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# Civil Engineering

**Bauingenieurwesen**

**Baustoffingenieurwissenschaft**

**Digital Engineering**

**Management [Bau Immobilien Infrastruktur]**

**Natural Hazards and Risks in Structural Engineering**

**Umweltingenieurwissenschaften**

## **Bauhaus-Universität Weimar**

Architecture and Urbanism, Civil Engineering, Art and Design, and Media – the Bauhaus-Universität Weimar's four faculties give it a profile that is unique in Germany. We shape the future, transcending the boundaries of individual disciplines. The term ›Bauhaus‹ stands for openness, creativity and a drive to experiment. This self-image shines through in research, art and teaching as well as in 200 collaborations with partner universities all over the world. Its story began in 1860 as the Grand Ducal Art School.

### **Studying at the place where Bauhaus was born**

In 1919, what is now the university's Main Building was the birthplace of the Staatliches Bauhaus, the most influential design school of the 20th century. Prominent figures from a variety of disciplines and countries revolutionised education together with their students.

The Bauhaus-Universität Weimar has been building on this history in its name since 1996. It is an international university, very at home in the cultural city of Weimar. Inspired by this great role model, more than 4,000 students across 40 degree programmes and courses of study use modern methods to find answers to the central questions of society, technology, science, and art and culture.

## Welcome to the Faculty of Civil Engineering

Founded in 1954, the Faculty of Civil Engineering currently covers the fields of science, computer science, mechanics, construction, materials, environment, and management. In addition to traditional and modern engineering methods, the Faculty also draws from neighbouring academic disciplines such as law, economics, and social sciences. This allows it to take responsibility for the entire life cycle of the man-made environment and its further development.

- > 3 Bachelor's degree programmes
- > 6 Master's degree programmes
- > 2 of which are taught in English
- > 5 Professional Master's degree programmes
- > 6 Institutes
- > 22 Professorships
- > 1 Junior professorships
- > 60 Partner schools worldwide
- > 1000 Students on average
- > 35 percent International students
- > 50 Countries
- > 171 Doctoral Students

Challenges such as demographic change, the need to conserve resources, the energy revolution, and advancing digitalisation and globalisation in the construction sector shape and mould this complex professional profile. Further education and training in the field of civil engineering is extremely challenging and complex. With its three Bachelor's and five advanced Master's degree programmes, the faculty takes an interdisciplinary and international approach. The aim is to offer modern knowledge of engineering system solutions that are relevant to society.

One of the key tasks of the faculty is fundamental, application-oriented research and its incorporation into high-quality teaching. This primarily focusses on new future-oriented technologies and resource-friendly design of man-made environments. There are four key specialisations: digital engineering, management, material and construction, and environment and resources. The focus is on experimental project work done in close collaboration with partners from industry and research.

The Faculty of Civil Engineering's research and teaching institutions are based in two locations: Coudraystraße is home to mathematics, science, computer science, material, and the environment, as well as most of the laboratories. The fields of construction, mechanics, management, the Earthquake Damage Analysis Centre (EDAC), the majority of the lecture halls, seminar rooms, PC pools and administration can be found on Marienstraße.

## Overview of degree programmes

Are you interested in science and technology and unafraid of figures and technical equipment? Do you enjoy supporting buildings throughout their entire lifetime and service life and getting involved in planning, construction, funding, maintenance and operations? Are you interested in interdisciplinary approaches and want to gain a holistic understanding of complex buildings? Then come to Weimar!

Bauingenieurwesen — Bachelor of Science

Bauingenieurwesen – Konstruktiver Ingenieurbau — Master of Science

Management [Bau Immobilien Infrastruktur] — Bachelor of Science, Master of Science

Umweltingenieurwissenschaften — Bachelor of Science, Master of Science

Baustoffingenieurwissenschaft — Master of Science

Digital Engineering — Master of Science, English-language

Natural Hazards and Risks in Structural Engineering — Master of Science, English-language

## **Professional studies and further academic training**

Bauphysik und energetische Gebäudeoptimierung — Master of Science

Wasser und Umwelt — Master of Science

Methoden & Materialien zur nutzerorientierten Bausanierung — Master of Science

Projektmanagement [Bau] — Master of Business Administration (M.B.A.)

