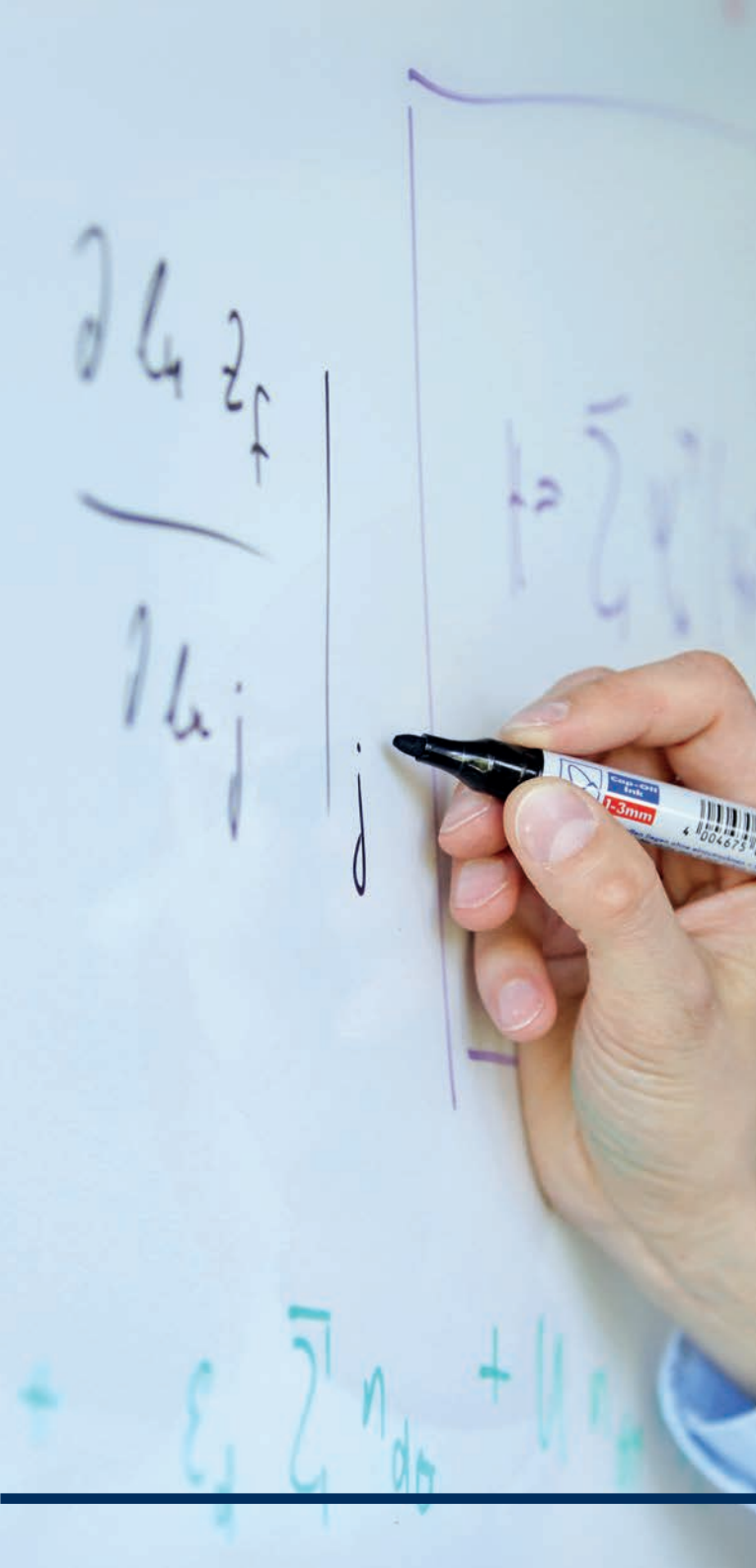




TECHNISCHE
UNIVERSITÄT
DRESDEN

TU DRESDEN AN OVERVIEW





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Welcome to Technische Universität Dresden –
one of eleven “Universities of Excellence” in Germany!

Here at TU Dresden – as we say for short – you will experience a unique combination of excellent research and teaching, in a city, that is renowned throughout the country for outstanding partnerships between science and culture. As a “Synergetic University”, TU Dresden is characterised by cooperation – between the various disciplines at the university itself, and with numerous non-university research facilities in Dresden.

It is this “Dresden spirit”, paired with the highest level of expertise, which makes TU Dresden a sought-after partner for industry and other educational institutions. TU Dresden has already been successful in the first round of the German government’s “Excellence Initiative” to promote cutting-edge university research, securing the funding for a Graduate College and a Cluster of Excellence in the field of biomedicine and bioengineering. In the second round, this success was not merely repeated, but indeed exceeded, with confirmation for a further Cluster of Excellence in microelectronics as well as the Institutional Strategy.

TU Dresden has thus established itself as an excellent full-spectrum university, with a broad subject base and nationally and internationally acknowledged research competence. Please allow me to take you on a journey of discovery around the university!

A handwritten signature in blue ink, appearing to read 'H. Müller-Steinhagen', with a stylized flourish at the end.

Prof. Dr.-Ing. habil. DEng/Auckland
Dr. h.c./Brno Hans Müller-Steinhagen
Rector of TU Dresden





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Technische Universität Dresden is one of the most tradition-steeped and dynamic universities in Germany. Indeed, it has been of eleven “Universities of Excellence” in Germany since 2012.

TU Dresden's long-standing reputation as a “technical” university is already reflected in its name. But the emphasis embodied in this name is at the same time something of an understatement because TU Dresden has long since evolved into a full-curriculum university with 14 faculties organised into five schools. The second-largest field after the engineering sciences, which account for some 48 per cent of the students, is that of the humanities and social sciences with around 33 per cent, followed by the natural sciences (12 per cent) and medicine (7 per cent). The 36,000 students at TU Dresden are able to choose from more than 120 courses covering the full spectrum of scientific disciplines. In addition to its bachelor and master degree programmes, TU Dresden is one of the few universities in Germany which still offer modularised studies leading to a Diplom degree. International dual degrees are also offered in selected disciplines. A complete overview of the available courses can be found in the online Study Information System at <http://tu-dresden.de/sins>.

Furthermore, TU Dresden is among the small group of German universities, which has implemented quality management systems to evaluate their teaching and study opportunities and to provide accreditation for the study programmes offered. Commitment to this system of accreditation underlines TU Dresden's passion not only for excellence in research, but also for excellence in teaching.

Driven by the goal of belonging to the international elite in the academic world, TU Dresden continues to pursue purposeful developments. A significant milestone was attained in 2012 when it was granted the status of a “University of Excellence”. Within the framework of the so-called “Excellence Initiative” launched by the federal and state governments, special funding is acquired not only for the future-oriented concept of “The Synergetic University”, but also for the work of two Clusters of Excellence – namely the Center for Advancing Electronics Dresden (cfaed) and the Center for Regenerative Therapies Dresden (CRTD) – and the Dresden International Graduate School for Biomedicine and Bio-engineering (DIGS-BB).

Interdisciplinary and multifaceted

If you seek diversity, then TU Dresden is the place to be. True to the motto of TU Dresden: „Wissen schafft Brücken” – “Knowledge builds bridges”, interdisciplinarity and transdisciplinarity are the daily routine, and cooperations with extramural scientific and cultural institutions are common practice.

It is the declared objective of TU Dresden to provide an excellent academic home to up-and-coming scientists from both Germany and abroad. Implementation of this plan is dependent on the fulfilment of three prerequisites: excellent research, excellent teaching, and excellent framework conditions for said research and teaching. With the backing of federal and state funding amounting to around 60 million Euros, the individual measures of the “Institutional Strategy” are all geared towards bringing the university closer to this ambitious aim, and to drawing the world's leading scientists, staff and students to TU Dresden.

The performance capabilities of any institution are reliant on the people involved. Accordingly, the Excellence Strategy of TU Dresden revolves around one unambiguous focus: the people who work, teach, study and conduct research here. The innovative and open application process for new professorship appointments, visiting scientist programmes, the graduate academy, new teams to promote and coordinate the acquisition of external funding, transfer of knowledge and synergy developments, organisation of the 14 faculties into five overarching schools, and a plethora of projects to improve structures and working procedures – all serve one goal: to support, strengthen and spread the reputation of TU Dresden as an exceptionally attractive university throughout Germany and the world.

International and cosmopolitan

For TU Dresden, international cooperation is an essential component of its self-image. Some 45,000 scientists and students representing 125 different nationalities are all members of the closely-knit campus family. In fact, the excellence status of TU Dresden would be inconceivable without its international students and staff. This development is being encouraged, and a dedicated strategy is pursued to promote internationalisation within the framework of the Excellence Initiative.

Theory meets practice

Like a magnet, TU Dresden attracts eminent institutes and global industry players to the city. The Max Planck Institutes, the Fraunhofer Gesellschaft and the Leibniz and Helmholtz Associations all maintain intensive contact to researchers at the university. Their joint excellence is bundled in the research alliance

“DRESDEN-concept”, which was founded in 2009 and, by bringing together not only the aforementioned scientific institutions, but also the city’s museums, acts as a motor for cooperative research and shared utilisation of the scientific infrastructure. Industry partners such as Siemens, SAP, Infineon, Globalfoundries or Thyssen-Krupp offer students opportunities to write dissertations in their companies or to gather professional work experience. In addition, numerous companies have sponsored endowed chairs at the university. Networking among the countless contributors to research activities at and around the university is promoted and supported through a specifically mandated Transfer Office.

Innovation out of tradition

TU Dresden can look back over more than 185 years of science history. Ambitious goals and the courage to venture on new paths were characteristic from the outset. Its founding fathers already aspired to transform visions into reality. It is hardly a coincidence that the world’s first single lens reflex camera and the first steam locomotive in Germany were designed and built here. It is this same atmosphere of intellectual creativity which makes TU Dresden so attractive, and not only for research: In 2003, TU Dresden was also one of the first major German universities to introduce a comprehensive eco-audit, a system to evaluate and improve environmental protection in its day-to-day activities. The university’s academic potential, which is immediately evident from the first direct contact, is also confirmed in the most varied rankings. Dresden graduates are highly sought-after by employers.



