

## SERVICE FOR STUDENTS

At the University of Paderborn, we conduct internationally recognized, cutting-edge research. This is your chance! We'll prepare you for challenging positions where you will take responsibility.

1. "Try before you buy": during the pupils' practicum for prospective engineers, you can test out both us and yourself to see if it's a good fit.
2. Female students are welcome! The University of Paderborn has set a goal of increasing the number of female students in the engineering disciplines further.
3. Thanks to our Germany-wide (and international!) system "eduroam", students from the University of Paderborn can use the internet for surfing or research for free on campus in Paderborn, at any major German university, or any participating university in the world.
4. The student representatives (German: Fachschaft) are available to support you in any issue with both advice and assistance.

5. The UPB cooperates with universities in many countries around the world. Through these cooperations, students have a variety of options for spending a semester or a year studying abroad.
6. In addition, departments and working groups offer interesting, course-related excursions and visits to interesting companies.
7. Continuous cooperation and collaboration with companies also provides students with opportunities for practica and internships.



[mb.uni-paderborn.de](http://mb.uni-paderborn.de)



## CONTACT

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Current information about application and registration can be found at: [www.uni-paderborn.de/zv/3-3](http://www.uni-paderborn.de/zv/3-3)

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PADERBORN  
UNIVERSITY

## STUDY THE FUTURE IN PADERBORN



## BACHELOR AND MASTER

# MECHANICAL ENGINEERING

## PROGRAM DESCRIPTION

The required foundational modules provide a solid basis for the knowledge and methods needed for your chosen concentration. Typically they are completed over the course of the first four semesters and consist of modules such as:

- Basics of Natural Sciences
- Mathematics
- Engineering Mechanics
- Material Science
- Engineering Design
- Thermodynamics
- Engineering Applications
- Metrology and Electronics
- Programming
- Operational Management and Organization

In the subject concentrations in both the Bachelor and Master programs, you have a wide selection of subjects to choose from, in which you will then be able to both acquire increasingly detailed knowledge,

as well as have a chance to apply it. In addition to a number of individual options, we offer the following standard concentrations:

- Energy and Process Technology
- Vehicle Technology
- Production Technologies
- Polymer Technologies
- Lightweight Design and Hybrid Systems
- Mechatronics
- Product Development
- Material Properties and Simulation

Hands-on, practical projects and these allow students to apply and consolidate their knowledge. These include:

- Project seminars
- Lab experiments
- Bachelor's thesis
- Independent Study thesis/ research projekt
- Master's thesis



## IF IT'S MECHANICAL ENGINEERING ...

You're interested in new technologies? That's why you're considering or have already decided to study mechanical engineering? Mechanical engineering is one of the engineering disciplines and is concerned with the design and production of machines and mechanical systems. Typical examples that might occur to you could be a production line or something in the automotive industry. In reality, automation technology plays an important role in mechanical engineering as well; hence, mechanical engineering without knowledge of IT processes is almost impossible nowadays. The increasing lists of requirements that new machines have to fulfil are also becoming more and more complex. The result is a slate of new challenges and tasks for engineers.

## ...THEN IT'S THE FUTURE

With a degree in mechanical engineering, you have very good chances on the job market, especially in Germany – mechanical



and industrial engineering are the largest industrial employer fields in the country. Within this branch, and especially in the region around Paderborn, there are quite a few highly specialized “hidden champion” companies with up to 250 employees, but also many highly respected large-scale enterprises, for example in the automotive industry.

**Specialists with modern engineering training are always needed.**

Mechanical engineers excel at combining their scientific, academic and technological knowledge to create innovative solutions. They are creative integrators who are capable of cooperating across departments and companies. The study program at the UPB encourages and supports personal initiative, good communicative ability, and eagerness for success.