Umweltingenieurwissenschaften — Master of Science

## **Our degree programmes**

### **Bauingenieurwesen (Civil Engineering)**

#### **Bachelor of Science, Master of Science**

Buildings, bridges, tunnels and streets, sewage treatment plants, dams, airports and sports facilities – the world we live in is shaped and moulded for future generations by civil engineers whether through modern buildings and support structures, resource-friendly high-tech construction materials, new energetic restoration methods or digital structural monitoring.

The study programme in civil engineering explores how buildings and Infrastructure facilities are correctly planned, technically implemented, and maintained permanently. Building on mathematical and scientific principles, the Bachelor's degree programme initially teaches subject-specific skills and methodologies in mathematics, computer science, chemistry, physics, structural design, geodesy, mechanics, statics, materials science, steel construction, timber and masonry construction, building construction, and business administration. After completing your basic studies (or: undergraduate studies) you can specialise your skills, depending on your interests, in a Master's degree programme in ›Konstruktiver Ingenieurbau‹ (Civil Engineering) or ›Baustoffingenieurwissenschaft‹ (Building Material Engineering).

The intensely supervised, research-oriented Master's degree programme ›Bauingenieurwesen–Konstruktiver Ingenieurbau‹ enables you specialize professionally and gain expert knowledge in one of the four areas of ›building and industrial construction‹, ›bridge construction‹, ›civil engineering‹ or ›archineering‹.

This content is taught via lectures, tutorials and projects. The aim is to take a practical, integral, and interdisciplinary approach to buildings and structural installations during their life cycle. Excursions and guest lecturers offer insight into professional practice.

### **Management [Bau Immobilien Infrastruktur]**

#### **Management [Construction Real Estate Infrastructure] Bachelor of Science, Master of Science**

The life cycle of building, real estate and infrastructure projects covers multiple phases: project development and funding, planning, implementation, operation, demolition and repurposing. Each of these phases involves various experts who work worldwide and are connected via cutting-edge software solutions. This enables the planning processes, timing, and costs to all be optimised. Issues relating to management, financial policy and contract administration are also becoming increasingly prominent. Therefore, more and more interdisciplinary trained generalists are needed who understand the way of thinking and the language of the different participants, who can coordinate their contributions and mediate between them.

The study programme ›Management [Bau Immobilien Infrastruktur]‹ offers targeted preparation for the many challenges of planning, funding, building, operating, and maintaining buildings and infrastructure facilities: our graduates have specific skills in the fields of architecture, engineering, and economics as well as relevant legal knowledge. Students are also provided with social skills for personal development, such as negotiation, target-oriented presentation and methodological knowledge in the field of digitalisation (building information modelling). In the Master's degree programme students can choose their own specialisations and select modules that suit their interests from the fields of construction management, real estate management and infrastructure management.

Lectures (some of which are in English) and a stay abroad integrated into the Master's course ensure that students are versatile and can work on an international stage.

## **Umweltingenieurwissenschaften (Environmental Engineering) Bachelor of Science, Master of Science**

The global population is growing and more and more people are moving to cities. The result is an increased volume of traffic, growing mountains of rubbish and huge energy and water requirements. Would you like to take responsibility and find innovative solutions for the comprehensive problems in the fields of energy, transport, water and waste?

In the study programme ›Umweltingenieurwissenschaften‹, engineers are trained to actively tackle the future issues of environmental responsibility, resource conservation, mobility and climate change, and shape them in a sustainable, socially responsible way. The course is aimed at people with a passion for global thinking and action, who are interested in science and technology and who want to understand the complex interplay between technology and the environment.