Dresden – city of culture

“Florence on the Elbe”, as Dresden is popularly known, offers an abundance of cultural highlights. The Semper Opera House, the Baroque Zwinger palace and the Frauenkirche church are internationally renowned. The art masterpieces in the city's museums are equally priceless; visitors flock to Dresden to admire Raphael's “Sistine Madonna” and the exhibitions of the Green Vault, the

treasure collections of the Saxon electors. The lively modern scene comprises experimental theatres, art-house cinemas and a variety of galleries for contemporary art. And for all those interested in nightlife, the hip district Dresden-Neustadt awaits visitors with over 200 bars, clubs and restaurants. But simply experience it all for yourself - you are always welcome at TU Dresden.

Schools and Faculties



Even greater autonomy, synergy benefits, interdisciplinarity, strategic opportunity: Guided by this vision, the 18 faculties of TU Dresden have been reorganising into five schools. Following the principle of subsidiarity, the objective is to uphold academic plurality while at the same time exploiting synergetic advantages in research, teaching and administration. The restructuring is to be accomplished in three phases: The first step, taken in May 2012, was to define the five schools to

bracket the respective faculties. During the subsequent second phase, new administration units are to be established to represent the five schools, and will be invested with functions and competencies previously held by the faculties or by departments of the central university administration. Upon successful implementation, the third and final phase will see the remaining faculty responsibilities transferred to the schools.

School of Science

<https://tu-dresden.de/mn>

Department of Biology

<https://tu-dresden.de/mn/biologie>

Botany, Genetics, Microbiology, Zoology, Molecular Biotechnology

Department of Chemistry and Food Chemistry

<https://tu-dresden.de/mn/chemie>

Inorganic Chemistry, Biochemistry, Food Chemistry, Macromolecular Chemistry, Organic Chemistry, Physical Chemistry and Electrochemistry, Analytic Chemistry

Department of Mathematics

<https://tu-dresden.de/mn/math>

Algebra, Analysis, Geometry, Mathematical Stochastics, Numerical Mathematics, Scientific Computing, Didactics of Mathematics

Department of Physics

<https://tu-dresden.de/mn/physik>

Applied Solid-State Physics and Photonics, Electronic Properties of Solids, Structure of Condensed Matter, Nuclear and Particle Physics, Theoretical Physics, Didactics of Physics, Organic and Molecular Electronics, Soft Condensed Matter and Biophysics

Department of Psychology

<https://tu-dresden.de/mn/psychologie>

Institute I: General Psychology, Biopsychology and Methods of Psychology

Institute II: Clinical Psychology and Psychotherapy

Institute III: Work, Organisational and Social Psychology

Institute IV: Educational and Developmental Psychology

School of Humanities and Social Sciences

Faculty of Education

<https://tu-dresden.de/ew>

Institute of Education, Institute for Vocational Education, Institute of Social Education, Social Work and Community Welfare

Faculty of Law

<https://tu-dresden.de/jura>

Foreign and International Harmonisation of Law, European History of Law, Theory and Social Foundations of Criminal Law, Constitutional Law, International Law, European Law, UNESCO Chair in International Relations, Labour Law, Technology and Environment Law, Energy Law, Cartel Law, Telecommunications Law, Intellectual Property, Competition and Media Law, Taxation and Business Law, German-Italian Institute for Comparative Law Studies

Faculty of Arts, Humanities and Social Science

<https://tu-dresden.de/phil>

Philosophy, History, Art History, Musicology, Political Science, Protestant Theology, Catholic Theology (all including teaching qualification), as well as Sociology and Media and Communication.

Faculty of Linguistics, Literature and Cultural Studies

<https://tu-dresden.de/slk>

English and American Studies, German Studies (incl. German as a Foreign Language), Classical Philology, Romance Studies (French, Spanish, Italian), Slavic Studies (Russian, Polish, Czech)

School of Engineering Sciences

Faculty of Electrical and Computer Engineering

<https://tu-dresden.de/et>

Acoustics and Speech Communication, Electronic Packaging Technology, Automation, Biomedical Engineering, Electrical Power Systems and High Voltage Engineering, Electrical Machines and Drives, Electromechanical and Electronic Design, Solid-State Electronics, Semiconductor and Microsystems Technology, Power Electronics, Measurement and Sensor Systems, Communication Technology, Control Theory, Circuit Design, Electromagnetic Theory and Compatibility

Faculty of Computer Science

<https://tu-dresden.de/inf>

Applied Computer Science, Artificial Intelligence, Software and Multimedia Technology, Systems Architecture, Computer Engineering, Theoretical Computer Science

Faculty of Mechanical Science and Engineering

<https://tu-dresden.de/mw>

Aerospace Engineering, Fluid Mechanics, Fluid Power, Lightweight Engineering and Polymer Technology, Machine Elements and Machine Design, Machine Tools and Control Engineering, Manufacturing Science and Engineering, Material Handling and Industrial Engineering, Materials Science, Natural Materials Technology, Power Engineering, Process Engineering and Environmental Technology, Solid Mechanics, Textile Machinery and High Performance Material Technology, Centre for Energy Technology, Centre for Integrated Natural Materials Technology, Max Bergmann Centre of Biomaterials Dresden, Centre for Production Engineering and Controlling, Competence Centre for Technical Textiles, Centre of Virtual Mechanical Engineering

School of Civil and Environmental Engineering

Faculty of Architecture

<https://tu-dresden.de/arch>

Architectural History, Theory of Architecture and Monument Preservation, Theories of Design and Presentation, Building Climatology, Building and Design, Urban Design, Landscape Architecture, Structural Design, Building Construction and Design, Construction Economics and Computer-Assisted Design

Faculty of Civil Engineering

<https://tu-dresden.de/bau>

Construction Management, Construction Informatics, Construction, Construction Materials, Geotechnology, Concrete Structures, Mechanics and Shell Structures, Urban Engineering and Road Construction, Steel and Timber Construction, Structural Analysis, Hydraulic Engineering and Technical Hydromechanics

Faculty of Environmental Sciences

<https://tu-dresden.de/uw>

Department of Forest Sciences

Biodiversity and Nature Protection, Soil Science and Site Ecology, Forest Botany and Zoology, Forest Utilisation and Forest Technology, Forest Economics and Forest Management Planning, Wood and Plant Chemistry, Tropical Forestry, Forest Growth and Forest Informatics, Silviculture and Forest Protection

Department of Geosciences

Geodesy, Geography, Geoinformatics, Cartography, Photogrammetry and Remote Sensing, Planetary Geodesy

Department of Hydrosociences

Waste Management and Circular Economy, Groundwater Management, Hydrobiology, Hydrology and Meteorology, Urban Water Management, Water Chemistry

“Friedrich List” Faculty of Transport and Traffic Sciences

<https://tu-dresden.de/vkw>

Dresden Institute of Automobile Engineering, Railway Vehicles and Railway Technology, Railway Systems and Public Transport, Logistics and Aviation, Transport Planning and Road Traffic, Traffic Telematics, Transport and Economics

Faculty of Business and Economics

<https://tu-dresden.de/wiwi>

Chairs in Business Administration, Chairs in Economics, Chairs in Business Informatics

Medical School

Faculty of Medicine Carl Gustav Carus

<https://tu-dresden.de/med>

Anatomy, Occupational and Social Medicine, Health Sciences, History of Medicine, Immunology, Clinical Genetics, Clinical Pharmacology, Medical Informatics and Biometry, Medical Microbiology and Hygiene, Pharmacology and Toxicology, Physiology, Physiological Chemistry, Forensic Medicine, Virology, Molecular Diabetology, Medical Physics, Tissue Engineering, Medical Systems Biology, Cellular Imaging, CrispR/Cas9 Facility, Structural Cell Biology, OncoRay – National Center for Radiation Research in Oncology, DFG Research Centre for Regenerative Therapies Dresden – Excellence Cluster of TU Dresden

Dresden University Stroke Centre – DUSC, University Allergy Centre – UAC, University Cancer Centre – UCC, Gynaecological Cancer Centre at the University Cancer Centre, Skin Tumour Centre at the University Cancer Centre, Visceral Oncology Centre at the University Can-

cer Centre, Regional Breast Centre at the University Cancer Centre – RBZ, Centre for Familial Breast and Ovarian Cancer, Prostate Car-

cinoma Centre at the University Cancer Centre, University Pain Centre – USC, University Vascular Centre – UGC, University Centre for Evidence-Based Health Care, University Centre for Orthopaedics and Trauma Surgery, Centre for Translational Bone, Joint and Soft Tissue Research, University Palliative Care Centre – UPC, University Mucoviscidosis Centre – UMC, University Centre for Plastic Surgery – UPÄC, University Physiotherapy Centre, University Centre for Rare Diseases – USE, University Proton Therapy Facility, University Centre for Healthy Aging

Ear, Nose and Throat Medicine, Saxon Cochlear Implant Centre Dresden (SCIC), Phoniatics and Audiology, Dermatology, Ophthalmology, Radiation Therapy and Radio Oncology, Nuclear Medicine, Neurology, Centre for Internal Medicine, Visceral, Thorax and Vascular Surgery, Surgery Research, Neurosurgery, Urology, Anaesthesiology and Intensive Therapy, Gynaecology and Obstetrics, Paediatric and Juvenile Medicine, Neuropaediatrics, Paediatric Surgery, Psychiatry and Psychotherapy, Child and Youth Psychiatry and Psychotherapy, Psychotherapy and Psychosomatics, Psychosocial Medicine and Developmental Neurosciences, Oral and Facial Surgery, Orthodontics, Dental Conservation, Paedodontology, Parodontology, Dental Prosthetics

Radiological Diagnostics, Neuroradiology, Pathology, Clinical Chemistry and Laboratory Medicine, Coordination Centre for Clinical Studies Dresden, Medical Interprofessional Training Centre

A group of students are gathered in a modern building's atrium. In the background, a large, multi-tiered indoor fountain with a central water column is visible. The students are engaged in various activities: some are standing and talking, while others are sitting on a wooden bench. A woman in a red sweater is holding a cup, and a man in a blue shirt is pointing towards the fountain. The building has large glass windows and a modern design.

