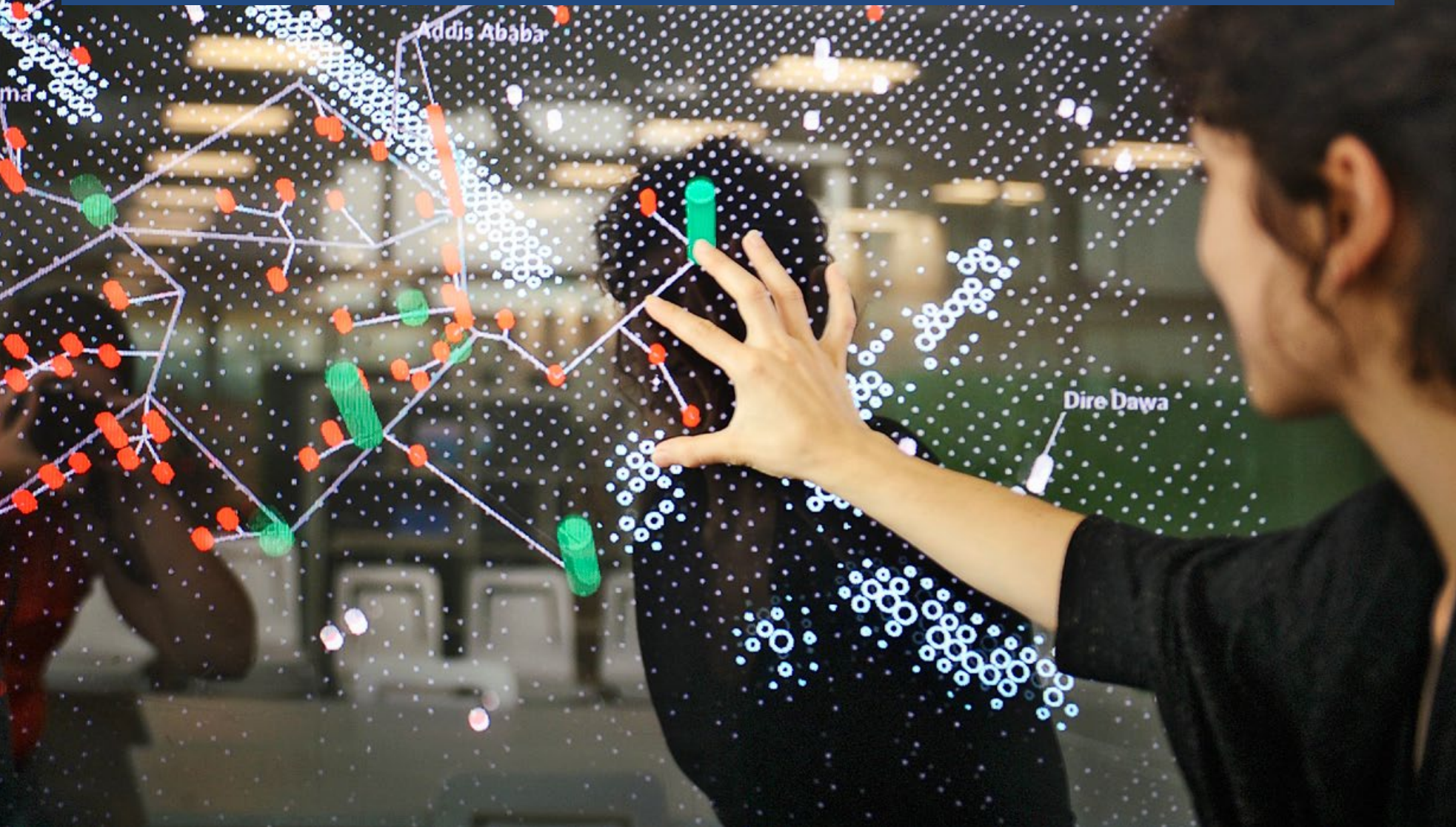


Where the future begins

Profile 2015





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“A good university doesn’t just teach knowledge but the ability to think.”

Lino Guzzella
President of ETH Zurich

At a glance

ETH Zurich is one of the leading international universities for technology and the natural sciences. Founded in 1855, it today offers researchers an inspiring working environment and its students a comprehensive education.

