EXCELLENCE & EXPERTISE

Research cooperation with HTW Berlin
Many of the research and development projects at HTW Berlin are financed by publicly funded programmes. The university would like to take this opportunity to thank the following funding providers:
Excellence & expertise at HTW Berlin

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HTW Berlin is the youngest publicly funded university of applied sciences in Berlin. Thanks to a wide range of attractive study programmes, experienced researchers and a highly motivated administrative team, it has established itself as one of the biggest and most diverse universities of applied sciences in Germany. Around 14,000 students, 280 professors, 800 freelance lecturers from business and industry, and 450 staff employed in service, administration and scientific projects work together hand in hand to deliver excellence in teaching and research.

The subject areas covered by the university range from engineering and computing to business, law, design and cultural studies. The university uses this diversity for transdisciplinary approaches and interdisciplinary research, preparing students for the cooperation requirements of the professional world and paving the way for innovative developments.

At HTW Berlin, around 160 research and development projects are carried out every year with business and industry partners, research institutes and organisations in the cultural and social field. The majority of research projects are financed by public funding programmes and often take the form of collaborative research or contract research.

Cooperating with HTW Berlin has proven to be a great success for companies in a broad range of industries. Small and medium-sized enterprises without in-house research capacities especially benefit from having access to the knowledge resources of interdisciplinary research teams and research infrastructure. For researchers at HTW Berlin, cooperation with the users of their research is also essential for ensuring the quality, relevance and practical application of their work.

HTW Berlin is a member of the European University Association (EUA) and the German Alliance of Applied Sciences (HAWtech). It is also actively involved in the
Berlin Institute for Applied Research (IFAF), an association of state-governed universities of applied sciences in Berlin that promotes interdisciplinary research projects with small and medium-sized enterprises. Furthermore, it is a member of the university association BIT6 – Berlin Innovation Transfer. HTW Berlin also cooperates with renowned research centres such as the Helmholtz centres and the Fraunhofer and Leibniz institutes.

Are you interested in discussing opportunities for cooperation with HTW Berlin? We offer:

- **Qualified graduates**: every year around 3,000 students graduate in the fields of engineering, business, computing, culture and design.
- **Excellence and expertise**: 280 professors use their resources to deliver creativity and innovation in a wide variety of disciplines; this is supported by the expertise of experienced engineers, technicians and staff in laboratories and projects.
- **First-rate framework conditions**: infrastructure for research and development projects, contract research, collaborative research and events.
- **Partners and networks**: HTW Berlin is represented in numerous regional and interregional research associations and industry networks.
Hotspot for creativity

Fashion, media, games and products – design expertise is a key success factor

Graduate profile

Creative young minds come from HTW Berlin
HTW Berlin prepares creative young individuals for a design career in different fields of practice and industry through a range of design study programmes. Students that receive one of the coveted study places benefit from individual support with their personal design development. The Communications Design degree programme focuses on the development of clearly understandable and usable visual concepts. In addition to creating classic design products such as flyers, posters and websites, the students learn about the structures and systems that connect products and people. A key topic is developing and designing concepts for digital media, focusing on the new application opportunities offered by the Internet, mobile phones and interactive devices. The Industrial Design study programme prepares students for developing and designing innovative products and systems for industry, businesses or private use. As well as aesthetic elements, students learn to consider aspects such as function, technology and business strategies. Game Design qualifies graduates for working in a development studio or other innovative areas of game production or digital toys. Far from being limited to the entertainment industry, applications for games are found in all areas of the professional world, education, culture and the health sector.

In addition to fostering design skills and creativity, the Fashion Design degree programme equips students with a solid knowledge of product development and processing, marketing expertise and management skills – all of which are essential for developing new patterns, models and collections. Numerous design awards, successful start-ups, award-winning collections, celebrated fashion labels, invitations to prestigious international fashion events and close cooperation with brand-name manufacturers in the fashion and clothing industry are proof that our profile of expertise is spot on.

Research activities

Art with tangible benefits
The professors and lecturers who teach design at HTW Berlin have a strong reputation in fields such as architecture, web and media arts, industry and automotive design, photography, graphics, textile art and book illustration. As designers, their philosophy is that art should be useful, affordable, sustainable and widely accessible. They strive to make products, process and technological developments easy to understand, safe, sustainable and enjoyable. Our design researchers are team players who draw on their artistic background and like to look beyond the boundaries of their field, often working in interdisciplinary research groups. Depending on the particular research challenge, they collaborate with computer scientists, mechanical engineers, business experts, environmental researchers, life scientists or medical experts. Through such interdisciplinary cooperation, they are in a unique position to develop innovative concepts and solutions, resulting in sophisticated products and technologies.

What cooperation opportunities exist?

Think-tank for companies
Design expertise is a key factor in the future success of a product. Companies in all industries therefore show great interest in exchanging ideas with the creative minds at HTW Berlin. Numerous joint projects provide impressive proof that dialogue, collaboration and the use of professional creative techniques can give rise to original product ideas and new solutions. Previous projects include a variety of packaging solutions, the recycling centre of the future designed for the BSR (Berlin’s municipal waste and cleaning agency) and the futuristic design of a double-decker train interior created for Bombardier Transportation.
If you read the book “Understanding Branding”, you will be left in no doubt that the author, Prof. Daniela Hensel, knows exactly what counts when implementing strategy and design processes in brand development – not just in theory, but also from practical experience. Prior to her professorship at HTW Berlin, she not only accumulated extensive professional experience with the biggest German branding agency, she also worked as the creative director of an agency with a team of twelve and was a partner in a “two-man operation”. “Not exactly a typical academic career,” laughs the graduate of the University of Applied Sciences Mainz and the Haut école des arts du Rhin in Strasbourg. After many years of working in agencies, Daniela Hensel enjoyed her first teaching position so much that she started looking for a professorship – and found the perfect match for her skills in the Communications Design study programme at HTW Berlin.

Today, it is still her dream job and she thrives on trying out new topics, initiating projects and encouraging young people to find their own paths. One of the projects set up by Daniela Hensel is “Fixe Schnitzel”, an event that gives design agencies and young communication designers at the university the chance to get to know each other. The event raises the profile of the university and provides students with valuable contacts for internships and job applications. Promoting greater cooperation with industry is top of the agenda for Daniela Hensel. Her vision is to work together with students on topics that classic agencies are unable to dedicate their resources to, providing a think-tank for brand communication that integrates colleagues from different fields. She regularly finds companies looking for answers to precisely such challenges, impressing them with the surprising results produced by students.

Prof. Daniela Hensel
Expert in corporate and editorial design
Hotspot for creativity – expertise of HTW Berlin at a glance

21 professors

200 graduates every year

5 degree programmes

1000 students

Degree programmes
Game Design (Bachelor)
Industrial Design (Bachelor)
Communications Design (Bachelor)
Fashion Design (Bachelor/Master)

Expertise concentrated in a research cluster
The Game Changer research cluster focuses on digital games and interactive game systems. Professors, scientific staff and students work together as a team to conduct intensive research on content and information-related topics. Based in large workspaces and studios, including six game labs, the research team develops new game concepts and optimise digital characters. Research is conducted in such areas as competence development in the games industry, the sustainability of learning in serious games and the use of game technologies in archaeology.

Current research project

Wearable Technologies
Through special innovation workshops, the “proto:n” project helps SMEs to understand the potential of ambient assisted living for their process and product development, develop ideas and then test them.