Faculty of Biology

In 1994, the decision was taken to establish a new biology department at the Faculty of Mathematics and Natural Sciences, thereby laying the foundation for a

particularly dynamic and successful development of Life Sciences at TU Dresden and at further university and extramural institutions. Today, biology is one of the five

faculties at the School of Science. Initially, a Diplom degree programme in biology was offered. In 2000, the very first bachelor's degree "Molecular Biotechnology" proved to be highly successful. By introducing consecutive degree programmes and a wide range of other study programmes, the Faculty of Biology is continuously evolving. In the process of establishing the Department of Biology, further related institutes were founded. The simultaneous decision to establish the Max Planck Institute of Molecular Cell Biology and Genetics was seminal. Additional institutes followed, such as the Biotechnology Center (BIOTEC) in 1999 or the Max Bergmann Center of Biomaterials (MBC) which was jointly set up with the Leibniz Institute of Polymer Research Dresden in 2002. This continuous development led to the establishment of the Cluster of Excellence Center for Regenerative Therapies Dresden (CRTD) in 2006 as well as the Center for Innovation B Cube in 2008. The Faculty of Biology and the associated partner institutions offer a broad spectrum in teaching and state-of-the-art infrastructure, thus providing students with the best possible conditions for an expeditious and multifaceted degree programme, as confirmed in the latest rankings. The faculty offers the bachelor's degree "Molecular Biology and Biotechnology", as well as the master's degree "Biology", which soon will be internationalised. BIOTEC has the international master's degree "Molecular Bioengineering", "Nanobiophysics" and "Regenerative Biology and Medicine" on offer. Professors from the Faculty of Biology are

involved in teaching these programmes. The same applies to the "Dresden International Graduate School for Biomedicine and Bioengineering" (DIGS-BB) – doctoral programmes focusing on cell biology, genetics and biotechnology, which are unique in Germany. The research priorities of the Faculty of Biology are molecular cell biology, (developmental) genetics in all groups of organisms, system biology and molecular bioengineering. There are close collaborations between university and non-university institutes in all areas. Biomaterials and biomimetic materials, explored in close cooperation with engineers and materials scientists, are becoming increasingly important. An additional focal point is white biotechnology, which deals with various microbial systems and their application, as well as the exploration of the mechanisms of action of bioactive natural substances. Through this diversity and intensive cooperation, Dresden has grown into one of the leading biotechnological hubs worldwide.

<https://tu-dresden.de/mn/biologie>



Faculty Chemistry and Food Chemistry

Teaching chemistry began as early as 1829 at TU Dresden's predecessor, the "Technische Bildungsanstalt Dresden", which was established in 1828. Beginning in 1894, students – for the very first time in Germany – could study Food Chemistry at the university. Today's Faculty of Chemistry and Food Chemistry is an integral component of TU Dresden's School of Science.

Currently, approx. 300 scientists teach and conduct research at the Faculty of Chemistry and Food Chemistry. About 600 students are enrolled in Chemistry (bachelor and master) and Food Chemistry degree programmes (state examination and Diplom). Furthermore, the faculty is also involved in the chemistry teacher training programme as well as numerous natural science and technical degree programmes at TU Dresden. The faculty's degrees are embedded into a vast international network through numerous EU exchange initiatives. The integrated German-French degree in chemistry is particularly noteworthy. 15 professors have taken on the task of teaching. 8 additional professors have been jointly appointed with extramural research institutions.

The close academic interconnectedness of the faculty with a large number of non-university research institutions creates an excellent environment for cutting-edge teaching and research. The faculty's main research areas are material-relevant chemistry (e.g. porous materials, nanoparticles, hybrid materials, structural analysis) as well as biologically-orientated chemistry (e.g. bioactive natural substances, enzymes of secondary metabolism, structure and function of food ingredients). They are closely linked to TU Dresden's Research Priority Areas. Furthermore, the faculty is

involved in the cfaed (Center for Advancing Electronics Dresden) Cluster of Excellence and numerous Collaborative Research Centres and research groups.

At the Faculty of Chemistry and Food Chemistry, particular emphasis is placed on promoting young scientists. Through their bachelor's and master's theses, all students participate in current research from a very early stage. The faculty also runs a lively doctoral programme with an increasing demand from international students. At the present time, around 300 scientists are enrolled in doctoral degrees. TU Dresden's Graduate Academy supports them through additional training measures during their PhD.

<https://tu-dresden.de/mn/chemie>

Faculty of Mathematics



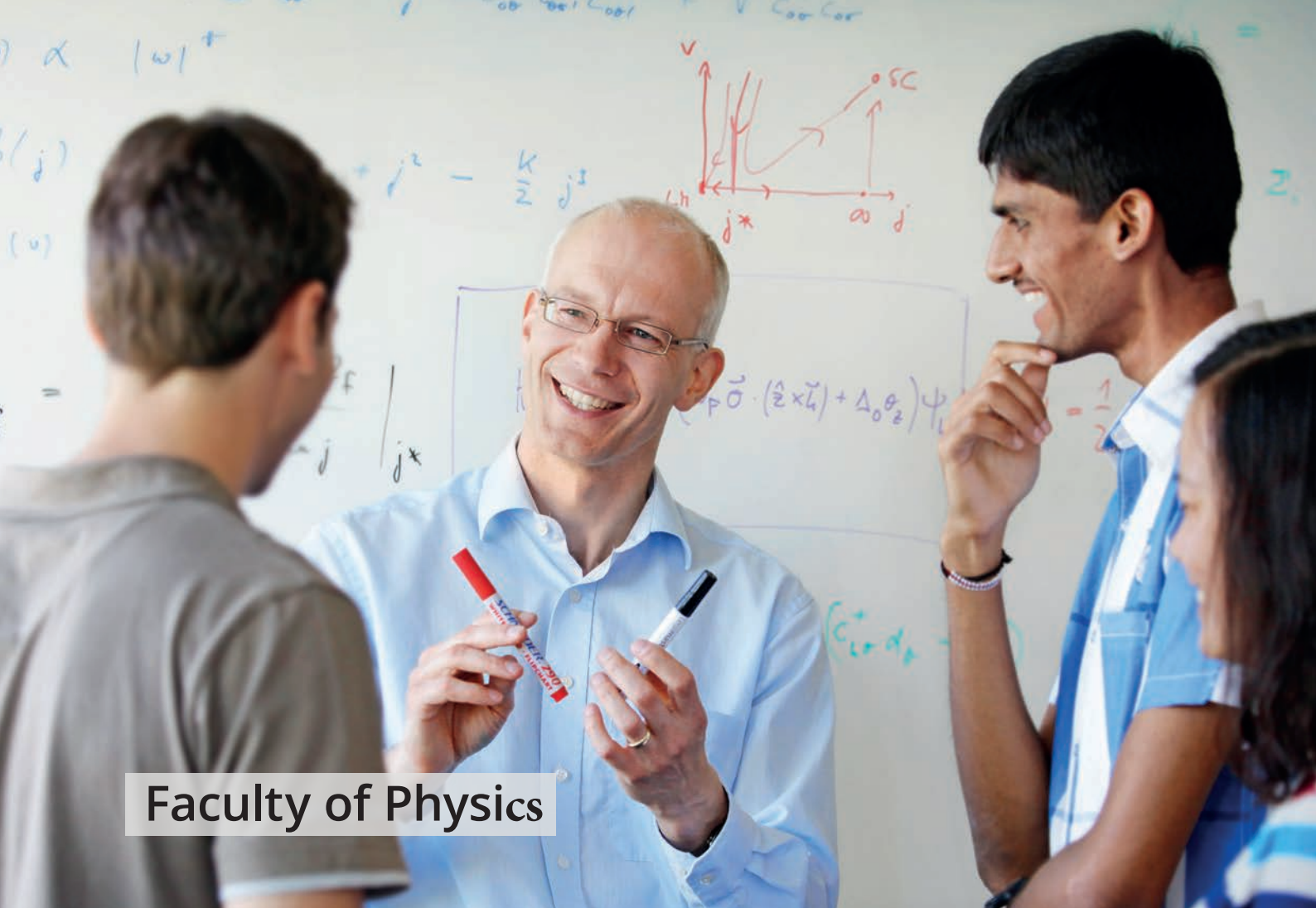
The Faculty of Mathematics with its 29 chairs is one of the largest mathematics faculties in Germany. It is defined by a vast research spectrum with numerous ERC grants, projects funded by the DFG, the BMBF and the EU. It also participates in Clusters of Excellence, Collaborative Research Centres and Research Training Groups. The Faculty of Mathematics is a central element of different Research Priority Areas of TU Dresden and the connecting entity between a large number of interdisciplinary research projects, due to the breadth of both fundamental and application-oriented research. In recent years, two research foci have been established at the Faculty of Mathematics: (1) partial differential equations and their application in the engineering and natural sciences and (2) discrete structures and optimisation. Additional priorities are business mathematics and didactics.

The Faculty of Mathematics is home to six institutes: the Institute for Algebra (3 chairs), the Institute for Analysis (3 chairs), the Institute for Geometry (5 chairs), the Institute for Mathematical Stochastics (5 chairs), the Institute for Numerical Mathematics (4 chairs) and the Institute for Scientific Computation (4 chairs).

The third-party funded interdisciplinary Centre for Dynamics (CfD) and the three chairs of the Faculty of Computer Sciences are further proof of the interconnectedness of the two faculties. Apart from the various research projects, the broad spectrum is also reflected in the teaching in our bachelor's, master's and doctoral degrees as well as in our teacher training programmes. It provides our graduates with an extensive and up-to-date mathematical education that ensures attractive employment opportunities. The degree programmes

convey professional expertise for both an academic career as well as for demanding, research-orientated employment in the business sector. In addition to the classic bachelor's and master's degrees in mathematics, there are other degree programmes to choose from: Bachelor of Business Mathematics (starting in 2019), Master of Technomathematics, Master of Business Mathematics and the international Master of Computational Modelling and Simulation (starting in 2018). Furthermore, our students benefit from our particularly strong international network and from English language master's degrees.

<https://tu-dresden.de/mn/math>



Faculty of Physics

Physics is the science of the fundamental laws of nature. It encompasses the laws that govern the assembly of matter and the interaction of its components. Physics is thus the foundation for other scientific disciplines such as chemistry and biology. The laws of physics, with which engineering is concerned, are indispensable for diverse

technical applications. Discoveries from the field of physics also play an important role in medicine, for example in the development of imaging technologies. Models inspired by physics can even be found in the social sciences and economics. Anyone who has studied physics is therefore able to pursue an extraordinarily broad range

of occupational fields. By studying physics, one learns to formulate questions in mathematical models and to investigate them through experimentation. With the special ability to think analytically, physicists are in demand in many areas of work.