In the Bachelor's degree programme, students are taught engineering-based and specialist principles in the fields of mathematics, environmental chemistry, physics, and technical mechanics as well as microbiology for engineers, thermodynamics, mobility, climate science and meteorology. Building on this, students then deepen their knowledge of waste, resources, energy, drinking water, waste water, traffic and mobility planning, construction, and operations. In the Master's programme students establish specialist knowledge in the areas of Waste Management, Urban Water Management or Transportation Engineering.

Alternatively, from the fifth bachelor's semester onwards, you can specialise in ›Building materials and renovation‹ and qualify for the Master's degree course in ›Building Material Engineering‹. In addition to the selection of suitable construction materials and the opportunities of construction material recycling, this also focuses on handling structural damage during restoration and renovation work.

This content is taught via lectures, tutorials and projects. Excursions and guest lecturers offer insight into professional practice.

## **Baustoffingenieurwissenschaft (Building Material Engineering) Master of Science**

The increasing requirements of new construction, renovation, environmental conservation, recycling and using residual materials requires specialists to develop, test, and implement tailored solutions for building materials. For civil engineers, this means thinking beyond their traditional discipline and gaining expert knowledge from the field of material science.

The Master's degree course ›Building Materials Engineering‹, which is unique in Germany, provides you with the relevant know-how: the focus is on the holistic examination of the nature, production and application of building materials such as concrete, plaster, wood or plastics.

Both engineering and natural science oriented contents are taught: Starting with the basics of general materials science, the characterisation of building materials, the interaction between structure and properties of building and materials, the diagnosis of structural damage and the possibilities of repair and restoration. Furthermore, you will deal with raw material resources and building material recycling.

The lectures are supplemented by exercises and project work, in which skills in the use of testing and analysis procedures are taught. Excursions and guest lectures round off the course. You will work on scientific and practice-oriented questions in seminar papers and theses.



## **Digital Engineering Master of Science**

Digitization is advancing in all industrial sectors: from the planning phase, through design and production, to operation and monitoring, virtual product and process models are being networked with each other to increase product quality and optimize processes. Due to the revolution of the so-called ›Industry 4.0‹, the demand for well-trained specialists working at the interface between computer science and engineering science is growing.

The English-taught Master's degree programme ›Digital Engineering‹ prepares you flexibly and interdisciplinary to meet the challenges of tomorrow. The course is aimed at graduates who have obtained a first professionally qualifying university degree, such as a bachelor's degree, in the field of civil engineering, mechanical engineering or applied computer science and would like to expand their specialist knowledge in the respective other discipline. Depending on your previous knowledge, we will develop an individual module plan for you, which is either more engineering or computer science-based. You will then deepen your specialist knowledge in the areas of modeling, simulation and visualization of engineering problems. In addition, we will teach you information theory methods for data generation and processing. Within each area you have the opportunity to set individual priorities.

The teaching provided is supplemented by a research project, which may be done in conjunction with practical partners, and by elective modules from the Faculties of Media and Civil Engineering or the Language Centre at Bauhaus-Universität Weimar.

## **Natural Hazards and Risks in Structural Engineering Master of Science**

Worldwide, natural hazards such as earthquakes, floods and windstorms cause losses running into billions. At the same time, the probability of severe weather events is increasing further as a result of climate change. The English-taught Master's programme ›Natural Hazards and Risks in Structural Engineering‹ (NHRE) addresses these challenges: Students are trained to perform demanding engineering tasks under specific external influences, such as earthquakes. For this purpose, we provide you with modern tools to assess hazards from natural events, enable you to model and simulate and prepare you to carry out concrete risk analyses. Thus, the master's degree program offers engineers key qualifications to be innovative and pioneering in the fields of various natural hazards.

The focus of the Master's degree programme is on earthquake engineering and structural design, geotechnics and flood damage prediction, finite element methods and structural dynamics, non-linear analysis of structures under extreme loads, stochastics and risk assessment as well as disaster management and mitigation strategies.

The German Academic Exchange Service (DAAD) awards seven scholarships per year to admitted applicants within the framework of the programme ›Postgraduate Studies for Professionals with Relevance to Developing Countries‹.

