WE’VE GOT THE BRAINS FOR THE FUTURE
TU BERLIN – AN OVERVIEW

- 28,344 Students, including 5,829 students from other countries
- 7 Faculties
- 294 Professors
- 18 Junior Professors
- 1,877 Research associates
- 8,450 Externally-funded positions
- 70 Courses of study
- 1,574 Staff in administration, libraries, central institutions and workshops
- 267.2 Million euros in state subsidies for the year 2007
- 78 Million euros in external funding for the year 2006
- Average of 30 habilitations and 410 doctoral degrees each year
- Approximately 150 trainees each year in 16 professions
A university is like a vibrant city, revealing a new face every day while preserving the continuity upon which it is founded. This well describes the Technische Universität Berlin. Here, thousands of people work together on innovative projects, whether students, researchers or staff members – right in the middle of one of Europe’s most exciting cities. We bring engineering and natural sciences together under one roof, thereby creating one of the region’s strongest research and learning environments. We also offer a wide range of courses in planning science, economics, as well as in the humanities and social sciences. Our broad disciplinary orientation defines who we are. Diversity is an essential characteristic of the TU Berlin. For us, this includes all the various fields of work and activities that make up any great university. All this diversity serves the higher purpose of ensuring excellence in both research and teaching. In keeping with this commitment we provide the younger generation with a forward-looking and outstanding higher education in science. Our seven areas of special focus play a pivotal role in this regard. They afford a comprehensive framework that allows us to generate the scientific knowledge needed to promote innovation, progress and a sustainable approach to our finite natural resources.

This brochure is meant to give you an insight into the vibrant structure that the word “university” symbolizes – we hope that you’ll get to know us and that you’ll accompany us on our challenging journey into the future!

Prof. Dr. Kurt Kutzler
President of the TU Berlin
Only those who know their goal, will find their way.

Lao Tse, (6th century BC), Chinese philosopher
THE TU BERLIN – A PORTRAIT
The internationally renowned Technische Universität Berlin is located in Germany’s capital city at the heart of Europe. Our activities focus on achieving four sharply-defined core goals: building a distinctive profile for our university, ensuring exceptional performance in research and teaching, providing our graduates with excellent qualifications, in addition to a forward-looking approach to efficient university governance. The TU Berlin strives to promote the accumulation of knowledge and to facilitate technological progress by adhering to the fundamental principles of excellence and quality. Strong regional,
national and international networking with partners in science and industry is an important aspect in all these endeavors.

Our research and teaching endeavors are characterized by a broad spectrum of academic disciplines, ranging from engineering science to natural science, planning science and economics, as well as the humanities and social sciences.

A number of successfully implemented reforms have helped to craft a new image for the TU Berlin. The number of courses we offer has been reduced by half over the past ten years. The university also took this opportunity to sharpen its own distinct profile. Today, the TU Berlin is distinguished by its exceptional course offerings and scientific orientation. We are the only university in the entire region to offer engineering sciences. In our role as a leading research university, we also promote cooperation between science and industry, as amply demonstrated by the high volume of external funding we receive.

In order to meet future challenges posed by society and technology, the university has organized its core competencies into interdisciplinary collaborative research centers. The ongoing generational turnover of professors is also giving us the opportunity to sharpen our priorities. The TU Berlin’s strategic appointment policies thus serve to sustainably promote excellence in the most important disciplines.

Present university policies give high priority to comprehensive syllabus reforms. The so-called “Bologna Process” has given us the impetus to implement new and forward-looking options in education – some of these are unique to all of Germany. A comprehensive quality assurance program to monitor course content will serve to ensure the highest possible standards for our Bachelors/Masters programs. The university has a number of its own programs in place to shorten “times-to-degree” and to improve the ratio of teachers to students.

The university’s new administrative and committee structure guarantees efficient university governance and allows us to separate strategic tasks from operative ones while ensuring a high degree of autonomy. Such reforms have attracted a number of noted personalities, who now provide expert advice to university administrators. In the future, a comprehensive approach to quality management will be anchored in the fundamental principles of good university governance.

To further underpin the university’s renewal process, a number of reform projects have been implemented in the university administration sector; these range from Facility Management to self-management of material costs and staff appropriations by the Faculties themselves. Extensive construction projects will give our university a “new look” in just a few years. With most of our facilities located in Berlin’s Charlottenburg district we are indeed a “university of short hops”.

Taken together, these measures illustrate the TU Berlin’s ongoing commitment to focusing its activities in order to better confront the current competitive environment and to face the challenges of tomorrow.
Networking – Strong partners in research and teaching

The TU Berlin maintains many strategic alliances with industrial enterprises. Industry is actively engaged in promoting science by funding endowed chairs at the TU, by providing external funding for research projects and by recognizing excellence in academics and research. Our partners include global players such as Deutsche Telekom, DaimlerChrysler, Thyssen Krupp or Siemens, firms that are interested in two-way technology and knowledge transfer with our university.

To further promote exchanges of this kind, the TU Berlin is implementing a novel and modern concept known as “Innovative Laboratories”. The “Deutsche Telekom Laboratories” is an outstanding example of this endeavor. This facility employs 75 researchers who are striving to develop the information and communications technologies of the future. Deutsche Telekom’s commitment to sponsoring a total of four chairs demonstrates just how valuable such cooperation can be. These firms are also investing in hands-on training, in addition to providing support to students in the form of scholarships, lecture series and helping students to find jobs upon completion of their studies.

International Outreach – Bridge-building across borders

The TU Berlin has a distinctly cosmopolitan flair; it maintains a number of international cooperation projects and has an exceptionally high ratio of international students. The world feels at home on our campus. Students from 130 countries have elected to study at the TU Berlin. Moreover, many scientists from other countries teach and conduct research here. We are broadening our global networking efforts by implementing the “Bologna Declaration”, by cooperating closely with top universities around the world and by establishing joint study programs in association with foreign universities.
A promising future – Investing in our region

The TU Berlin is one of the most important initiators of new ideas in our region, and as such, plays an important role in the Berlin Region’s innovation and technology policies. Our university’s key research fields dovetail with many innovative fields that have been earmarked by the Federal State of Berlin. These areas include health economics, communications, media and cultural economics, optical technologies, microsystems technology, environmental technologies, as well as water use and transportation.

Our university’s competencies are an indispensable component of this network of scientific facilities in the Berlin-Brandenburg region. Joint appointments of outstanding scientists and numerous major projects that also integrate partners from industry help to bolster the success of our economic region.

The TU Berlin has been able to create hundreds of innovative jobs as a result of its successful fund-raising endeavors. Furthermore, the many start-ups resulting from research projects and companies formed by TU graduates serve as a motor for the job market of an entire region. With the know-how they acquire during their studies and research activities, these young scientists are helping to strengthen medium-sized enterprises and to ensure a high degree of innovation in the private sector.

The TU Berlin promotes science-based entrepreneurship through innumerable projects and initiatives.

Our university’s creative potential also radiates beyond our campus: many companies have chosen to locate their facilities in the direct vicinity of the campus in order to better promote scientific exchange and to provide our graduates with entry-level jobs.
Berlin is a truly vibrant city that never stops reinventing itself. The dynamism that Berlin draws from its history and from the creative potential of its residents makes Berlin one of the most interesting cosmopolitan cities in the world. It is a city where people from various cultures and nations have the opportunity to meet and communicate. Reminders of the political and cultural events that shaped the nineteenth and twentieth centuries can be found on nearly every street corner throughout the city. Few other world cities have repeatedly undergone such fundamental transformation. Still, Berlin has been able to evolve from a divided city into a European metropolis.

Top location for science and research

Berlin is also a leading center of science and culture. No other region in Europe offers such a high concentration of science and research facilities as does the German capital. The Federal State of Berlin invests 1.8 billion euros in these sectors each year. Berlin’s four universities, three art academies, seven technical colleges, several private universities and more than 70 extramural research facilities offer excellence in teaching and research, in addition to around 50,000 jobs. National research organizations are also represented in Berlin, as are various federal ministries. Berlin’s political and cultural potential, especially in terms of science and education, is a guarantor of the future for the entire region.

Unique atmosphere

Berlin is truly a “city of science” with the TU Berlin campus as its center. Located in the “City-West” area, our main campus spans the area between the celebrated Kurfürstendamm boulevard and the central train station, Berlin’s most striking new landmark. The creative environment surrounding the TU Berlin – coupled with its central location and spatial and technical possibilities – make it a popular venue for conventions and congresses.

The district of Charlottenburg-Wilmersdorf provides an attractive living environment, which is characterized by culture, cinemas and night life. Charlottenburg is no longer just a tourist and shopping area – it is now very much a first-rate location for scientific activities. Research and its practical application have long traditions here. Today, science and industry go hand in hand, as illustrated by companies conducting intensive research in the fields of biotechnology, computer sciences or automobile production that have expressly chosen to locate their facilities in close proximity to our university campus.

This concept is also being applied at our second TU campus located in the district of Wedding and host to the “Technology and Innovation Park Berlin” (TIB). Here, scientists from our university and from one of the Fraunhofer Gesellschaft Institutes work directly alongside young start-up hopefuls and experienced business leaders. The TIB’s imposing industrial architecture is reminiscent of the early years of the illustrious AEG, a company that has marked this district like no other. Today, more than 90 companies are helping to reinvigorate the immediate area, a concept the university initiated in 1980s and eventually leading to the establishment of Germany’s very first “business incubator”.

Berlin – Building on tradition while embracing change
Technology ushers in a new era

The eventful history of the Technische Universität Berlin extends all the way back to the time of King Friedrich II. Originally founded in 1770, the School of Mining was integrated into the “Königlich Technische Hochschule zu Berlin” (TH) in 1916. The TH was established in 1879, when it merged with the School of Architecture, founded in 1799, and the Academy of Trade, founded in 1821. Karl Friedrich Schinkel and Christian W. Beuth, the “father of engineering”, are some of the most well-known representatives of these two institutions.

The creation of the TH turned out to be an important step in historical terms, as it bolstered the importance of engineering in the face of emerging 19th-century industrialization. The need for trained engineers was on the increase, as were calls for engineers to receive more recognition from society and from the scientific establishment. In 1899, the German Kaiser and King of Prussia, Wilhelm II, granted technical universities in Prussia the right to bestow doctoral degrees – the first technical universities in the German Reich to be granted such privileges. A festive ceremony was held in the atrium of the TH in Berlin to celebrate this occasion. And so it was that engineers finally received the same formal recognition as did classically trained academicians.

The TU Berlin sees itself in the tradition of the TH, a university that earned a fine reputation by conducting technical research in Berlin and thereby contributing to the city’s emergence as one of Europe’s largest industrial metropolitan...
areas. The TH Berlin continued to evolve and eventually became - as the Association of German Engineers described it in 1906 - “an intellectual center, a much envied model and focal point of technical progress” not only for Prussia and Germany, but for the Western world. A number of Nobel Prize winning scientists studied and taught at the TH Berlin well into the 1930s. These included the chemists Carl Bosch and Fritz Haber, as well as the physicists Gustav Hertz, Eugene Paul Wigner, Wolfgang Paul, George de Hevesy, Dennis Gabor and Ernst Ruska.

Starting in 1933, National Socialist ideas also began to impact academic life at the TH Berlin. This was indeed the darkest chapter in the university’s history. Discrimination started against scientists who were either Jewish or overly critical, subsequently resulting in their expulsion from the university, for example Gustav Hertz and Georg Schlesinger, the pioneer of modern production sciences who together with Albert Einstein founded the Technion Haifa.

New beginnings and new visions

The university’s reopening in 1946 was purposely conceived as a new beginning, so as to make a clear break with the National Socialist past. This fresh start was also to be expressed in its new name: as Germany’s first technical university it was named simply “Technische Universität”. Its educational mission was reallocated as well with an emphasis on “universal education”. By including the Humanities in its compendium of subjects, the TU Berlin became the first technical university in Germany to present a humanistic element in its scholastic profile. The aim was to breach the gap between technological research and social responsibility. The challenge of gaining insight into interaction between society and technology remains an important issue even today.

Right from its inception, the TU Berlin was open to embracing reforms and innovations. Fundamental changes within the German university system eventually led to the student movements of the late 1960s. Given its central location, the TU Berlin was often the focal point of student activities in Berlin during this time frame. The 1960s and 1970s were characterized by
a significant expansion of German universities, with the number students attending the TU Berlin increasing accordingly. Since the 1980s, however, universities have also felt the direct impact of public funding constraints. The fall of the Berlin Wall prompted a sudden explosion of science and research capacities in Berlin, with costs rising as a result. Initiation of the so-called University Contract Agreement (Hochschulverträge) posed a real challenge to the Federal State of Berlin. Since the late 1990s, this agreement provides financial planning security to universities, but in return demands that they adopt a number of reforms. The TU Berlin has consistently met these challenges by adopting lean, modern university administration practices, by modifying the scholastic program to fit our Bachelors/Masters program and by ensuring excellence in research.

**New opportunities: Helping to craft the future**

Since it is our aim to attain a top position among leading technical universities, the TU Berlin will single-mindedly follow its present course, thereby further sharpening its academic and research profiles. The University Organizational Plan (Hochschulstrukturplan) of 2004 defines seven promising fields that give practical expression to this ambition. By improving and further developing these selected scientific areas, the TU Berlin believes it has found the key to success. Furthermore, other university-related endeavors such as teaching and academics, promoting young scientific talent, gender mainstreaming and continuing education programs will also profit from our research excellence.

Meeting the challenges of the “Bologna Process” is a further area of focus for the TU Berlin. Components of our new, internationally-compatible syllabus include a forward-looking educational profile, a good ratio of teachers to students, shorter times-to-degree and a comprehensive quality assurance program.

In support of our reform programs to promote research and academics, measures will be put in place to ensure a modern system of university governance and efficient management practices. Efficiency, customer-orientation and a willingness to serve are the basis of this modernization process.
Nothing is stronger than an idea whose time has come.

Victor Hugo (1802–1885), French author
After the National Socialist era and following the end of World War II, Berlin’s Technische Hochschule was restructured and reopened as the “Technische Universität” in 1946, at which time a Faculty of the Humanities was also established. The aim was to direct technological knowledge towards a new horizon in humanistic values. Today, the humanities are also charged with the task of building bridges between the culture of knowledge in the humanities and that of the technical and natural sciences. Since 2004, Faculty course content has been restructured in order to meet this challenge and to strengthen links between the humanities and social sciences on the one hand, and the engineering, natural, planning and economic sciences on the other hand.