At the Faculty of Physics at TU Dresden, students in physics degree programmes are offered a comprehensive, internationally-orientated education at the highest level, with specific emphasis on research, as proven by the CHE Ranking's top rating.

In addition, future physics teachers are trained to teach in middle schools, high schools and vocational schools. The faculty is also responsible for the non-consecutive, interdisciplinary master's course "Organic and Molecular Electronics". A total of approximately 900 students are enrolled in degree programmes at the faculty. The faculty also offers basic physics courses for multiple degree programmes in the natural and engineering sciences. In terms of research, promising experimental and theoretical work is being carried out in the areas of solid state physics, particle and nuclear physics, complex quantum systems and biophysics. In the fields of solid state physics and material sciences, the Faculty of Physics has joined institutes in Dresden – the Leibniz Association, the Max Planck Society, the Helmholtz Association and the Fraunhofer Society – to create a unique, concentrated hub for fundamental and applied research that is highly regarded internationally. In a Collaborative Research Centre funded by the German Research Foundation (DFG), numerous university and non-university work groups are examining new states of matter in magnetic

materials. In applied physics, close links are upheld with private industry, as reflected in spin-off companies such as Novaled or Heliatek, which develop organic LEDs and solar cells.

A similarly close relationship is maintained with the cfaed Cluster of Excellence. In nuclear and particle physics, Dresden-based scientists are actively involved in the ATLAS experiment at the "Large Hadron Collider" (LHC) at CERN, and are in close cooperation with the Dresden Felsenkeller Laboratory to establish a one-of-a-kind facility for neutrino physics research. Research into biophysics focuses on the dynamics of individual molecules and the mechanical properties of individual cells, as well as the way in which tissues are organised.

Since it awards over 70 doctoral degrees annually, the Faculty of Physics is a frontrunner in Germany in terms of educating PhD students.

The Faculty of Physics encompasses 20 chairs structured in four institutes. In addition, 16 senior scientists from the non-university research institutions are professors at the Faculty of Physics. TU Dresden also has close ties to physics-oriented chairs in the engineering and life sciences. With this strong integration of university and extramural research, the Faculty of Physics makes an outstanding contribution to the DRESDEN-concept network – a central component of TU Dresden's Institutional Strategy.

<https://tu-dresden.de/mn/physik>

Faculty of Psychology



The Faculty of Psychology, situated in TU Dresden's School of Science, combines foundational psychology and cognitive-neuroscience research on human behaviour and experiences with clinical and socio-technological fields of application. The Department of Psychology is counted among the leading psychology institutes in Germany and has achieved top places in the CHE university rankings, both for its research performance and the quality of teaching. The faculty offers 120 students a bachelor's degree programme in psychology, and offers three master's degree programmes. Its research profile is focused on three interdisciplinary and internationally oriented research interests:

- I. Cognitive-affective neuroscience;
- II. Clinical psychology and psychotherapy; and
- III. Human performance in socio-technical systems.

The focus of the first research interest is neurocognitive mechanisms of human action control. Central questions are: how do cognitive, emotional and volitional processes interact in goal-oriented actions? How are these processes influenced by psycho-social stress and personality traits? How do they develop and change as life progresses? In particular, these issues are the focus of the DFG Collaborative Research Centre 940 "Volition and Cognitive Control: Mechanisms, Modulators, Dysfunctions" (www.sfb940.de), which was initiated in 2012. In the CRC, an interdisciplinary team of researchers consisting of over 70 psychologists, physicians and neuroscientists led by Prof. Thomas Goschke in cooperation with partners at the Charité Berlin has the goal of decrypting the neurocognitive mechanisms of deliberate action control and self-control. The CRC combines innovative foundational research with highly relevant social issues. Insights

into the mechanisms of the control of goal-oriented actions helps researchers to understand why humans are often not able to resist immediate temptations, to overcome ingrained habits, and why psychological disorders often lead to significant impairment of volitional self-control. Together with its integrated Research Training Group, the CRC supports structured training for PhD students as well as early independence of young researchers. Due to CRC's excellent rating, the DFG approved the second four-year funding period in May 2016. Focus II is concerned with epidemiological, family genetic and clinical-experimental research on mental disorders. The aim of the internationally leading institute for clinical psychology and psychotherapy is to decipher conditions and mechanisms underlying the formation and perseverance of mental health disorders and to develop and test innovative psychological intervention methods – from prevention to early intervention and therapy – on the basis of improved etiological and patho-genetic models. The institute's outpatient department and day clinic for psychotherapy is responsible for ensuring regulated patient access for the purposes of instruction and for all clinical and therapy-related research projects. Special outpatient departments offer a wide range of psychotherapeutic treatments based on the latest research. In the annual Fokus-Ranking, the institute's outpatient department was found to be a leader in terms of patient satisfaction and quality. The institute thus offers students, postgraduates and scientists an attractive and unique profile of innovative and interdisciplinary fundamental and applied research on mental disorders. Priority III focuses on human behaviour in performance processes and learning processes in work, education, economy and transport. The aim of this pioneering field is to gain em-

pirical insights into the conditions and effects of psychological, social and organisational factors in complex and dynamic socio-technical systems. Based on this, recommendations are developed for an optimal design of modern work, learning and transport systems with regard to performance, health and self-development. Here, cognitive and action theory-based research approaches from work, organisational, engineering and social psychology, which have a long-standing tradition in Dresden, are continued with pioneering topics and methods. In addition, models and methods of applied cognitive research, instructional psychology and transport psychology are being advanced to address issues relating to the optimisation of human-machine interaction, the design of novel, technology-supported learning environments and innovative work and transport systems.

The faculty has outstanding laboratory infrastructure for examining human behaviour (test labs for reaction time, eye movement, virtual reality, multimedia and concentration, as well as labs for clinical psychology studies) for examining fundamental neurobiological principles (neuropsychological, endocrinological and molecular-genetic labs). The faculty is one of few university institutions for psychology with its own neuroimaging centre for examining neuronal correlations of psychological processes, which is equipped with a research scanner for functional magnetic resonance tomography as well as possibilities for transcranial magnet stimulation and EEG measurements. The faculty therefore offers ideal research options for a wide range of foundational and application-oriented research projects. The faculty's success is due in part to interdisciplinary collaboration. Besides various international cooperations with research

centres across the globe, the faculty is in a network of research cooperations beyond the boundaries of the faculty: the Carl-Gustav Carus Faculty of Medicine, TU Dresden's technical departments – specifically transport sciences, mechanical engineering, computer science and electrical engineering, and information technology. The connection between international cutting-edge research, excellent teaching and interdisciplinary research cooperations creates the foundations for an attractive Faculty of Psychology for students and researchers.

<https://tu-dresden.de/mn/psychologie>





Faculty of Education

The Faculty of Education at TU Dresden was founded in 1993 and has developed into one of the largest faculties of education in Germany. Facilities for teacher training in mathematics and the natural sciences already

existed as far back as 1855 at the Royal Polytechnical School of Dresden, a precursor of today's Technische Universität Dresden. The close integration with engineering and natural science is also nowadays essential

for vocational teacher training. The Faculty of Education has always cooperated very closely with other faculties of the university with regard to school teaching qualifications, and is fully integrated into the School of Humanities and Social Sciences at TU Dresden.

The faculty's current focus in the area of teaching and research covers the whole spectrum of education topics from teacher training, vocational education, social pedagogy, further training, media teaching, the variety of educational processes, as well as the approach of lifelong learning. This disciplinary diversity is also the basis for the extensive interdisciplinary and transdisciplinary networking, as well as for the participation of the faculty in several university competence centres, in the Centre for Teacher Education, Formal and Professional Education Research, and in the University Media Centre.

The faculty cooperates with various regional, national and international partners in both its teaching and research, and has acquired excellent reputation in Saxony's social and education policy. Many of its degree courses are embedded into a rich international context through a variety of EU exchange programmes.

Research at the Faculty of Education places a particular focus on the investigation of the interactions between the characteristic domains of education, career and social affairs/ health, and is thus inherent to TU Dresden's interdisciplinary Research Priority Area "Culture and Societal Change". The core topics of this research profile deal with both school-based and extra-curricular education, training and support, the promotion of

vocational and social education occupations, and the specifics of further education and vocational training.

Special attention is paid to the development of young academic talent. The faculty is able to report high numbers of habilitations and doctorate degrees, also by foreign post-graduates.

The know-how bundled in the three education institutes at the faculty is also beneficial in other fields of the university: The faculty was instrumental in the establishment of the University Media Centre and assumed a pioneering role in academic and scientific publication by founding the first open-access journal in the humanities and social sciences.

<https://tu-dresden.de/ew>



Faculty of Law

Martin Luther once said: "A lawyer, who is no more than a lawyer, is a poor thing."

True to these words, the TU Dresden Faculty of Law has been offering the bachelor's programme "Law in Context - International Law and its Connection to Technology, Politics, and Economy", which not only teaches the fundamentals of legal expertise, but is also interdisciplinary and interculturally oriented. It is an innovative yet practice-oriented course of studies, which is unique in Germany, that also meets the highest scientific requirements. This takes into account the fact that law is not a self-con-

tained subject, but a dynamic field that is firmly connected with economic, technological, political and social processes.

The Faculty of Law offers numerous advanced study programmes for graduates of the degree programme "Law in Context", but also for all other prospective students. The master's programme "Business Law - Enterprises between Freedom and State Control", which was newly introduced in the winter semester of 2010/11, was particularly well received. The practice-oriented study profile targets interdisciplinary Interfaces of regulated markets

for energy, technology and traffic, as well as commercial and taxation law. With this innovative programme, which is tailored to the latest needs of the job market, the Faculty of Law not only created an attractive degree programme for their bachelor graduates but also for external students.

A degree programme leading to a double degree in German and French has been offered in cooperation with the Université Paris Quest Nanterre La Défense since the winter semester of 2015/16. Without having to invest extra time, students can earn two master's degrees (Dresden/Paris).