## Admission and applications

You would like to study at the Faculty of Civil Engineering? Interest in buildings, infrastructure and the environment is an essential prerequisite for pleasure and success in your studies. Furthermore, you should have solid previous knowledge in the natural sciences.

Our Bachelor's degree programmes are admission-free, i.e. you can apply here within the specified period via the online application portal of the Bauhaus-Universität Weimar and enrol immediately. Whether you meet the formal and subject-specific requirements for a Master's degree programme at the Faculty of Civil Engineering will be determined by the examination board on the basis of the application documents you submit.

The respective application and admission modalities as well as deadlines for the individual study programmes can be found on our website [www.uni-weimar.de/studium](http://www.uni-weimar.de/studium)

## Prospects after graduation

The modern building industry is characterised by a wide range of tasks and subject areas. Qualified specialists are desperately sought after, as demand is still greater than supply. The aim of our university studies is to provide engineers with a solid basic knowledge as well as application-ready skills and abilities in order to prepare them for current and future challenges in the planning and maintenance of buildings and structural facilities.

Our graduates find jobs in various fields such as planning offices in structural, civil, transport and hydraulic engineering, in companies in the mechanical and plant engineering sector, in the field of building renovation and building maintenance, in planning offices in environmental technology, in the energy and water industry, in expert offices as well as in companies in the housing industry and in state and municipal administrations.

Through the increased promotion of theoretical-scientific skills, the study programme also represents a systematic preparation for later research activities. A successful, above-average degree from the Master's degree programme is the prerequisite for taking up a doctorate.

**Tip** The Bauhaus-Universität Weimar Career Services can answer any questions you may have about starting your career. [uni-weimar.de/careerservice](http://uni-weimar.de/careerservice)

## Available degrees

### Bachelor of Science (B. Sc.)

The Bachelor's programme is the entry point for academic education. Students learn the fundamentals of a particular subject during a standard duration of six semesters. Afterwards, students can expand their knowledge by doing a Master's degree or heading straight into the professional world.

### Master of Science (M. Sc.)

A Master's programme builds on the skills learned during the Bachelor's degree and is an advanced higher education degree. Students can expand their expertise and explore new approaches within a standard duration of four semesters. Successful completion of a Master's programme prepares you for various professional activities or an academic career (Ph.D.).

### Ph. D. (Dr.-Ing./Dr. rer. nat.)

A Ph.D. allows you to continue your academic training after a Master's programme. To be awarded the title of Doctor, you must complete a Ph.D. thesis and an oral examination (defence). The Faculty of Civil Engineering awards the following academic titles: Doktor-Ingenieur (Dr.-Ing.) or Doctor rerum naturalium (Dr. rer. nat.).



## Reasons to study in Weimar

### Bauhaus family

In Weimar, you are more than just a matriculation number. Professors supervise an average of just 46 students. This makes the Bauhaus-Universität Weimar a leader on the national level. These ideal study conditions are also reflected in the university's CHE ranking: the Faculty of Civil Engineering regularly achieves top scores in the ›student supervision‹ and ›study support‹ categories.

### The place to be

The university campus is located in the heart of Weimar. Surrounded by parks and green spaces you will find university buildings, the dining hall, the examination office and the Federal Education and Trainings Assistance Act for University Students office, as well as numerous cafés and unique design stores just a few minutes' walk away. And there is always enough time for a game of foosball in the ›M18‹ student centre, or a power nap in the nearby student accommodation. And if the fancy takes you, the larger cities of Jena and Erfurt are just a 15-minute train ride away. The ›thoska‹ student card offers you numerous discounts and free access to local public transport.

### Theory meets practice

Teaching focusses on a project-based course of study and a practical, interdisciplinary, holistic examination of a particular issue. Group projects and labs as well as technical internships enable students to independently acquire methodological knowledge. In addition, the faculty regularly organises guest lectures and excursions to visit practical partners such as Max Bögl or Deutsche Bahn. You can also take advantage of our contacts for internships, job vacancies, or final project supervision.