Compelling new Masters programs and an interdisciplinary Bachelors program “Culture and Technology” mark this new beginning. This Bachelors program offers a fresh profile of cultural studies that is specifically tailored to meet the needs of TU Berlin students. On the basis of its excellent core curriculum this program offers new opportunities in the form of research-
oriented Masters programs such as “Philosophy of Knowledge and of the Sciences”.

The cognitive and normative role of the sciences in human life-worlds is explored here. The Masters program “History and Culture of Science and Technology” inquires into the historical genesis of our modern technico-scientific world.

The Masters program “Art History and Art Technology” focuses on researching, preserving and passing on Europe’s artistic and architectural legacy. The Masters Program “Historical Urban Studies” investigates how the spaces of urban life have become the locus of the modern history of civilization. Both these Master of Arts programs exist in close cooperation with the Faculty of Architecture, which is also a part of the TU Berlin.

The Master of Arts programs “Media Communication and Media Technology” and “Communication and Language”, which focus on linguistics, communication, media sciences and German as a Second Language, are integrally linked with the natural and technical sciences, as well as with the exchange of this knowledge at a global level. The new practically oriented Masters Program “Educational Management” is taught within the framework of educational sciences, in order to impart teaching methods and organization techniques that promote knowledge and learning.

With these internationally networked, cross-disciplinary and praxis-oriented course offerings, the TU Berlin is focusing on the broad and increasingly important research and vocational fields relating to the social mediation and integration of values, sciences and cultural forms of knowledge.

With its “Center of Teacher Education” the Faculty offers new Bachelor and Master programs for Technical Teacher Education (TTE), as well as for secondary and vocational schools. Here, our Faculty can bring its long years of academic experience to bear. The “Center for Interdisciplinary Women’s and Gender Studies”, in addition to the “Center for Study of Anti-Semitism” since its founding in 1980, are good examples of the international reputation that the TU Berlin has earned for excellence in the humanities. Faculty professors hold executive positions in important non-university organizations such as the Berlin Humanities Centers in Berlin and the Academy of Sciences Berlin-Brandenburg.

The “Schinkel Center for Architecture, Building Conservation and Urban Studies” is an interdisciplinary and cross-disciplinary research platform that explores the development, design and future of our urban spaces. The most recently established research center at our Faculty is the “Center for Metropolitan Studies” (CMC), an interdisciplinary and internationally oriented research association, dedicated to historical and contemporary problems of issues currently impacting life in a metropolis. The transatlantic graduate research program “Berlin – New York” forms the core of this center. This is a cooperative enterprise supported by the German Research Foundation (DFG), three major Berlin universities as well as two universities in New York. The host university is the TU Berlin. This is the first international graduate research program in Germany to be sponsored by the DFG.
Faculty II is home to the discipline of mathematics, as well as to the related fields of physics and chemistry. This Faculty has distinguished itself through excellence in both pure and applied research and its broad scientific achievements.

Mathematics is a millennium-old cultural treasure that remains a multi-faceted and contemporary subject of teaching and research. It has since developed into one of the key technologies of the information age. A large university of technology like the TU Berlin offers special opportunities for cross-discipline cooperation between the natural sciences, engineering sciences and research in pure mathematics. Our Faculty serves as an interface, where TU Berlin mathematicians teach, conduct
research and devise hypotheses in response to ever more complex problems posed by the fields of engineering and the natural sciences.

A number of cooperative projects in specialized fields of research involving graduate schools and research groups underscores the high level of activity at the Institute of Mathematics. Furthermore, it plays a leading role in the DFG research center “MATHEON – Mathematics for the Key Technologies” and the “Berlin Mathematical School” (BMS), which is promoted by the Excellence Initiative. These two leading professional networks have resulted from the merging of several mathematics institutes in Berlin, both intramural and extramural, and have received recognition all over the world as a beacon of excellence in mathematical studies. Both projects receive approximately 7.7 million euros in external funding each year. The TU Berlin is the host university for both institutions.

Chemists at the TU Berlin also enjoy a high international reputation in the fields of pure and applied research. Underlying this reputation are modern experimental and theoretical methods. Research can be carried out in all 16 areas of specialization thanks to an infrastructure of large-scale research equipment that is available only in a few locations anywhere in the world. Here, the main research focus is on chemistry as it relates to material sciences, synthetic chemistry and catalysis, biological and biophysical chemistry and chemical technology. Scientists at the TU Berlin have contributed substantially to basic research into photosynthetic processes. Furthermore, the Institute of Chemistry has earned a name for itself in the field of catalysis through its strong networking within Berlin’s research community. The strategic goal here is to develop and consolidate the diverse concepts of pure and applied catalysis and including biocatalysis. Through their participation in a catalysis research cluster these scientists are also making their contribution to the “Excellence Initiative of Federal and State Governments”.

Physicists from the Faculty’s four Institutes of Physics focus their attention on solid-state physics, in particular semiconductor and nanophysics, optics and nuclear physics, as well as theoretical and astrophysics. Application-oriented basic research forms the core of this endeavor. An excellent example of this is the “Center of Nanophotonics” with one of the most up-to-date cleanroom laboratories in Germany. This TU institute plays a leading international role in the field of quantum dot laser research and maintains various partnerships with private industry. The main specialties of the field of Optics include light optics, laser physics, optical technologies, electronic microscopy and electronic holography. New laser systems are being developed at the TU Berlin, whose optical characteristics are currently the object of research for applications in the fields of the laser processing of materials and in medicine. The main focus of the field of nuclear physics encompasses experimental research in the areas of atomic, molecular and cluster physics. A major new area of focus is research into clusters and nano-crystals. Extensive research into non-linear dynamics and Berlin’s only “Center for Astronomy and Astrophysics” complete the spectrum.

Our Faculty provides a wide range of services to our students, since mathematics and physics courses are required for students majoring in engineering science. The range of courses offered by the Faculty is being restructured to fit the needs of our Bachelors/Masters programs. The Faculty is leading the way in introducing E-learning and E-teaching at our university. One result of these efforts is the Multimedia Center for Education and Research (MuLF), which is promoted by the Federal Ministry of Education and Research with a budget of 2 million euros.
Processes and process chains are the focus of training and research at Faculty III. For our Faculty in particular this means issues that touch on the transforming and transporting of energy and materials by means of physical, chemical and biological processes in the spheres of: energy and building engineering, process technology, biotechnology as well as food technology and food chemistry. This requires that we impart fundamental knowledge to our students, both in terms of natural science and engineering science methodologies. For this reason, the different fields of natural and engineering sciences cooperate closely and on an equal basis when researching solutions for the various challenges mentioned above.

Natural sciences are strongly represented in the analytical, chemical and biological focus of specialist fields and participate actively in conducting practical, solution-oriented basic research.

The engineering disciplines contribute their expertise primarily to the fields of energy management, process technology
and various specialist fields, as well as to material science for the various products and target fields. These disciplines are very tightly integrated into cooperation and service activities across the involved faculties.

Our research and teaching endeavors focus on the target fields, products and application areas in the fields of manufacturing and chemical waste disposal facilities, biotechnology products, energy and energy sources, human and animal foods, consumer goods, as well as environmental media.

This goal-oriented approach is clearly demonstrated in the courses that Faculty III has offered in the past, and in the courses it is proposing for the new Bachelor/Masters program. Our courses are based on a common methodological principle: the Bachelor program provides broad, basic education in the natural and engineering sciences, while the Master program features a more differentiated and research-oriented didactic approach. Research at the interfaces of scientific fields not only ensures a uniquely integrated approach to teaching and research, but also promotes the emergence of new fields of research that can bring about innovation.

The Faculty’s commitment to offer three of the seven academic fields that were identified by the TU Berlin as future-oriented areas of scientific specialization is our contribution to achieving a forward-looking research profile for our university. Accordingly, our Faculty takes the lead in addressing issues of water, energy and nutrition. We are also home to the DFG’s collaborative research center that investigates: “Control of complex turbulent shear flows” and the research cluster “Flow and Noise Control for Future Transportation Systems”. We also participate in cross-faculty areas of focus such as “Technology of Fluid Systems” and “Water in Urban Areas”.

With the implementation of the TU Berlin’s new Bachelor/Masters program, Faculty III is continually updating the reshaped and modularized diploma programs that were realized to coincide with the winter semester of 2004/2005. In addition to our modular and performance-driven approach, we are introducing an internationally recognized Bachelor/Master degree system. Joint-Degree Programs are offered in association with universities in Lyon (France), Krakow (Poland) and Pusan (Korea).

In the future, in addition to offering a state examination in food chemistry, Bachelor programs will also be offered in the areas of energy and process technologies, technical environmental protection/environmental science and technology, materials science, biotechnology and food chemistry. These will serve as the basis for various Master programs, some of which will be presented in English. Our Faculty offers international post-graduate schools in the fields of process engineering and water and soil protection.
Few fields of specialization are marked by such a high degree of interdisciplinarity as those of electrical engineering and information technology. Nearly all modern technologies, whether telecommunications, automation technology, or medicine, depend on the knowledge that stems from these two disciplines or the products they create. Electrical engineering and information technology play a central role in all areas of modern everyday life. Our Faculty offers training and research possibilities that encompass this entire spectrum, with a special emphasis on information and communication technologies. The latter ranges from semiconductor devices and microtechnology, optical and microwave transmission and communications engineering, all the way to communication systems, networks and software technology. Lectures and research projects address the interfaces between humans and their environment and information systems. Several groups of Faculty researchers have been particularly successful in their very recent contributions to brain research. The Faculty has also been involved in establishing Berlin’s “Bernstein Center for Computational Neuroscience”, which conducts research in the field of cognitive neurosciences. The Faculty’s research activities also focus on issues that touch on micro/nanosystems technology, automation technology, electrical engineering technology, software technology and machine intelligence.
With more than 40 professorships, the Faculty’s research potential is reinforced by highly successful collaboration with our non-university research partners. As a result of this cooperation we presently have 18 additional chairs, which in and of itself considerably expands the Faculty’s research potential. These cooperative efforts are built on a solid foundation, since TU professors hold leadership positions in the involved non-university institutions. Examples of this at the Fraunhofer Gesellschaft are the Institutes of Computer Architecture and Software Technology (FIRST), Open Communication Systems (FOKUS), Software and Systems Technology (ISST), Reliability and Microintegration (IZM), as well as the Heinrich Hertz Institute (HHI). Other significant research institutes with whom we are associated include Hahn-Meitner Institute, with its focus on solar energy research, as well as the Ferdinand Braun Institute of High Frequency Technology.

We are committed to promoting forward-looking cooperation with Deutsche Telekom; for example our Faculty has established four endowed chairs that are sponsored by the Deutsche Telekom; these four professors head the “Deutsche Telekom-Laboratories”, which is located on the grounds of the TU Berlin campus. This wide-ranging research potential offers excellent opportunities for our students to participate in meaningful R&D endeavors early in their studies, thus significantly improving their future employment opportunities in scientific fields, in addition to providing them with valuable experience.

We have reorganized our curriculum to meet the needs of the new Bachelors/Masters program; degree-level instruction in electrical engineering, information technology and computer engineering will give our students new mobility opportunities both nationally and internationally. In close association with other Berlin universities our Faculty also offers an International Masters Program entitled “Computational Neurosciences”. Further Masters programs are in the pipeline, e.g. “Autonomous Systems”. Internationally minded students at our Faculty will be interested in our joint-degree arrangements with several renowned foreign universities, e.g. the Shanghai Jiao Tong University in China.
By bringing together the disciplines of mechanical engineering, transport systems and psychology, Faculty V “Mechanical Engineering and Transport Systems” offers its students a unique combination of education and research in the engineering sciences. Our scientific endeavors serve to scrutinize complex systems in terms of their social, technical, ecological and economic components. This is the basis of our Faculty’s leitmotiv: putting the individual person at the center of technological systems. Areas of research expertise include flow acoustics, and structural acoustics, the interaction of man and technology, mobility and sustainable transport systems, as well as the origins of technological systems. An additional area of focus lies in the development of a so-called “digital factory”. This includes production technology systems that are capable of responding to a wide variety of different customer requirements. Prototypes for new types of urban
The faculties transport vehicles are conceived at our Faculty and implemented by partners in the automotive industry. Efficient and sustainable products and processes are an additional goal of our research and development endeavors.

Our engineers cooperate closely with psychologists in the broad field of human-machine-systems to promote humane working conditions in a technological world. The security of these systems is especially important whenever collaboration between man and machine breaks down, thus posing great risks in operating rooms or in air traffic control towers for example. Research and training in this subject area are closely linked in the context of our interdisciplinary Master's program "Human Factors", the only one of its kind in all of Germany.

In addition to considerable funding from the German Research Foundation (DFG), European Union and federal ministries, our direct and project-specific cooperation with partners in industry and business is also an important part of what we do. For example, we took part in the joint development of the monorail train Transrapid and the large passenger plane A 380. The TU Berlin also maintains numerous partnerships in industry in the fields of aviation and astronautics. This field of research with its long tradition at the TU currently emphasizes the development of so-called pico satellites, a field of research in which the TU Berlin has played a leading international role. Together with other research facilities, the TU Berlin has helped to bring a total of seven satellites into orbit.

The Faculty’s strengths also lie in its close networking and consistent setting of priorities. It is actively cooperating in two specialized fields of research, one graduate school, four research networks and six primary areas of university research.

A hallmark of our Faculty is its close interconnecting of research and training endeavors, in addition to its consistently praxis-oriented curriculum. Our graduates are thus highly sought after and highly qualified specialists, both in Germany and abroad and this also explains the great appeal of subjects such as Transport Systems, Computer Sciences in Mechanical Engineering, or the Master’s program Global Production Engineering. Five of the six course program profiles are unique in all of Germany.
At Faculty VI, architects and construction engineers, city and regional planners, landscape architects and environmental planners, geotechnical engineers, social scientists, geodesists and ecologists are actively involved in research and teaching endeavors. The Faculty can thus offer an outstanding range of planning, environmental and construction-oriented sciences which is exceptional, even at an international level.

The School of Architecture feels especially obligated to help transform future living environments. This concerns architecture’s role in shaping environments and contributing to culture at large, but also addresses the massive consumption of resources caused by construction measures and the resulting consequences for the environment. Furthermore, architects must make a contribution to ensuring humane housing conditions in the countries of the South. Areas of focus in training, teaching and professional development include: structural engineering, climate friendly and sustainable construction; urban renewal, preservation of historical buildings and monuments and construction research. The fields of urban development, metropolis research, housing as well as location and project deve-
The faculties of the Technische Universität Berlin, including the Department of Urban and Regional Planning and the Institute of Civil Engineering, have introduced a unique approach to designing and manufacturing using a wide range of materials. This includes specialty areas in design and constructing, solid structures, metal construction and lightweight construction as well as composite structures. Additional areas of research emphasis include construction technology, building diagnostics, construction and soil dynamics as well as developing and financing of infrastructure for urban areas.