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Creative projects (selection)

**Second life for military uniforms**
Fashion design students transformed discarded military clothing provided by a partner university in London into casual urban outfits for men and women. The designs were presented at the 7th Symposium on Textiles for Clothing and Technology under the theme “Workwear – an innovative industry undergoing change”.

**Innovative packaging for butter**
Butter can be packaged in a multitude of ways. A series of inspired ideas were developed in a collaborative project between the Industrial Design and Communications Design degree programmes. The German Packaging Institute (DVI) and the company Weidenhammer supported the project with technological expertise and professional feedback.

**Back to School – non-urban mobility**
What might transport solutions look like for school pupils in rural areas in the year 2030? During the development of innovative concepts, instead of confining their vehicle designs to shapes and surfaces, HTW Berlin’s aspiring industrial designers and automotive engineers also took into account children’s limited motor skills. Professional support was provided by MAN Truck & Bus AG.

**Fostering innovative designs and new solutions**
The student network “sehen und ernten” (see and harvest) offers students the chance to get to know the professional world and directly apply what they have learnt in their studies. In cooperation with the university and with the help of a large pool of experts, the network has set itself the task of gathering knowledge and passing on experience. Its primary goal is to help students to discover new horizons and create fully functioning design solutions.
Smart ways to master the energy transition

Researchers at HTW Berlin spark new ideas and drive research forward

Graduate profile

Young researchers to tackle shifts in energy policy
Modern energy engineering and smart energy management are not only important for the environment and climate, they also harbour a huge amount of business potential. As the high requirements placed on engineers are rapidly changing, HTW Berlin continuously adapts its degree programmes to meet the complex demands of the industry. It is a great advantage that the university teaches and researches in all relevant areas of power generation and the use of renewable energy – from wind energy to photovoltaics, solar thermal energy, geothermal energy and the use of biomass. Equally important aspects are modern energy storage and grid technologies, rational energy use and energy-efficient construction. In the Renewable Energies degree programme, young engineers learn about the planning, development and optimisation of renewable energy systems. The Building Energy and Building Information Technology study programme focuses on using the lowest possible amount of energy to achieve comfortable indoor climates in buildings. Other degree programmes such as Mechanical Engineering, Automotive Engineering, Civil Engineering, Environmental Informatics and Business Law also provide specific expertise that is indispensable for redesigning the energy supply network.

Research activities

Energy research is one of the most high-profile areas of research at HTW Berlin
Over 40 researchers are tackling the challenges of the energy transition through projects, publications and cooperation partnerships. Research is often conducted in interdisciplinary teams, combining expertise in fields such as renewable energies, civil engineering, building energy and building information technology with technical know-how in electrical engineering, automation technology and facility management. A classic research field is sustainable construction and building management, which also includes low-energy modernisation using new technologies and innovative materials as well as building services engineering, heating and air conditioning. Other projects focus on increasing efficiency in wind turbines and photovoltaic systems. The research agenda includes integrating and improving storage technologies, developing components for a smart power grid and environmentally friendly mobility. The success of HTW Berlin in competing for public funding confirms the high level of our energy research.

What cooperation opportunities exist?

Partners from business and industry are always on board
Ensuring relevance for practical applications is crucial for energy research. Scientists at HTW Berlin see their task in providing impetus for regional and inter-regional networks. They have instigated a whole series of initiatives with the energy sector and housing industry, often involving municipalities and public institutions. Proven forms of cooperation include contract research, expert reports, joint practical projects, collaborative research projects, measurement and testing services, and the transfer of personnel via degree theses and internships. HTW Berlin’s professors participate in research associations such as the EUREF research campus and cooperate closely with relevant national and international research institutions. A particularly close form of research cooperation exists with the Helmholtz Zentrum Berlin and the Reiner Lemoyne Institute.
While some people can only dream of developing a career-long passion for a particular specialist field during their studies, others actually achieve it. Prof. Dr. Friedrich Sick belongs to latter of these two groups.

After spending three semesters at the Solar Energy Laboratory of the University of Wisconsin/Madison as an aspiring process engineer, he has devoted himself to renewable energies ever since. He dedicated eight years of research to this topic at the Fraunhofer Institute for Solar Energy Systems in Freiburg, then worked as a product manager in industry and as a project manager in an engineering firm. Since his appointment as a professor at HTW Berlin in the year 2000, he has committed himself to teaching and research in the Renewable Energies degree programme.

His focus is almost exclusively on energy supply concepts for buildings. Although it is essentially always a question of the three same factors, they need to be technically defined each time depending on the location, form of use, architecture and other conditions. Firstly, it must be ensured that the building shell does not loose too much heat and rooms inside must not overheat in summer. Secondly, an integrated strategy needs to be developed for heating, cooling and ventilation. Lastly, the necessary amount of energy must be provided in a practical way.

All of these factors should not entail a comprise on comfort, believes Friedrich Sick. The existing housing stock, to use the technical term for existing buildings, represents the greatest challenges in this regard – for example the eight-storey block of 64 apartments which is being modernised to improve its energy efficiency in cooperation with Berlin’s biggest housing company. The project has been so successful that the next housing company has already signalled interest. In Friedrich Sick’s experience as a scientist, good work is the best recommendation for the next collaborative project.
Expertise concentrated in a research cluster

The Environmentally Friendly Energy Supply Systems and Energy-efficient Buildings (KEG) research cluster develops ideas for restructuring the energy supply network in order to combat climate change. Seeking to effect a drastic reduction in the energy demands of existing buildings, the researchers also investigate ways to convert to low-emission and renewable energy sources. Due to its significance for human health, the quality of indoor climates is another important area of research. A number of research projects in this cluster focus on systems for energy efficiency and environmentally friendly construction. These projects aim to develop renewable heat supply strategies, to improve thermal insulation and the sealing of building outer shells, and to optimise systems engineering for heating, cooling and ventilation.

Current research projects (selection)

Improvement of wind turbines
Researchers are developing an innovative control concept for wind turbines thanks to funding from the Federal Ministry for Economic Affairs and Energy amounting to over 1.4 million euros. Senvion, a company specialising in wind turbines, is a partner in the “Windkraftwerk” (wind farm) project.

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Self-sufficiency through photovoltaic systems in the city
Using Berlin as a model, researchers are investigating the potential of photovoltaic systems for achieving self-sufficiency with regard to heating, electricity and mobility in large cities. The team working on the “PV2City” project has received 544,779 euros in funding from the EU and the federal state of Berlin.

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Students committed to protecting the environment and climate

Student sustainability initiative
The student sustainability initiative at HTW Berlin, "einleuchtend e.V.", carries out green projects both within the university and externally. The organisation sees itself as a self-managed and independent student project and is open to all students at HTW Berlin.

http://einleuchtend.org/

Innovative laboratories for teaching and research
• Dual environmental test chamber to create defined climatic conditions under which objects can be measured and characterised
• Electroluminescence measurement system for investigating faults and defects in solar cells and modules
• Meteorological station for recording detailed information about the supply of wind or solar energy
• Sky radiometer for detailed measuring of the spectral composition of sky radiation
• Steady-state solar simulator for analysing solar modules
• PVcomB Competence Centre Thin-Film and Nano-technology for Photovoltaics Berlin for the joint development of thin-film photovoltaic technologies and products in cooperation with industry

Plus Energy House
The 74-square-metre Plus Energy House was designed and built by students of HTW Berlin for the Solar Decathlon Europe competition. It is now used as a laboratory, event centre and for research purposes. Featuring efficiently insulated internal and external walls, the technical innovations in the building ensure energy consumption is kept to a minimum. The required operating energy is provided by solar energy and more energy is produced than needed. Any excess energy is fed into Berlin’s power grid. The land for the Plus Energy House was provided by the Berliner Elektro- Innung (Berlin electrical guild), which also supported the construction of the building.

