UNIVERSITY OF APPLIED SCIENCES UPPER AUSTRIA
OBERÖSTERREICH

Campus Linz

MME

Dipl.-Ing.

Medical Engineering

Full-time,
English Language

Engineering experts for Medical Device Design and Development

This international master's degree program equips students for engineering innovative, safe and effective medical devices. Students also gain information, how to approve and place them into markets. They deepen engineering and science fundamentals in essential areas of medical technologies, e.g. Electronics, Biomechanics, Medical Device Software, Materials Technology – applied to AI, Bioprinting, High-resolution Imaging and more. Application areas are medical imaging, assisted medical robotics, pacemakers, bionic prostheses and many more. These issues are enhanced by courses considering Medical Systems Engineering, Medicine, Clinical Trials and Regulatory Affairs.

Within the Project Work and doing the Master's Thesis, students apply their skills within companies, research institutes, or hospitals to develop, produce or integrate medical devices. As part of the final examination, students present their conclusions underpinned by theoretical knowledge and their own rationale.

Career Profile

Graduates are qualified as engineers in Medical Engineering/Biomedical Engineering with the ability to develop medical devices and products within the regulatory framework of European markets and the ability to consider FDA regulations. Careers can start within R&D, engineering, application specialist, regulatory affairs, quality management, notified bodies, hospitals and many more. Graduates of this master's degree program are able and allowed to join a PhD program.

Study Focus

- Mathematics, Statistics, Medicine
- Biomechanics, Artificial Intelligence & Software, Electronics, Materials
- Medical Imaging and Diagnosis Systems, Clinical Treatment Systems, Bionic Implants
- Medical Systems Engineering
- Regulatory Affairs, Electives, Project Work, Master's-Thesis

Degree
→ Dipl.-Ing.
The academic degree 'Dipl.-Ing.' corresponds to the international degree MSc.

Duration
→ 4 Semesters (120 ECTS)

Annual Intake
→ 23

Admission Requirements
→ Graduates of Medical-/Biomedical Engineering Bachelor's degree programs in engineering with 180 ECTS points or more

Application
→ Online – details & deadlines on fh-ooe.at/application

Admission Procedure
→ Interview

Language of Instruction
→ English

Tuition Fees
→ EU/EEA citizens: 363.36 EUR per semester (plus Austrian Student Union fee).
→ Citizens from non-EU/EEA countries: 726.72 EUR per semester (plus Austrian Student Union fee). Scholarships available.

fh-ooe.at/en/mme

Curriculum

List of courses	ECTS / Semester	1	2	3	4
→ Basics					
Applied Mathematics		4	2,5		
Applied Statistics			2,5		
Selected Topics in Medicine for Medical Engineers		1	1		
→ Catalog of Electives (choose 15 ECTS per semester)[1]					
Electronics					
Electronic Circuit Design		2,5			
Power Supply Systems			2,5		
Embedded Systems		2,5	2,5		
Biomechanics					
Musculoskeletal Systems Modeling and Simulation		2,5			
3D Motion Capture and Analysis		2,5			
Biomechanical Laboratory			2,5		
Numerical Methods in Biomechanics			2,5		
Medical Device Software					
Applied Software Life Cycle Processes		2,5			
Applied Programming		2,5	2,5		
Artificial Intelligence			2,5		
Materials Technology					
Advanced Materials		5			
Surface Technology			2,5		
Molecular Test Systems			2,5		
→ Medical Technology					
Advanced Medical Imaging and Diagnosis Systems		5	2,5		
Clinical Treatment Systems			3,5		
Bionic Implants		2,5	1,5		
Technological Innovation in Medicine		2,5	1,5		
→ Medical Systems Engineering and Project					
Applied Systems Engineering				4	
Requirements and Usability Engineering				2,5	
International Product Management				2	
Regulatory Affairs				2,5	
Project Scientific or Professional				19	
→ Master Thesis					
Master Thesis					28
Master's Examination					2
→ Optional Courses					
German Language		3	3		
Introduction to Programming-Tools		2,5			
Cellular Biophysics		1			
Total (excl. optional courses)		**30**	**30**	**30**	**30**

[1] Offered subject to a sufficient number of participants.

ECTS: European Credit Transfer and Accumulation System.

Good to Know

→ The University of Applied Sciences Upper Austria is one of the most research-intensive German-speaking universities of applied sciences. Applied R&D in medical technology benefits not only companies and healthcare institutions, but also our students. Up-to-date knowledge from research comes directly to them in the laboratories and lecture halls. Students can also participate in projects and master's thesis.

→ By bringing together expertise from all four faculties in Hagenberg, Linz, Steyr, and Wels, the Center of Technological Innovations for Medicine TIMED creates a vibrant environment where medical engineers, biophysicists, medical process specialists, computer and data scientists and medical research partners work side by side at the interface of technology and medicine.

Students are introduced to a broad spectrum of exciting research fields, including:

→ Biomedical data analysis, data science and AI
→ Systems engineering for healthcare applications
→ Biomedical sensors
→ Biomimetics and advanced materials development
→ High-resolution medical imaging
→ Medical simulation technologies
→ Drug characterization and analysis

Contact

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