



Deutscher Akademischer Austauschdienst
German Academic Exchange Service



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Master's degree



Master Materials Science & Engineering

University of Augsburg • Augsburg



Overview

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| Degree | Master of Science in Materials Science & Engineering |
| Teaching language | <ul style="list-style-type: none">English |
| Languages | All courses are held in English (100%). Participants can choose to write the Master's thesis in English or German. |
| Full-time / part-time | <ul style="list-style-type: none">full-time |
| Programme duration | 4 semesters |
| Beginning | Winter and summer semester |
| Application deadline | 1 May for the following winter semester 1 November 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 | <p>Materials Science & Engineering at the University of Augsburg is an interdisciplinary tuition-free study programme connecting several aspects of physics, chemistry and methods for characterisation and processing of materials. The Master's programme in Materials Science & Engineering deepens the scientific expertise of your previous education. It aims at understanding material properties and interactions between materials with particular regard to application-oriented research in science and technology. At the University of Augsburg, we put a strong emphasis on natural sciences (rather than mechanical engineering) in materials science, aiming to provide students with an in-depth understanding of the chemical, physical, and functional properties of materials.</p> |

The International Master's in Materials Science & Engineering is a full-time programme intended to

be completed in four semesters (120 ECTS). Building on experience from the Bachelor's level, knowledge of materials science and engineering is deepened and enhanced, finishing with the completion of a Master's thesis and an associated thesis defence. All classes are taught entirely in English. Knowledge of German is not required. However, the university offers free German language courses.

The Materials Science & Engineering programme offers students a broad variety of elective courses in fields such as spintronics, porous or optical materials, reinforced composites, low temperature physics, nanostructures and more. Furthermore, the theoretical part of the programme is complemented by method courses to give students an opportunity to gain practical lab experience using state-of-the-art research facilities.

Course Details

Course organisation

First semester:

Lectures

- Materials Physics
- Materials Engineering
- Materials Simulation
- Soft-Skill-course

Methods Course One

Second semester:

Two elective lectures selected from block "Structural & Functional Materials", one from "Digital Materials & Technologies" and one from "Materials Sustainability"

"Structural & Functional Materials" Block (excerpt)

- Physics & Technology of Semiconductor Devices
- Solid State Spectroscopy with Synchrotron Radiation and Neutrons
- Low Temperature Physics
- Superconductivity
- Applied Magnetic Materials and Methods
- Bioinspired Composites
- Fibre-Reinforced Composites: Processing and Materials Properties
- Modern Metallic Materials
- ...

"Digital Materials & Technologies" Block

- Analysing Massive Data Sets
- Machine Learning and Computer Vision
- Finite Element Modelling and Multiphysics Phenomena
- Theoretical Concepts and Simulation

"Materials Sustainability" Block

- Sustainable Chemistry of Materials and Resources
- Oxidation and Corrosion
- Energy Materials
- Analytical Methods for Crystalline Sustainable Materials

Methods Course Two

Third semester:

One elective lecture selected from the "Structural & Functional Materials" block, one from "Digital Materials & Technologies" and one freely selectable lecture from any block.

Laboratory project:
Project to be completed in one of the research groups.

Fourth semester:

Master's thesis in one of the research laboratories at the Institute of Physics, Institute for Materials Resource Management or in industry

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| A Diploma supplement will be issued | Yes |
| Integrated internships | Methods courses in laboratories of the Institute of Physics and Institute for Materials Resource Management as part of the curriculum, and optional internships with local industries during the spring or summer break offer many opportunities for students to gain practical experience. |
| Course-specific, integrated German language courses | No |
| Course-specific, integrated English language courses | No |

Costs / Funding

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| Tuition fees per semester in EUR | None |
| Semester contribution | 127.50 EUR per semester This includes: <ul style="list-style-type: none">• a ticket for public transportation within the city (65.50 EUR) and• student services (62 EUR). |
| Costs of living | The cost of studying is made up of university costs (see above) and the local cost of living. On average, monthly living expenses amount to 934 EUR per month. |
| Funding opportunities within the university | No |

