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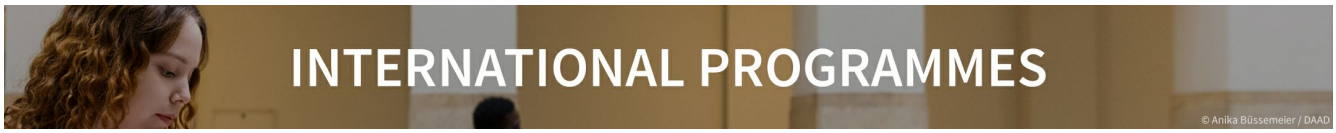
German Academic Exchange Service



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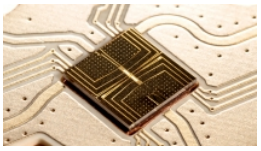
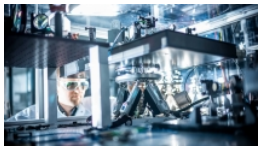
Master's degree

Quantum Engineering

Leibniz University Hannover • Hannover







Overview

Degree	Master of Science
Course location	Hannover
In cooperation with	The degree programme is offered in cooperation with Technische Universität Braunschweig.
Teaching language	• English
Languages	English
Full-time / part-time	• full-time
Mode of study	Less than 50% online
Programme duration	4 semesters
Beginning	Winter and summer semester
Application deadline	**Application from students from non-EU countries (VPD from uni-assist is required)** • 15 April to 31 May of the year for the winter semester • 15 October to 30 November of the previous year for the summer semester **Application from students from Germany and the EU** • 1 June to 15 July of the year for the winter semester • 1 December to 15 January of the year for the summer semester Prospective students applying from outside the EU must request a**Preliminary Examination Documentation** (VPD) from uni-assist before applying to the Master's programme. The processing time for the VPD takes **up to eight weeks**. Therefore, please allow enough time before applying for the programme. More information about applying for the VPD can be found on the central application pages.
Tuition fees per semester in	None

EUR	
Combined Master's degree / PhD programme	No
Joint degree / double degree programme	No
Description/content	Quantum mechanics determines our understanding of physical processes on a microscopic scale. More than a century after groundbreaking work began on quantum mechanics, technical developments based on this phenomenon – such as transistors, lasers and global satellite navigation systems – have become part of our everyday lives. On the verge of the second quantum revolution, the aim is now to pave the way for the application of fundamental quantum physics in industrial fields. In this context, the combination of knowledge and skills from the fields of physics, mathematics, computer science and engineering plays a crucial role. The degree programme closes a gap that previous degree programmes were unable to fill. The programme primarily teaches students knowledge in all four pillars of quantum technologies: communication, simulation, sensors and computation. Once they have completed the programme, students will be able to use their technological expertise in individual specific fields of application to transfer quantum technology solutions from the basic research laboratory to practice. Students may be required to attend courses in Braunschweig in addition to their regular courses at Leibniz University Hannover and a hybrid offering.

Course Details

Course organisation	
A Diploma supplement will be issued	Yes
International elements	• Specialist literature in other languages • International comparisons and thematic reference to the international context
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	Approx. 400 EUR semester fee ("Semesterbeitrag") The semester fee includes the following: • Contribution to the "Studentenwerk Hannover" (student services organisation) • Contribution to the student government (Student Union, AStA) • Semester ticket

	• Contribution to administrative costs for the Federal State of Lower Saxony http://go.lu-h.de/study-costs
Costs of living	Compared with other European countries, the cost of living in Germany is quite reasonable. The prices for food, accommodation, clothing, cultural events, etc. are basically in line with the EU average. You will need around 850 EUR a month to cover your living expenses. The largest expense will be your monthly rent. In Hanover, the rent amounts to between 300 and 500 EUR per month. Cost of studying at Leibniz University Hannover: http://go.lu-h.de/study-costs General information on the cost of studying in Germany: https://www.study-in.de/en/plan-your-stay/money-and-costs/cost-of-living_28220.php
Funding opportunities within the university	Yes
Description of the above-mentioned funding opportunities within the university	Although tuition fees no longer exist in Lower Saxony, costs are indeed incurred at university, such as the semester fee, accommodation and living costs, and costs for learning materials. Here you will find possibilities to help you finance your studies: www.uni-hannover.de/en/studium/finanzierung-foerderung Deutschlandstipendium: go.lu-h.de/deutschlandstipendium Niedersachsenstipendium: go.lu-h.de/niedersachsenstipendium

