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Computational Methods in Engineering • Leibniz Universität Hannover • Hannover .......................... 2
# Master's degree

## Computational Methods in Engineering

Leibniz Universität Hannover • Hannover

## Overview

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<tr>
<th><strong>Degree</strong></th>
<th>Master of Science in Computational Methods in Engineering</th>
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<tbody>
<tr>
<td><strong>Teaching language</strong></td>
<td>English</td>
</tr>
<tr>
<td><strong>Languages</strong></td>
<td>All compulsory courses are held in English. Elective courses are held in English (35%) or German (65%). Participants are able to study 100% in English.</td>
</tr>
<tr>
<td><strong>Programme duration</strong></td>
<td>4 semesters</td>
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<tr>
<td><strong>Beginning</strong></td>
<td>Winter and summer semester</td>
</tr>
</tbody>
</table>
| **More information on beginning of studies** | Winter semester: October to March  
Summer semester: April to September |
| **Application deadline** | **Non-EU applicants:**  
31 May for the following winter semester  
30 November for the following summer semester  
**EU applicants:**  
15 July for the following winter semester  
15 January for the following summer semester |
| **Tuition fees per semester in EUR** | None |
| **Combined Master’s degree / PhD programme** | No |
| **Joint degree / double degree programme** | No |

**Description/content**

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 programs have therefore become indispensable methods of planning and analysis in many areas. At Leibniz Universität 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 will have the possibility to go abroad or do an internship within the industry or at a foreign university. The scientific work is organised into the Master’s thesis in the fourth semester and an interdisciplinary project which can be done in the second semester or third semester.

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<th>A Diploma supplement will be issued</th>
<th>Yes</th>
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<tbody>
<tr>
<td>Integrated internships</td>
<td>In the third semester, you will have the possibility to do an internship within the industry or at a foreign university.</td>
</tr>
<tr>
<td>Course-specific, integrated German language courses</td>
<td>No</td>
</tr>
<tr>
<td>Course-specific, integrated English language courses</td>
<td>No</td>
</tr>
</tbody>
</table>

**Costs / Funding**

<table>
<thead>
<tr>
<th>Tuition fees per semester in EUR</th>
<th>None</th>
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</thead>
</table>
| Semester contribution            | Approx. 410 EUR semester fee ("Semesterbeitrag")
  The semester fee includes the following:
  - Semester card (free public transport in Hanover and regional trains in Lower Saxony)
  - Student services organisation
  - Student representation ("AStA"), including access to the bicycle workshop
  - Administrative costs |
| Costs of living                  | Compared to 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. ([https://www.study-in.de/en/plan-your-stay/money-and-costs/cost-of-living_28220.php](https://www.study-in.de/en/plan-your-stay/money-and-costs/cost-of-living_28220.php))
  In Hanover, the rent amounts to between 300 and 500 EUR per month. |
| Funding opportunities within the university | Yes |
| Description of the above-mentioned funding | "Deutschlandstipendium" and "Niedersachsenstipendium": [https://www.uni-hannover.de/de/studium/finanzierung-und-foerderung/](https://www.uni-hannover.de/de/studium/finanzierung-und-foerderung/) |
Requirements / Registration

Academic admission requirements

The admission requirements are a Bachelor's degree in an Engineering subject so 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 course website: www.fbg.uni-hannover.de/cme.

Language requirements

Applicants must provide proof of English C1 level and German B1 level: https://www.fsz.uni-hannover.de/de-nachweise.html?&L=1

Application deadline

Non-EU applicants:
31 May for the following winter semester
30 November for the following summer semester

EU applicants:
15 July for the following winter semester
15 January for the following summer semester

Submit application to

1. Online application:
   http://go.lu-h.de/masterapplication-non-eu
   http://go.lu-h.de/masterapplication-eu

2. Send documents to:
   Leibniz Universität Hannover
   Immatrikulationsamt
   Welfengarten 1
   30167 Hannover
   Germany

   Tel.: +49 5117622020 (service hotline)
   E-mail: studium@uni-hannover.de

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/jobs/jobboerse/

Student jobs outside of the university:
As one of the nine leading institutes of technology in Germany, Leibniz Universität 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 Universität Hannover and some 3,100 researchers are working in more than 180 institutes.

Our key research areas

Leibniz Universität 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 Universität 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
Find us here on Google Maps.

Contact

Leibniz Universität Hannover
Faculty of Civil Engineering and Geodetic Science
Studiendekanat Bauingenieurwesen

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30167 Hannover

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Email: cme@fbg.uni-hannover.de
Course website: https://www.fbg.uni-hannover.de/cme

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

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www.daad.de/sommerkurse

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Disclaimer
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