## WHAT QUALIFICATIONS DO YOU NEED?

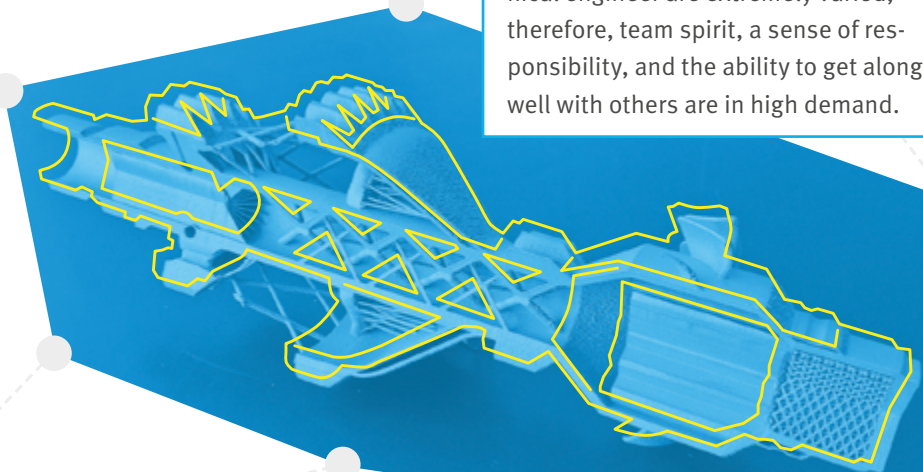
### REQUIREMENTS FOR ADMISSION

- a German general qualification for German universities (German: Abitur), or a subject-specific university qualification (fachgebundenen Hochschulreife) or
- a German qualification specifically for a university of applied sciences (Fachhochschulreife), together with certification of having completed the general education requirements of German, English (or another foreign language) and mathematics, as well as the subject-specific confirmation of suitability (fachliche Eignung) or

- a legally recognized equivalent qualification (for international certificates: please turn to the International Office at the University of Paderborn at [www.uni-paderborn.de/en/studium/international-office](http://www.uni-paderborn.de/en/studium/international-office)) or
- a professional certification which fulfils the corresponding university regulations

The **most important requirement** to successfully study mechanical engineering is an interest in scientific and technological topics.

The professional activities of a mechanical engineer are extremely varied; therefore, team spirit, a sense of responsibility, and the ability to get along well with others are in high demand.



## IT GOES LIKE THIS

### PRACTICUM/INTERNSHIP

Students are required to obtain at least 6 weeks of practical experience. We recommend that students complete this experience before beginning their studies if at all possible. If a student is not able to complete all 6 weeks before starting, he/she must do so in the first half of their bachelor's program. You can find more information on this in the “Practicum/Internship Regulations” (Praktikumsordnungen).

### BACHELOR'S DEGREE PROGRAM

This program is characterized by the appropriately named “Foundations of Application”. It typically lasts for 6 semesters.

**Duration: 6 semesters**  
**Start: Winter Semester**

### MASTER'S DEGREE PROGRAM

This program is research-oriented. It is designed to take 4 semesters and can be started after the completion of a bachelor's degree.

**Duration: 4 semesters**  
**Start: Winter or Summer Semester**

### DEGREES OFFERED

- Bachelor of Science (B.Sc.)
- Master of Science (M.Sc.)
- Doctorate (Dr.-Ing.)
- Habilitation (German post-doctorate degree)

## IN THAT CASE: PADERBORN

### PROFESSIONAL PROFILE

The Master's program can be chosen to build on the chosen concentration from the bachelor's program if the bachelor's program was completed with an educational/credentialing module. With this degree, students have an excellent prospect of gaining traction as either an educator at the vocational level or as a mechanical engineer.

### YOUR CHANCE

The Faculty for Mechanical Engineering conducts internationally recognized, cutting-edge research. The results from that research are then integrated directly back into academics. We will prepare you for challenging positions requiring personal responsibility.

### DIVERSE SPECIALIZATIONS

Based on the knowledge that you acquire in the first phase of your studies, you will be able to make an educated decision about which specialization you would like to pursue. Beyond that, you will also have a chance to become involved in institutes such as the Direct Manufacturing Research Center, the Heinz Nixdorf Institute, the

Center for Competence in Sustainable Energy Technology, or the UPBracing Team.

### YOU ARE GERMANY'S FUTURE!

You are carrying out research and hands-on learning in fields such as:

- Germany's “Industry 4.0”
- Energy Sector
- 3D printing
- Lightweight design

These are topics that will determine your – and Germany's – future in the coming decades.

### PADERBORN

Paderborn is located in Eastern Westphalia (Ostwestfalen). Here, at a distance from the hectic atmosphere of big cities, worldwide market leaders rub elbows with cutting-edge researchers. Well-established, forward-thinking, and innovative family business have their headquarters here. With the federally recognized cluster “Intelligent Technical Systems”, OWL has firmly established itself, both domestically and internationally, as one of the top regions in Germany.