### Up to date

Intelligent bridges, low-CO2 concrete, or trains using hydrogen propulsion – these are just a few of the futuristic topics currently being researched in the Faculty of Civil Engineering. On a national scale, the Bauhaus-Universität Weimar is fourth in the current ranking of German research establishments. The latest methodologies and findings, such as digital planning methods, construction, and building operation and maintenance are incorporated directly into teaching activities.

### International networking

At more than 30 percent, the proportion of international students at the Bauhaus-Universität Weimar is higher than average. In the Faculty of Civil Engineering, the most popular offerings are the English-taught courses in ›Natural Hazards and Risks in Structural Engineering‹ and ›Digital Engineering‹ as well as the annual Bauhaus Summer School. Those interested in gaining experience abroad can choose from more than 200 partner universities worldwide. The university's Language Centre offers preparatory courses.

### Solid future prospects

Whether undertaking a Master's degree programme or moving directly into the world of work, we know from experience that our faculty's graduates have excellent professional prospects. Civil engineers take an average of 1.1 months to find a job after completing a Bachelor's degree. Around 60 percent are hired for a permanent position (results of 2018 graduate survey). The starting salary is approximately €42,000 gross per year.

## Visit opportunities for prospective students

What will studying be like for you? What is everyday life like at the university? Where do students spend their free time? Our individual orientation events are an ideal opportunity to explore the campus and city. Test yourself in workshops, see our laboratories and get advice from students or teachers.

### Campus Thüringen Tour

One bust, seven days, eight cities: orientation trip for school students in years 10 to 13 to all Thuringia universities offering MINT degree programmes. **Registration:** [thueko.de/ctt](http://thueko.de/ctt)

### Girls' Day

National action day for female students interested in technology. The Bauhaus-Universität Weimar participates every year. **Registration:** [girls-day.de](http://girls-day.de)

### Laboratory tour

We offer school classes the opportunity to join individual workshops and tours of our laboratories. For enquiries, please contact [studium@uni-weimar.de](mailto:studium@uni-weimar.de)

### MINT experimentation tour

Twelve exciting experiments from the fields of computer science in media and civil engineering (year 10 and above). Enquiries: [uni-weimar.de/mint-parcours](http://uni-weimar.de/mint-parcours)

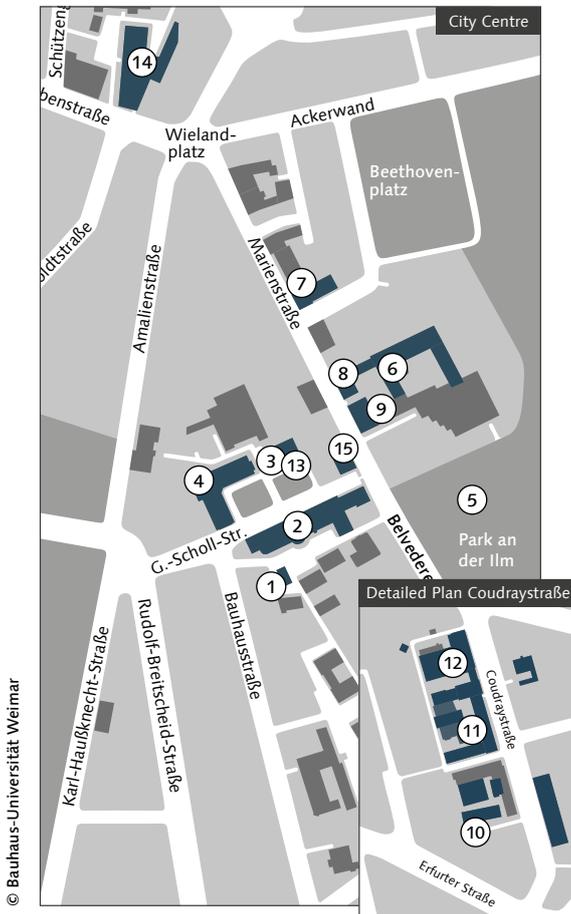
### Info hotline for beginning studies

Students from the faculty of Civil Engineering answer questions about studies and applications, every year from August to October. phone +49 (0)3643/58 44 51, e-mail [studienstart@bauing.uni-weimar.de](mailto:studienstart@bauing.uni-weimar.de)