As an autonomous research field, the subject of Urban Ecology at the Technische Universität Berlin has its origins at the Institute of Ecology. The Institute of Ecology covers a wide spectrum of biotic (plant and animal world) and abiotic (earth, water, climate, waste materials) components of the ecosystem, both in the terrestrial and aquatic domains. A wide range of disciplines – in addition to networking with the planning sciences, engineering sciences and sustainability-oriented areas of expertise – are distinguishing characteristics of the Institute of Ecology at the TU Berlin.

Central to the activity of the Institute of Landscape Architecture and Environmental Planning is the design, configuration and environmentally sustainable planning for unused space and landscapes. In this connection, contemporary strategies for the planning of undeveloped areas and future landscape development are a factor, as is interaction with the instruments of landscape planning and environmental auditing. Social and economic aspects also need to be examined, insofar as they impact sustainable development. Satellite data and geo-information systems support these lines of research.

The Institute of Sociology dovetails neatly with individual engineering sciences offered at the TU Berlin; it also addresses innovation and mobility research issues in close cooperation with the Center for Technology and Society. Our “sociology of technology” program, the only one of its kind in Germany, has opened up a whole new scientific discipline.

As the focus of its training and research efforts, the Institute of Civil Engineering has introduced a hitherto unique approach to designing and manufacturing using a wide range of materials. These include specialty areas in design and constructing, solid structures, metal construction and lightweight construction as well as composite structures. Additional areas of research emphasis include construction technology, building diagnostics, construction and soil dynamics as well as developing and financing of infrastructure for urban areas.

In the applied geosciences, the spectrum of challenges in terms of sustainable geo-resource management ranges from the exploration, evaluation and use of space, both above and below ground, to materials research and environmental research. In the fields of geodesy and geocomputer sciences, the latest satellite-assisted analytical methods are employed in earth system research and planetary sciences research, in precision navigation and geopositioning, as well as in the creation of coordinate reference systems for geographic information systems (GIS).

The Faculty’s syllabus is currently being adapted to the Bachelor/Master degree program. The Faculty has utilized the reform procedure to broaden it focus on the one hand, while developing new, independent Masters programs on the other. One example of this is our Masters in Urban Design, Geodesy and Geoinformation Sciences and Urban Ecology Sciences, the only one of its kind in Germany. The growing proportion of lectures given in the English language and possibility of obtaining a joint degree is helping to drive the internationalization of our teaching approach.

Faculty VI has firmly established itself as a provider of continuing university education. It offers instruction in the fields of historic monument restoration, stage design, real estate management and urban management.
The subject areas Economics and Management at the TU Berlin are very much oriented to practical applications and technologies, with a strong emphasis on practical business and management issues in all of our teaching and research endeavors. The Faculty focuses on business management, economics and commercial law, as well as technology and management. Areas of emphasis in research include the spheres of health technology and health economics, innovation research and logis-
tics as well as infrastructure economics and network economics. Further research projects look at empirical economic research and economic policy, as well as organization practices, corporate management and strategic controlling.

The Faculty promotes close collaboration with industry in the context of its research projects. Furthermore, certain scientific fields have built their own relationships within various national and international research networks. Such endeavors include competitive strategies in the pharmaceutical and telecommunication industries, the challenge of developing Berlin-Brandenburg into a strong logistics region, hospital logistics or chain of command issues within European stock markets.

The study course “Business Administration and Engineering”, which was first introduced by the former Technische Hochschule Berlin as early as 1926, plays an important role in defining our Faculty’s overall profile. Today, this study program ranks among the most prestigious in Germany. Profiting from a combination of business management training and engineering science, we are training all-round young professionals who can distinguish themselves with solid know-how in both of these specialist fields. Our graduates will profit from excellent opportunities on the national and international job markets and can look forward to outstanding career prospects.

Our training efforts are supported by the “Center for Change and Knowledge Management” (CWW), which is located on our Faculty premises. Tailor-made programs of instruction serve to impart pivotal skills and knowledge to our students such as good communication, integration and planning skills, as well as an international perspective and entrepreneurial thinking. Moreover, internships and dissertations give students the opportunity to acquire practical experience and to prepare their dissertations in one of our associated companies. Graduates will also make important contacts that will pave the way for them to obtain career entry positions.

As a result of recent initiatives, the training that graduates need in order to start their own businesses will not only be supported by top-notch scientific training, but by dedicated university courses as well. In connection with the “Bologna Process” the first group of courses has already been adapted to comply with the requirements of the new Bachelor/Master program. For example, we offer the Bachelor level course “Economics” and the Master level course “Industrial and Networks Economics”.
Curiosity is the key to problem-solving.

Galileo Galilei (1564–1642), Italian Physicist and Astronomer
Serving society’s needs

Technical challenges and problems facing society today cannot be resolved solely on the basis of knowledge acquired from individual scientific disciplines. Nowadays, excellent research with a view to generating comprehensive problem-solving can only be successful when it is achieved in cooperation with interdisciplinary research partners, through networking with external research facilities and by gearing these efforts to the practical needs of society. The Technische Universität Berlin will consistently pursue this approach in a dedicated fashion.

Interdisciplinary partnerships – Seven areas of specialization

The TU Berlin is a strong research university. As a fully-equipped university of technology it possesses the specific profile, which on the basis of its excellent scientific expertise, can promote development of innovative technological solutions in order to overcome global problems. With this objective always in mind, the university combines its excellence in basic research, particularly in the fields of mathematics, physics and chemistry, with a predominately engineering science approach that emphasizes application-oriented research. Our core competencies in science are organized on the basis of interdisciplinary partnerships. In concrete terms, we have defined seven forward-looking areas of scientific interest that are geared towards basic research, as well as to the innovation needs of society and industry. These disciplines are closely related to our research and teaching modules that characterize any modern university of technology.
Seven future-oriented areas of scientific specialization at the TU Berlin:

- Energy
- Habitat Design
- Health and Nutrition
- Information and Communications
- Transportation and Mobility
- Water Management
- Knowledge Management

With these competencies at its disposal, the TU Berlin is also becoming a successful proponent of technology specialization in the immediate region and is actively participating in the implementation of sustainable scientific, economic and innovation policies. Our collective goal is to strengthen the role of research and development outcomes in value-added processes – an essential challenge for a region such as Berlin. In this regard, the TU Berlin can activate its strengths to help boost the region’s overall image.

**Attractive cooperation partners – High demand, wide-ranging external funding**

In terms of its external funding share, the TU Berlin can boast some of the best results of any German university. In 2004, in close cooperation with all of our 340 professors we were able to attract well over 70 million euros in external financial support. This outcome puts us at the top of the list of Berlin universities (excluding medicine), although we have the lowest number of professorships in comparison. Such a strong external funding commitment to our university is concrete proof of our strengths in research, as well as our enormous potential in a variety of scientific fields. The important result here is the “amount of external funding per chair”, a good indicator as to the capabilities and efficiency of our scientists. On the average, each TU chair brings in 207,230 euros of public or private funding each year. The average for all German universities is 93,200 euros.
In the area of patent applications and inventions, the TU Berlin holds the top position in the entire region. Last year, our scientists submitted patent applications for more than 70 inventions; 17 patents have already been granted in the meantime. Applications for 60 patents have been submitted internationally. Patents are a good gauge of technological competency, as they are concrete proof of a university’s capacity to innovate. The TU Berlin leads its regional competitors in terms of invention disclosures. A total of 78 inventions were registered during 2005. This is twice as many as the year before and is the result of a successful and strategically planned research support program.

Against the background of a declining state budget for Berlin’s universities, the commitment of third parties to help finance research and teaching activities takes on increasing importance. “Endowed chairs” are an effective instrument in this regard. But such “endowments” can be secured for the long term, only if scientific excellence and an appropriately creative environment can be guaranteed. The TU Berlin can provide this environment, as evidenced by the number of endowed chairs. Four such chairs alone are financed by the Deutsche Telekom AG for instance – an example that is now being followed throughout Germany.

University appointment policies are closely related to our goal of building a successful research profile, even more so in times of the sweeping generational turnover of scientists that is presently taking place at the TU Berlin. The numbers speak for themselves: 243 new professors have been appointed since 1994. A further 72 new appointments will be announced by 2009.

An “agreed goals approach” as regards the research performance of newly appointed staff is an important element of this concept. The fact that – after only a short period of time – many new professors are able to attract large amounts of external funding or are able to produce outstanding scientific results demonstrates the validity of our strategy. A “challenge and encourage” approach is an important incentive in terms of achieving excellent performance and quality, and as such, needs to be emphasized in the context of innovative development planning.
The City of Berlin is indeed a center of science and research, both in terms of its size and the wide variety of research endeavors it offers. The TU Berlin is taking full advantage of this potential in order to expand its core competencies. Joint chair appointments in association with non-university research institutes serve to create strong and long-term networking partnerships. Besides their university chairs, these scientists also hold key positions at non-university facilities. We currently have 24 such appointments, with more such chairs in negotiation. These appointments not only meet the strategic needs of research; they also provide attractive qualification possibilities to scientists who will be urgently needed in the future, in addition to giving students first-hand experience in research.

The TU Berlin maintains close ties with seven institutes of the “Fraunhofer Society for the Advancement of Applied Research” (FhG). These institutes are actively involved in application-oriented research and knowledge transfer, an approach that facilitates speedy realization of innovative solutions, ideas and products.

We share eight joint chairs with the “Gottfried Wilhelm Leibniz Scientific Society”, three with the “Helmholtz Association of German Research Centers” and six with further research establishments such as the “Federal Institute for Materials Research and Testing”. This kind of cooperation with noted science institutions – e.g. with the synchrotron radiation facility “BESSY” (Berliner Elektronenspeicherring) located in Berlin-Adlershof or the “Hahn-Meitner Institute” in Berlin-Wannsee, – offers students and promising young scientists fast-track access to today’s challenges in basic research. These facilities are equipped with state-of-the-art scientific hardware, giving researchers from all over the world the opportunity to realize their research projects. The TU Berlin
The younger the better – Promoting talented young scientists

The TU Berlin not only offers a broad educational spectrum to meet the needs of industry and society, but also understands the importance of promoting the scientists of tomorrow. A number of programs provide support to young scientists. For example, we are currently establishing 16 junior professors and two S-Junior professorships. Not only is this an exceptionally high number of positions for a university of technology, these junior chairs are also well equipped in terms of their own staff capacities. In this way, we hope to achieve optimal working conditions that will facilitate independent research. Only a few German universities have adopted this innovative approach and the TU Berlin is the only university in Berlin to apply this specific concept. In

offers outstanding opportunities to its young scientists in terms of conducting their own experiments and interfacing with internationally renowned researchers.

Building a scientific profile is a dynamic process that is influenced by a number of factors and that can be steered in a number of directions. The “Excellency Initiative of the Federal and State Government” is just one such motor. The TU Berlin is meeting this challenge by establishing numerous outstanding scientific projects and concepts to promote young talent. On the basis of its excellent quality, close networking and exceptional science management, the TU Berlin is indeed a strong competitor among German universities.
addition, the TU Berlin offers further opportunities to its young scientists to obtain qualifications. The TU Berlin serves as the host university for 13 of the junior research groups of the "Volkswagen Foundation", the “Deutsche Forschungsgemeinschaft” (DFG = German Research Foundation) and the Federal Ministry of Education and Research, as well as nine DFG Research Training Groups, which includes the first “transatlantic school” in Germany. Furthermore, researchers from the TU Berlin participate in four further research training groups.

With a view to promoting young scientists on a global basis, the Technische Universität Berlin established the "Berlin Mathematical School" (BMS) in 2006 in association with the Free University Berlin and Humboldt University Berlin. The BMS gives students from around the world the opportunity to pursue their doctoral studies in mathematics, and to thus profit from the high performance standards that “Berlin mathematics” has to offer.

BMS’s outstanding concept has also resonated with the DFG and The Wissenschaftsrat (Science Council). They are now providing support to the graduate school within the framework of the federal government’s "Excellence Initiative" to improve the quality of Germany’s universities.

In association with the "International Postgraduate School of Engineering and Advanced Technologies" (IPS) and "Postgraduate International Process Engineering School" (PIPES), the TU Berlin has initiated two specifically-tailored doctoral programs to help improve the chances of success of dissertation projects, to ensure better counseling services and to promote diverse networking.

The TU Berlin is also utilizing the excellence competition to implement innovative concepts that promote promising young scientists. Gender mainstreaming in natural sciences, personal counseling services and the recruiting of young talent from other countries are just three aspects of this approach.
Developing new sources of energy, achieving sustainable water use and predicting the future needs of telecommunications services are challenges that face both society and the scientific community. The TU Berlin is prepared to tackle these problems on the strength of its high-performance research. Researchers taking part in major, interdisciplinary projects are helping to elaborate solutions for tomorrow’s challenges – here are just a few.

A formula for success – Mathematics in support of key technologies

Mathematics plays a central role in many key technologies and in the ability of our country to compete in an international arena. Mathematics is an important component of most technological advances. Mobile phones are not the only things based on scientific principles; physicians, stockbrokers and logisticians depend on these principles as well. These kinds of developments are the focus of the research center “MATHEON – Mathematics for Key Technologies” of the German Research Foundation (DFG). Here, three large Berlin universities coordinate the research activities of their mathematics institutes, as well as those of the “Zuse Institute Berlin” and “Weierstrass Institute for Applied Analysis and Stochastics” (member of the Leibniz Association). The TU Berlin is the host university of this center, which has established a reputation beyond the European research community and has been able to attract international talent. Established in Berlin in 2002 by the German Research Foundation, the center can already claim an impressive list of successes.

The center’s research currently focuses on mathematical methods needed to confront important issues in the technological fields of life sciences, transportation and communication networks, manufacturing, electrical circuits and optical technology, finance and visualization. All research activities at MATHEON are application-oriented. A number of projects are conducted in close cooperation with partners from industry and university colleagues from other disciplines. MATHEON has received worldwide recognition for its scientific excellence, which is amply demonstrated through cooperative projects with partner facilities conducting cutting-edge research in mathematics on all continents, in addition to having received many awards for excellence. The center’s success in promoting young talent is indeed exceptional: during the first four years of its existence about 30 professorships have been offered to young scientists from MATHEON.

On account of its outstanding scientific excellence, in 2006 the DFG decided to extend its funding of MATHEON for a further four years in the amount of 5.6 million euros per year.
Preserving the environment and saving energy – Catalysts made to measure

Our society’s living standard comes at a high price: rapidly growing energy needs require new sources of energy. Pollution from fuels used in automobiles and airplanes needs to be kept to an absolute minimum, while drug substances such as antibiotics need to reach their application areas in the human body in a more targeted manner. Catalysts play a key role in finding solutions to these challenges.