ETH Zurich is well-known for its excellent education, ground-breaking fundamental research and for putting its new findings directly into practice. It has some 18,500 students from over 110 different countries, almost 4,000 of whom are doctoral students. About 500 professors currently teach and conduct research in the areas of engineering, architecture, mathematics, natural sciences, system-oriented sciences, and management and social sciences.

ETH Zurich regularly appears at the top of international rankings as one of the best universities in the world. 21 Nobel laureates have studied, taught or conducted research at ETH Zurich, underlining the excellent reputation of the institute.

www.ethz.ch/about/index_EN →

Key statistics for 2014

	2000	2010	2014	Percentage women	Percentage international
Students (Headcount)	10,693	16,343	18,616	31 %	37 %
of which Bachelor students	n/a	7,483	8,502	30 %	20 %
of which Master students	n/a	4,233	5,159	31 %	38 %
of which Doctoral students	2,261	3,507	3,975	31 %	69 %
Professors (Headcount*)	351	446	498	13 %	67 %
Professors (full-time equivalents)	333	413	467	13 %	69 %
Personnel (full-time equivalents)	5,464	7,284	8,143	32 %	55 %
of which scientific staff	3,390	4,479	5,065	28 %	69 %
Expenditure (CHF million)	1,059	1,359	1,556		
of which federal financial contribution	915	1,082	1,210		
of which third-party funding	144	277	346		

Figures rounded. Detailed statistics: www.fc.ethz.ch/facts

* Includes externally employed dual professors



Leading the way since 1855

Ever since it was first founded, ETH Zurich has been a driving force behind Swiss industry, whose innovative products and services are in demand worldwide.



High performers of the future: students of the Federal Polytechnical School at around 1870.



The building of the ETH dome in 1919/20 was both a reflection of the past and an indication of growing self-confidence.

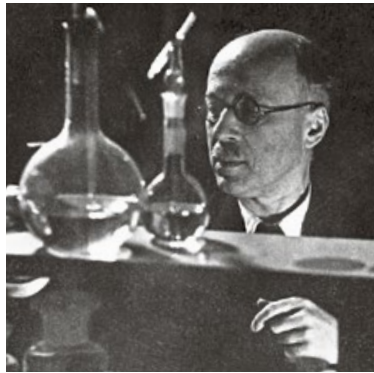
Established in 1855 as the Federal Polytechnical School, ETH Zurich has, from the outset, been a national centre for education with international appeal, attracting talent from all over the world. The successful combination of a cosmopolitan outlook with national roots made the young educational institution one of the driving forces behind industrialisation in Switzerland: it brought the necessary expertise into the country, trained technical specialists and helped set up groundbreaking national infrastructures. ETH Zurich was given its present name, Swiss Federal Institute of Technology (Eidgenössische Technische Hochschule), in 1911. Over the decades that followed, it entered into solid partnerships with the state and with industry and invested increasingly in both applied and fundamental research, which were gaining in importance in relation to education. The university grew steadily and in 1961 it embarked on the first stage of constructing its second site on the Hönggerberg, on the outskirts of Zurich.

In more recent times, global developments such as computer-assisted data processing and the far-reaching consequences of globalisation have placed ever-increasing demands on universities. ETH Zurich reacts to these new challenges by creating flexible organisational structures: new research units and programmes have emerged and the research itself is becoming more and more integrated and interdisciplinary. The long-standing tradition of ETH Zurich, combined with its ability constantly to adapt to new requirements, have brought great success to the university. Today, it ranks among the world's leading universities of science and technology.

www.ethz.ch/about/history/index_EN →



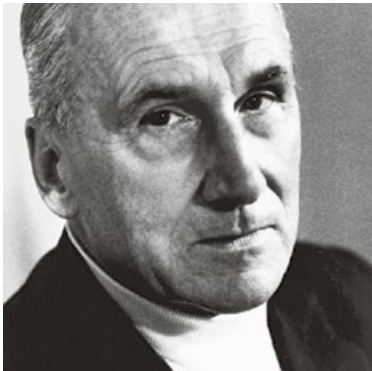
Albert Einstein



Leopold Ruzicka



Wolfgang Pauli



Vladimir Prelog



Richard Ernst



Kurt Wüthrich

The crème de la crème: Nobel Prize winners

Numerous outstanding individuals have contributed to the global success of ETH Zurich, including 21 Nobel Prize laureates.