Photovoltaic modules on the university’s roof
The solar energy system on the roof functions as a laboratory facility and also helps to improve the university’s energy footprint.
Programmed for digital change

Expertise in information and communication technology shapes the research profile of the university

Graduate profile

IT professionals for the digital future
The rapid development of information and communication technologies has influenced virtually every aspect of business, industry and society, impacting industrial production and private households alike. Capable specialists and managers with expertise in computer science and IT are therefore required in all areas involving the professional use of the Internet, multimedia, mobile applications, games, big data or innovative wireless technologies. HTW Berlin provides first-rate education in these fields, offering many options for specialisation in addition to a solid training foundation. Study programmes include Applied Computer Science, International Media and Computing, Environmental Informatics, Computational Science and Engineering, Business Computing, Information and Communication Technology, Computer Engineering and Electrical Engineering. Students are trained to quickly familiarise themselves with different practical areas or problems and to communicate beyond the limits of individual disciplines – a vital requirement for their later success, be it in the cultural, media or entertainment industry or in the area of education, health care, energy, construction or transport.

Research activities

Digitalisation shapes the research profile of HTW Berlin
With over 70 professors at HTW Berlin able to draw on an ICT specialisation within their professional field, the university conducts research on a wide range of applications for innovative information and communication technologies. In projects focusing on digitalisation, around 13 million euros in third-party funding was acquired through programmes run by the EU, the government and the federal state between 2012 and 2015. Researchers working in the areas of applied computer science, media computing, game design, environmental informatics and health informatics have particularly distinguished themselves in this regard. While the digitalisation of all economic sectors opens up opportunities for new business models, it also presents companies with a plethora of challenges. Digital transformation processes and business adjustment strategies are therefore a further research focus at HTW Berlin.

What cooperation opportunities exist?

Recruitment of qualified personnel
HTW Berlin offers a huge potential for cooperation in applications for modern information and communication technologies. Numerous interdisciplinary research teams at the university are able to work on a wide range of problem areas. Research is conducted in collaboration with over 110 cooperation partners, usually in the form of publicly funded research and development projects or contract research. Depending on whether the focus is on new digital business models, information systems for property and facility management, smart power grids, digital health solutions or virtual archaeology applications, specific competences are provided by partners from practice such as companies, museums, clinics, environmental institutes, housing associations or engineering firms.

For many companies, the recruitment of qualified IT personnel is one of the main reasons for approaching HTW Berlin. When competing with major employers, SMEs can attract the attention of potential employees with exciting development tasks and projects. The Computer Science Day is an ideal opportunity to talk with motivated computer science students at an early stage in their careers. Companies are invited to present themselves in lecture theatres or at a job fair stand. In addition to seeing the best degree theses and student projects, they can also advertise current vacancies for graduates, interns and student employees on the job wall.
Computer scientists who generate big data and save it in clouds tend to be perceived as nerds with limited communication skills. Prof. Dr. Dagmar Krefting quashes this misconception in every way.

While she has an outstanding ability to handle large volumes of data, she never loses sight of users’ needs. “The first step is often to find out what these needs actually are by talking to people,” she says, recalling one particular project which involved the development of a concept for processing brain image data and a user interface for neurologists. Krefting’s passion is to create practical solutions tailored to users’ needs by combining modern information technology with the high data security standards that are customary in the field of medicine.

Having dedicated herself to projects at the Charité – Universitätsmedizin Berlin for many years, since 2011 she has focused on teaching and research at HTW Berlin. Her specialisation in medical informatics in conjunction with data security was decisive in her appointment as a professor for the Computer Science and Business Administration degree programme. The fact that this study programme is also exclusively for women struck a chord with Dagmar Krefting – she herself benefited from female maths exercise groups during her studies at the University of Göttingen, which culminated in a doctorate in physics.

While she still maintains good contacts with the Charité, she has since expanded her research network. Every day, Dagmar Krefting moves a little bit closer to her goal of making the wide-ranging expertise at HTW Berlin visible to the medical industry, capitalising on this in the form of cooperation partnerships.
Degree programmes
- Applied Computer Science (Bachelor/Master)
- Corporate Environmental Information Technology (Master)
- Computer Science and Business Administration (for women, Bachelor)
- Information Technology/Distributed Systems (Bachelor)
- Computational Science and Engineering (Bachelor)
- International Media and Computing (Bachelor/Master)
- Professional IT Business (Master)
- Project Management and Data Science (Master)
- Environmental Informatics (Bachelor)
- Business Computing (Bachelor/Master)

New study programme
- Professional IT Business (Master of Science)
The Master’s degree programme is aimed at Bachelor’s graduates and professionals from the IT consultancy field. Students acquire expertise in the area of IT as well as knowledge of business administration, enabling them to develop solutions precisely tailored to the operational processes of a company. The programme content was developed in collaboration with companies.
http://pro-it.htw-berlin.de/

Programmed for digital change – expertise of HTW Berlin at a glance

52
professors

2600
students

550
graduates

13
degree programmes

100
publications

A degree programme only for women
To help women to access the traditionally male domain of computer science, since 2009 HTW Berlin has offered a degree programme in Computer Science and Business Administration exclusively for women. Internal surveys indicate that without this HTW Berlin study programme, 50 percent of its students would not have chosen this subject. As the level of education achieved by its graduates is very high, the feedback from companies has also been overwhelmingly positive. http://fiw.htw-berlin.de/
Innovative search system for images
The number of available digital images has rocketed in the last few years, making it increasingly difficult to search for specific images. A research project is currently being conducted to solve this problem. The new image search system has already been tested as an elementary prototype and the first results are highly promising.

Expertise concentrated in a research focus area and three research clusters
The Culture and Creative Industries – Digital Economy research focus area concentrates on applications and products in the field of culture, communication, design, media and interactive learning cultures, for example virtual archaeology, the digitalisation of cultural artefacts and designing creative application scenarios for interactive technologies.

The Culture and Computer Science research cluster investigates the potential uses of information and communication technology for the culture and creative industries. Researchers develop and test technical and conceptual solutions for producing, collecting, archiving, preserving and maintaining cultural artefacts and making them available.

The Creative Computing research cluster focuses on the generation, editing, analysis and use of images and videos. The team explores new use concepts and designs human-machine interfaces, pursuing the primary goal of improving the user experience.

In the SOFTINE research cluster, researchers from the field of environmental informatics and other disciplines devise software systems and informatics methods for sustainable development. They work in partnership with companies seeking to make efficient use of their resources in their production processes.

Current research projects (selection)
Platform for environmental and energy management
The project “QuiXel” aims to develop a set of methods and tools for collaborative and evolutionary environmental and energy management in small and medium-sized enterprises. Partners in the project are the Federal Environmental Agency, the Fraunhofer IFF and numerous companies.

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Discrimination through artificial intelligence
The research project „DiKi“ aims to develop best-practice knowledge based on real data and typical algorithms to enable people such as HR managers to understand the methods of artificial intelligence, identify potential discrimination patterns and thus avoid them.

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New approaches to classical music
In cooperation with Konzerthaus Berlin and a number of small and medium-sized enterprises, the APOLLO project team is developing innovative concepts to bring people closer to classical music and make it accessible in the digital realm, including virtual reality and augmented reality.