The elite degree programme „International Studies in Intellectual Property Law“, offered by the Institute of Intellectual Property, Competition and Media Law (IGE-WeM) has proven to be very successful for many years. This postgraduate programme, leading to a Master of Laws (LL.M) degree, is organised in cooperation with the University of Exeter, the Centre d'Études Internationales de la Propriété Industrielle (CEIPI), the University of Strasbourg, the Charles University in Prague, the Jagiellonian University in Kraków, the University of Washington (Seattle), the University of London - Queen Mary College, as well as the University of Szeged, and specialises in industrial property rights and copyright.

Professionals and scholars from other fields are also able to take certificate courses in patent law, copyright, media law or internet law, and can thus acquire the legal knowledge that is required in many other professions.

In addition, the bachelor's and master's programme "International Relations", established in cooperation with

the School of International Studies, has an excellent international reputation. This interdisciplinary degree programme combines international law, international economic relations, international politics and modern history.

Classes in two foreign languages and a semester abroad are mandatory elements of the degree programme. A bachelor's degree is awarded after six semesters and a master's degree can be earned after nine semesters. The students are hand-picked: A mere 30 students are accepted each year on the basis of an aptitude test. The international and interdisciplinary character of the faculty becomes especially evident in its thematic focuses, such as European law, technology law, environmental law, intellectual property rights, commercial law, tax law and energy law. The possibility to spend time abroad with the ERASMUS programme adds to the international character of the degree programme. The Faculty of Law maintains links to numerous partner universities in other countries, and hence can offer students ideal and financially assisted opportunities to spend part of their studies abroad.

Besides attending lectures, students are given the opportunity to take part in alternative forms of knowledge transfer: Mock trials and excursions establish a vivid awareness of selected legal issues. New methods of conflict resolution can be acquired in courses on mediation and rhetoric.

<https://tu-dresden.de/jura>



Faculty of Arts, Humanities and Social Science

Those looking for a comfortable ivory tower are at the wrong address in the Faculty of Arts, Humanities and Social Science in Dresden. Courses covering the whole spectrum of humanities and social sciences guarantee a lively blend of socially relevant teaching and research which at the same time has a broad international network and is firmly anchored in local traditions.

With around 2,000 students, the faculty is one of the larger faculties at TU Dresden. Furthermore, since May 2012 it has pooled resources with the academically related faculties of linguistics, literature and cultural studies, education, law and business and economics under the roof of the "School of Humanities and Social Sciences". Through even closer cooperation, the exploitation of synergy benefits in research, teaching and administration is strengthened.

The eight institutes – Art and Music, Catholic Theology, History, Media and Communication, Philosophy, Political Science, Protestant Theology and Sociology – offer more than 20 courses and course subjects. Each of the Bachelor degree programmes comprises a major and at least one minor component. Master courses then expand this knowledge by developing specialised competence, again complemented by profile components from other disciplines or even other faculties. Subjects offered by the Faculty of Arts, Humanities and Social Science can also be combined with those of other faculties within the framework of teacher-training programmes.

ERASMUS programmes permit studies to be extended to the universities in Alicante, Amsterdam, Barcelona, Bordeaux, Ghent, Izmir, Leiden, Milan, Murcia, Naples, Olomouc, Pamplo-

na, Paris, Prague, Stockholm, Strasbourg, Turin and Wrocław. Exchanges have also been arranged with the "New School" University in New York for a number of years. Joint doctorate degrees can be awarded with the École Pratique des Hautes Études (EPHE) in Paris in most disciplines, and a double degree in sociology is offered in cooperation with the University of Trento.

For all their discipline-specific differences, the institutes of the Faculty of Arts, Humanities and Social Science pursue an essentially common goal: They seek explanations and interpretations for human thought and behaviour at both the individual and social levels, and in doing so contribute to the understanding and positive shaping of the social and cultural transformations which characterise today's world in its interactions with technical progress. The analysis addresses phenomena such as globalisation, knowledge expansion, social fragmentation and specialisation, cultural and religious change, and digitalisation and medicalisation. These contributions are based on a diversity of methods and theoretical approaches. This plurality, in particular, is one of the key strengths of the faculty, and is also reflected in the range of studies offered.

Proof of the faculty's special commitment to interdisciplinary research has been furnished through the organisation of two Collaborative Research Centres, founded by the German Research Foundation (DFG): "Institutionality and Historicity", "Transcendence and Public Spirit" and an international graduate college in conjunction with the EPHE in Paris. Interdisciplinary cooperation between contrasting scientific cultures is also practised by the Boysen-TU Dresden Graduate College "Sustainable energy systems – Interdependence between technical designs and social

acceptance”, which brings together communication specialists, political scientists, economists and engineers. Each of the institutes has something special to offer in both teaching and research. The Institute of Political Science, for example, places a focus on international organisations, while the Department of History of Art concentrates on the art of the Late Middle Ages and Early Modern period, as well as the more contemporary media of photography and film. The Department of Music combines historical exploration with a culturally oriented profile and a systematic, cognition-based approach. The principal research interests in philosophy lie in the fields of normative epistemology and the later philosophy of Heidegger, whereas the Institute of Media and Communication concerns itself above all with the modern transformation processes and their impact on the quality of public communication, particularly in the contexts of journalism and scientific communication. Cultural sociology and research methodology range among the subjects focused upon by the Institute of Sociology. In the Institute of Protestant Theology, finally, cultural-hermeneutical viewpoints enable the religious traditions of Christianity to be investigated not only as self-explanations of the church, but also as general cultural phenomena.

Studies are furthermore enriched by a diversity of partnerships with institutions in the fields of culture, religion, society, politics and media. There is close cooperation, for example, with the Saxon State and University Library Dresden (SLUB), one of the largest scientific libraries in Germany. Scholars from the world-famous Dresden State Art Collections support teaching in history of art as honorary professors. The Institute of Protestant Theology works with the Deutsches Hygiene-Museum to present joint events, as does the Institute of Political Science with the

Dresden Theology with “Kathedralforum Dresden”. The Institute of History is a partner to the Institute for Saxon History and Ethnology, while generous donations enable the Department of Art and Music to make a collection of rediscovered “Music Treasures from Dresden” available for public download. On a regular basis, a large audience is attracted by the public lectures of the Institute of Media and Communication, at which high-ranking journalists and politicians speak on current topics of political communication.

<https://tu-dresden.de/phil>



Faculty of Linguistics, Literature and Cultural Studies



Building upon a solid philological foundation, the Faculty of Linguistics, Literature and Cultural Studies is explicitly cultural-studies focussed. The five institutes at the faculty highlight the languages, literature and cultures of a wide range of countries and regions in their research and teaching.

The Institute of English and American Studies directs its attention not only to the Anglophone cultures of Great Britain and North America, but also, for example, to the Indian sub-continent. The numerous research projects conducted by members of the Institute address topics such as TV seriality, masculinity narratives and gender studies (e.g. research within the framework of the GenderConceptGroup).

The Institute of Romance Studies concentrates on the world's cultural regions in which the French, Spanish and Italian languages are spoken. It is also home to the Italian Centre, to CIFRAQS (Centre for Interdisciplinary Franco-Canadian and Franco-American Studies Québec-Saxony), and to Rela (university-wide course offers on Regional Studies of Latin America).

In a similarly comprehensive manner, the whole Slavic cultural area – not only Russia, but above all Poland and the Czech Republic – is a research topic at the Institute of Slavic Studies. The ESF junior research group “Sorbenwissen”, which brings Slavists together with fellow scholars in philosophy, history and theology, as well as the VW Foundation project “Aggression and Argumentation”: Discourses of Conflict and their Linguistic Negotiation” are situated at the institute.

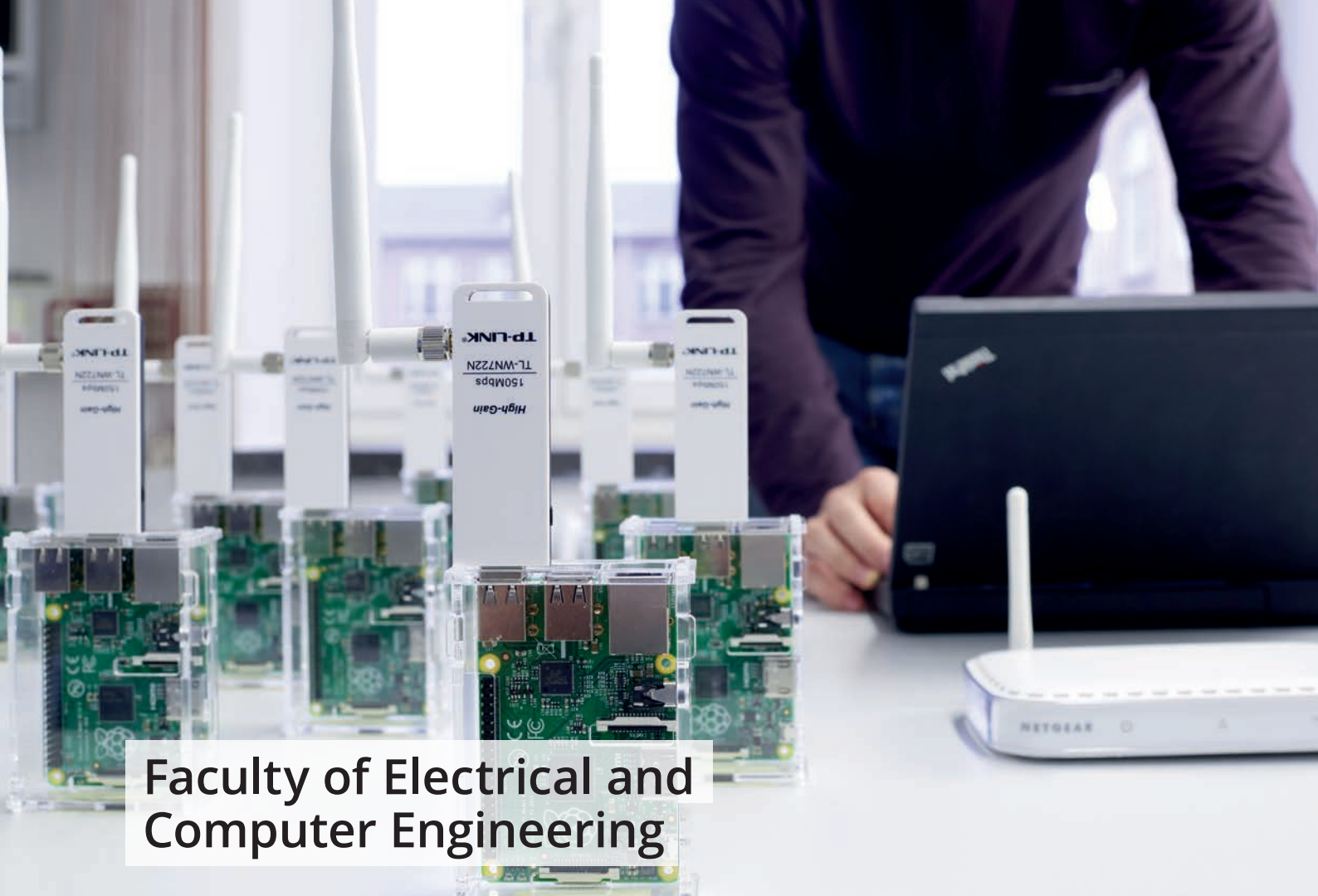
The Institute of German Studies addresses numerous cultural interfaces: Teaching and research focus on the whole Central European cultural area and take into account both the historical dimensions of language and literature, and present-day communication and media structures. The subjects “German as a Foreign Language” and “German as a Second Language” are also offered as specialisations.