## University Town of Weimar

Despite its small size and story book charm, Weimar is not just a sleepy provincial nest. Whether you are looking for art and culture, a thriving food scene, or exciting night life – Weimar has more to offer than just Goethe, Schiller, and the Bauhaus. All this and more can be found in Weimar's city centre, where nothing is more than a ten-minute walk away. The more than 20 museums, four cinemas, the German National Theatre, numerous cabaret stages, in addition to students clubs and concert venues speak for themselves.



### General

- 1 Bauhaus.Atelier | Info Shop Café  
Geschwister-Scholl-Straße 6 a
  - 2 Main Building\*  
Geschwister-Scholl-Straße 8
  - 3 Campus.Office  
Geschwister-Scholl-Straße 15
  - 4 Van de Velde Building\*  
Geschwister-Scholl-Straße 7
  - 5 Ilm Park\*
- \* UNESCO World Heritage Site

### Faculty Buildings

- 6 Dean's Office, Lecture Hall  
Marienstraße 13
- 7 BuiltEnvironment-Management-Institute (B-M-I), Marienstraße 7
- 8 Institute of Structural Engineering (IKI), Marienstraße 13
- 9 Institute for Structural Mechanics (ISM) Marienstraße 15
- 10 Bauhaus-Institute for Infrastructure Solutions (b.is) Coudraystraße 7
- 11 F. A. Finger Institute for Building Material Engineering (FIB), Coudraystraße 11
- 12 Institute of Construction Informatics, Applied Mathematics and Building Physics (IBMB), Coudraystraße 13

### Central University Faculties (selection)

- 13 General Advising, Career Service  
Geschwister-Scholl-Straße 15
- 14 University Library (UB),  
Audimax, Steubenstraße 6
- 15 Students House M18  
Marienstraße 18

## EINBLICK.Bauhaus

### Orientation evening for prospective students and their parents

Learn all about course offerings, housing and financial options, and other important factors right on site.

[uni-weimar.de/orientierungsabend](http://uni-weimar.de/orientierungsabend)

### Hochschulinformationstag (Open Campus Day) for Bachelor and Master study programmes

Learn about our university, its workshops, lecture halls, and labs. Get answers to your questions about individual study programmes, study organization, and the social aspects of studying here.

Early March: [uni-weimar.de/hit](http://uni-weimar.de/hit)

### summaery – The annual exhibition at the Bauhaus-Universität Weimar

Our annual exhibition shows off student projects and transforms the city of Weimar into a living stage for four days.

Second weekend in July: [uni-weimar.de/summaery](http://uni-weimar.de/summaery)

### **Schnupperstudium (Course Sampler) – Test out studying**

How do things work at the university? What can I study? How much does it cost? Where can I live? There are so many questions at the beginning. Our recommendation? Come and sample it! [uni-weimar.de/schnupperstudium](http://uni-weimar.de/schnupperstudium)

### **In.Sight Master**

Try out the Master's programme. Experience our »In.Sight Master« programme and see what student and campus life are really like. Discover the topics hidden behind course titles.

Mid May: [uni-weimar.de/insightmaster](http://uni-weimar.de/insightmaster)

### **Bauhaus.Botschafter**

Students from various disciplines provide answers to questions about their own study programmes, offer guided tours, workshops, and publish news about studying in Weimar via Facebook and blogspot.

[bauhausbotschafter.com](http://bauhausbotschafter.com)

## **Contact and General Academic Advising**

### **General Academic Advising**

#### **Christian Eckert**

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### **Information and Office Hours**

[www.uni-weimar.de/studienberatung](http://www.uni-weimar.de/studienberatung)

### **Students present their work**

[www.uni-weimar.de/experiment-bauhaus](http://www.uni-weimar.de/experiment-bauhaus)

Bauhaus-Universität Weimar

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