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Innovative technologies for biobanks
The aim of this project is to research and develop modern biobanking tools that are geared towards the dynamics of new research projects and complex questions relating to diagnostics and therapies, in particular in the area of personalised medicine.

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Knowledge transfer from the games industry
Promoting the transfer of knowledge and technology from the games industry to business and industry is the goal of the project “creative Applied Interactive Technologies” (cAPiTs). Key activities include workshops, networking and the organisation of events.

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Expertise for the business management of the future

HTW Berlin qualifies generalists and specialists for responsible management

Graduate profile

Specialists for business
A glance at the range of business programmes available at the university immediately shows that HTW Berlin offers far more than just the classic spectrum of business and economics subjects. In addition to general business and economics, 17 degree programmes offer outstanding opportunities for specialisation to prepare students for specific fields of activity. Graduates of the practice-oriented Bachelor’s degree in Business Law can draw on combined legal and business expertise, making them highly sought-after corporate legal professionals. A Bachelor’s degree in Real Estate Management offers excellent career prospects in the real estate sector. The Master’s degree programme in Non-profit Management and Public prepares students for managerial tasks in the non-profit sector, as even idealism requires professional implementation. The Business Economics and Policies study programme provides professional knowledge for work in organisations and politics.

In all subject areas, great emphasis is placed on interdisciplinary skills, including good software, digitalisation and foreign language knowledge as well as social skills. Managers in roles of responsibility require more than just analytical skills and strategic planning. Whether our graduates go on to work for an industrial company, auditing firm, international bank, foundation or non-profit organisation in the field of international development cooperation, all of these positions require intercultural communication skills, an awareness of consumer protection and sustainability issues, and employee-centred personnel management.

Research activities

Shared vision of prosperity and stability
The breadth of the research topics covered by HTW Berlin is reflected in approximately 200 publications annually in the areas of business, economics and business law. Third-party funding for business research is largely dedicated to marketing strategies, HR management and health management. Other projects focus on production and logistics management or the challenges of digitalisation for SMEs. Legal research deals with aspects of European business law, company law, energy law and cooperative legislation. Although our researchers concentrate on very different questions and challenges in the corporate or global context, they are all united by their common goal of facilitating a good quality of life and contributing to social and international stability.

What cooperation opportunities exist?

Diverse opportunities for businesses
There are many cooperation opportunities for companies, including student projects, professionally supervised internships, market research, contract research and expert reports. Publicly funded projects are almost always conducted in collaboration with companies. The German Prize for Business Communication, which is organised by students of the Business Communication Management degree programme, has always received very positive feedback from small and large businesses alike. For many years, companies have also invested great effort in competing for the “Golden spark” – an accolade awarded in recognition of outstanding corporate communication concepts.
It is very likely that, similar to Prof. Dr. Matthias Hartmann, you too will one day be tackling the changes that companies and other organisations are facing due to progressive digitalisation. He sees great potential in IT-based processes and applies the full extent of his expertise to make these processes safe and controllable. Cybersecurity is one of the core topics he teaches in the Business Administration study programme.

Matthias Hartmann is a doctoral graduate of Friedrich-Alexander-Universität Erlangen-Nürnberg. He likes to describe himself as a hybrid, as he is able to draw on a classic knowledge of business but also benefits from solid IT expertise, without which his entrepreneurial successes would not have been possible. Many years of working for one of the world’s largest strategic consultancies have been extremely useful. From the automotive industry to the banking sector, the telecommunications industry and the media world, he has gained extensive experience through his consultancy work for a wide range of companies.

Since his appointment as a professor for production and logistics at HTW Berlin in the year 2000, Matthias Hartmann’s experience has been benefiting his students, the academic administration team and research.

His résumé contains a long list of publications, conference presentations and projects conducted in cooperation with companies. As you would expect, nearly all of them are related to the topic of Industry 4.0. A self-confessed fan of science fiction films, he readily agrees that the term has become a buzzword. Nevertheless, he says that companies will not be able to avoid facing these challenges, making it important to provide scientific advice and support wherever it is needed.
Business management of the future – expertise of HTW Berlin at a glance

Degree programmes
- Labour and Human Resources Management (Master)
- Business Administration (Bachelor/career-integrated)
- Business Administration and Engineering (MBA)
- Finance, Accounting, Corporate Law and Taxation (Master)
- Financial Services – Risk Management (Master)
- General Management (Master)
- Real Estate Management (Bachelor)
- Industrial Sales and Innovation Management (Master)
- International Business (Bachelor/Master)
- International and Development Economics (Master)
- Nonprofit Management and Public Governance (Master)
- Public and Nonprofit Management (Bachelor)
- Real Estate Management (career-integrated)
- Business Economics and Policies (Bachelor)
- Business Communication Management (B/Master)
- Business Mathematics (Bachelor)
- Business Law (Bachelor/Master)

Expertise concentrated in a research cluster
In the Money, Finance, Trade and Development research cluster, twelve economists are investigating the causes of the financial crisis and are devising suitable approaches to restoring the macroeconomic balance. They are also examining the challenges for the global economy caused by the rise of the “emerging markets”.

Current research projects (selection)

Through the eyes of an artist
In the “Through the eyes of an artist” project, researchers are trying to ascertain what actors in the field of education, business and society can learn from artists and their attitudes, thought processes and working methods. One of the focus areas is the development of managerial skills.

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Blockchain technology in SMEs
The focus of this project is on the critical-analytical evaluation of blockchain technology. In particular, the project supports small and medium-sized enterprises with adapting to change by providing special information and consultancy services. In so-called “Blockchain Experience Labs”, the SME representatives are brought together with experts from the start-up scene to promote knowledge transfer and stimulate innovation projects.

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Mittelstand 4.0 | Kompetenzzentrum Usability
HTW Berlin is one of the consortium partners in this large collaborative project. The aim is to support medium-sized enterprises and firms in the skilled crafts industry with digitalisation and networking as well as Industry 4.0. Together with TU Berlin and the company UseTree, the university is involved in initiatives that raise awareness of usability and user experience, provide training and offer support with implementation.

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Events focussing on diverse topics
Current topics are examined and discussed at a range of different events. Our photo shows Michael Roth, Minister of State for Europe at the Federal Foreign Office, holding his presentation on “Europe in crisis” at HTW Berlin. Michael Roth exhibited great passion in garnering support for the idea of Europe, warning against the simplistic answers proposed as apparent solutions by populists and nationalists in various EU countries. He eloquently made the case for a greater union of the Member States and a joint policy on refugees and the labour market.

Perfectly prepared for the job
The skills of HTW Berlin graduates include visualisation techniques for use in discussions with customers and clients.
The challenges of health

Scientists at HTW Berlin are conducting research and development in cooperation with numerous partners

Graduate profile

Practical training
Healthcare is one of the leading industries in Berlin and harbours enormous potential for growth, creating new jobs, products and services. As an important actor and catalyst, HTW Berlin plays an influential role in shaping the direction of healthcare. It was one of the first universities in Germany to combine an equal balance of life science and engineering in a study programme. The innovative degree in Life Science Engineering offers students the benefit of practical and interdisciplinary training. In the Health Electronics study programme, studies are geared towards the digital revolution in the health sector, covering aspects such as eHealth, telemedicine and smart health. It reflects the growing use of electronics in both preventative healthcare and medical treatment.