The master's programme “European Languages (EuroS)” is aimed at international students of German studies who have completed at least three years of study in their home country or have already obtained a bachelor's degree. Great importance is placed on intercultural and language skills in the three major European language families.

The Institute of Classical Philology is devoted to the literature of Ancient Greece and Rome, which represents the linguistic and cultural foundation of present-day civilisation. At the same time, it differs so strongly from our current world that it is constantly perceived as a “familiar foreign culture”.

The acquisition of foreign language and intercultural skills is an inherent component of the programmes. The international orientation of the faculty is strengthened by the high proportion of foreign students and regular contributions by guest lecturers from abroad.

<https://tu-dresden.de/slk>



Faculty of Electrical and Computer Engineering

With approx. 2,400 students, 29 professors and 4 junior professors, the Faculty of Electrical and Computer Engineering is one of the largest at TU Dresden. The broad scope of research and teaching is reflected in the faculty's maxim of "Thinking in systems", with a main focus being placed on automation, measurement and control technologies, electrical power engineering, electrome-

chanical and biomedical systems, information electronics, communications engineering, and micro-, opto- and nanoelectronics.

Everything seems to be planned perfectly, and it is thus no surprise that the faculty is usually to be found among the leaders in national rankings. Armed with their broad

scope of skills and abilities, graduates of the faculty enjoy an excellent reputation among potential future employers which is regularly confirmed in surveys conducted by leading trade magazine: The faculty is regularly among the top ten responses when HR managers are asked to name the German university which produces the best graduates in the field of electrical engineering.

The faculty currently offers four Diplom degree programmes with a standard study duration of 10 semesters: Not only electrical engineering in the classic form, but also interdisciplinary programmes in information systems engineering (with the Faculty of Computer Science), mechatronics (with the Faculty of Mechanical Science and Engineering and the Faculty of Transport and Traffic Sciences) and renewable energy systems (with the Faculty of Mechanical Science and Engineering). Such interdisciplinarity is daily practice in all courses and an inherent element of the research-oriented training concept. Alongside the Diplom programmes, students can also enrol for Master programmes in electrical engineering and nanoelectronic systems (the latter taught in English).

Particular attention is paid to support for the first-year students, with an intensive preparatory and mentoring programme to smooth their path to study success.

Close networking characterises the links to numerous foreign partners. The approximately 40 European universities the faculty cooperates with the framework of the EU-wide ERASMUS programme are spread over the whole continent. Students who wish to spend one or two semesters abroad during their studies can choose from an extensive list of internationally renowned universities.

Exceptional study achievements are also rewarded with the opportunity to augment the targeted degree from TU Dresden with a second qualification awarded by a university of the French “Groupe des Écoles centrales” within the framework of a double-degree programme.

The contacts to industry and to extra-university research organisations, e.g. the Fraunhofer Institutes, are equally strong; this cooperation seeds outstanding perspectives for both sides. Numerous industry-funded research projects and business spin-offs from faculty institutes, as well as two industry-funded endowed chairs (Communication Networks and Mobile Communications Systems), are testimony to this fruitful and practice-oriented cooperation in the field of high-tech research. The students also profit from this arrangement through early experience in an application-oriented environment and can establish contacts invaluable for their later careers.

The outstanding research competence of the faculty is manifested in the DFG Collaborative Research Centre “HAEC – Highly Adaptive Energy-Efficient Computing”, for which a second phase of funding extends through to June 2019. The research centre is a central pillar of the Cluster of Excellence “Center for Advancing Electronics Dresden” (cfaed). The members of this Excellence Cluster are presently exploring new materials, technologies and systems for the electronics of the future, in the hope of overcoming the foreseeable limitations of today's solutions.

<https://tu-dresden.de/et>



Faculty of Computer Science

With over 1,750 students, the Faculty of Computer Science is one of the largest in the field in Germany. The teaching for a total of twelve separate study courses is closely interwoven with research activities. Cutting-edge basic research goes hand in hand with application studies and industry cooperation. The key areas of current research are: 1. Software technologies and their use in cyber-physical, mobile and hardware-related systems; 2. Internet of services, cloud computing and Internet security; 3. Data-intensive computing, big data and knowledge extraction; 4. Human-computer interaction and visual computing; 5. Formal modelling and analysis of artificial systems; 6. Modelling, machine-learning and simulation of natural systems.

Following up the faculty's successful involvement in the high-end Cluster "Cool Silicon", the university's Excellence Initiative has also further strengthened funding for the Center for Advancing Electronics Dresden (cfaed) as a "Cluster of Excellence". The objective is to explore new avenues for electronic information processing in the future, to overcome the limitations of today's CMOS technologies. To this end, the computer scientists are investigating technologies which permit reliable calculations even with fault-sensitive hardware, as well as systems with multiple and heterogeneous chips. One core element of the Cluster of Excellence is the Collaborative Research Centre HAEC ("Highly Adaptive Energy-Efficient Computing"), whose visionary goal is

to find answers to the increasing energy consumption attributable to global internet use and the resulting ecological impact. Together with colleagues from the Faculty of Science and the Faculty of Electrical and Computer Engineering, the researchers are working on designs for new computer systems with enhanced adaptivity and energy efficiency. The national big data competence centre ScaDS (Scalable Data Services and Solutions) and the newly opened 5G Lab Germany demonstrate the considerable development potential of the location as an arena for broad interdisciplinary research.

Two DFG graduate colleges enable postgraduate students of the faculty to conduct research at the highest scientific level in pursuit of a doctorate degree. Organised jointly with the University of Leipzig, the graduate college “QuantLA” provides training for 20 young doctorate students, with foremost opportunities to explore the correlations between quantitative logics and automata models, alongside their potential applications in computer science. At the graduate college “RoSI”, twelve doctorate students are presently investigating role-based software infrastructures for consistently context-sensitive systems.

Student research results are presented through interactive demos, lectures and workshops at the regularly well-attended OUTPUT DD event, which is held in the inspiring atmosphere of the faculty building each year. The ultramodern infrastructure of the Faculty of Computer Science includes special laboratories with 3D projection and tracking hardware, a 10 m² high-resolution interactive display wall, and audio and video editing facilities. Visually impaired students from all faculties are

offered optimum conditions for their chosen studies at TU Dresden in the form of special software, magnifiers and Braille print-outs. The High-Performance Computing and Storage Complex (HRSK-II) and the new Data Centre II which was inaugurated in close proximity to the Faculty of Computer Science in 2015 lend further sustained support to future science and research achievement in Saxony.

In addition to classic computer science, the faculty offers further innovative study courses: Media computer science, for example, places a special focus on digital media. Information systems engineering, on the other hand, is an engineering degree course organised jointly with the Faculty of Electrical and Computer Engineering, with its emphasis on system technologies. A new Master programme in computational science and engineering, which is realised in cooperation with the TU Bergakademie Freiberg, addresses the field of data-intensive computing. The English-language Master programme in computational logic is to date unique in Germany; a small, select group of mainly foreign students explores, for example, the foundations of logic and constraint programming. The Master programme in distributed systems engineering, which is held in English as well, places its focus on the designing of large-scale distributed IT systems. The European Master programme in computational logic, the international cooperation agreements, guest lecturers, and possibilities for studies and practical experience abroad all pay testimony to the international outlook of the faculty.

<https://tu-dresden.de/inf>



Faculty of Mechanical Science and Engineering



Technology without borders

The Faculty of Mechanical Science and Engineering has served teaching and research in the pursuit of technical progress and human advancement for more than 180 years. With over 6,000 students, it is the largest faculty at TU Dresden.

Excellent training – broad diversity

Mechanical engineering, process engineering and natural materials technology, materials science, mechatronics and regenerative energy systems: Five courses of study offer a total of 25 specialisations – from general mechanical science to food engineering, from energy efficiency to applied material science, and from lightweight design to aerospace. The broader the range of options, the greater the flexibility for our students when it comes to choosing a specialisation for the advanced course stage in their third year.

Living research – close networking

External funding amounting to over €60 million per year testifies to the research strength of our faculty. Students are involved yet from an early stage, enabling them to translate theory straight into practice. Close networking with external research facilities in Dresden is a matter of course and mutually beneficial. The cooperation with the Helmholtz Centres and the Fraunhofer and Leibniz Institutes facilitates access to interesting practical experience in the industry and research, and opens the door to course-related student jobs.

Diplom-Ingenieur – a mark of quality

TU Dresden is one of the few German universities which still offers single-tier study programmes leading to a Dip-

lom degree. Notwithstanding adaptation to enable international comparability in accordance with the Bologna process, we remain committed to this classic engineering degree: Firstly, because the German “Diplom-Ingenieur” title is globally recognised as a mark of quality. Secondly, because a bachelor’s degree obtained after six semesters is in practice not a fully sufficient qualification to enter a professional career. A modularised Diplom programme – without intermediate hiatus – is effectively the time-saving path to the required degree.