Through their initiation of the research cluster “Unifying Concepts in Catalysis”, chemists at the TU Berlin are researching and developing new catalysts, thus facilitating a targeted approach to executing chemical reactions with the lowest possible expenditure of energy and materials. Tailor-made molecules and materials of varying magnitudes serve as catalysts.

The research partnership in which the TU Berlin is participating in the context of the “Excellence Initiative of the Federal and State Governments” seeks to link the three great fields of science, i.e. chemistry, life sciences and material sciences. Engineers from various disciplines are working to transform the most promising results into technologically feasible solutions. Under the TU Berlin’s leadership, a network of 40 research groups around the Berlin area uniquely combines scientific expertise with modern engineering science methods. Based on this high level of scientific cooperation, significant synergies can be stimulated with a view to developing new catalytic processes.

Putting people at the center of science – Telecommunications of the future

In today’s society, communication plays a role similar to the role that the nervous system plays in the human body. The goal of this proposed cluster of excellence is to ensure that all people have access to the information they need, regardless of their educational or social backgrounds. Scientists are elaborating a new communication paradigm to meet this challenge.

People today utilize specific types of data presentation (documents, voice or video recordings). Capturing content and making it available remains a complex issue. We will develop methods to facilitate automatic capturing of content and automatic searching for the desired content in all types of data. Without taking any action themselves, people should be able to access the required location-dependent, personalized and task-oriented content and have it presented in a form that is compatible with the actual situation and available devices.
Ease of use is of great importance here: when contacting a friend today one first has to select the form of information transfer (for example via telephone or email or a note left on a desk) and then painstakingly enter all “addresses” one by one, e.g. various telephone numbers. In the future, however, the user need only say “John, please get in touch as soon as possible” and the appropriate John will receive the message without further ado! Intuitive ease of operation is the key, but data need to be handled in a secure manner as well.

Any future system needs to ensure continuity of service, especially in case of catastrophes or malicious attacks, while guaranteeing adherence to legal requirements and data protection laws. This system must thus be “self-configuring” and “self-healing”.

The technical aspects of such future systems will be covered by a number of subject areas in the fields of Electrical Engineering and Computer Science, and supported by colleagues in the Physics and Mathematics departments. The cluster team will be augmented by economists, a sociologist and a digital media designer from the Berlin University of the Arts.

Many of the participants joined the University after receiving a joint appointment at one of the ten non-university research facilities which will make up a significant component of the proposed H-C3 Cluster. Close cooperation with industry-based research, as symbolized by the TU Berlin’s own four endowed professor chairs, rounds out this picture.

This is yet another reason why TU Berlin remains one of the most visible beacons in the telecommunications sector in Germany. The Deutsche Telekom Laboratories and European Center for Information and Communication Technologies (EICT) are future examples of research partnerships in this field of interest.
New nanophotonic products based on disruptive nanotechnologies

Novel nanotechnologies provide solutions for current and future economic strategic challenges; an ultrafast Terabus computer interconnect or quantum cryptography are two examples. Ultramodern laboratories and global networking ensure the TU Berlin’s research excellence in the fields of semiconductor nanophysics, nanotechnologies and nanophotonic devices. In recent years, several leading international groups have pioneered novel nanophotonic devices based on disruptive nanotechnologies. In the 1990s, for example, TU scientists developed the world’s first quantum dot laser together with Russian researchers. TU scientists now endeavor to implement practical applications in partnership with industry. The new Center of Nanophotonics with its unique ultramodern cleanroom laboratory underscores the university’s leading role in the field of semiconductor nanotechnologies. An increasing number of spin-offs profit from the infrastructure improvement and integrate the TU discoveries into marketable products. The TU Berlin is also home to the “Competence Center for the Application of Nanostructures in Optoelectronics”; here, Berlin is instrumental in promoting national and international networks. The “Nanotechnology Working Group” of the Competence Centers in Germany (AGeNT-D) also has its headquarters at the TU Berlin. Over the next four years this facility will receive 3.6 million euros in support from the Federal Ministry of Education and Research, as well as from small and medium sized enterprises.

In tune with the times – The Center for Innovative Health Technologies

Health issues have become an enormous challenge for society at large. Science is ready to meet these challenges, whether in terms of medical issues or health economics. The TU Berlin is also focusing its strengths and contributing significantly to making Berlin the main center for health research and health economics in all of Germany. To this end, more than 20 university subject areas have been fused into the “Center for Innovative Health Technology” (ZIG). Scientific endeavors here range from medical technologies and computer sciences to health economics and health care management issues. Scientists are researching new materials for use in long-
lasting prostheses, concepts for the digital hospital of the future, modern hospital architecture, in addition to analyzing cost drivers in the health sector. The center acts to network university competencies with those of Berlin’s excellent medical facilities, e.g. teaching hospitals, universities, Fraunhofer Institutes, Max Planck Institutes and the German Institute for Economic Research (DIW). In the context of the Healthy City Berlin initiative, the ZiG acts as chief advanced technologies advisor to the health sector.

Improving efficiency – Focus on energy

Increasing global energy needs and the finite nature of fossil fuels are very important issues for policy makers, industry and science. The TU Berlin is also focusing its capacities on this important societal challenge, in order to quickly develop innovative approaches to solution-finding. Researchers from the natural, engineering and planning sciences have thus joined together in interdisciplinary teams to concentrate their efforts on five specific areas of energy conservation.

One core element of their activities is the field of “Co-evolution of fuels, engines and gas turbines”. Specially conceived fuels need to be expressly refined or tailored to meet the needs of certain propulsion concepts. The second focus – sustainable use of fossil fuels – requires that power plants operate at higher efficiency levels. In addition to developing suitable combustion technologies, stringent requirements need to be applied for materials and cooling technologies. A further spotlight is put on optimizing the interface between the energy chain and consumers. The TU Berlin’s participation in the regional competence center for “Thin Layer and Nanotechnologies for Photovoltaics” demonstrates the importance of this issue. The fields of electrical engineering and renewable energy systems will continue to gain in importance, making them the fourth and fifth research fields.

The TU Berlin also possesses competencies in developing ecologically friendly and highly efficient energy generation units. The research cluster “Eco-Efficient Power Engines for Centralized and Decentralized Energy Generation” focuses on this issue. Initiated in the context of the government’s “Excellence Initiative”, 40 partners from science and industry are cooperating under the aegis of the TU Berlin, thus helping to develop Berlin as a visible “region of excellence” for power engine technology.
A precious resource – Water in Urban Areas

Besides energy resources, water resources also represent a crucial challenge for societies all over the world. Even as global water consumption increases, water supplies continue to dwindle and are often polluted. Especially in urban areas, the lack of sustainable water utilization increasingly results in water shortages, which in turn negatively impacts the lives and economic development of those affected. The main thrust of the TU Berlin’s “Water in Urban Areas” project is to explore sustainable concepts for water use and water resource management in urban areas and to provide implementation support. This facility provides networking for about 20 specialist fields from five faculties. In addition, Veolia Wasser Deutschland GmbH is sponsoring one chair for the specialist field of “urban water management”. We already have a century-old tradition in this field. Firmly integrated into a Berlin initiative known as “Competence Center Water”, the TU Berlin - through its expertise, modern laboratories, high-tech measuring instruments and large cooperation network - is making an important contribution to the city’s eminence as a center of science and research.

Beyond such regional networking, this research focus is also very much in demand at an international level.
An investment in knowledge pays the best return.

Benjamin Franklin (1706–1790),
American scientist and politician
ACADEMIC PROFILE

With more than 28,000 students, the TU Berlin is one of the largest universities of technology in Germany. One of our most important tasks is to educate our students to meet the challenges of a world increasingly characterized by technology and progress. Our goal, however, is not to simply impart knowledge in order to create innovative ideas, but rather to give our students the ability to recognize relevant societal and economic problems and then to analyze and solve them.

To this end the TU Berlin offers a broad spectrum of 70 academic subjects. Our main emphasis is on technologically oriented courses of study such as mathematics, as well as natural and engineering sciences. We offer the broadest spectrum of engineering sciences of any university in Berlin, with our own unique character in terms of our academic profile and subject orientation.

The TU Berlin also offers courses of study in economics and planning sciences, the humanities and social sciences. At the TU Berlin, the humanities and social sciences are closely linked with technology. Our courses also promote hands-on experience, which is underscored by ongoing commitments from well-known firms such as the Deutsche Telekom AG for the Deutsche Telekom Laboratories, and Siemens AG for the Center for Knowledge Interchange. This center helps students to obtain work-study jobs, prepare their dissertations and find traineeship positions.
The TU Berlin will transform its entire syllabus into a Bachelor/Master degree system to coincide with the winter semester 2007/08. We are implementing this requirement two years earlier than mandated by the “Bologna process”, an international program that seeks to create a “European higher education area”.

The transition to a Bachelors/Masters program not only requires the issuance of new degrees, but comprehensive reorganization of course contents and elaboration of entirely new study courses as well. We are the only university in Germany to offer certain of these innovative programs, e.g. Masters programs in Human Factors and Computational Neuroscience. All courses of study are subdivided into modules that involve regular testing. Furthermore, course content is adjusted to meet the needs of the current job market.

The TU Berlin’s Bachelor/Master model was structured so as to reflect the university’s research profile in its curriculum. We are focusing on seven future-oriented areas of scientific specialization, which the university has identified as pivotal: “Information and Communications”, “Transportation and Mobility”, “Health and Nutrition”, “Energy”, “Habitat Design”, “Water”, and “Knowledge Management”.

To ensure the excellent reputations of TU-trained engineers in the future, the TU Berlin generally recommends that students obtain a Masters degree when majoring in natural and engineering sciences, instead of a Bachelors degree. The TU Berlin’s approach in this regard is in agreement with other members of the “TU9 German Institutes of Technology” group, an association consisting of large German technical universities. Members of the TU9-group have agreed to award various Masters degrees that are equivalent to the diploma “Dipl.-Ing. TU”. 
Ten million euros earmarked to improve teaching

The success of teaching at any university can be measured on the basis of two important factors: a high rate of students able to graduate within the prescribed number of semesters and a low dropout rate. Both of these statistics need to be improved at Germany’s large universities. The TU Berlin has already shown initial successes in this regard: we were able to shorten the overall duration of study by 1.5 semesters, while for the rest of Germany this was only 0.5 semesters. Even shorter times-to-degree are anticipated after transitioning to the Bachelors/Masters program.

Success in terms of the number of degrees bestowed requires that universities be able to select students on the basis of their suitability and motivation. This is the stated goal of the “TU9 German Institutes of Technology” group. The TU Berlin will try out several possible methods in the context of new admissions policies introduced by the City of Berlin.

In parallel to this approach, the TU Berlin has also started its own excellence initiative for teachers. Our program “Knowledge Offensive through Learning” will invest 10 million euros over a three-year period for the sole purpose of improving overall study conditions and renewing our teaching assets. The goal here is to promote learning in small groups and to shorten the time students need to obtain a degree.

University course reform schemes have also proven to be a motor to promote these innovative instruction methods. It is just such targeted, temporary projects that will serve to facilitate practical implementation, while ensuring that measures are in place that will shorten the duration of study for our students. Project-related workshops will also make a contribution to improving the overall system: here, students have the opportunity to choose practical and innovative projects that they can then carry out on their own.

In the future, we will be able to guarantee the quality of our syllabus on the basis of an innovative system of evaluation and accreditation, i.e. the University President and the faculties will negotiate agreed goals, on the basis of which the evaluation recommendations can be implemented. With universities of technology in the Netherlands serving as our model, we plan to introduce a “seal of quality” for courses offered at the TU.
MULTIMEDIA AND E-LEARNING IN THE SERVICE OF TEACHING

A modern approach to excellence in teaching utilizes all available media that can enrich and improve the learning experience. The TU Berlin’s “Center for Multimedia in Education and Research”, known as “MuLF” (Medienzentrum für Lehre und Forschung) is making a significant contribution in this regard. It will serve to stimulate new activities, while bundling the various efforts of other TU facilities in the fields of E-Learning, E-Research and E-Teaching. The center’s projects include the qualification program “Online Teaching Qualification for Teachers” run by Central Facilities (Center for Cooperation), which received recognition in 2005 by the European Science Foundation (ESF) as “Best Practice Project”.

A number of university projects receive funding from the Federal Ministry of Education and Research (BMBF), the German Research Foundation (DFG) and the ESF. The large-scale project known as “Nemesis” promotes the systematic introduction of multimedia tools at the TU Berlin. This program provides a networked structure that embraces all aspects of university learning, access to knowledge, testing, studying, experimenting and research. Virtual laboratories offer limitless possibilities for students to conduct experiments, which would otherwise be impossible due to limitations in terms of costs, safety and personnel.

MuLF and Nemesis are important building blocks that will keep TU Berlin a leader in terms of the practical application of IT-technologies. For example, our students will have access to “eChalk” lecture transcripts to help them with their studies, in addition to virtual libraries that can be accessed anywhere on campus via WIFI. In the future, both university application and acceptance procedures will be handled electronically, with students able to reserve seats for tutorials and seminars over the Internet.
The TU Berlin is committed to giving its students access to international experience and to imparting cultural competencies through international exchange programs. This is not surprising given that nearly 5,800 of our students come from other countries. They make up about 22 percent of the overall student population of our university; the average for the rest of Germany amounts to barely 13%. These students come from 130 countries, the majority of them from China, Turkey and Poland.

Nearly 1,000 TU students take advantage of exchange programs offered by the university’s Akademisches Auslandsamt (International Office) in association with more than 280 partner universities both in Europe and overseas. Most of our partner schools are located in France, Great Britain and the United States.

In close cooperation with international universities in France, South Korea, China, Poland and Great Britain the TU Berlin offers a total of 14 joint degree programs. Our “Career Service” offers further possibilities for our students to gain international experience by arranging traineeships all over Europe through the auspices of the EU program “LEONARDO DA VINCI”.

We provide our international students with a number of support mechanisms: e.g. individual counseling and specially-tailored courses. Even before officially starting their university studies, students have access to preparatory courses in language and specialized subjects. Our Modern Language Center (ZEMS) offers a wide range of foreign language courses.