Research activities

Focussing on people
At HTW Berlin, our researchers are interested in the wide range of factors that influence people’s well-being, whether in the workplace, at home, in hospitals or in care institutions. Research projects focus on occupational health management and health and safety in the workplace, quality management in hospitals and care institutions as well as future-oriented models for nursing and caring for the elderly. Research and development is carried out in cooperation with medical research organisations, universities and international scientific institutes. The high quality of our research is indicated by the large number of publications in journals, presentations at prestigious conferences and the hugely successful acquisition of funding, particularly in the areas of medical informatics, biotechnology, bioprocess engineering and bioprocess management.

What cooperation opportunities exist?

Regional healthcare partners
Researchers specialising in the fields of health informatics and medical electronics develop IT solutions for clinical research and for processes used in the management of health and hospitals. Their work includes imaging processes, improved approaches to diagnosis and treatment, assistance systems, cloud-based services and new technologies for biobanks.

The security of patient data is another important aspect. Researchers at HTW Berlin cooperate closely with Charité Berlin, hospitals, research institutes and medium-sized enterprises involved in medical IT and medical technology. Cooperation can take the form of student projects and degree theses, contract research, expert reports or the joint performance of publicly funded research projects. For smaller companies, the shared use of expertise, equipment and laboratories is especially attractive. The Centre for Biomedical Imaging and Information Processing (cbmI) at HTW Berlin is dedicated to developing new methods for improved analysis of biomedical data.
The interests of Prof. Dr. Jacqueline Franke revolve almost entirely around the process of ageing, although not her own. As a professor of the Life Science Engineering study programme, her work involves identifying modulators of ageing. The substances she tests on cells in the lab and their mechanisms form the starting point for developing drugs against age-related metabolic diseases or cancer. Her vision is to find a highly effective modulator of ageing which has the potential to be used in medicine.

Rather than thinking in terms of extending life, her focus is instead on people’s healthy years. Her goal is to prolong these years and gain control over age-related diseases. Before her appointment as a professor at HTW Berlin in 2007, she worked as a biotechnology expert for renowned research institutes, including the Centre for Medical Biotechnology in Essen. Franke has several staff in her team, some of which are currently working on their doctorates, others have already completed their doctorate. She is highly successful in acquiring third-party funding, which she organises in cooperation with companies. As the “Health Capital”, Berlin offers her the perfect research environment.

“Along with Munich, Berlin has the most concentrated biotech network in Germany,” she says, speaking of the many opportunities for finding suitable medium-sized enterprise partners. New ideas and fresh impetus often arise during ongoing projects and she frequently forges new contacts at conferences.

Prof. Dr. Jacqueline Franke
Expert in biotechnology, molecular biology, cell biology and biochemistry
The challenges of health – expertise of HTW Berlin at a glance

23 professors

40 graduates every year

4 degree programmes

130 students

Degree programmes
- Health Electronics (Bachelor)
- Life Science Engineering (Bachelor/Master)
- Life Science Management (MBA&E)

Expertise concentrated in a research cluster
23 researchers with diverse profiles have joined together to form the Health research cluster at HTW Berlin. In their respective areas of specialisation – life science engineering, business administration, mechanical engineering, environmental informatics or business engineering – they focus on tackling health-related problems. Interdisciplinary exchange between the researchers helps them to develop new concepts, products and solutions for a better level of healthcare. A key focus area is the development of biotechnology products, production processes and diagnostic methods. The team also researches and tests new active agents for treating cancer and diseases related to the process of ageing. Further aspects include the development of new biomarkers for diagnostics and lab-on-a-chip systems, while other researchers concentrate on new materials in medical technology and perform material tests for implant technologies. The research spectrum is rounded off by profitability assessments for new medical products as well as business and environmental analyses of production processes in the medical technology and pharmaceutical industry.

Practical work in laboratories
Practical work in laboratories and numerous experimental projects are an essential part of studies. As well providing contact with research staff, external research institutes and companies, it is also an opportunity for students to participate in current research projects.
Current research projects (selection)

Innovation Hub Digital Health
The digitalisation of the healthcare sector poses major challenges for small companies. Via a cooperation platform entitled “Innovation Hub Digital Health”, HTW Berlin is helping companies involved in healthcare to find the expertise they require. The platform enables them to tap new technologies and receive support with the analysis and evaluation of digital data.

Contact: Prof. Dr. Dagmar Krefting
Email: dagmar.krefting@htw-berlin.de

Research for improved product safety
Researchers in the project “CarboLIG” are working on a new processing step for producing pharmaceutical substances from cell culture supernatant. The project can contribute to improving product safety in the pharmaceutical industry and is funded by the German Research Foundation. Two patents have so far been registered as a result of this project.

Contact: Prof. Dr. Hans Henning von Horsten
Email: hanshenning.vonhorsten@htw-berlin.de

Models for leukaemia treatment
What is the ideal duration of treatment for patients with a specific form of leukaemia called chronic myeloid leukaemia? With the aid of models, researchers have set themselves the task of calculating the optimum period of time. The project is funded by the German Research Foundation.

Contact: Prof. Dr. Carsten Conradi
Email: carsten.conradi@htw-berlin.de

Centre for Biomedical Imaging and Information Processing
Founded in 2017, the Centre for Biomedical Imaging and Information Processing (cbmi) at HTW Berlin is a platform that provides partners from small and medium-sized enterprises with scientific expertise and technologies in the field of digitalisation. This takes place in the form of research projects and doctoral projects, consultancy services, at events and through the joint use of modern infrastructure. The cbmi helps to turn vague innovation plans into concrete project and product ideas that can then evolve into solution concepts and technical prototypes. The team consists of around 40 professors, employees and students, delivering profound expertise and experience in the fields of information technology, engineering and life sciences. The competence spectrum ranges from analysing biomedical mass data and machine learning with neural networks through to developing data protection-compliant infrastructures. The cbmi is funded by the European Union.

https://cbmi.htw-berlin.de
Engineering for improved quality of life

The faculties of “Energy and information” and “Built Environment and Life” provide HTW Berlin with a broad range of expertise

Graduate profile

From industrial production processes to age-appropriate technology
Few things would be possible without engineering expertise – from designing safe, efficient and sustainable production plants to improving medical diagnostics, employing smart home and entertainment electronics or developing easy-to-use hearing devices, orthopaedic technology and functional clothing.

HTW Berlin offers a broad range of engineering expertise, including classic disciplines such as mechanical engineering and electrical engineering. Research and teaching at the university also covers specialised fields at the interface between industrial engineering, life sciences, computer science, design and cultural studies, for example medical electronics, field archaeology or clothing technology.

Energy and Information is the name of one of the university’s two large engineering faculties and is distinguished by research-intensive fields such as renewable energies, building energy and building information technology. Teaching and research is conducted here in the disciplines of information and communication technology, computer engineering, systems engineering and microsystems technology.

The second engineering faculty is called Built Environment and Life. It encompasses a variety of disciplines such as life science engineering, computational science and engineering, environmental informatics, mechanical engineering, automotive engineering, facility management and civil engineering. Researchers here focus on environmentally friendly construction, develop processes and products for improved healthcare and design smart homes and vehicles of the future. Devising approaches to optimising processes and increasing the efficiency of production processes are further areas of activity.

The latest engineering methods and digitalisation techniques are likewise indispensable for fashion design, industrial design and graphic design. This is also the case for cultural studies disciplines such as conservation, restoration and field archaeology and museum management.

Research activities

Modern engineering expertise is research-intensive and team-oriented
Rapid advancements in materials sciences, microelectronics, laser technology and digitalisation are continuously incorporated into our engineering research. At the same time, the development of integrated, consumer-friendly technologies also requires expertise from other fields. As our society is characterised by demographic change and diverse lifestyles, appropriate products and services are required to meet the needs of a wide range of consumers. In addition to being geared towards all generations, they must be barrier-free and take environmental aspects into account. At HTW Berlin, engineers from disciplines such as mechanical engineering and automotive engineering benefit from working together with energy experts, product designers and computer scientists.