1901	Physics	Wilhelm Conrad Röntgen
1913	Chemistry	Alfred Werner
1915	Chemistry	Richard Willstätter
1918	Chemistry	Fritz Haber
1920	Physics	Charles-Edouard Guillaume
1921	Physics	Albert Einstein
1936	Chemistry	Peter Debye
1938	Chemistry	Richard Kuhn
1939	Chemistry	Leopold Ruzicka
1943	Physics	Otto Stern
1945	Physics	Wolfgang Pauli
1950	Medicine	Tadeusz Reichstein
1952	Physics	Felix Bloch
1953	Chemistry	Hermann Staudinger
1975	Chemistry	Vladimir Prelog
1978	Medicine	Werner Arber
1986	Physics	Heinrich Rohrer
1987	Physics	Georg Bednorz/Alexander Müller
1991	Chemistry	Richard Ernst
2002	Chemistry	Kurt Wüthrich

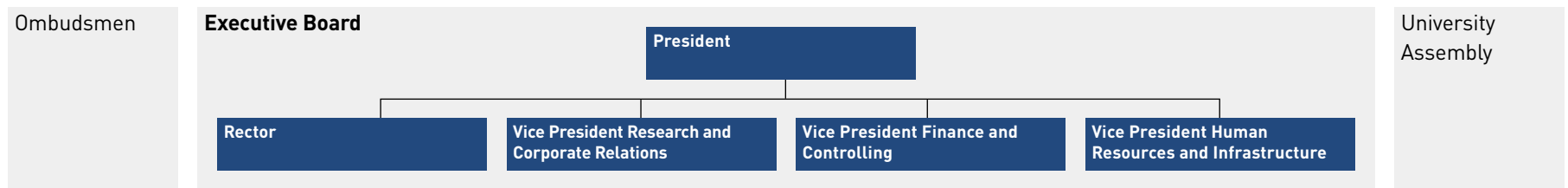
Strength through diversity

ETH Zurich produces new knowledge, combines it with tried and tested insights and passes it on to its students and to society at large.

As a university of science and technology, ETH Zurich is committed to the study of a diverse range of subjects, which allows knowledge to be shared and combined in original and future-oriented ways. The sixteen

departments cover a broad academic spectrum, while all kinds of strategic initiatives, competence centres and networks encourage cross-disciplinary co-operation. ETH Zurich thus promotes an interlinked,

interdisciplinary way of thinking, which is exactly what is required for solving complex social issues. www.ethz.ch/about/organisation/index_EN → www.ethz.ch/research/centres/index_EN →



16 Departments

Architecture and Civil Engineering	Engineering Sciences	Natural Sciences and Mathematics	System-oriented Natural Sciences	Management and Social Sciences
Architecture	Mechanical and Process Engineering	Mathematics	Earth Sciences	Management, Technology and Economics
Civil, Environmental and Geomatic Engineering	Information Technology and Electrical Engineering	Physics	Environmental Systems Science	Humanities, Social and Political Sciences
	Computer Science	Chemistry and Applied Biosciences	Health Sciences and Technology	
	Materials	Biology		
	Biosystems Science and Engineering			



The ETH Zurich Executive Board (from left): Robert Perich, Vice President Finance and Controlling; Sarah M. Springman, Rector; Lino Guzzella, President; Roman Boutellier, Vice President Human Resources and Infrastructure; Detlef Günther, Vice President Research and Corporate Relations.

Encouraging expertise and initiative

ETH Zurich regards itself as an institution with regional and national roots that is fully integrated in the international academic community. It measures itself in all respects against the world's leading universities – from its education and research to its management.

ETH Zurich fosters a culture of empowerment. It makes space for creativity and backs innovative and unconventional ideas.

The university has great faith in the many and diverse skills and talents of its members and supports them regardless of their gender, age or cultural, religious or social background. Encouraging a wide range of opinions is part of the university's institutional identity and is a key factor behind the high level of motivation among members of the university.

A university education at ETH Zurich is inseparably linked to fundamental research at the highest level. All academic members of ETH Zurich play a part in teaching students and try to involve them in their research as soon as possible.

The distinguishing feature of an education at ETH Zurich is the teaching of sound knowledge of mathematics and other fundamental sciences. Courses on the humanities and social and management sciences are also an integral part of the education provided by the university. They impart knowledge that is essential for gaining a thorough understanding of social issues.

The ideas and work of ETH Zurich are characterised by sustainability, not only in education and research, but in all aspects of university life.