Requirements / Registration

Academic admission requirements	The following are suitable previous courses of study for the Master's degree programme in Quantum Engineering: a Bachelor's degree in physics, optical technologies, an engineering science or another previous degree programme with a suitable subject with at least: • 20 ECTS in mathematics • 10 ECTS in quantum mechanics • 5 ECTS in wave optics or 5 ECTS in electrodynamics
Language requirements	Language requirements for international applicants: English C1
Application deadline	**Application from students from non-EU countries (VPD from uni-assist is required)** • 15 April to 31 May of the year for the winter semester • 15 October to 30 November of the previous year for the summer semester **Application from students from Germany and the EU** • 1 June to 15 July of the year for the winter semester • 1 December to 15 January of the year for the summer semester Prospective students applying from outside the EU must request a**Preliminary Examination Documentation** (VPD) from uni-assist before applying to the Master's programme. The processing time for the VPD takes **up to eight weeks**. Therefore, please allow enough time before applying for the programme. More information about applying for the VPD can be found on the central

application pages.

Submit application to	Students from non-EU countries can only apply with a preliminary review documentation (VPD) from uni-assist. You must apply for this with uni-assist at least eight weeks before the application deadline for the study programme expires. Take this into account when planning your application! For more information, please visit our website.

Services

Possibility of finding part-time employment	There are many job opportunities for students on campus (in the different departments, the central administration, etc.) and off campus. About two-thirds of our students work at part-time jobs while pursuing their studies. Internal job postings: https://www.uni-hannover.de/en/universitaet/stellenangebote-arbeit-an-der-uni/jobboerse Student jobs outside of the university: jobbico Uni Hannover
Accommodation	Links on housing in Hanover (including a video about housing in Hanover for international students)
Support for international students and doctoral candidates	• Buddy programme

Quantum Engineering MSc at Leibniz University Hannover & Technische Universität Braunschweig

Quantum Engineering courses cover all four pillars of quantum technologies: communication, computing, simulation, sensing & metrology. Master's students have a finger on the pulse of cutting-edge research and in the middle of QVLS cooperations with partners from industry.
We are seeking students with a Bachelor's degree in Physics or Engineering with an high interest in Quantum Physics.

» more:
https://www.youtube.com/watch?v=GbMqwl5ptlQ

Leibniz University Hannover

Leibniz University Hannover, Main Building (Welfenschloss)

Leibniz University Hannover: Shaping the future with knowledge

As one of the nine leading institutes of technology in Germany, Leibniz University Hannover is aware of its responsibility in seeking sustainable, peaceful, and responsible solutions to the key issues of tomorrow. Our expertise for this stems from the broad spectrum of subjects, ranging from engineering and natural sciences to architecture and environmental planning, and from law and economics to social sciences and humanities.

The main building of the university is the Royal Welfenschloss (Palace of the Guelphs) at Welfengarten Park. In 1879, the Higher Vocational School, originally founded in 1831, moved into the palace. Later, it became the Königliche Technische Hochschule (Royal College of Technology). Only 64 pupils attended the vocational school at first, **but now there are almost 30,000 students enrolled in the nine faculties of Leibniz University Hannover and some 3,100 researchers are working in more than 180 institutes**.

Our key research areas

Leibniz University Hannover is among the world's leading institutions in its**key research areas: biomedical research and engineering, quantum optics and gravitational physics, production engineering, and interdisciplinary studies of science and academia**. These give us our innovative strength in developing precision measurement methods, optical technologies, novel materials, intelligent implants, and innovations in information technology or in the field of Industry 4.0.

The broad range of subjects at Leibniz University Hannover is entirely compatible with the overall university strategy of raising its profile, in particular in teaching and research, including the establishment and enhancement of research priority areas originating in the humanities and social sciences. Cooperation agreements with national and international partners strengthen our scientific expertise – our most important partner is Hannover Medical School.

By adopting the name of the polymath**Gottfried Wilhelm Leibniz** in 2006, the university committed itself to unity in diversity.

University location

Leibniz University Hannover is very influential in shaping the image of the state capital of Lower Saxony. Not only structures like the “Welfenschloss”, the university's main building, but especially people contribute to this: approximately 30,000 students are currently enrolled. They have chosen one of the largest universities in Germany that is known for its international excellence in teaching and research. With nine faculties and a comprehensive range of study programmes, Leibniz University Hannover virtually covers the entire academic spectrum.

Find us here on Google Maps.

Contact

Leibniz University Hannover
Zentrale Studienberatung - Student Advisory Services

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Course website: https://www.uni-hannover.de/en/studium/studienangebot/info/studiengang/detail/quantum-engineering/

https://www.facebook.com/unihannover/

https://twitter.com/unihannover?lang=de

https://www.linkedin.com/school/leibniz-universit-t-hannover-germany/?originalSubdomain=de

https://www.instagram.com/uni_hannover/

https://www.youtube.com/@LeibnizUniHannover

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