What cooperation opportunities exist?

In the area of engineering, HTW Berlin cooperates together with around 200 companies, ranging from the energy and environmental engineering industry to construction and real estate, mechanical engineering and the automotive industry through to medical technology, biotechnology and the pharmaceutical industry. Research relating to the energy transition and electromobility is within the framework of large research networks. The university also offers research-related services, including measurement and testing services, contract research or expert reports.
Although his specialisation in control engineering and system dynamics may sound rather cryptic, Prof. Dr. Horst Schulte is always keen to show people how he simulates the dynamics of wind turbines in the laboratory, using mathematics to ascertain the error tolerance of generators and rotor blades. These methods can also be transferred to aircraft control systems to provide vital information for pilots, enabling them to maintain control in the event of a system failure.

“I want to reach all target groups,” says the engineering scientist, who has been lecturing at HTW Berlin since 2009. He usually publishes his research in English and his list of publications is impressive, as is his participation in international conferences. Although his students already have a basic level of knowledge, he starts right from the beginning with them. For the wider public, he delights in giving demonstrations of his research at the Long Night of the Sciences. He likes to work with companies and enjoys such cooperation. After graduating from TU Berlin and completing his doctorate at University of Kassel, he first worked for an SME and then in industry for many years.

According to Horst Schulte, there is no golden path to establishing contact between science and practice – sometimes he is contacted directly, other times a company invites him to hold a presentation or an industry partner is impressed by the technical facilities in the laboratories. What counts is developing mutual trust through discussions and occasionally banishing a misconception: “I am an engineer, not an engineering firm. The goal of all cooperation between the university and industry is applied science.”
Engineering for improved quality of life – expertise of HTW Berlin at a glance

### Degree programmes
- Clothing Technology/Fabric Processing (Bachelor/Master)
- Computer Engineering (Bachelor)
- Electrical Engineering (Bachelor/Master)
- Development and Simulation Methods in Mechanical Engineering (Master)
- Automotive Engineering (Bachelor/Master)
- Information and Communication Technology (Bachelor/Master)
- Mechanical Engineering (Bachelor/Master/career-integrated)
- Microsystems Technology (Bachelor/Master)
- Systems Engineering (Master)
- Business Administration and Engineering (Bachelor/Master/career-integrated)

### Current research projects (selection)

**Early identification of power failures**
The goal of the “NikMonET” project is to develop an early warning system for impending failures in medium- and high-voltage switchgears. Research is being conducted in cooperation with two corporate partners.

Contact: Prof. Dr. Thomas Gräf
Email: thomas.grae@htw-berlin.de

### Laboratories for practical studies
From the digital system component laboratory to the laboratory for testing the principles of physics, students have access to the advanced laboratory facilities they require for exploring the theories they learn in lectures.
Development of quieter fans
In the project "HELNoise", researchers at HTW Berlin are working in cooperation with Beuth Hochschule für Technik Berlin to develop a new generation of quieter and more powerful fans.

Contact: Prof. Dr.-Ing. Stefan Frank
Email: stefan.frank@htw-berlin.de

New processes for manufacturing printed sensor systems
The aim of the project is to develop new additive processes for manufacturing printed sensor systems. It is funded by the Zentrale Innovationsprogramm Mittelstand (Central Innovation Programme for SMEs) of the German government. HTW Berlin is responsible for the printing process, integration and sensor development. The company Peptech headquartered in Baden-Württemberg is the project partner.

Contact: Prof. Dr. Ha Duong Ngo
Email: haduong.ngo@htw-berlin.de

Research to develop modern energy transmission
The "Monalisa" project is dedicated to developing innovative diagnostic and monitoring processes for the energy transmission of the future. Its research activities are funded by the "Future-proof power grids" programme of the Federal Ministry of Education and Research. Cooperation partners in the project include Technische Universität Berlin, Beuth Hochschule für Technik Berlin, the Federal Institute for Materials Research and Testing, and IPH Prüffeld für elektrische Hochleistungstechnik GmbH.

Contact: Prof. Dr.-Ing. habil. Matthias Menge
Prof. Dr. Thomas Gräf
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thomas.grae@htw-berlin.de

City cyclist collection
In cooperation with the VCD (transport club Germany) and the fashion company bleed GmbH, students from the Clothing Technology and Fashion Design study programmes created a cycling-friendly business wear collection for women. A series of prototypes were developed under the label »City Cyclist«, comprising culottes, a rain coat and a blouse guaranteed to never show any sweat rings.
Innovations for cultural heritage

HTW Berlin offers first-class research and study programmes that are unique in Germany

Graduate profile

Expertise and ideas for the modern museum

In the area of applied cultural studies, HTW Berlin offers a choice of study programmes that is unique in Germany. The Museums Studies degree programme provides the necessary expertise for the demanding cultural sector, comprising modules such as museum documentation, museum computing, museum communication and museum management. In order to plan exhibitions or put together and preserve valuable collections, students learn how to fulfil a range of conceptual, technical, didactic and communicative requirements. Essential tools include digital media, marketing and the use of appropriate exhibition, packaging, storage and transport techniques.

The degree programmes in Field Archaeology and Landscape Archaeology provide complex knowledge that is indispensable for locating hidden human settlements, preserving objects, conducting archaeological research and conserving archaeological monuments. Students are trained to work at excavation sites such as Iron Age cemeteries in Upper Lusatia, ancient settlements in South-west Anatolia, the Temple of the Storm God in Aleppo or megalithic cemeteries in Sri Lanka.

Students on the Conservation and Restoration study programme learn the art of analysing, caring for and documenting historical records and valuable artefacts. IT-based concepts and digitalisation solutions are becoming increasingly important for such tasks. Students gain practical experience with historical objects ranging from historical vehicles from the Deutsches Technikmuseum to medieval glasses, baroque musical instruments, ancient calligraphies and miniature paintings from Ethiopia and Afghanistan or film collections and historical film material, e.g. from the Filmmuseum Potsdam.

Research activities

Top-level research

In the area of research, HTW Berlin is among the top of the league. It is a partner university in the Excellence Cluster Topoi (The Formation and Transformation of Space and Knowledge in Ancient Civilizations), an interdisciplinary research association that was formed from the Excellence Initiative of the German government and the federal states. As members of “nestor” – the German competence network for long-term digital archiving – HTW Berlin and other universities are actively involved in training and further education. Libraries, archives and museums also participate in the network.

What cooperation opportunities exist?

Access to the treasure chambers of the world

Directly working with unique artefacts and access to cultural monuments and archaeological excavation sites fascinates students and experienced researchers alike. This is made possible through the university’s excellent cooperation partnerships with over 80 renowned museums, archives, galleries, foundations, churches, university research institutes and cultural organisations. Important partners include the Prussian Palaces and Gardens Foundation, Deutsches Technikmuseum Berlin, Deutsche Kinemathek, Topography of Terror, the state offices for the protection of monuments, Technische Universität Bergakademie Freiberg, Deutsche Schifffahrtsmuseum Bremerhaven, Deutsches Bergbau-Museum Bochum and Museum für Islamische Kunst Berlin. By granting access to their collections and loaning highly sensitive and precious objects for restoration and analysis purposes, these organisations show their great trust in the expertise of HTW Berlin.
Having only ever set foot in a tiny bee museum as a child, nobody was more amused than Susan Kamel at her appointment as a professor for the degree programmes in “Museums Studies” and “Management and Communication in Museums” in 2015. When she was growing up, visits to museums were considered a privilege of the educated middle classes. However, it is not only due to her own background that she strives to ensure that cultural institutions take her educational role seriously. “Social diversity must become visible in front of, within and behind the glass display cabinets,” believes the researcher, who holds an Egyptian passport and grew up in Schleswig-Holstein. As well as a degree in Arabic studies, she also studied Tibetology and comparative religion.