Promoting internationality – treading new paths

The Faculty of Mechanical Science and Engineering offers more international double-degree programmes than any other German university. Students, eager to gain experience abroad, are able to study general and constructional mechanical engineering, production technology or simulation methods of mechanical engineering in Paris and Metz, energy technology in Ostrava or mechanical engineering in Shanghai. It is also ever more often the case that personal biographies diverge from the traditional course. We have therefore adapted to this development and offer mechanical engineering degrees through a correspondence course – as the only university! To facilitate the move to a new city or country, we even enable students to graduate from the Diplom programmes in mechanical engineering, material science or process engineering and natural materials technology with a bachelor’s degree after the 6th semester.

Ideal support – excellent teaching

The start of your studies, the first examination period and hundreds of formalities, which must suddenly be taken care of: The transition from school to university life is a big step – not only academically. To smoothen the path for the more than 1,000 new students each year, the Faculty of Mechanical Science and Engineering has set up a new mentoring programme. A group of 30 students and postgraduates offer their assistance to the faculty newcomers. Supplementing the existing network of professors and administrative offices, we have created an additional layer of support with contacts who are not only of similar age, but also know the university well from their own student experiences.

The Faculty of Mechanical Science and Engineering also awards an annual “Prize for Innovation in Teaching” to one of its professors, as recognition for commitment to the utilisation of new media. The students alone are entitled to nominate the recipient.

<https://tu-dresden.de/mw>





Faculty of Architecture

Architecture and landscape architecture bundled together in one single faculty: a rare combination in Germany. In Dresden, however, this symbiosis has had a longstanding tradition and is a prominent element of the faculty's profile, alongside the distinctly design-oriented focus of the training. Balancing the theoretical, artistic,

technical and ecological aspects of designing our living environment is the basis for all work at the faculty.

Current research activities cover a broad spectrum of topics, including building materials and aspects of building physics; architectural history and the new challenges

facing architecture in the information age and in the context of demographic change; elements of sustainable urban and regional development and the shaping of landscape transformation processes. The Faculty of Architecture is also a contributor to numerous interdisciplinary research projects and institutes, for example the newly founded Center for Construction Research, the Competence Centre Colour or the Health Economics Centre.

The spectrum of study opportunities are continuously extended depending on the research interests of the faculties. Interdisciplinary seminars, excursions and the modular structure of the degree programme ensure that the courses offered by the faculty not only convey knowledge, but also rehearse its competent application in small project groups – in the same manner as a professional working or research group.

Dresden is without doubt an attractive and popular place of study – however, external views and perspectives are just as equally important. The partnerships with foreign universities are thus an essential component of the curriculum: in the form of student and lecturer exchanges, joint design seminars, summer schools and excursions. The faculty offers a German-French double degree in architecture. Around five per cent of the students also spend part of their course at a university abroad. At the same time, most students use the opportunity to complete their mandatory office internship abroad.



Those who still haven't had enough of studying during the day, can look forward to a special film series "Architecture in Cinema" at student-friendly prices in the evenings. The lecture series "spann_weiten" reflects the full spectrum of contemporary architectural creativeness, with speakers who are just as different as their individual topics. The maintenance and further development of cultural buildings is discussed in "Work Reports on Monument Preservation", and urban planning topics are also the subject of a series of lectures entitled "Werk-Stadt-Gespräche". The annual "Dresdner Planer-gespräche" meetings provide a nationally recognised forum for landscape planners, and the city also hosts a regular international colloquium for doctorate students.

<https://tu-dresden.de/arch>



Faculty of Civil Engineering

There are many universities at which you can study civil engineering – but only few “Universities of Excellence”. And only one of those selected few enables you to obtain the title of “Diplom-Ingenieur”, namely the Technische Universität Dresden. The more demanding Diplom degree programme has been offered here without interruption, providing access to a title which is recognised worldwide as a hallmark of quality.

Of course, Dresden's civil engineers are not retreating into a lonely enclave in the European world of civil engineering

training: The course programmes have been reformed and modularised in the spirit of the Bologna model, and are thus open for the promotion of Europe-wide study opportunities.

There are still numerous other reasons for the outstanding attractiveness of the Faculty of Civil Engineering, which belongs to the School of Civil and Environmental Engineering at TU Dresden. An ideal lecturer-student ratio is the key to the desired learning success. With around

1,800 students, the faculty is one of the smaller faculties at TU Dresden. Its members know each other well, study together – and celebrate together. That strengthens personal ties and creates a group identity.

Students are involved in the research work of the faculty from an early stage. They become acquainted with the latest developments in the individual disciplines through lectures and practical exercises, and can even contribute actively by working as student assistants. For those who show particular dedication, the first employment contract after graduation could well mean an opportunity to continue the quest for new knowledge as a research assistant for the university.

External cooperation is maintained with 37 partner universities in 17 countries. More than 250 students from 15 different nations are studying and conducting research at the faculty. Excursions permit students to work in real-life settings, and the well-equipped laboratories are likewise the foundation for efficient and practice-oriented teaching. From a dedicated hydraulic engineering lab to a faculty data centre and computer clusters in the individual institutes, the students benefit in many ways from an excellent technical infrastructure.

The research profile of the faculty is defined by topics which are undoubtedly among the most innovative in civil engineering. Textile-reinforced concrete was invented in Dresden and through its further development – carbon concrete composite – is a pivotal research interest; the DFG Priority Programme “Lightweight construction with concrete” is coordinated by the Institute of Concrete Structures. The Institute of Hydraulic Engineering and Technical Hydromechanics, on the other hand, is one of

seven partners from science and engineering practice who are investigating solutions for ecological flood risk management and natural watercourse development within the framework of the BMBF-sponsored network research project “In_StröHmunG”.

Innovative methods which take into account uncertainty in the numerical design of structures are being developed under the DFG Priority Programme “Polymorphic uncertainty modelling”, for which the Institute for Structural Analysis has the coordinating lead.

The fact that civil engineers also carry their research far beyond discipline boundaries is demonstrated by a research group at the Institute of Mechanics and Shell Structures, which is currently exploring the biomechanics of soft biological tissues. The moulded wood technology developed and patented by the Institute of Steel and Timber Construction is a prime example of how the typical scope of civil engineering applications is frequently transcended; this highly acclaimed innovative material has earned numerous prizes and is suitable for use in a plethora of situations.

Cutting-edge research and the fun of student life are by no means mutually exclusive. On the contrary: Students have applied the research into textile-reinforced concrete to design super-lightweight concrete boats, with which they have collected a whole series of regatta prizes. A traditional paper bridge competition also pairs civil engineering know-how with light-hearted rivalry, and the social commitment of third-year students, furthermore, has contributed to the expansion of several children's playgrounds in Dresden.

<https://tu-dresden.de/bau>

Faculty of Environmental Sciences



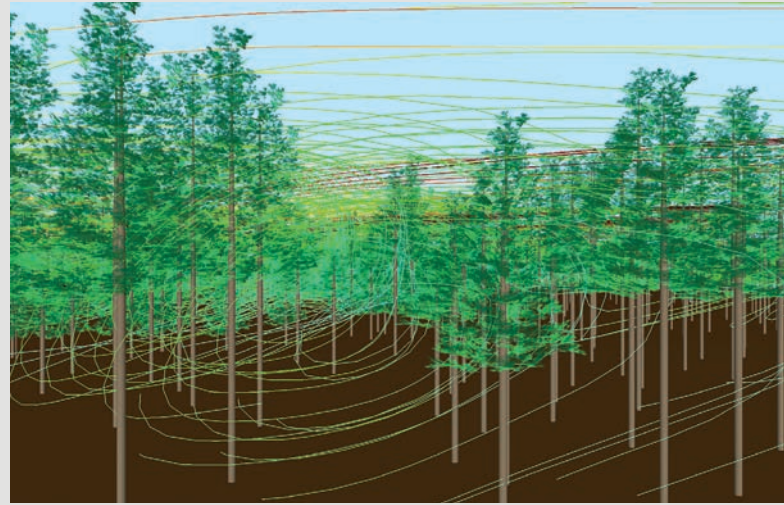
The faculty's profile is strongly international and unique in Germany. It unites three essential environment-related disciplines under one roof, and enables significant potential for synergies through its interdisciplinary and interna-

tional approach. Activities are focused on the monitoring and modelling of the "Earth system" on global, regional and local scales, as well as on the use of this knowledge in the context of sustainable development of the human

environment. Research and teaching cover a wide range of topics and are firmly embedded in both regional and international networks. Joint professorship appointments have been established with the Helmholtz Centre for Environmental Research (UFZ) in Leipzig and the Leibniz Institute for Ecological Urban and Regional Development (IÖR).

The Forest Sciences focus on various aspects of creating added value in rural areas and forests as an instrument in risk management. Sustainable land-use concepts, for instance, combine the production of wooden biomass for energy generation purposes with the protection of biodiversity, water resources, soil and climate. The faculty offers traditional forestry programmes, as well as internationally focused interdisciplinary study options. The English-language master's degree programme in tropical forestry and management, for example, is especially geared towards students from abroad. Another notable programme is the master's degree in wood technology and management, which is awarded jointly with the Faculty of Mechanical Science and Engineering and reflects the growing significance of renewable resources.

The Geosciences are focused on the development and utilisation of information technology to model and visualise the "Earth system" and to create accessible geodata infrastructures. Cross-faculty research is pursued in the field of measurement, analysis and management methods within the context of environmental monitoring. Further topics include settlement development, spatial planning and demographic change. Students are able to join bachelor's programmes in geography, geodesy and geoinformation. Advanced studies can be pursued



through master's degrees in geography, geodesy, cartography (held in English) and geoinformation technology. In addition, teacher training qualifications are offered for geography.

The Hydrosociences focus on water research in natural and technical systems and on the feedback of dynamic processes within the biosphere and hydrosphere. This holistic focus on all aspects of the water cycle is unique in Germany. Topics such as water management, hydrology and hydrobiology, as well as waste and circular economy management can be studied within a broad environmental context. The English-language master's programme in hydrosocience and engineering addresses multiple water research topics. Given the limited water security in many regions of the Earth, it places emphasis on the development of water resources and the mitigation of floods and drought. This is of special interest for students from de-





veloping and emerging countries. The Center for Advanced Water Research (CAWR) is operated together

with the UFZ. It was within this same framework that the international research training group “Resilient Complex Water Networks” was established.