Students have many questions that often require counseling before, during and after university studies. As studies commence, questions arise with respect to how the courses are organized and orientation issues, while upon completion of studies questions pertaining to training schemes, job applications and career entry need to be addressed. The most important support function in this regard is the Student Service Center (Studierendenservice), whose support activities include a broad range of counseling services, psychological consultation in addition to the “Career Service” center. The center provides students with information about curriculum, how to improve their learning techniques and how to work efficiently. Seminars on the topics
of public speaking, proper scientific writing techniques and how to cope with tests help our students to successfully confront the typical challenges they will face in everyday university life. The “TU Start-up Initiative” counsels students who are interested in starting their own companies. Dedicated services are also provided for students with small children, for students with disabilities or chronic diseases, as well as psychological counseling in cases of personal conflicts and difficulties. The individual faculties also offer a wide range of their own counseling services.

The TU Berlin is also a “Partner university for top-level sports”, a Germany-wide project under the aegis of the German University Sport Federation, which helps top-level athletes to coordinate their studies with their training obligations.

Making knowledge the focal point – the TU Berlin’s new Main Library

Located in the Volkswagen building, the main library of the Technische Universität Berlin is one of the most modern science libraries in all of Germany. The Universitätsbibliothek, as it is called, is operated in conjunction with the Berlin University of Arts. This classic yet functional building accommodates the information and communication centers of both universities. Within its overall surface area of 30,000 square meters the library holds three million individual media. Much of what the library has to offer to its visitors is located directly in open access areas. Modern electronic chip technology (RFID) allows visitors to check out books themselves. This is the first major university library in Germany to offer a check-out system of this scale. BookEye scanners and the most up-to-date copying and digitizing techniques are also available for use. To meet the needs of TU students, the University Library keeps a significant number of required textbooks and standard literature books on hand.

Most of the over 800 individual reading areas and work stations are equipped with Internet connections, 300 of them with computers. Several thousand magazines and journals can be accessed electronically. The special multimedia area offers workstations where audio and video/DVD media can be accessed.

The library building also houses two lecture halls equipped with up-to-date multimedia technology, which can also be used for video conferencing.

The firm Volkswagen AG donated five million euros of financial support to help construct the library building. The remaining construction costs of 50 million euros were shared by the German government and the TU Berlin.
The most beautiful thing that we can experience is the mysterious.

Albert Einstein (1879–1955) Physicist
Networking with science and industry

The TU Berlin is proud of the many and diverse collaborations it maintains with partners in industry and commerce. These firms not only provide important financial support for research projects, they also sponsor a number of professor chairs. The TU Berlin is continually looking for promising avenues of cooperation, while actively initiating new strategic alliances to strengthen both the university’s competitive edge and geographical advantage.
The founding of the Deutsche Telekom Laboratories is an impressive example of the success of our strategic outreach to industry. These innovative research laboratories were inaugurated on the TU Berlin campus in April of 2004. The Deutsche Telekom AG can now better focus its know-how by taking full advantage of the TU’s innovative environment. Their objective was to actively promote research and development efforts on a company-wide basis, thus making R&D the focus of attention. The importance that Deutsche Telekom attaches to this partnership is demonstrated in their sponsoring of four endowed chairs for this new TU Berlin research center. The Deutsche Telekom Laboratories have access to a yearly research budget of 25 million euros.

The TU Berlin plans to establish further “Innovate Labs”, where research can be conducted in the important future-oriented areas of scientific specialization: health, transportation and mobility, habitat design, energy and water.

Innovative-Labs – a new approach to knowledge transfer

The TU Berlin utilizes a so-called Innovative-Labs organizational concept that serves to promote cooperation between science and industry. In this way, the university is proactively addressing new challenges with respect to knowledge transfer. Nowadays, industry demands more than just individual partners in a specific specialized area; it requires complex problem-solving capacities and a systematic approach. Our Innovative-Labs were formed to provide an interface between partners in industry and science. Here, TU Berlin specialists cooperate directly with non-university research facilities and industrial firms in the context of finely tuned support programs. Our Innovative-Labs approach is meant to close the gap between basic and applied research. The goal is to develop market-relevant technology systems and to accelerate innovation cycles for key technologies.
EICT – Creating new synergies

In 2006, the TU Berlin created a further partnership in the field of information and communications technologies: the “European Center for Information and Communication Technologies” was established as a public-private-partnership. This center brings together, and provides networking for development activities that are shared by the TU Berlin and the Fraunhofer Society, Deutsche Telekom AG, Siemens AG and DaimlerChrysler AG. This innovation center conducts its research activities on our campus, and in doing so has access to the most densely populated research environment in all of Germany. Close cooperation and direct exchanges between the partners and other campus-based research facilities ideally cover all aspects of the value-added chain in the innovation cycle.

Strategic alliances – Industry’s commitment to our students

In addition to the examples cited above, there are a number of further strategic alliances with leading industrial firms. The Center for Knowledge Interchange (CKI) is just one example of successful, long-term cooperation, in this case collaboration between the TU Berlin and Siemens AG. Both partners understand the importance of initiating and coordinating common research projects, in addition to promoting young talent. The spectrum of areas of scientific cooperation range from information and communications technologies to medical technology and power engineering.

Both partners are committed to promoting young talent through their support of the successful efforts of the “Center for Change and Knowledge Management” (CWW), which is located at Faculty VII Economics and Management. The CWW is wholly committed to promoting strategic cooperation. The center’s long-standing partners include Bertelsmann AG,
DaimlerChrysler AG, Hochtief AG and Siemens AG.

These firms provide a wide spectrum of support to our students to help them prepare for, and to get started in a successful professional career. Lecture series featuring top-notch lecturers help students to apply their theoretically acquired knowledge to concrete, practical topics. The center also offers seminars, excursions and assistance in applying for internships and in writing dissertations.

**Shaping the future – Start-ups from the sciences**

Spin-offs and start-ups resulting from research endeavors not only create jobs, but also ensure the reliable transfer of know-how for practical uses. The TU Berlin is supporting both these efforts with a number of projects. Our mission is to strengthen entrepreneurial culture. We provide students interested in starting their own companies with concrete help in generating, developing and implementing innovative and technology-oriented business start-ups. On the one hand, students have access to university resources in the context of our program “Start-ups at the University” and on the other, they can profit from specialized support from our regional network partners. Our “Human Venture” program, the third and newest support mechanism, not only conveys key competencies to young entrepreneurs, our university Career Service program also imparts economic competencies and valuable knowledge to research associations. Former TU Berlin graduates who are actively involved in our Alumni Program and concerned scientists also serve as “patrons” for our aspiring young entrepreneurs. Furthermore, we offer special guidance for women students and scientists, to help them on their way to achieving economic independence.

On the strength of its strategic promotion scheme, together with graduates who have started their own companies, the TU Berlin can already look back on many years of success. More than 600 young entrepreneurs – spin-offs from various scientific fields or TU graduates – have already formed their own companies, while maintaining close contacts with their alma mater. TU alumni frequently gain recognition in start-up award competitions. The university itself has also been recognized as an “idea incubator” in the context of regional business plan competitions. This trailblazing role was already evident as early as the mid 1980s, inasmuch as it was the TU Berlin that provided impetus for the very first business incubator. This concept has since found many imitators all over Germany. In Berlin alone, this support instrument is responsible for creating more than 25,000 new jobs.
Women’s Networking – Our commitment to the advancement of women scientists

Through its comprehensive commitment to diversity, the TU Berlin sees the diversity of its own staff members as a powerful advantage for the university organization as a whole. Special emphasis is given to promoting talented and promising young women in the fields of natural sciences and technology. It is important to us that young women receive the training and access they need. We utilize many instruments in our efforts to achieve this goal, for example we actively promote the advancement of women, we define agreed goals with various faculties, we promote gender modules through seminars and special parent-children rooms, in addition to the university’s own campus kindergarten called “Villa March”.

Public-private partnership to promote talented young women

In association with the European Academy for Women in Politics and Business (EAF), the TU Berlin was instrumental in establishing Femtec (University Career Center for Women Berlin GmbH). This center has developed a public-private partnership initiative unique to all of Germany, whose goal is to attract talented young women to choosing courses of study in the natural and engineering sciences. The overriding goal is to assist motivated women students with their careers and to facilitate access to managerial positions in science, industry and society at large.

Networking for women professors

The TU Berlin – together with the Humboldt University Berlin and the Free University Berlin – has initiated the program “ProFil” (Professionalization of Women in Research and Teaching: Mentoring – Training – Networking), which purposefully promotes talented women to become professors. The goal is to assist highly qualified young women scientists on their way to earning their professorships. Furthermore, an ongoing program is testing an innovative approach to management development in the field of science.

The virtual preparatory college “Promotion” provides support to women doctoral candidates to help them obtain their doctoral degrees at the TU Berlin. The long-term goal is to increase the share of women PhDs at our university. The program features interdisciplinary exchange, cross-disciplinary networking and continuing education, in addition to personalized counseling.

Gender mainstreaming in research

The advancement of women and equal opportunity issues are also integral components of research activities at the TU Berlin. The “Center for Interdisciplinary Women’s and Gender Research” examines gender relations and their impact on societal development. The TU Berlin also supports two guest professors in the context of the City of Berlin’s program “Equal Opportunity in Research and Teaching”.
International networking – global cooperation between the sciences

In this age of globalization, international cooperation between the sciences is more important than ever. This is not a new concept for the TU Berlin, inasmuch as ever since our inception we have maintained contacts with partners all over the world. We currently have a total of 111 cooperation agreements with foreign universities and colleges in 36 countries. These agreements typically seek to promote student exchange programs, as well as joint research endeavors and publications. Such activities include counseling, supporting new projects and existing cooperative efforts. Furthermore, we support university partnerships and guest scientists from other countries, we award dissertation fellowships and provide information about research grants and supporting programs, in addition to organizing visiting programs.

Close contacts with China

The TU Berlin’s program of international cooperation in science focuses on several geographic regions including Western Europe, North America, selected countries in Eastern Europe, the Middle East, Asia, South America and Australia. The TU Berlin forms strategic international alliances with its partners in science and industry in order to bundle existing competencies for major projects, which no individual partner would be able to implement on its own. This kind of international networking serves to promote broad associative research programs, which are increasingly able to attract international research funding. One example of this approach was the establishment of the joint research institute “TU Berlin – Shanghai Jiao Tong University” with our partner institution the Shanghai Jiao Tong University in the People’s Republic of China. This joint laboratory promotes cooperative research activities, by bringing together scientists from both universities in addition to doctoral candidates and students.

Great opportunities for young academics

By offering top-notch training to its international graduates at both the PhD and Masters levels, the TU Berlin is making an important contribution in terms of providing talented young scientists with the education they will need to address important challenges in their own countries such as the issue of rapid population growth, at the same time creating a basis for future scientific and economic cooperation. Fourteen joint degree agreements can already be obtained from universities in France, Great Britain, Poland Korea and China. The TU Berlin plans to export its educational expertise by developing its own study courses together with selected local partners in other countries.
Public Relations Networking –
the art of communicating
science to society at large

A university must be open to all kinds of ideas and to society at large. The TU Berlin maintains an extensive public relations network to make sure that this commitment extends beyond the domain of scientific experts and is able to reach the general public. We are committed to providing the general public with extensive information about our scientific endeavors and academic life. Various event formats allow us not only to impart information, but also to prompt the public to be actively involved in research and science.

“Long Nights of Science”

Every year, scientists at the TU Berlin transform the night into a thrilling demonstration of scientific experimentation. More than 150 ongoing scientific projects serve to inform visitors to the “Lange Nacht der Wissenschaften” about the most up-to-date research results. Thanks to the general public’s enormous interest in technology and the natural sciences, the TU Berlin becomes a magnet for visitors during this “smartest night” of the year.

World-class lecture series

On the occasion of her visit to Berlin in 1965, Queen Elisabeth II presented the city with a very special gift in the form of the “Queen’s Lecture” series at the TU Berlin. Since then, lectures dealing with economic, cultural or natural science issues have become an integral component of our university’s cultural program. Furthermore, Nobel Prize winners, leading representatives of the business community and politicians have made public presentations at the TU Berlin. Students and visitors alike can take part in the numerous lecture series on offer.

Information packs – specially tailored for target groups

The TU Berlin generates great interest in the media. More than 300 press releases, nearly one for each day of the year, inform journalists about new and interesting aspects of university life. Our extensive Internet presence is meant to introduce the TU Berlin to interested persons and to direct them to the appropriate contact persons. Tailored information is available for high school students, scientists and graduates. It is this approach to tailoring information content to the specific target group and to publishing this information in a professional manner that has gained recognition for the TU Berlin’s Public Relations & Public Information Office. The weekly newspaper “Die Zeit”, the German Rectors’ Conference and the Robert Bosch Foundation awarded first prize to the TU Berlin for the best public relations concept of any German university.
Networking with alumni and friends of the university – maintaining lifelong contacts

It is a strategic goal of our university to maintain ongoing relationships with our alumni. Our graduates continue to be an invaluable asset for the university. Through their activities in a host of areas related to research and business, they creatively expand on the knowledge they gained during their studies, whether now as CEOs or politicians, whether in Hamburg or Istanbul. For many years the university has succeeded in creating and maintaining a multifaceted network with its alumni. Not only does this allow the TU Berlin to maintain contact with its graduates, it also gives alumni the opportunity to get actively involved in their alma mater.

Valuable ambassadors for our university

For our graduates residing in Germany, the TU Berlin’s National Alumni Program has been serving as a door-opener since 1999. Nearly 16,000 alumni maintain contact with the university where they studied or worked. These alumni remain an integral part of the university’s profile-building measures, for example by helping to evaluate questions related to teaching and curriculum, in identifying new concepts to promote professional training measures and in empirical studies that track the careers of our graduates. Alumni contacts are of great importance to the university in terms of fundraising measures, which in turn helps to strengthen the university’s scarce financial resources and to facilitate scientific and business partnerships among the alumni themselves. In the context of the “TU Start-up Initiative”, the university is happy to invite TU graduates to come in and share their experience with others, so that we can further increase the number of start-ups originating from our university.
New hub for world-wide networking

Since 1979, our international graduates have access to extensive professional networking services offered by our International Alumni Program. Special training courses, continuing education and help with finding cooperation opportunities serve to provide international students and alumni with the support they need in order to find entry level jobs and to obtain career advice. Another important task is to promote scientific and business cooperation between the TU Alumni and their German and international partners. Successful intercultural dialogue plays an important role here and has helped the university to earn considerable international recognition. Our network of international alumni currently has around 3,200 members in 120 countries. Our training and continuing education schemes also receive public funding support. The alumni program also promotes and assists foreign alumni who want to establish their own TU graduate associations. A network comprising 800 people in 11 associations is already functional, even in countries such as Ecuador, Korea and Thailand.

Tradition with a future – Society of Friends of the TU Berlin

Where would any university be without good friends? Since 1922, members of the “Society of Friends of the TU Berlin” (Gesellschaft von Freunden der TU Berlin e.V.) have been providing continued support to our university. Students, graduates and teachers, industrial and business firms and personalities from all walks of professional life are involved in providing donations, prize money, initiating and supporting university projects and serving as advisors and facilitators in the public sphere.