In her teaching and research, Prof. Dr. Susan Kamel strives to raise awareness of diversity issues and expose clichés. For example, in the project „Experimental fields of museology“ she investigated the portrayal and dissemination of art and culture from Islamic countries. Her publications have motivated a number of institutions to re-examine their collections. Not only does she urge museums to go out into society, she also encourages them to actively bring the public into the museum – a process for which she has coined the term “inreach”. As a professor, she also hopes to foster this change of perspective in teaching.

At HTW Berlin, Susan Kamel is convinced the conditions are ideal for embracing this change, as no other university houses all fields of work that are relevant for a museum: the conservation and restoration of cultural artefacts, their collection and presentation, including communication, design and management. The multitude of museums in the capital and the abundance of university cooperation partners also help to create an optimum environment.

Prof. Dr. Susan Kamel
Expert in exhibiting and collecting in theory and practice
Innovations for cultural heritage – expertise of HTW Berlin at a glance

Degree programmes
- Conservation-Restoration/Field Archaeology (Bachelor)
- Conservation and Restoration (Bachelor)
- Landscape Archaeology (Master)
- Museums Studies (Bachelor)
- Management and Communications in Museums (Master)

Expertise concentrated in a research cluster
The cultural heritage of the Islamic world has been a research focus of HTW Berlin for many years. The expertise of its researchers is concentrated in the Islamic Culture research cluster, enabling the development and provision of a broad range of measures designed to protect, preserve and manage cultural artefacts. With social change and violent conflicts in a number of regions currently threatening these global cultural assets, their protection requires a concerted effort now more than ever before.

Current research projects (selection)

Materials history as a source of knowledge
The Documentation Centre for Materials History (DOMA) has been set up to provide access to the knowledge stored in historical materials in the form of research literature, archive materials and reference samples. Its aim is to create a digital scientific reference work charting relevant materials from our industrial history and the modern age. Cooperation partners are the Deutsche Bergbau-Museum Bochum and the Deutsche Gesellschaft für Kunststoffgeschichte e.V.

Contact: Prof. Ruth Keller
Email: ruth.keller@htw-berlin.de

Archaeological survey in Brandenburg
At the request of the Brandenburg State Office for Monument Preservation, HTW Berlin is investigating a site of archaeological importance located northeast of the city of Brandenburg. As the site is endangered by intensive agriculture, professional protection is urgently required.

Contact: Prof. Dr. Thomas Schenk
Email: thomas.schenk@htw-berlin.de

Berlin Center for Industrial Heritage
The Berlin Center for Industrial Heritage (BZI) was jointly set up by HTW Berlin and the Foundation of the German Museum of Technology. It has established itself as a scientific institution and a central point of contact for all questions about Berlin’s industrial culture asked by the city’s politicians, administrative bodies and engaged citizens.

www.industrie-kultur-berlin.de
Stone Age baby from the Uckermark region

Researchers and students at HTW Berlin played an important role in preserving a sensational archaeological find which was discovered in the Uckermark region in February 2016. Dating from 8,400 years ago, it is the oldest infant skeleton in Germany. By preserving it in a specially made wooden crate, the layers of rock and sand can be retained, providing important geological and biological information about the site in Brandenburg. Cutting-edge photogrammetric technology is being used in the laboratories of the Conservation-Restoration/Field Archaeology study programme of HTW Berlin to scan the infant’s bones and create high-resolution, three-dimensional images.

Visitor research with the GDR Museum

Who visits the GDR Museum in Berlin? Why, what are their interests and how often do they come? Students on the Museums Studies degree programme are providing answers to these questions using surveys, interviews with experts, test visits and their own observations.

Contact: Prof. Dr. Tobias Nettke
Email: tobias.nettke@htw-berlin.de

Inventory of ecclesiastical works of art

In cooperation with the Stiftung Kirchliches Kulturerbe (Church Cultural Heritage Foundation) based in the Parochialkirche in Berlin-Mitte, ecclesiastical works of art in Berlin and Brandenburg are being inventoried, documented and preserved.

Contact: Prof. Dr. Dorothee Haffner
Email: dorothee.haffner@htw-berlin.de

Digitalisation of cultural heritage

New digital technologies can be used to present museum exhibits in a brand new context. In addition to investigating technical solutions, projects such as “MOSYS 3D” and “Virt:Kult” also explore the purpose, benefits and added value of digitalisation.

Contact: Prof. Susanne Brandhorst
Email: susanne.brandhorst@htw-berlin.de

Digitalisation of Fine Arts

In this project, data and photographs of visual works in Berlin’s public spaces are being digitalised and made accessible in a mobile web application. The structured provision of high-quality data will greatly benefit research on individual artists, the use of materials and the historical development of public art. This information is also of interest to the general public. The project has a pilot character, as works of art in other major cities have so far never been published in this or a comparable form.

Contact: Prof. Dr. Susanne Kähler
Email: susanne.kaehler@htw-berlin.de
Planning, building and management for today’s society and the future

HTW Berlin covers a broad spectrum ranging from civil engineering to real estate

Graduate profile

Excellent young professionals
Nine study programmes qualify young professionals for demanding tasks in the construction and real estate industry. Civil engineers are taught how to coordinate processes relevant for planning, tendering and contracts, to calculate the most efficient implementation and to monitor repair work or the performance of construction work. In the water and transport industries, graduates are able to assist with planning and construction solutions, covering everything from the supply of environmentally friendly drinking water and the elimination of waste water through to municipal transport development plans and improvements to residential environments. Facility managers acquire building services expertise and management knowledge, learn how to use modern information and communication technology and are able to coordinate complex processes. Through their studies, they are able to ensure that buildings, systems and facilities are efficiently managed, operated and maintained.

The Renewable Energies degree programme trains specialists in sustainable construction and energy efficiency in buildings. They are capable of developing and implementing technical solutions for the use of renewable energy systems in construction projects. Graduates of the Building Energy and Building Information Technology degree programme learn how to create a comfortable indoor climate while ensuring optimum energy use. They develop and plan energy systems and know how to run complex buildings and properties in a manner that conserves resources. Graduates of the Real Estate Management study programme are also in high demand in the industry. Thanks to their knowledge of business and law relating commercial, residential and special real estate, they are able to assume a wide range of tasks, for example in the area of project development, real estate investment and financing, and real estate management.

Research activities

Diverse expertise
HTW Berlin’s engineering research projects include environmentally friendly construction and the optimisation of indoor climates through innovative heating, ventilation and air-conditioning technology or low-emission construction products. In building refurbishments with a focus on energy efficiency, experts in conservation and restoration ensure that monument protection and aesthetic building culture considerations are taken into account. Research projects in the areas of facility management, electrical engineering and microsystems technology focus on aspects such as software-aided property and building management, smart security and building services technology. Other projects explore flexible living concepts and the need to adapt to demographic change. Smart home technologies and technical assistance systems are developed to ensure a barrier-free environment, making it easier for people to live in their own homes as they become older or in cases of illness or restricted mobility. Economic surveys are conducted with a view to improving such aspects as real estate valuation methods and investment planning.