First-class education

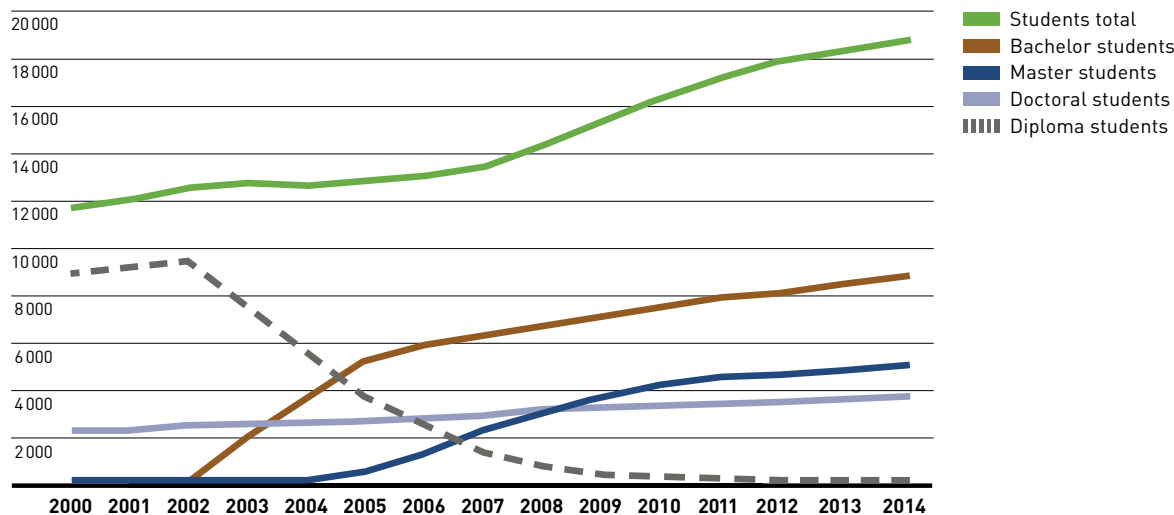
Graduates of ETH Zurich are much sought-after on the jobs market thanks to their broad fundamental knowledge and their practical way of thinking.

ETH Zurich trains outstanding experts in their fields, and prepares its students to assume positions of responsibility as critical members of society. Clearly focused study programmes that meet the highest standards in terms of both what is taught and how it is taught, and the independence they grant to students, make the university an extremely attractive place to study. The rising student numbers provide compelling evidence of this.

Innovative teaching methods

ETH Zurich is constantly developing its curricula to ensure that it offers its students the best possible education. One important element in this is the process of regular evaluations of lectures. For over 20 years now, ETH Zurich has been asking students about their course content and the performance of their lecturers, and consistently developing its approach to education on the basis of the feedback.

There is also a whole group of teaching experts who are responsible for innovations in education. They support the lecturers in incorporating the most up-to-date teaching methods in their sessions and also develop tools themselves for the purpose. One of these is the EduApp, an application for smartphones which makes interactive teaching easier in large-scale teaching sessions: students can use this method to send queries to the lecturer during the lecture about aspects they have not fully understood. For their part, lecturers can set short quiz questions during the session and discuss the answers with the students there and then. Lecturers receive direct feedback about their teaching sessions via the feedback channel.



Popular courses: more and more young people are commencing their studies at ETH Zurich.

Motivating students

Close interaction with the teaching staff helps to motivate students. Outstanding performances by students are rewarded. Every year, ETH Zurich awards about 50 Excellence Scholarships to the best newly matriculated Master students, regardless of where they completed their Bachelor degree. The scholarships cover their living costs and tuition fees for the entire Master course. The scholarships are financed by private funding obtained by the ETH Zurich Foundation.

More information about

Studying at ETH Zurich: www.ethz.ch/studies/index_EN →

Innovations in education: www.let.ethz.ch/index_EN →

Excellence Scholarships:

www.ethz.ch/excellence-scholarships_en →

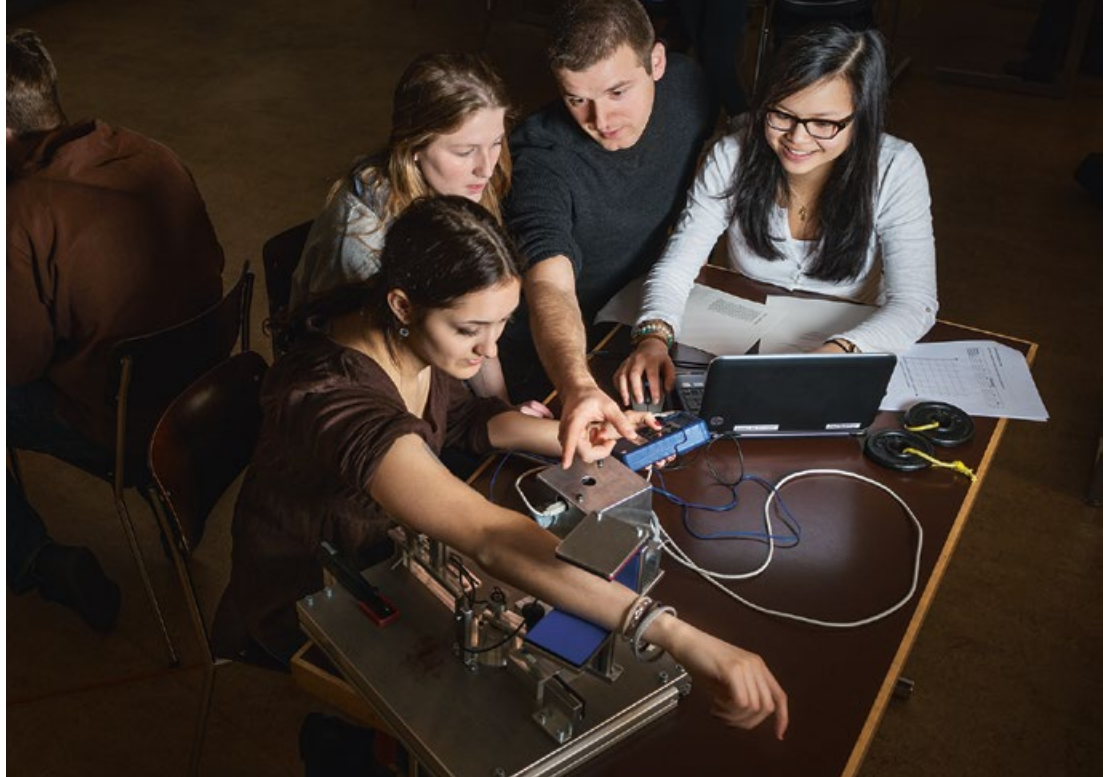


Range of courses

The study programmes at ETH Zurich teach knowledge which has a long half-life. They equip course graduates to tackle fundamental issues and challenges in natural and engineering sciences and mathematics. The degree structure is internationally compatible: three-year Bachelor programmes (180 ECTS credits) can be followed by Master programmes lasting one and a half or two years (90–120 ECTS credits). Gaining a doctorate usually takes three to four years.

Bachelor level

The Bachelor programmes at ETH Zurich teach sound basic knowledge of mathematics and other fundamental sciences, together with some knowledge of the theory and methodology of the chosen subject area. Students can make initial choices about areas they wish to focus on with their elective courses and practical project work. The main teaching language is German.



A good staff-student ratio and a clear practical focus: these are what an education at ETH Zurich is known for.

Master level

The Master programmes at ETH Zurich provide more in-depth and/or specialist knowledge and lead to a degree that qualifies students for a profession. Research is an integral part of the course. At Master level, ETH Zurich provides an international and stimulating environment for its students that prepares them perfectly for their future employment or for a doctorate. Many courses offer students the opportunity to spend several months on a work placement outside ETH Zurich as well as attending lectures and practical sessions. Most Master programmes are taught in English.

Doctorate

A doctorate at ETH Zurich not only entails the independent writing of an academic thesis but also requires students to take the initiative in gaining additional qualifications in their chosen field and in interdisciplinary areas. All doctoral students at ETH Zurich also supervise students, which gives them a useful additional qualification for any subsequent area of work.

Continuing education

ETH Zurich offers a wide range of continuing education opportunities for specialists and managers wishing to extend their academic qualifications. The programmes cover not only the entire range of subjects taught at the university but also the interfaces between technology, law, management and social sciences.

Training for teachers

ETH Zurich offers a course leading to the “Teaching Diploma for Higher Secondary Schools” for future teachers. The MINT-Learning Center was set up at ETH Zurich with the aim of improving pupils’ education in schools in the fields of mathematics and natural sciences. It trains teachers in how to use targeted questions and instructions to encourage the pupils to study material in greater depth. It is hoped that this will lead to a deeper understanding among schoolchildren of key aspects of chemistry, mathematics and physics.

