Deutscher Akademischer Austauschdienst
German Academic Exchange Service

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Master's degree

htw saar

Neural Engineering

htw saar - University of Applied Sciences • Saarbrücken

Overview

Degree	Master of Science in Neural Engineering
Teaching language	• English
Languages	The programme is taught entirely in English. On a voluntary basis, students can join language classes in German, French, or Spanish at no extra charge.
Programme duration	3 semesters
Beginning	Winter and summer semester
Application deadline	For the winter semester: 15 July For the summer semester: 15 January **Please note:** Before applying to the university, you need to first apply to receive yourVPD via uni-assist. You can do so throughout the year, but **it takes at least six weeks to receive your VPD from uni-assist**. So in order to meet the university application deadlines, you will need to apply for your VPD as early as possible. University application deadlines and semester dates are subject to change. Please refer touni-assist and to the htw saar websitefor current information.
Tuition fees per semester in EUR	None
Combined Master's degree / PhD programme	Yes
Joint degree / double degree programme	No
Description/content	Neural Engineering is an emerging interdisciplinary research area that merges neuroscience and engineering in order to understand, interface with and manipulate the nervous system. Applications range from brain-computer-interfaces and neurocognitive modelling to advanced electrode designs for implantable devices. **Occupational Profile** The Neural Engineering course qualifies our graduates for demanding industrial R&D positions, e.g. in the development of nerve stimulators, diagnostic devices or active implants. Other emerging occupational fields encompass neuroergonomics (e.g. automotive branch) and neurocybernetics

(collaborative robotics) applications, as well as the development of tailor-made applications in neurorehabilitation.

A considerable percentage of our Master's graduates seek to pursue an academic career path and start a doctorate programme. Our national and international cooperation partners provide an excellent infrastructure to prepare students for a doctorate programme. Graduate students of the Neural Engineering programme participate in international research projects. This gives our students an early opportunity for active participation in the scientific community. In these projects, our students acquire essential scientific knowledge and social skills for future leadership positions.

The international orientation of the Neural Engineering programme allows our students to establish international contacts in early career stages and gain confidence on the global stage.

Course Details

Course organisation

First Semester

The curriculum of the first semester includes the basics of neural and cognitive systems – in particular, auditory processing and perception, biomedical signal and image processing as well as the practical manufacture of active implants using microsystem technologies.

Second Semester

The second semester imparts expertise of neural signal analysis and mathematical modelling of neuronal activity. Additionally, the courses deepen the students' knowledge of clinical neurophysiology and neuroprosthetics. Students acquire fundamental knowledge of risk management and biocompatibility, particularly with regard to implantable systems.

The compulsory courses are supplemented by elective modules.

All courses include a high percentage of hands-on work for consolidation and realisation of imparted knowledge. The students will implement a larger project in a 9 ECTS project work module during the second semester.

Student projects and theses can be carried out at our labs or with one of our external collaboration partners (e.g. Bosenberg Clinics, Fraunhofer Institute for Biomedical Engineering, Saarland University Hospital).

Moreover, students can apply for a practical internship with one of our collaboration partners abroad. In this way, students will reinforce their acquired skills and deal with real-world research or clinical problems.

Supervising professors and other academic staff will provide intensive guidance throughout the programme. Whenever possible, highly qualified guest lecturers will contribute to research and teaching.

Third Semester

The third semester is devoted to the Master's thesis, which can expand the winter semester project work or can be authored externally. The results of the Master's project will be presented in a seminar session.

Publication of this work is encouraged, and past thesis work has frequently been published in scientific journals and/or presented at relevant international conferences.

For further information, please refer to our course description.

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A Diploma supplement will be issued

Yes

International elements	• International guest lecturers • Courses are led with foreign partners • Projects with partners in Germany and abroad
Course-specific, integrated German language courses	No
Course-specific, integrated English language courses	No

Costs / Funding

Tuition fees per semester in EUR	None
Semester contribution	298 EUR for the 2023/2024 winter semester Upon paying the semester fee, you will receive your student ID, with which you will get discounts on meals in the campus cafeteria (Mensa) and gain access to cultural activities on campus like university sports, the choir, the theatre group, and many more. The so-called semester ticket is also included in the semester fee. This ticket entitles you to free public transport within the entire federal state of Saarland.
Costs of living	Approximately 1,000 EUR per month to cover personal expenses This amount includes estimated costs for accommodation, food, leisure activities, books and study equipment, semester fees, and health insurance charges.
Funding opportunities within the university	No

Requirements / Registration

Academic admission requirements	Academic admission requirements include a Bachelor’s degree or Diploma (UAS or University) in Biomedical Engineering, Electrical Engineering, Mechanical Engineering, Computer Science and related fields (210 ECTS). If you have completed a six semester Bachelor’s programme (180 ECTS), you are required to pass selected modules from the htw saar Biomedical Engineering Bachelor's programme with a total of 30 ECTS points. **Recommended prerequisites:** Applicants should have excellent grades and a sound background in engineering science. Basic knowledge of anatomy and physiology of the nervous system is recommended. Interest in research-oriented projects is presumed. All our courses are taught as a block.
Language requirements	English (B2 level)
Application deadline	For the winter semester: 15 July

	For the summer semester: 15 January **Please note:** Before applying to the university, you need to first apply to receive your VPD via uni-assist. You can do so throughout the year, but **it takes at least six weeks to receive your VPD from uni-assist**. So in order to meet the university application deadlines, you will need to apply for your VPD as early as possible. University application deadlines and semester dates are subject to change. Please refer to uni-assist and to the htw saar website for current information.
Submit application to	International applicants must first apply online via uni-assist to receive the necessary VPD (preliminary review documentation). This can be done at any time during the year. After receiving your VPD from uni-assist, please apply directly to htw saar at application procedure

Services

Possibility of finding part-time employment	At htw saar, we provide you with information, advice and support on how to find the perfect part-time job either on or off campus. In Saarbrücken, you will be able to find numerous part-time job opportunities for students. Depending on what type of job you are looking for, you may work as an academic assistant at htw saar, or you might prefer to work in a restaurant or a store in town. For non-EU nationals, depending on their visa/residence permit status, restrictions on the amount of work they are allowed to do in addition to their studies may apply. For more information, please refer to www.study-in-germany.de.
Accommodation	Compared to many other German cities, Saarbrücken offers fairly affordable housing for students. Information on all of your housing options can be found here: finding a place to stay. The International Office at htw saar will gladly assist you in finding your new home away from home. Just write an e-mail to study@htwsaar.de.
Career advisory service	At htw saar and especially in our department, we will support students in finding demanding industrial research and development (R&D) positions or in pursuing a doctoral degree.
Support for international students and doctoral candidates	• Welcome event • Tutors • Accompanying programme • Specialist counselling • Visa matters

Contact

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