Requirements / Registration

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| Academic admission requirements | Academic admission requirements include a Bachelor's degree (or equivalent) in the fields of materials science & engineering, physics or chemistry. A degree in a related discipline might be deemed equivalent by the examination board. All applicants must submit proof of having obtained at least 12 ECTS credits in materials science, 12 ECTS credits in physics and 18 ECTS credits from engineering, chemistry or mathematics. |
| Language requirements | Applicants whose first language is not English must provide proof of knowledge of English |

corresponding to level B2 of the Common European Framework of Reference for Languages. Currently, equivalences to B2 in terms of internationally recognised test methods (e.g. TOEFL, IELTS) are as follows:

TOEFL (paper-based) score of at least 550
TOEFL (computer-based) score of at least 213
TOEFL (Internet-based) score of at least 80
IELTS Overall Band Score of at least 6.5 (out of 9)

Application deadline 1 May for the following winter semester
1 November for the following summer semester

Submit application to <https://vibs.uni-augsburg.de>

Services

Possibility of finding part-time employment Students can be employed as tutors or student research assistants. Trainee programmes are offered for student internships at industrial companies during the lecture-free periods.

Accommodation Students can apply for a dorm room at the Studentenwerk Augsburg (<https://studentenwerk-augsburg.de/accommodation/>). Student workers will assist with the search for accommodation at the beginning of the semester. Generally speaking, flat hunting in Augsburg is a competitive experience. The following website may be useful as well for your accommodation search: <http://www.studenten-wg.de>.

Support for international students and doctoral candidates

- Welcome event
- Tutors

University of Augsburg

The University of Augsburg, founded in 1970, is a new, modern, and still growing university in Bavaria. It is known as one of the nicest and most convenient places to study in Germany, as it remains a manageable size. Seven faculties, including humanities, natural sciences, economics, theology, and law offer approx. 80 different degree programmes. All of them are dedicated to providing the most up-to-date facilities and ideal conditions for students to complete degrees successfully within a reasonable time frame. Moreover, the university actively encourages interdisciplinary networking and exchange, giving students access to a broad intellectual and cultural environment.

Offering a wide choice of degree programmes in often unique and specialist subjects, the University of Augsburg attracts students from all over Germany and the world. Around 10% of the university's students come from abroad and receive a warm welcome in Augsburg. The university provides award-winning services to support international students and academics throughout their stay.

Situated near the historic city centre of Augsburg, the university features a beautiful and spacious modern campus. The appealing buildings blend into a big landscaped park with grassy areas, a lake, fountains, and several pieces of art. All faculties, the administration offices, the food hall, cafeterias, bars, and the libraries are conveniently located close together.

The University of Augsburg is a place where people study, teach, carry out research, and live. Here you can feel what "university" really means: a sense of community, cooperation, and solidarity between lecturers, researchers, and students who benefit from research through the teaching they receive.

University location

Augsburg is situated in the Bavarian region of Swabia, around 60 kilometres from Munich. The third largest city in Bavaria, with a well-developed infrastructure, a long history, and proximity to the Bavarian mountains and lakes, Augsburg is a fantastic place to live and study. Nearly 10% of the total population of 280,000 inhabitants are students, and almost 20% have an international background.

Augsburg was founded by the Romans over 2,000 years ago. Today, the city's best-known sights include the Fuggerei (a unique community housing complex from the 1500s, donated to the city's inhabitants by the famous Fugger family), the Augsburg town hall with the Perlachturm, and the picturesque old town centre. Other important attractions are the Augsburg Puppet Theatre (Augsburger Puppenkiste) which has won international acclaim for its marionettes and performances, and the State Textiles Museum (tim), reflecting Augsburg's reputation as a weavers' city. The city has a long intellectual and artistic history, counting Leopold Mozart, Rudolf Diesel, Jakob Fugger and Bertolt Brecht among its most famous citizens.

Cultural attractions aside, Augsburg also knows how to celebrate! There are numerous restaurants, bars, and clubs, and many events and festivals take place on the city's streets throughout the year. Several cinemas and a large theatre provide further entertainment. In addition, a number of parks, an Olympic white-water course and the "Siebentischwald" forest offer facilities for sports and recreational activities.

Contact

University of Augsburg

Institute of Physics

Institute for Materials Resource Management

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International Programmes in Germany - Database

www.daad.de/international-programmes
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