The broad spectrum of studies offered by the faculty is further complemented by a master’s programme in spatial development and natural resource management. The Faculty of Environmental Sciences is moreover offering the special postgraduate course “Environmental Management”. This programme is unique in Europe and has been offered for already 40 years in close cooperation with the Federal Ministry for the Environment, the Federal Environmental Agency (UBA) and the United Nations (UNEP, Nairobi, and UNESCO, Paris). The primary goal is to provide specialists and managers from developing and emerging countries with sound university training in integrated environmental management and related environment-specific fields.

Close cooperation and a strategic partnership is cultivated with the FLORES Institute of the United Nations University (UNU). The mission of this Dresden-based UN institute is to contribute to the development of integrated management strategies for the sustainable use of water, soil and waste resources. For this purpose, a joint doctorate programme has also been established.

<https://tu-dresden.de/uw>



„Friedrich List“ Faculty of Transport and Traffic Science

Friedrich List (1789-1846) felt restricted in the Germany of his early days. His liberal views even earned him a spell of fortress imprisonment before he emigrated to America, where he founded a railway company. Later in life, he returned to Saxony and here he was a fervent advocate of industrialisation, a market economy and above all the development of a German railway network.

It would no doubt bring a tear of joy to his eye to witness today's scope of teaching and research at the Faculty of Transport and Traffic Sciences which bears his name at TU Dresden. The teaching is characterised by a holistic, systematic approach to the transport and communication

processes in industry, the environment and society as a whole. The faculty counts almost 1,250 students and is the only one of its kind at a German university. Its programmes are open to all qualified applicants with an interest in engineering- or economics-oriented studies in the field.

Alongside its exclusive and unique degrees in transport engineering (Dipl.-Ing.), rail system engineering (M.Sc.) and transport economics (B.Sc. and M.Sc.), the faculty offers interdisciplinary Diplom degree courses in mechanical engineering with specialisations in automotive or rail vehicle engineering and mechatronics together with other Dresden faculties. >From the academic year 2017/18

onwards, the portfolio of advanced study options at the faculty is to be expanded further with a Master degree programme in air transport and logistics.

Graduates of the faculty are trained to solve tasks which demand not only knowledge of the technical infrastructures (transport routes, vehicles, and information and safety technologies), information and communications processes, operational routines and the economic interactions between traffic and transport systems, but furthermore considerations of the ecological, social and psychological aspects – also in their wider spatial context.

The optimum support given by professors, tutors and mentors, alongside small-sized study groups, guarantees particularly effective studies. Modern laboratories, for example an integrated railway laboratory, a system laboratory for rail-bound vehicles, laboratories for flight simulation, signalling and traffic information, traffic process automation, the simulation of railway and control centre operations, as well as state-of-the-art vehicle engineering test stands and further facilities in the university's Vehicle Test Centre, form the basis for targeted engineering research, and enable students to prepare for later careers throughout the transport sector under real-world conditions.

A lucrative career is rarely a worry for graduates of the above programmes. The first contacts to front-line companies are already established during periods of practical work experience. Research cooperation agreements signed between the faculty and a diversity of private enterprises and institutions in the fields of transport, vehicle engineering and traffic science (for example the Fraunhofer-Gesellschaft, the German Aero-space Centre and the European Centre for Innovation in Rail Technology) lay the

foundations for numerous projects in which the students are also involved.

Research activities at the “Friedrich List” Faculty of Transport and Traffic Sciences embrace the fields of traffic planning, traffic system engineering, traffic infrastructure design, automotive and rail vehicle engineering, traffic telematics and safety systems, traffic management, logistics, traffic ecology and traffic psychology, among others. The traffic science conferences which are held every two years are also highly renowned among experts from all over the world. It is thus hardly surprising that word of the outstanding reputation of Dresden's traffic scientists is spreading – as can be seen from the many graduates from other faculties who choose the city as the place to pursue their doctorate studies.

Further interesting applications for both research and teaching arise from Dresden's function as a junction of important European traffic corridors. The international commitment of the faculty is founded not least on the location of Dresden as a hub for science at the heart of Europe and at the interface between the countries of Central and Western Europe.

<https://tu-dresden.de/vkw>



Faculty of Business and Economics

TU Dresden's Faculty of Business and Economics is one of the largest in Eastern Germany and counts around 2,600 students. The spectrum of degrees offered is especially broad, with two Bachelor programmes (economics and

business management; business and economics education), two Diploms programmes (business informatics; industrial engineering) and five Master programmes (business management; economics; business and economics

education; business informatics; industrial engineering). Particular importance is attached to modern didactics and innovative teaching methods, including interdisciplinary multimedia programmes for university teaching and self-organised learning. E-learning enables students to expand their knowledge independently of both time and location.

Former UN Secretary-General Kofi Annan is an honorary doctor of TU Dresden's Faculty of Business and Economics alongside further representatives of international politics and business. This award was more than just a symbol: The cosmopolitan atmosphere which reigns here is also reflected in agreements on bi-national degrees with universities in France and Italy, diverse university partnerships, and a curriculum geared towards flexible, internationally compatible studies. The proportion of foreign students in Dresden is at a constantly high level of around 10 per cent. International cooperation is also promoted through annual prize awards. The Dr. Händel Prize and the German Federal Bank Prize, for example, allow scientific staff to conduct research abroad, and permit invitations to be extended to visiting scientists. The Prof. Endriss Prize, on the other hand, offers financial assistance to students wishing to spend part of their course in another country.

With a total of 22 professors and 2 junior professors representing the fields of business management, economics and business informatics, research at the faculty covers a wide diversity of topics and is characterised above all by an interdisciplinary and distinctly methodology-oriented approach. The faculty is at the same time involved in various competence centres and central units of TU Dresden,

among them the Centre for Demography and Diversity, the Health Economics Centre (GÖZ) and the Centre for International Studies (ZIS). Students who are thinking of setting up their own business will find competent partners in the business founders' network "dresden I exists". The team of "dresden I exists" promotes entrepreneurial thinking, conveys specialist knowledge, trains business acumen and helps to establish contacts.

Finally, Dresden is an ideal location for direct interactions between academic study and scientifically founded political advice. The local branch of the ifo Institute for Economic Research is located in the immediate vicinity of the faculty. Through the close relationship with this extramural research institute, academic research draws new ideas from insights into important economic policy issues.

<https://tu-dresden.de/wiwi>



Faculty of Medicine Carl Gustav Carus

The Faculty of Medicine Carl Gustav Carus embodies broad academic diversity, with degree courses in medicine, dentistry, public health and medical radiation sciences. Over 2,800 students are enrolled in these disciplines. Scientifically-oriented teaching, with strong

practical and interprofessional aspects, establishes the reputation of university medicine in Dresden. In the Interprofessional Medical Training Centre (MITZ), basic skills and doctor-patient communication are trained in the smallest group possible, often with actors assuming

the patient role. Those training sessions – some of which are attended together with trainees from the Carus Academy – are mandatory components of the longitudinal curriculum between the second and tenth semester. The interdisciplinary approach is intensified through a series of DIPOL® modules (Dresden system of Integrated practice- and Problem-Oriented Learning) starting in the fifth semester. At preclinical and clinical stages, training progress is supported by modern learning methods such as e-teaching and the Anatomage Table. Teaching and examination formats are expanded in line with the latest didactic findings – against this background Dresden introduced and continues to develop the OSCE format (Objective Structured Clinical Examinations.)

Dentistry students are provided with a modern teaching environment with 32 networked and fully digital workstations in the dental simulator lab. Offering practical experience in general dental surgeries and in oral and facial surgery practices, Dresden has assumed a pioneering role in Germany.

The range of study programmes also includes two Master courses. The aim of the supplementary Master programme “Health Sciences – Public Health” is to qualify students for research and operational tasks relating to the planning and management of national and international health services. The Master programme “Medical Radiation Sciences” trains specialists for the medical application of ionising radiation with a specialisation on physical aspects – leading at the same time to a qualification as a Medical Physics Expert (MPE), as recognised by the relevant nuclear authorities.

Within the framework of ERASMUS+ programme, interested students are given the opportunity to study at one of the faculty's many partner universities, e.g. in Spain, France, Italy, Austria, Latvia, Poland or Switzerland. In addition, undergraduates are able to complete part of their practical year in Sydney, Adelaide or London on a DAAD scholarship. Dentistry students are offered bilateral exchange programmes with the universities in Ghent and Leuven (Belgium), Dundee (Scotland) and Oslo (Norway), and with the Universidad Complutense de Madrid (Spain). For many years, internships lasting several weeks have been organised with the University of Alberta in Edmonton (Canada)

International exchanges are a prerequisite for outstanding teaching and cutting-edge research. The School of Medicine in Dresden lives this principle with staff and students from 73 nations, and through its cooperations with research teams from all continents of the world. The outstanding scientific environment and extensive international contacts are essential for the successful further development of both the university clinic and the faculty.

Key fields of research include oncology, diabetology, as well as neurological and psychiatric disorders. Here, a particular focus is placed on the interdisciplinary complexes of degeneration and regeneration, imaging and technology development, immunology and inflammation, and prevention and advanced care.

<https://tu-dresden.de/med/mf>



Contact

TUD-Information

Mommsenstraße 9, 01069 Dresden
Phone: +49 351 463-37044
infostelle@tu-dresden.de
<https://tu-dresden.de/infostelle>

International Office

Strehleener Straße 22, 01069 Dresden
Phone: +49 351 463-35358
auslandsamt@mailbox.tu-dresden.de
<https://tu-dresden.de/internationales>

Press Office

Nöthnitzer Straße 43, 01187 Dresden
Phone: +49 351 463-32398
pressestelle@tu-dresden.de
<https://tu-dresden.de/tu-dresden/newsportal/presse>

ServiceCenterStudies

Frontdesk SLUB
Zellescher Weg 18, 01069 Dresden
Phone: +49 351 463-42000
servicecenter.studium@tu-dresden.de
<https://tu-dresden.de/scs>

<https://tu-dresden.de>

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Katharina Leiberg, Frank Seidel

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Gary Bodily, Peter Philipp Krüger, Julia Michl, Holly Brown

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