Ensuring support for promising young scientists is one of our most important areas of focus. We have a long history of awarding prizes for exceptional dissertations or doctoral theses. A number of companies often sponsor such awards as well.

Further support schemes serve to promote student research and development projects. In addition, promising young scientists have the opportunity to participate in international conferences.

The Society of the Friends of the TU Berlin has a long history of supporting dialogue between science and industry, between the university and the general public and between theory and practice; it achieves this by organizing projects and by organizing an important lecture series featuring well-known scientists and public figures.
Networking with local schools – reaching out to prospective students

The TU Berlin offers dedicated lectures and laboratory access to high school students. Budding high school graduates can come to our lecture halls and receive an early initiation into the world of science. Children’s university, university “taster” initiatives and technology workshops provide high school students with individualized support in identifying their future study subjects from among 70 fields of study. This program serves to break down barriers and to awaken interest in technology and the natural and engineering sciences, in order to attract the best high school students to the TU Berlin for their studies.

University at 16

“Getting a head start” is our motto for involving future high-school graduates in a trial study program at the TU Berlin, which allows them to take advantage of the newly introduced “taster courses” for high school students. The basic idea is simple: highly-motivated, and talented high school seniors are invited to take part in seminars and lectures. As “privileged” course auditors they can earn a university certificate while a high school student. The certificate will be recognized by the TU Berlin if they decide to enroll at the university. This promotes strong bonds and helps these young people to develop a deeper interest in various university subjects.

Women engineers wanted

The TU Berlin is making a serious appeal to female high school students to consider university studies in natural and engineering sciences. For example, the Techno-Club serves to give girls in the eleventh grade and over an inside look at our university. This “trial studies” program gives our lecturers an opportunity to present a variety of different academic subjects to girls in particular. This serves to get high school girls personally involved in experiments and research. The European Academy for Women in Politics and Industry (EAF) and Femtec (University Career Center for Women), which is affiliated with the TU Berlin, are instrumental in organizing meetings between high school girls, women university students and successful women engineers. Mentoring, coaching and personalized career planning are also offered in this regard.

Back to high school

TU Berlin student advisors and scientists provide on-site counseling during their visits to high schools. The President of the TU Berlin regularly visits Berlin high schools together with university researchers, thereby turning the school auditorium into a real college lecture hall. High school students can watch scientific experiments being conducted and receive information about various academic subjects. In this way high school students are able to learn first-hand what university-level studies are all about. A designated “patron” maintains contact between the university and high school students. Personalized counseling services are also available for both teachers and parents.
The only remedy for **superstition** is **knowledge**.

Henry Thomas Buckle (1821–1862),
Cultural Historian
FACTS AND FIGURES
Facts and Figures

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### Student Enrollment Statistics

**January 2007**

<table>
<thead>
<tr>
<th>Category</th>
<th>Total</th>
<th>Male</th>
<th>Female</th>
<th>Foreign nationals</th>
<th>First matriculations¹</th>
<th>New matriculations²</th>
<th>First subject-semester students³</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>28,344</td>
<td>18,063</td>
<td>10,281</td>
<td>5,829</td>
<td>2,938</td>
<td>1,243</td>
<td>3,837</td>
</tr>
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</table>

¹ First matriculations are students enrolled for the first time at a German university.

² New matriculations are students who have transferred from other universities or have rematriculated after a pause.

³ First subject-semester students are those in the first semester of a study program; this may include not only first matriculations, but also students who have switched from other disciplines.

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### Personal

**March 2007**

<table>
<thead>
<tr>
<th>Category</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Professors</td>
<td>294</td>
</tr>
<tr>
<td>Junior Professors</td>
<td>18</td>
</tr>
<tr>
<td>Research associates</td>
<td>877</td>
</tr>
<tr>
<td>Externally funded employees</td>
<td>845</td>
</tr>
<tr>
<td>Non-scientific personnel</td>
<td>1,574</td>
</tr>
<tr>
<td>of which in the administration</td>
<td>755</td>
</tr>
<tr>
<td>Apprentices</td>
<td>approx. 150 trainees in 16 professions each year</td>
</tr>
</tbody>
</table>

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### Budget

**January 2007**

<table>
<thead>
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<tbody>
<tr>
<td>State funding¹</td>
<td>267.2</td>
<td>274.9</td>
<td>279.4</td>
<td>281.7</td>
<td>285.7</td>
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<tr>
<td>External funding¹</td>
<td>78.0</td>
<td>69.3</td>
<td>70.5</td>
<td>75.4</td>
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</tbody>
</table>

¹ in millions of Euro

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### Area of TU Berlin

**January 2007**

The grounds of TU Berlin cover an area of 600,000 square meters all over the city.
### Habilitations

**January 2007**

<table>
<thead>
<tr>
<th></th>
<th>2005</th>
<th>2004</th>
<th>2003</th>
</tr>
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<tbody>
<tr>
<td>Total</td>
<td>28</td>
<td>29</td>
<td>19</td>
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<tr>
<td>Female only</td>
<td>5</td>
<td>7</td>
<td>11</td>
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### Doctoral degrees

**January 2007**

<table>
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<tr>
<th></th>
<th>2005</th>
<th>2004</th>
<th>2003</th>
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<tbody>
<tr>
<td>Total</td>
<td>431</td>
<td>409</td>
<td>387</td>
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<tr>
<td>Female only</td>
<td>125</td>
<td>110</td>
<td>122</td>
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### Patent Portfolio

**January 2007**

<table>
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<tr>
<th></th>
<th>Entirely</th>
<th>2006</th>
<th>2005</th>
<th>2004</th>
<th>2003</th>
<th>Previous-Years</th>
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<tbody>
<tr>
<td><em><em>DE</em> Applications</em>*</td>
<td>68</td>
<td>9</td>
<td>25</td>
<td>7</td>
<td>15</td>
<td>12</td>
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<tr>
<td><em><em>DE</em> granted</em>*</td>
<td>17</td>
<td>0</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>PCT/EPC</strong></td>
<td>60</td>
<td>9</td>
<td>20</td>
<td>7</td>
<td>14</td>
<td>10</td>
</tr>
</tbody>
</table>

* Patent Applications in Germany
** International Applications under the Patent Cooperation Treaty (PCT) or Regional Applications under the European Patent Convention (EPC)

### Distribution of Students by Discipline

**January 2007**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Number of Students</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering sciences</td>
<td>12 219</td>
<td>9648 (79,0 %)</td>
<td>2571 (21,0 %)</td>
<td>12 219</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>3024</td>
<td>1880 (62,2 %)</td>
<td>1144 (37,8 %)</td>
<td>3024</td>
</tr>
<tr>
<td>Planning, social and business sciences</td>
<td>8470</td>
<td>4822 (56,9 %)</td>
<td>3648 (43,1 %)</td>
<td>8470</td>
</tr>
<tr>
<td>Agricultural sciences</td>
<td>62</td>
<td>33 (53,2 %)</td>
<td>29 (46,8 %)</td>
<td>62</td>
</tr>
<tr>
<td>Humanities</td>
<td>3474</td>
<td>1333 (38,4 %)</td>
<td>2141 (61,6 %)</td>
<td>3474</td>
</tr>
<tr>
<td>Other</td>
<td>1095</td>
<td>347 (31,7 %)</td>
<td>748 (68,3 %)</td>
<td>1095</td>
</tr>
<tr>
<td>Total</td>
<td>28 344</td>
<td>18 063 (63,8 %)</td>
<td>10 281 (36,2 %)</td>
<td>28 344</td>
</tr>
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</table>

### Distribution of professors by Discipline

**2005**

<table>
<thead>
<tr>
<th>Subjects</th>
<th>Numbers of professors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engineering sciences</td>
<td>116 (37 %)</td>
</tr>
<tr>
<td>Natural sciences</td>
<td>86 (28 %)</td>
</tr>
<tr>
<td>Planning, social and business sciences</td>
<td>23 (7 %)</td>
</tr>
<tr>
<td>Agricultural sciences</td>
<td>26 (8 %)</td>
</tr>
<tr>
<td>Humanities</td>
<td>61 (20 %)</td>
</tr>
<tr>
<td>Total</td>
<td>312 (100 %)</td>
</tr>
</tbody>
</table>
# Faculties and Institutes

## Faculty I
### Humanities

<table>
<thead>
<tr>
<th>Institute/Center</th>
<th>Address</th>
<th>Phone</th>
<th>Email</th>
<th>Website</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institute of Philosophy, Theory of Science, History of Science and Technology</td>
<td>Straße des 17. Juni 135, 10623 Berlin, Sekr. H 36</td>
<td>+49 (0) 30 314-2 46 20</td>
<td><a href="mailto:bernd.wiskandt@tu-berlin.de">bernd.wiskandt@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/fak1/">www.tu-berlin.de/fak1/</a></td>
</tr>
<tr>
<td>Institute of Literary Science</td>
<td></td>
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<td></td>
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<tr>
<td>Institute of History and Art History</td>
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<tr>
<td>Institute of Social Sciences and Historical-Political Education</td>
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<tr>
<td>Institute of Educational Science</td>
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<tr>
<td>Institute of Language and Communication</td>
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<tr>
<td>Institute of Vocational Training and Prevocational Education</td>
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<tr>
<td>Centre for Interdisciplinary Women's and Gender Studies</td>
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<tr>
<td>Centre for the Study of Anti-Semitism</td>
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## Faculty II
### Mathematics and Natural Sciences

<table>
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<tr>
<th>Institute/Center</th>
<th>Address</th>
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<tbody>
<tr>
<td>Institute of Chemistry</td>
<td>Straße des 17. Juni 136, 10623 Berlin, Sekr. MA 4-1</td>
<td>+49 (0) 30 314-2 37 59</td>
<td><a href="mailto:Oeverdieck@FakII.TU-Berlin.DE">Oeverdieck@FakII.TU-Berlin.DE</a></td>
<td><a href="http://www.fakii.tu-berlin.de/">www.fakii.tu-berlin.de/</a></td>
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<tr>
<td>Institute of Mathematics</td>
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<tr>
<td>– DFG Research Center Matheon Mathematics for key technologies</td>
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<tr>
<td>Institute of Solid State Physics</td>
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<tr>
<td>Institute of Optics and Atomic Physics</td>
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<tr>
<td>Institute of Theoretical Physics</td>
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<tr>
<td>Centre of Astronomy and Astrophysics</td>
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<tr>
<td>Multimedia Center for Learning and Research MuLF</td>
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## Faculty III
### Process Sciences

<table>
<thead>
<tr>
<th>Institute/Center</th>
<th>Address</th>
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<tbody>
<tr>
<td>Institute of Biotechnology</td>
<td>Straße des 17. Juni 136, 10623 Berlin, Sekr. MA 5-11</td>
<td>+49 (0) 30 314-2 59 65</td>
<td><a href="mailto:Jutta.Seiler@tu-berlin.de">Jutta.Seiler@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/fak3/">www.tu-berlin.de/fak3/</a></td>
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<tr>
<td>Institute of Energy Engineering</td>
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<td>Institute of Material Sciences and Technologies</td>
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<td>Institute of Process Engineering</td>
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## Faculties and Institutes

### Faculty IV
**Electrical Engineering and Computer Sciences**
Franklinstraße 28/29, 10587 Berlin, Sekr. FR 5-1

<table>
<thead>
<tr>
<th>Phone</th>
<th>Email</th>
<th>Website</th>
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<tbody>
<tr>
<td>+49 (0) 30 314-2 22 29</td>
<td><a href="mailto:bamberg@cs.tu-berlin.de">bamberg@cs.tu-berlin.de</a>, <a href="mailto:haase@mikro.ee.tu-berlin.de">haase@mikro.ee.tu-berlin.de</a></td>
<td><a href="http://iv.tu-berlin.de/">http://iv.tu-berlin.de/</a></td>
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**Institutes**
- Institute for Energy and Automation Technology
- Institute for High-Frequency and Semiconductor Systems Technologies
- Institute for Telecommunication Systems
- Institute for Computer-Engineering and Microelectronics
- Institute for Software Engineering and Theoretical Computer Science
- Institute for Commercial Information Technology and Quantitative Methods

### Faculty V
**Mechanical Engineering and Transport Systems**

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<tr>
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<td><a href="mailto:Dekanat@vm.tu-berlin.de">Dekanat@vm.tu-berlin.de</a></td>
<td><a href="http://www.vm.tu-berlin.de/">www.vm.tu-berlin.de/</a></td>
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**Institutes**
- Institute of Fluid Mechanics and Technical Acoustics
- Institute for Psychology and Ergonomics
- Institute for Land and Sea Transport Systems
- Institute for Aeronautics and Astronautics
- Institute for Engineering Design, Micro and Medical Technology
- Institute for Machine Tools and Factory Management
- Institute of Mechanics

### Faculty VI
**Planning – Building – Environment**
Straße des 17. Juni 152, 10623 Berlin, Sekr. A 1

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<tr>
<td>+49 (0) 30 314-2 18 15</td>
<td><a href="mailto:christoph.roesrath@tu-berlin.de">christoph.roesrath@tu-berlin.de</a></td>
<td><a href="http://www.fk6.tu-berlin.de/">www.fk6.tu-berlin.de/</a></td>
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**Institutes**
- Institute of Applied Geosciences
- Institute of Architecture
- Institute of Civil Engineering
- Institute of Geodesy and Geographic Information Technology
- Institute of Landscape Architecture and Environmental Planning
- Institute of Ecology
- Institute of Sociology
- Institute of Urban and Regional Planning

### Faculty VII
**Economics and Management**

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<tr>
<td>+49 (0) 30 314-2 22 28</td>
<td><a href="mailto:i.zingel@ww.tu-berlin.de">i.zingel@ww.tu-berlin.de</a></td>
<td><a href="http://www.wm.tu-berlin.de/">www.wm.tu-berlin.de/</a></td>
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**Institutes**
- Institute of Economics and Law
- Institute of Business Management
- Institute of Technology and Management
## Contact and Addresses

