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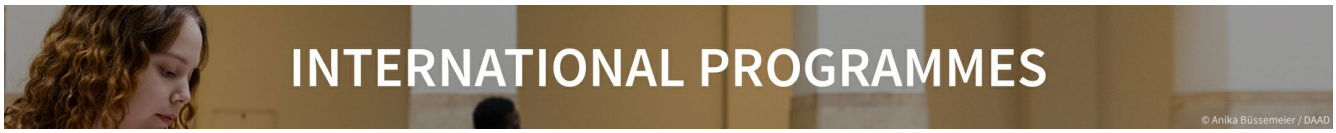

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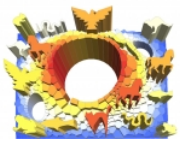
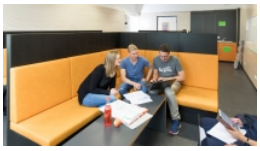
Master's degree

Computational Methods in Engineering

Leibniz University Hannover • Hannover




Overview

Degree	Master of Science in Computational Methods in Engineering
Course location	Hannover
Teaching language	• English • German
Languages	All compulsory courses are held in English. Elective courses are held in English and German.
Full-time / part-time	• full-time • part-time (study alongside work)
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 EUR	None
Combined Master's degree / PhD programme	No

Joint degree / double degree programme	No
Description/content	Raise your skills in computational methods to a new level to solve real-world challenges in engineering. This Master's programme combines civil engineering and mechanical engineering with mathematics and information technology. We are looking for graduates with a Bachelor's degree in an engineering subject who are interested in strongly project-based training on new sophisticated computational methods. Get ready for the following: • More than FEM – explore modern element technologies! • Solve real-world challenges with multi-scale and multi-physics modelling and simulations! • Write your own machine learning code to predict material and structural properties! Nowadays, engineering without computer-assisted planning and calculation methods is inconceivable. In biomedical engineering, such methods contribute to the development of diagnostics and the possibilities for assessing medical conditions. In the development of vehicle navigation systems, they facilitate data processing for route planning as well as vehicle localisation and guidance. Not only did computer-aided simulation make it possible to build the tallest building in the world, but it also has improved the building's energy efficiency. Modelling and simulation computer programmes have therefore become indispensable methods of planning and analysis in many areas. At Leibniz University Hannover, the Master's degree programme in Computational Methods in Engineering is interdisciplinary in nature. Graduates will be proficient in methods in mathematics and information technology as well as in engineering models and simulations widely used in industry today, enabling them to resolve issues in a wide range of fields of work.

Course Details

Course organisation	The Master's programme is organised into mandatory and elective classes which are mainly taught in the first and second semesters. The mandatory courses are related to sophisticated skills in computational engineering. In the third semester, you can choose between writing an interdisciplinary project, going abroad, or doing a practical project within the industry. In the fourth semester, you will write the Master's thesis.
A Diploma supplement will be issued	Yes
Integrated internships	In the third semester, you will have the possibility to do a practical project within the industry.
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 admission requirements are a Bachelor's degree in an engineering subject such as Civil Engineering or Mechanical Engineering with a high proportion of: • Mathematics (at least 15 ECTS credits) • Mechanics, Statics, Kinematics, Kinetics, Elastostatics (at least 18 ECTS credits) • Computer Science, Computer Programming (12 ECTS credits) • Natural Science (at least 10 ECTS credits) • Numerical Methods / Finite Element Methods (6 ECTS credits) • Foundations of Probability Theory and Statistics (5 ECTS credits) The exact admission requirements can be found in the admission regulations on the programme website: www.fbg.uni-hannover.de/cme.
Language requirements	Applicants must provide proof of English level C1 and German level A1. (Which examinations, tests and certificates are accepted at LUH?)
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	Non-EU applicants: 1. Apply for VPD onhttps://my.uni-assist.de (takes up to eight weeks) 2. Online application at LUH:http://go.lu-h.de/masterapplication-non-eu Online application for EU applicants via:http://go.lu-h.de/masterapplication-eu

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	• Welcome event • Specialist counselling

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Raul Acuna
MSc

From my perspective, the Master's degree programme offers a unique curriculum that encompasses a diverse range of academic topics regarding simulation in engineering and at the same time provides a high-quality learning experience from a respected institution and experienced scientists in their respective fields. As a foreign student, the diversity and flexibility has enabled me to gain valuable first-hand experience within the industry in Germany.

Leibniz University Hannover

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

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https://www.facebook.com/FakultaetBauUndGeoUniHannover

https://www.linkedin.com/school/leibniz-universit-t-hannover-germany/

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