More information about

Range of courses: www.ethz.ch/study_programmes →

Doctorates: www.ethz.ch/doctorate/index_EN →

Continuing education opportunities:
www.ethz.ch/continuing_education →

MINT-Learning Center:

www.educ.ethz.ch/mint/index_EN →

Degree Programmes	Bachelor	Master
Architecture and Civil Engineering		
Architecture	■	■
Civil Engineering	■	■
Environmental Engineering	■	■
Geomatic Engineering and Planning	■	
Geomatic Engineering		■ ■
Spatial Development and Infrastructure Systems		■ ■
Integrated Building Systems		■
Engineering Sciences		
Mechanical Engineering	■	■
Process Engineering		■
Micro and Nanosystems		■
Nuclear Engineering		■
Robotics, Systems and Control		■
Electrical Engineering and Information Technology	■	■
Biomedical Engineering		■
Energy Science and Technology		■
Neural Systems and Computation		■
Biotechnology	■	■
Computer Science	■	■
Computational Biology and Bioinformatics		■
Materials Science	■	■
Natural Sciences and Mathematics		
Mathematics	■	
Mathematics/Applied Mathematics		■
Statistics		■
Quantitative Finance		■
Computational Science and Engineering	■	■
Physics	■	■
High Energy Physics		■
Chemistry	■	■
Chemical Engineering	■	
Chemical and Bioengineering		■
Interdisciplinary Sciences	■	■
Pharmaceutical Sciences	■	■ ■

Degree Programmes	Bachelor	Master
Medicinal and Industrial Pharmaceutical Sciences		■
Biology	■	■
System-oriented Natural Sciences		
Earth Sciences	■	■
Applied Geophysics		■
Atmospheric and Climate Science		■
Environmental Sciences	■	■
Agricultural/Agroecosystem Science	■	■ ■
Food Science	■	■ ■
Health Sciences and Technology	■	■
Management and Social Sciences		
Management, Technology and Economics		■
Comparative and International Studies		■
History and Philosophy of Knowledge		■
Science Education		■
Public Policy for Swiss Professional Officers	■	
Science, Technology and Policy		■

Language of instruction

■ German

■ English

Pioneering research

Research is the essential source of innovation in a knowledge-based society. ETH Zurich makes a major contribution to the well-being of society and to Switzerland's competitiveness.

ETH Zurich carries out fundamental research to broaden the knowledge base and provide the starting point for future innovative applications. The research is focused on the needs of society – be that at local, national or global level – and so makes a valuable contribution to the economy, politics and society in general. Its main thematic focus areas are the world food system, cities of the future, climate change, energy, health, risk research, information processing, new materials and industrial processes.

Modern infrastructure

Research nowadays is largely technology-based. Thanks to its modern infrastructure and highly qualified employees, ETH Zurich is able to perform at an extremely high level. Platforms like the following not only encourage interdisciplinary cooperation and help reduce costs but also offer attractive working conditions for highly specialised experts.

Binnig and Rohrer Nanotechnology Center (BRNC)

The Nanotechnology Center, which ETH Zurich is running in a unique partnership with IBM Research – Zurich, offers an outstanding research infrastructure for academics and industry specialists. It includes a clean room and six “noise-free labs” for carrying out highly sensitive trials on the nanoscale.

FIRST Center for Micro- and Nanoscience

The FIRST technology platform offers the latest facilities for research and education. These include a clean room laboratory measuring 400 m² which provides ideal conditions for researchers and students working on micro- and nanotechnology.

Electron Microscopy ETH Zurich (EMEZ)

With the very latest electron microscopes and nano-analysis equipment, the interdisciplinary technology platform EMEZ is playing an important role in the structural characterisation of biological and synthetic materials.

Functional Genomics Center Zurich (FGCZ)

This centre, operated by ETH Zurich and the University of Zurich, is furthering Life Sciences research in genomics, transcriptomics, proteomics, metabolomics and bioinformatics. The FGCZ not only has an ultra-modern infrastructure but also offers expertise in technology and data analysis.

Molecular Health Sciences Platform (MHS)

The platform offers ideal conditions for researching molecular mechanisms – work which is important in gaining a better understanding of the causes of disease. Thanks to its excellent infrastructure, the modern teaching and research building provides an outstanding centre for research, education and partnerships with industry and academia.