<table>
<thead>
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<th>Role</th>
<th>Address</th>
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<tbody>
<tr>
<td>President</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 22 00</td>
<td><a href="mailto:p@tu-berlin.de">p@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/organisation/p.html">www.tu-berlin.de/organisation/p.html</a></td>
</tr>
<tr>
<td>1st Vice-President</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 24 33</td>
<td><a href="mailto:vpi@tu-berlin.de">vpi@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/organisation/vp1.html">www.tu-berlin.de/organisation/vp1.html</a></td>
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<tr>
<td>2nd Vice-President</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 42 86</td>
<td><a href="mailto:vp2@tu-berlin.de">vp2@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/organisation/vp2.html">www.tu-berlin.de/organisation/vp2.html</a></td>
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<tr>
<td>3rd Vice-President</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 42 86</td>
<td><a href="mailto:vp3@tu-berlin.de">vp3@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/organisation/vp3.html">www.tu-berlin.de/organisation/vp3.html</a></td>
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<tr>
<td>Chancellor</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 25 00</td>
<td><a href="mailto:k@tu-berlin.de">k@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/organisation/k.html">www.tu-berlin.de/organisation/k.html</a></td>
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<tr>
<td>TU Berlin Information</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 39 22</td>
<td><a href="mailto:pressestelle@tu-berlin.de">pressestelle@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/presse/index.html">www.tu-berlin.de/presse/index.html</a></td>
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<tr>
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<tr>
<td>Public Relations &amp; Public</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 39 22</td>
<td><a href="mailto:sekretariat@abz.tu-berlin.de">sekretariat@abz.tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/foreign-relations/">www.tu-berlin.de/foreign-relations/</a></td>
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<td><a href="mailto:auslandsamt@tu-berlin.de">auslandsamt@tu-berlin.de</a></td>
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<tr>
<td>Central Office for Women's</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 28 65</td>
<td><a href="mailto:rita.meyer@tu-berlin.de">rita.meyer@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/zuv/KPL/">www.tu-berlin.de/zuv/KPL/</a></td>
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<tr>
<td>Affairs</td>
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<tr>
<td>Student Services</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 12 51</td>
<td><a href="mailto:andrea.reichel@tu-berlin.de">andrea.reichel@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/zuv/I/">www.tu-berlin.de/zuv/I/</a></td>
</tr>
<tr>
<td>International Office</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 39 22</td>
<td><a href="mailto:zen.frau@tu-berlin.de">zen.frau@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/~zenfrau/">www.tu-berlin.de/~zenfrau/</a></td>
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<tr>
<td>Research</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 12 38</td>
<td><a href="mailto:andrea.reichel@tu-berlin.de">andrea.reichel@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/zuv/I/">www.tu-berlin.de/zuv/I/</a></td>
</tr>
<tr>
<td>Cooperations, Patents, Licences</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
<td>+49 (0) 30 314-2 23 65</td>
<td><a href="mailto:verena.rademacher@tu-berlin.de">verena.rademacher@tu-berlin.de</a></td>
<td><a href="http://www.tu-berlin.de/zuv/III/">www.tu-berlin.de/zuv/III/</a></td>
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### Contact and Addresses

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<tr>
<th>University Library</th>
<th>Fasanenstraße, 88 (im VOLKSWAGEN-Haus), 10623 Berlin</th>
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<tr>
<td></td>
<td>+49 (0) 30 314-7 61 01</td>
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<td></td>
<td><a href="mailto:info@ub.tu-berlin.de">info@ub.tu-berlin.de</a></td>
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<tr>
<td>Computer Center tubIT</td>
<td>Einsteinufer 17, 10587 Berlin</td>
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<tr>
<td></td>
<td>+49 (0) 30 314-2 80 00</td>
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<td></td>
<td><a href="mailto:tubit@tu-berlin.de">tubit@tu-berlin.de</a></td>
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<td><a href="http://www.tubit.tu-berlin.de">www.tubit.tu-berlin.de</a></td>
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<tr>
<td>University Sports Center</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
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<td>+49 (0) 30 314-2 29 48</td>
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<td></td>
<td><a href="mailto:schmidt@zeh.tu-berlin.de">schmidt@zeh.tu-berlin.de</a></td>
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<td><a href="http://www.tu-sport.de">www.tu-sport.de</a></td>
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<tr>
<td>Center for Cooperation</td>
<td>Franklinstraße 28/29, 10587 Berlin</td>
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<td><a href="mailto:zek@tu-berlin.de">zek@tu-berlin.de</a></td>
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<tr>
<td>Staff Representative Council</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
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<td>Representative of students actively employed at the TU Berlin</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
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<td></td>
<td>+49 (0) 30 314-2 23 51</td>
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<tr>
<td>Society of Friends of TU Berlin</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
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<td>+49 (0) 30 314-2 37 58</td>
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<td>Center for Technology and Society</td>
<td>Hardenbergstraße 36a, 10623 Berlin</td>
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<td>+49 (0) 30 314-2 36 65</td>
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<tr>
<td>Studienkolleg der Technischen Universität Berlin</td>
<td>Ackerstraße 71–76, 13355 Berlin</td>
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<td>Ernst-Reuter-Platz 7 , 10587 Berlin</td>
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<td>Service Center for Teacher Education</td>
<td>Franklinstraße 28/29, 10587 Berlin</td>
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<tr>
<td>Central Facility for Electron Microscopy</td>
<td>Straße des 17. Juni 135, 10623 Berlin</td>
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<td>+49 (0) 30 314-2 34 84</td>
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<td><a href="mailto:zelmi@tu-berlin.de">zelmi@tu-berlin.de</a></td>
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<td><a href="http://www.tu-berlin.de/zelmi">www.tu-berlin.de/zelmi</a></td>
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Curricula and Courses

The TU Berlin offers 35 degree courses, 23 master's degrees, six advanced master's degrees and seven other degree programs.

Degrees

- Diplom
- Bachelor of Science (B.Sc.)
- Master of Science (M.Sc.)
- Bachelor of Arts (B.A.)
- Master of Arts (M.A.)
- Master of Education (M.Ed.)
- State examination

Diplom

- Biotechnology (D) (will start in Fall 07/08 B.Sc.)
- Building Engineering (D) (will start in Fall 07/08 B.Sc.)*
- Business Administration and Engineering (D) (will start in Fall 07/08 B.Sc.)
- Chemistry (D) (will start in Fall 07/08 B.Sc.)
- Computational Engineering Sciences (D) (will start in Fall 07/08 B.Sc.)*
- Energy Engineering and Process Engineering (D) (will start in Fall 07/08 B.Sc.)*
- Environmental Engineering (D) (will start in Fall 07/08 B.Sc.)
- Food Technology (D) (will start in Fall 07/08 B.Sc.)
- Materials Science (D) (will start in Fall 07/08 B.Sc.)*
- Sociology and Technology Studies (D) (will start in Fall 07/08 B.Sc.)

Bachelor

- Architecture (B.Sc.)
- Business Mathematics (B.Sc.)*
- Civil Engineering (B.Sc.)
- Computer Engineering (B.Sc.)
- Computer Sciences (B.Sc.)
- Culture and Technology (B.Sc.)
- Economics (B.Sc.)
- Electrical Engineering (B.Sc.)
- Engineering Science (B.Sc.)*
- Geotechnology (B.Sc.)
- Landscape Planning and Landscape Architecture (B.Sc.)
- Mechanical Engineering (B.Sc.)*
- Mathematics (B.Sc.)*
- Natural Sciences in the Information Society (B.Sc.)
- Physics (B.Sc.)*
- Psychology (B.Sc.)
- Urban and Regional Planning (B.Sc.)
- Technomathematics (Mathematics of Technology) (B.Sc.)*
- Transport Systems (B.Sc.)*

State examination

- Food Chemistry (S)
Curricula and Courses

Bachelor and Master programs for Technical Teacher Education

- Teacher Education in Prevocational Education  B. Sc. / M. Ed.
- Technical Teacher Education in Construction Technology  B. Sc. / M. Ed.
- Electrical Engineering  B. Sc. / M. Ed.
- Landscape Engineering  B. Sc. / M. Ed.
- Metals technology  B. Sc. / M. Ed.
- Nutrition and Food Science  B. Sc. / M. Ed.
- Architecture  M. Sc.* (will start in Fall 07/08)
- Business Mathematics  M. A.
- Civil Engineering  M. Sc.* (will start in Fall 07/08)
- Computational Neuroscience  M. Sc.
- Communication and Language  M. A.
- Computer-Engineering  M. Sc.*
- Computer Sciences  M. Sc.*
- Conservation of Monuments, Historic Buildings and Sites  M. Sc.
- Educational Management  M. A.
- Electrical Engineering  M. Sc.*
- Geodesy and Geoinformation Science  M. Sc.
- Geotechnology  M. Sc.
- History and Culture of Science and Technology  M. A.*
- Historical Urban Studies  M. A.
- Human Factors  M. Sc.
- Industrial and Network Economics  M. Sc.* (will start in Fall 07/08)
- Mathematics  M. Sc.* (will start in Fall 07/08)
- Media Communication and Technology  M. A.
- Philosophy of Knowledge and Science  M. Sc.
- Polymer Science  M. Sc.
- Process Energy and Environmental Systems Engineering  M. Sc.
- Scientific Computing  M. Sc.
- Technomathematics (Mathematics of Technology)  M. Sc.*
- Urban Design  M. Sc.

Advanced master’s degrees

- European Studies
  (Postgraduate studies, offered by TU Berlin, HU Berlin and FU Berlin, Degree: Master of European Studies)
- Global Production Engineering
  (Continuing education, Degree: Master of Science in Global Production Engineering)
- Real Estate Management
  (Continuing education, Degree: Master of Science in Real Estate Management)
- Science Marketing
  (Continuing supplementary studies, Degree: Master of Science-Communications and Marketing)
- Urban Management
  (Continuing education, Degree: Master of Science in Urban Management)

* These Courses will start both winter semester (fall) and summer semester (spring). All the other courses will start in winter semester only.

More curricula and courses are planned.
Curricula and Courses

**Discontinued Courses**

The Following course are no longer offered. An application and matriculation is possible for upper subject-related semesters only.

- **Diploma**
  - Architecture, Business administration, Civil Engineering, Computer engineering, Computer science, Economics, Electrical engineering, Engineering Science, Geodesy, Geosciences and applied earth sciences, Landscape planning and landscape architecture, Mathematics, Mechanical engineering, Media counselling, Physics, Psychology, Techno and business mathematics, Transport systems, Urban and regional planning, Vocational education

- **M. A.**
  - Art history, Communications science, Education, French philology, General linguistics, German as a foreign language, German philology, History, History of science and technology, Musicology, Philosophy

**Teaching qualification/State examination**

Chemistry, Construction Technology, Electrical engineering, Farming and Horticulture, French, German, History, Home and work theory, Mathematics, Metals technology, Nutrition/Food science, Philosophy, Physics, Social studies, Technology/work theory

**Other degree Programs**

- Berlin Model for Post-occupational Training (BANA), (Continuing education, Degree: Certificate)
- Beverage Technology (Supplementary studies)
- Brewing Technology (Degree: Brewing master)
- Education and Training in Europe (ERASMUS – complementary studies, Degree: Certificate)
- Food Chemistry (Complementary studies, Degree: Food chemist)
- Summer-School Programme (International Management, business management and project management, job application training)
- Winter-School Programme (Management training, job application training)

**Joint Degree Programs**

Joint degree programs exist with 14 partner universities. The following joint degrees are awarded by the TU Berlin.

**January 2007**

<table>
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<th>Partner universities</th>
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<td>Ecole Supérieure de Commerce de Paris/EAP</td>
<td>Business administration, Economics, Business Administration and Engineering</td>
<td>Diplom-Betriebswirt, Diplom-Volkswirt, Diplom-Ingenieur/Diplôme de l'ESCP/EAP</td>
</tr>
<tr>
<td>Ecole des Ponts et Chaussées, Paris</td>
<td>Business Administration, Economics, Business Administration and Engineering</td>
<td>Dipl.-Betriebswirt, Dipl.-Volkswirt, Dipl.-Ingenieur/Diplôme de l'Ecole des Ponts et Chaussées, Paris</td>
</tr>
<tr>
<td>Ecole Supérieure de Commerce de Toulouse</td>
<td>Business Administration, Economics, Business Administration and Engineering</td>
<td>Dipl.-Betriebswirt, Dipl.-Volkswirt, Dipl.-Ingenieur/Diplôme de l'Ecole Supérieure de Commerce de Toulouse</td>
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## Curricula and Courses

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<th>Courses of studies</th>
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<td>Dipl.-Betriebswirt, Dipl.-Volkswirt, Dipl.-Ingenieur/Diplôme de l'Ecole de Management Lyon (EM)</td>
</tr>
<tr>
<td><strong>Ecole Nationale Supérieure des Mines de Saint-Etienne</strong></td>
<td>Energy and process engineering, Business Administration and Engineering</td>
<td>Diplom-Ingenieur/Diplôme d'Ingénieur</td>
</tr>
<tr>
<td><strong>Cranfield Institute of Technology</strong></td>
<td>Transports</td>
<td>Diplom-Ingenieur/M. Sc.</td>
</tr>
<tr>
<td><strong>Supaero, Toulouse</strong></td>
<td>Transports</td>
<td>Diplom-Ingenieur/Diplôme d'Ingénieur</td>
</tr>
<tr>
<td><strong>Dongseo University Busan, Korea</strong></td>
<td>Biotechnology, Biochemical Engineering</td>
<td>Diplom-Ingenieur/M. Sc.</td>
</tr>
<tr>
<td><strong>Ecole Centrale Paris</strong></td>
<td>Engineering Sciences</td>
<td>Diplom-Ingenieur, Diplôme d'Ingénieur</td>
</tr>
<tr>
<td><strong>Politechnika Krakowska</strong></td>
<td>Energy and process engineering</td>
<td>Diplom-Ingenieur/Magister Inzynier</td>
</tr>
<tr>
<td><strong>Shanghai-Jiao-Tong-Universität</strong></td>
<td>Computer sciences, Electrical engineering, Computer Engineering</td>
<td>Diplom-Ingenieur/M. Sc.</td>
</tr>
<tr>
<td><strong>Tongji-Universität, Shanghai</strong></td>
<td>Urban Design</td>
<td>Master of Architecture/Master in Engineering with Specialisation in Urban Planning (Tongji), M. Sc. in Urban Design (TU Berlin)</td>
</tr>
<tr>
<td><strong>Pontificia Universidad Católica de Santiago de Chile</strong></td>
<td>Architecture</td>
<td>Licenciado und Titulo Profesional de Arquitecto (PUC), M. Sc. (TU Berlin)</td>
</tr>
</tbody>
</table>
University Research Structure

Financed by the TU Berlin

January 2007

Interdepartmental priority research areas

- Applied Life Sciences and Technology Pool (ALSTEP)
- Fluid systems technology
- Centre for Network Industries (CNI)
- Schinkel Center for Architecture, Building Conservation and Urban Studies
- Urban Infrastructure and Operating Schemes (FSP INFRA)
- Water in Urban Areas
- Center of Human-Machine-Systems (ZMMS)
- Center for Technology and Society (ZTG)

