basics of Robotics
 - Verarbeitung kurzfaserverstärkter Kunststoffe
 - Mechanical Methods of Testing
 - Calculation of Anisotropic Technics

Module Master Thesis (3rd-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

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, German language proficiency at level B2 according to the CEFR

Standard period of study: 4 semesters

Degree: Master of Science (M.Sc.)

Start of the degree Program: usually in the winter Semester

Language of tuition: German

For information concerning all aspects of studies please access:

www.tu-chemnitz.de/studentenservice/index.php.en

Online application for German students:

www.tu-chemnitz.de/studienbewerbung

Online application for international students:

www.uni-assist.de

Further information:

Technische Universität Chemnitz

Student Service Point

Straße der Nationen 62, room 043

09111 Chemnitz

+49 371 531-33333

studentensekretariat@tu-chemnitz.de

Academic Course Guidance

For an overview of all academic counsellors including contact details please access:

www.tu-chemnitz.de/studienberater

Central Course Guidance Service

Technische Universität Chemnitz

Central Course Guidance Service

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