What cooperation opportunities exist?

Partners in the region and beyond
HTW Berlin sees itself as having a responsibility for regional location development and creating a positive living environment. Research is conducted in cooperation with regional housing construction companies, public building contractors, environmental, planning and architecture firms, technology companies and planning offices. As technical and economic innovations initiated by research need to be accepted by the public, our researchers always take into consideration the consumer perspective. They also strive to increase individual quality of life and the urban environment and to contribute to health, welfare and social stability.
When you think of exotic plants in a botanical garden, do you also think of modern information technology? Perhaps not, but Prof. Dr. Markus Krämer does. He is helping the Berlin Botanic Garden to use databases and interfaces to link its facility management system with a huge amount of geodata – for example information about which of the 22,000 plants is growing where. The facility manager is responsible for all of the buildings on the 43-hectare grounds. When construction work or refurbishments are carried out, the system can tell him exactly what is growing where and whether botanical considerations need to be taken into account.

The “ArcoFaMa project” – conducted in cooperation with the Beuth Hochschule für Technik Berlin and funded by the Berlin Institute for Applied Research (IFAF) Berlin – is a good example of what information technology can do, says Markus Krämer. Having obtained a degree in mechanical engineering, he became interested in IT at an early stage in his research career. In numerous projects with industry partners, he designed and developed innovative IT solutions and analyzed and modelled business processes to help create a people-friendly working environment. After completing his doctorate, together with like-minded colleagues he founded a spin-off company of the Fraunhofer Institute for Industrial Engineering IAO. In his position as managing director, IT consultant and IT project manager, the majority of his work was for medium-sized enterprises. Since 2006 Markus Krämer has been a lecturer for the Facility Management study programme. The latest subject area he has added to his field of expertise is building information modelling, which involves the IT-based planning, development and management of buildings. It is an area in which he always enjoys conducting application-oriented research in cooperation with companies. Contact with companies is often initiated through students or in connection with their Bachelor’s or Master’s theses, especially now that a practical job platform has been set up for the study programme. Graduates also have occasion to return to their former professor for his expertise.

Prof. Dr.-Ing. Markus Krämer
Expert in information and communication systems in facility management, information management, business process management and process modelling
Degree programmes
Civil Engineering (Bachelor/Master)
Facility Management (Bachelor/Master)
Building Energy and Building Information Technology (Bachelor/Master)
Construction and Real Estate Management (Master)
Real Estate Management (Bachelor/Master)

Expertise concentrated in a research cluster
Scientists in the Environmentally Friendly Energy Supply Systems and Energy-efficient Buildings (KEG) research cluster primarily focus on the amount of energy required by buildings. The aim of their projects is to develop renewable heat supply strategies, improve thermal insulation and the sealing of building outer shells, and optimise systems engineering for heating, cooling and ventilation.

Research institutes
Research Institute for German and European Real Estate and Cooperative Law
Founded in 2006, the institute conducts interdisciplinary research on legal and business-related issues in the area of real estate and cooperative law.

German-Chinese Institute for Real Estate Management and Real Estate Valuation Berlin
The institute combines academic theory with the experiences and ideas of real estate professionals from German industrial companies, consultancies and institutional investors operating in China.
Wanted: New forms of housing
New forms of housing are needed to accommodate the growing housing shortage and changing family structures. The research project is investigating to what extent cluster accommodation – a cross between shared housing and a small private living space – could be an alternative for urban living and diverse life models. The result will be a handbook with project descriptions and recommendations for the private and municipal housing sector.

Contact: Prof. Dr.-Ing. Susanne Rexroth
Email: susanne.rexroth@htw-berlin.de

Visualising material flows
In this project, an existing prototype tool for mobile recording and visualisation of material flows in companies is being further developed into an attractive software system to support resource efficiency in companies.

Contact: Prof. Dr. Volker Wohlgemuth
Email: volker.wohlgemuth@htw-berlin.de

Current research projects (selection)

Optimising system operation to conserve resources
On the basis of usage profiles established for selected properties, researchers develop and test model strategies for optimising systems and operating profiles. These are then directly implemented by the users and project partners. Research is being conducted in partnership with the Beuth Hochschule für Technik Berlin.

Contact: Prof. Dr.-Ing. Olaf Zeidler
Email: olaf.zeidler@htw-berlin.de

Fit-for-BIM
The aim of the project is to record and anchor digital competences for implementing Building Information Modelling (BIM) in the planning, construction and use of buildings for the purposes of training and further education in construction occupations.

Contact: Prof. Dr. Jens Liebchen
Email: jens.liebchen@htw-berlin.de

Independent living in old age
The background to the ALFA research project is age-appropriate assistance systems, i.e. technologies and systems that allow people to lead a long and independent life. This requires the development of new technologies and innovative methods: a dynamic and energy-optimised radio transmission protocol, a multifunctional sensor node, reliable energy production and an energy storage system in buildings as well as a uniform gateway solution for data storage including interface communication.

Contact: Prof. Dr.-Ing. Ha Duong Ngo
Email: haduong.ngo@htw-berlin.de
Your contacts at HTW Berlin

Companies can find all relevant information and links on HTW Berlin’s special start page: http://www.htw-berlin.de/en/

**Cooperation Centre for Applied Sciences – your one-stop service provider**
Would you like to use the expertise of scientists with extensive practical experience to provide ideas and fresh stimulus for your company or institution? The Cooperation Centre for Applied Sciences Science at HTW Berlin can assist you with all of these endeavours. The team will answer your enquiries and arrange contact with the right experts and research teams. We are there to facilitate collaboration between the university and its partners, for example by providing information and advice on potential sources of funding, helping with joint project applications, preparing contract research, assisting with cooperation agreements and advising on patents and inventions.

**BIT² Berlin Innovation Transfer**
Is your company or organisation looking to establish its first points of contact with science and research? For advice on possible forms of cooperation, simply contact the BIT² City Office. BIT² is an association of six universities of applied sciences in Berlin (HTW, Beuth, HWR, ASH, EHB, KSHB). The City Office is the association’s central contact point for cooperation with all six universities.

**Support for collaborative projects in research and development**
Does your company have research questions or development goals that you would like to tackle in cooperation with researchers in an interdisciplinary project? The Berlin Institute for Applied Research (IFAF) will put you in touch with professors who conduct practice-oriented research in their field and can also offer project funding. IFAF Berlin was founded by ASH Berlin, Beuth Hochschule für Technik, HTW Berlin and HWR Berlin with the support of the State of Berlin. One of is main purposes is to support collaborative projects between the universities involved in the institute and partners from the Berlin-Brandenburg region.

**Networking and contacts**
Do you want to help students gain an insight into the world of work at an early stage in their careers? The Career Service team can establish contact with students for you through workshops, panel discussions or networking events and provide you with an opportunity to present yourself as a potential employer.

**Scholarships for the best students**
The Deutschlandstipendium (German scholarship) of HTW Berlin is an ideal opportunity for companies to get to know qualified and committed students in person and to interest well-trained young professionals in their company.

**Join the “Friends of HTW Berlin” association**
The “Friends of HTW Berlin” association (Freunde und Förderer der HTW Berlin e.V.) serves as a forum for exchange between science and the practice world.

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**Cooperation Centre for Applied Sciences – KONTAKT**
htw-berlin.de/en/research

**BIT² City Office**
www.bit6.de

**IFAF Berlin**
htw-berlin.de/ifaf

**Career Service**
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