In the Faculties I Humanities and IV Electrical Engineering and Computer Sciences are also areas for research:

- Center for Study of Anti-Semitism
- Center for Interdisciplinary Women’s and Gender Studies
- Technologies of microperipherics

Inter-disciplinary fields of research

- IFS 3/2: Innovative bioreactors based on biocompatible ceramic-foam-structures for cellcultivation

External Funding

DFG Research Centers and Graduate Schools funded by the German Research Foundation (DFG) in the framework of the German “Excellence Initiative” by the German Federal and State Governments

- MATHEON – Mathematics for key technologies: Modelling, simulation and optimization of real-world processes (involved FU Berlin, HU Berlin, Weierstrass-Institute for Applied Analysis and Stochastics and the Zuse Institute Berlin)
- Berlin Mathematical School (a joint project of the mathematics departments of the three major Berlin universities, TU Berlin, FU Berlin, and HU Berlin)

Speaker institution TU Berlin

- Sfb 557: Control of complex turbulent shear flows

Collaborative Research Centers of the DFG

- Sfb 557: Control of complex turbulent shear flows

Collaborative Research Centers with the participation of TU Berlin

- Molecular Physiology, Energetics and Regulation of Primary Metabolism in Plants (HU Berlin)
- Sfb 448: Mesoscopically Organized Composites (HU Berlin)
- Sfb 498: Protein-Cofactor Interactions in Biological Processes (FU Berlin)
- Sfb 546 Structure, dynamics and reactivity of transition metalloid aggregates (HU Berlin)
- Sfb 555 Complex nonlinear processes (HU Berlin)
- Sfb 649 Economic Risk (HU Berlin)
- Sfb 658 Elementary Processes in Molecular Switches at Surfaces (FU Berlin)
- Sfb 740 From molecules to modules: Organisation and dynamics of functional units in cells (HU Berlin)
- TR 29: Product Service Systems – Dynamic Interdependency of Product and Service in Production Area (Universität Bochum, TU Berlin)

DFG Research teams at the TU Berlin

- 409 INTERURBAN – Dynamics of Water and materials at urban locations
- 565 Polyhedral Surfaces
- 566 Veterinary Medicines in Soils: Basic Research for Risk Analysis
- 581 Natural Slopes
University Research Structure

DFG Research teams with the participation of the TU Berlin
- 413 Algorithms, Structure, Randomness (HU Berlin)
- 415 Organometal(loid) Compounds in the Environment (Universität Essen)
- 449 Bacterial Cell Envelope: Synthesis, Function and Target (Universität Tübingen)
- 456 The role of biodiversity for element cycling and trophic interactions: an experimental approach in a grassland community (Universität Jena)
- 468 Methods from discrete mathematics for the synthesis and control of chemical processes (Otto-von-Guericke-Universität Magdeburg)
- 486 Combustion Noise Initiative (TU Darmstadt)
- 508 Noise Generation in Turbulent Flow (Universität Stuttgart)
- 653 Active and tuneable microphotonic systems based on Silicon-On-Insulator (SOI) (TU Hamburg-Harburg)
- 718 Analysis and Stochastics in Complex Physical Systems (Universität Leipzig)
- 741 Nanoscale Processes and Geomaterials Properties (FU Berlin)

DFG Post-graduate colleges at the TU Berlin
- 621 Stochastic Modelling and Quantitative Analysis of Complex Systems in Engineering
- 1013 Prospective engineering of human-technology-interaction
- 1015 The History and Culture of the Metropolis in the 20th Century
- 1339 Methods for Discrete Structures
- 1408 Stochastic Models of Complex Processes

Graduate colleges with the participation of the TU Berlin
- 780 Perspectives on Urban Ecology - the Example of the European Metropolis of Berlin (HU Berlin)
- 837 Functional Insect Science (Uni Potsdam)
- 1215 Materials and Concepts for Advanced Interconnects (TU Chemnitz/Uni Shanghai)

BMBF-Competence Center with the participation of the TU Berlin
- Bernstein Center for Computational Neuroscience Berlin

BMBF Network
- Speaker institution TU Berlin
  - Working Group of Nanotechnology Centers of Competence in Germany

TU Competence Center
- NanOp - Competence Centre for the Application of Nanostructures in Optoelectronics
Cooperations

Cooperation with Science and Research Institutions

**Strategic Partnerships**
- Federal Institute for Materials Research and Testing (BAM) with Faculty II Mathematics and Natural Sciences
- Faculty III Process Sciences
- German Heart Institute Berlin (DHZB) with Faculty IV Electrical Engineering and Computer Sciences
- Research and Application Association Traffic Technology Berlin (FAV) Technology Foundation Berlin/Senate Department for Education, Science and Research
- DFG Research Center MATHEON – Mathematics for key technologies (involved FU Berlin, HU Berlin, Weierstrass-Institute for Applied Analysis and Stochastics, Zuse Institute Berlin and Faculty II Mathematics and Natural Sciences)
- Microsystems Technology Institution Berlin (ZEMI) with BAM/Bessy/FBH/FhG-IPK/FhG-IZM Faculty IV Electrical Engineering and Computer Sciences Faculty V Mechanical Engineering and Transport Systems

**Institutes of the Fraunhofer Gesellschaft zur Förderung der angewandten Forschung e. V. (FhG)**
- Fraunhofer Institute for Production Systems and Design Technology (IPK)
- Fraunhofer Institute for Reliability and Microintegration (IZM)
- Fraunhofer Institute for Computer Architecture and Software Technology (FIRST)
- Fraunhofer Institute for Open Communication Systems (FOKUS)
- Fraunhofer Institute for Telecommunications, Heinrich-Hertz-Institut (HHI)
- Fraunhofer Institute for Systems and Innovation Research (ISI)
- Fraunhofer Institute for Software and Systems Engineering (ISST)

**Institutes of the Wissenschaftsgemeinschaft Gottfried Wilhelm Leibniz e. V.**
- Berliner Elektronenspeicherring Gesellschaft für Synchrotronstrahlung mbH (BESSY)
- German Institute for Economic Research, Berlin (DIW)
- Ferdinand-Braun-Institut für Höchstfrequenztechnik, Berlin (FBH), part of the Forschungsverbund Berlin e. V.
- Institute for Applied Geosciences (GGA)
- Institute for Analytical Sciences (ISAS)
- Max-Born-Institute for Nonlinear Optics and Short Pulse Spectroscopy, Berlin (MBI), part of the Forschungsverbund Berlin e. V.
- Weierstrass Institute for Applied Analysis and Stochastics, Berlin (WIAS), part of the Forschungsverbund Berlin e. V.
- Social Science Research Centre, Berlin (WZB)

**Helmholtz Association of German Research Centers (HGF)**
- German Aerospace Center (DLR)
- GeoForschungsZentrum Potsdam (GFZ)
- Hahn-Meitner-Institute (HMI)

**Further research institutions**
- Federal Institute for Materials Research and Testing (BAM)
- Berlin-Brandenburgische Akademie der Wissenschaften (BBAW)
- Zuse-Institute Berlin (ZIB)
- Geisteswissenschaftliche Zentren e. V. (GWZ)
- Wissenschaftskolleg zu Berlin /Institute for Advanced Studies (WiKo)
- Versuchs- und Lehranstalt für Brauerei in Berlin (VLB)
Cooperations

Cooperation with Business

Strategic cooperations
■ Center for Knowledge Interchange (CKI)
  Siemens AG in interdepartmental Cooperations
■ Center for Change and Knowledge Management (CWW)
  Bertelsmann AG, DaimlerChrysler AG, Hochtief AG, Siemens AG with
  Faculty VI Planning – Building – Environment
  Faculty VII Economics and Management
■ EANTC AG (European Advanced Networking Test Center)
  with Research Center on Network Technologies and Multimedia Applications (PRZ/FSP-PV)
■ Institute for Education in the information society with
  Faculty I Humanities
■ Institute of Railway Technology with
  Faculty V Mechanical Engineering and Transport Systems
■ Berlin Centre of Competence for Water (KWB)
  Water in Urban Areas
  Materialprüfungsanstalt Berlin-Brandenburg GmbH (MPA)
  Faculty VI Planning – Building – Environment
■ VDI/VDE Innovation und Technik GmbH (VDI/VDE-IT) in
  interdepartmental cooperation
■ Confederation of Employers’ and Business Associations of Berlin and Brandenburg,
  in interdepartmental cooperation
■ Zentrum für Flugsimulation Berlin GmbH with
  Faculty V Mechanical Engineering and Transport Systems
■ VEOLIA Water Foundation with
  Faculty VI Planning – Building – Environment with the field Urban Water Management,
  endowed professorship KWB – Veolia Water
■ Bewag AG & Co. KG for
  Faculty III Process Engineering, with the field Energy Engineering and Protection of the Environment
■ Deutsche Telekom AG with
  Faculty IV Electrical Engineering and Computer Sciences with the fields
  – Intelligent Networks and Management of Distributed Systems
  – Usability
  – Security in Telecommunications
  – Service Centric Networking
■ Philips Medical Systems with
  Faculty IV Electrical Engineering and Computer Sciences in the field Techniques in Biomedical Imaging
■ Bayer Schering AG with
  Faculty II Mathematics and Natural Sciences in the field “Rudolf-Wiechert-Professur” – Biological Chemistry
■ SUN Microsystems GmbH with Faculty IV Electrical Engineering and Computer Sciences in the field Agent Technologies in Business Applications and Telecommunications

Cooperations with external fundings of endowed professorships
■ Study Group for Environmental Statistics – ARGUS e.V.
  Faculty IV Electrical Engineering and Computer Sciences
■ DaimlerChrysler AG Automotive Information Technology Institute,
  especially Faculty IV Electrical Engineering and Computer Science
■ Deutsche Telekom Laboratories
  Faculty IV Electrical Engineering and Computer Sciences
■ Institute for Building Maintenance and Modernisation at the TU Berlin
  Faculty VI Planning – Building – Environment
■ Laser- und Medizin-Technologie gGmbH
  Faculty II Mathematics and Natural Sciences
## International Cooperation Projects

TU Berlin cooperates with more than 200 universities in Europe and overseas where TU students can spend one or more semesters. TU Berlin's International Office is the main partner for all those who want to participate in an exchange program.

### Europe
- Austria (8)
- Belgium (6)
- Bulgaria (3)
- Czech Republic (4)
- Denmark (9)
- Estonia (1)
- Finland (5)
- France (63)
- Greece (4)
- Great Britain and Northern Ireland (26)
- Ireland (3)
- Iceland (1)
- Italy (19)
- Latvia (1)
- Netherlands (9)
- Norway (5)
- Poland (12)
- Portugal (10)
- Romania (4)
- Slovakia (1)
- Slovenia (1)
- Spain (20)
- Sweden (8)
- Switzerland (5)
- Turkey (6)
- Hungary (3)

### Overseas
- Asia (China, Japan, South Korea, Singapore) (8)
- Australia and New Zealand (10)
- Canada (10)
- Latin America (Mexico, Chile, Brazil) (3)
- USA (29)

Some 5,800 of the students at the TU Berlin are from foreign countries. The following is a list of countries, from where most of the foreign students originate.

- China (715)
- Turkey (641)
- Poland (412)
- Bulgaria (245)
- Cameroon (234)
- Russia (209)
- Vietnam (188)
- Indonesia (158)
- Georgian Republic (155)
- South Korea (154)
- France (144)
- Spain (139)
- Lebanon (130)
- Ukraine (113)
- Iran (108)
- Greece (105)

Total (3850)
Franz Reuleaux (1829–1905) served as Rector of the TH Berlin between 1890 and 1891. His name became closely associated with machine kinematics.

Herrmann Föttinger (1877–1945) was appointed a chair at the TH Berlin in 1924. He was Germany’s first Professor for Fluid Mechanics and was responsible for developing the first fully-automatic gearbox.

Gustav Hertz (1887–1975) came to the TH Berlin in 1927, one year after receiving the Nobel Prize in Physics. He was responsible for forming the new Institute of Physics at the TH Berlin.

Adolf Slaby (1849–1913) in 1882 he became Professor for Theoretical Mechanical and Electrical Engineering at the TH Berlin and was its Rector between 1894 and 1895. He conducted research in the field of wireless telegraphy. He was instrumental in starting the industrial development of radiotelegraphy.

Hans Geiger (1882–1945) served as Director of the Institute of Physics of the TH Berlin. Together with his colleague Walter Müller he discovered that, using a Geiger-Müller tube, it was possible to detect radioactive particles and to measure their energy.

Walter Höllerer (1922–2003) was appointed Professor of Comparative Literature at the TU Berlin. He was also a poet, publisher of literary journals and founder of the Literary Colloquium-Berlin. He is credited with building bridges between the Humanities and Technological/Natural Sciences at the TU Berlin.

Alois Riedler (1850–1936) was the father of modern technical drawing. He was awarded a chair as Professor for Mechanical Engineering at the TH Berlin in 1888, and became Rector in 1899. He was a pioneer in practically-oriented scientific approaches to engineering training and made a name for himself in automotive engineering.

Hans Scharoun (1893–1972) studied at the TH Berlin School of Architecture and taught urban development at the TU Berlin. His design of Berlin’s Philharmonie Concert Hall proved to be an architectural masterpiece of international renown.

Eugene Paul Wigner (1902–1995) studied and taught at the TH Berlin. He formulated the law of conservation of parity and was active in the field of nuclear physics. He received the Nobel Prize in Physics in 1963 for his research into principles of symmetry and nuclear and elemental physics.

Georg Schlesinger (1874–1949) studied at the TH Berlin; in 1904 he assumed the TH Berlin's newly founded Chair for Machine Tools and Manufacturing Processes. Schlesinger is considered the “father” of modern manufacturing techniques.

Hans Scharoun (1893–1972) studied at the TH Berlin School of Architecture and taught urban development at the TU Berlin. His design of Berlin’s Philharmonie Concert Hall proved to be an architectural masterpiece of international renown.

Ernst Ruska (1906–1988) received the Nobel Prize in Physics in 1988 for developing the first electronic microscope. He was a student at the TH Berlin and he taught at the TU Berlin starting in 1949.

Konrad Zuse (1910–1995) studied at the TH Berlin and later developed the world’s first process-controlled calculating machine, thereby ushering in the computer age.

Carl Dahlhaus (1928–1989) taught at the TU Berlin as Professor of Musicology from 1967 until his death. He remained at the TU Berlin, despite tempting offers from other prestigious universities. Under his aegis, the field of Musicology gained wide recognition as a valid academic subject. He enriched the field of Musicology through his contributions to historical theories, the esthetics of music, musical theory and musical analyses.

For more information log on to www.tu-berlin.de/presse/125jahre/festschrift/inhalt.htm