In future, research technologies will increasingly be organised in the form of platforms. The FIRST Center provides an excellent infrastructure for researchers and students working in the field of micro- and nanoscience.

World food system

At present, there are over seven billion people living on Earth, and by the year 2050 that figure is expected to have reached nine billion. How to feed that growing world population while at the same time preserving limited natural resources is one of the biggest challenges facing mankind. In the ETH Department of Environmental Systems Science, researchers in agricultural and environmental sciences are working across the disciplines to find solutions in the form of a world food system that guarantees global food security.

With its World Food System Center, which brings together professors from different disciplines, ETH Zurich is contributing to the long-term security of world food supplies. The aim is to come up with common principles for producing high-quality and healthy food sustainably and for safeguarding stable supplies for a healthy world population. To ensure that it can spread its practically oriented knowledge, and train the urgently needed experts, the centre works closely with politicians, industry and institutions in Switzerland and elsewhere.



ETH Zurich is working to find sustainable solutions to ensure stable food supplies for a healthy world population – as here in Burkina Faso, where scientists are researching how to cultivate sorghum on microplots.



Sustainable development of urban neighbourhoods involves both technical and social components. In the biggest favela in São Paulo, ETH professors in architecture and urban planning have developed a multifunctional community centre, incorporating a music school, which has won several awards.

Cities of the future

Cities are cultural centres and the driving force behind the local and global economy. However, in their present form they are not sustainable, from an ecological, social or economic point of view. Rapid population growth, increasing mobility, social conflict, over-development of the countryside and climatic changes are global challenges which urban regions have to face up to. This is why one important focus for research at ETH Zurich is the development of sustainable cities, be that through finding new construction methods and building technologies or taking an innovative approach to urban, transport and spatial planning.

Architects and scientists in most diverse disciplines are researching the “metabolism” of cities and the interaction between the city and the countryside. The goal is to understand, model and redesign the city as a system. There are huge challenges in parts of the world such as Asia and Africa, where ETH Zurich is working with local partners on the ground. For example, at the Singapore-ETH Centre for Global Environmental Sustainability (SEC), the university runs the Future Cities Laboratory, where about 120 scientists are studying the transformation of existing cities and the development of new ones, and

finding alternatives to the ever-growing trend towards urbanisation. ETH Zurich has also set up an Institute for Architecture and Urban Development in Ethiopia, in partnership with the university in Addis Ababa.

Climate change

Climate change is one of the biggest challenges facing the world's population. The broad, interdisciplinary approach that is taken at ETH Zurich gives it a soundly based, holistic perspective on the problem of climate change. Its scientists are making a major contribution to a better understanding of the complex climate system. They use models to compute future developments in the climate and examine the ecological, social and economic effects of climate change. And finally, they are developing solutions for counteracting climate change and its consequences.

By analysing scientific, social and economic data, ETH researchers are building up an important evidence base for decision-makers in Switzerland and abroad. For example, climate experts from ETH Zurich are among the authors contributing to reports produced by the UN committee on climate change, the IPCC. ETH Zurich is also part of the "Climate Knowledge and Innovation Community" (Climate-KIC), an international network of academic institutions and public and private partners. The aim of Climate-KIC is to develop science-based principles and strategies for adapting to climate change or preventing it.



Deep geothermal technology has the potential to make a major contribution to our energy supplies. ETH Zurich has set itself the goal of establishing the scientific principles for using it safely.

Energy

Today's global energy system, which is mainly based on the use of fossil fuel resources, is not sustainable for a growing world population that is living in increasing prosperity. Energy research at ETH Zurich is therefore geared towards the aim of creating a 1-ton CO₂ society. For Switzerland, this means that domestic CO₂ emissions, which currently amount to nearly six metric tons per person every year, must be cut to one ton by the year 2100. This ambitious target is to be achieved through energy efficiency, renewable energies and electrification.

Under the auspices of the Energy Science Center, researchers in engineering, natural and social sciences are working together to develop innovative solutions. Firstly, they are trying to find ways of

making the energy from wind, sun, biogenic and synthetic fuels and geothermal heat more usable. Secondly, they are developing technologies and business models to optimise the storage and distribution of electricity while also striving for more efficient use of energy, especially in buildings and means of transport. ETH Zurich runs beacon and pilot projects of this kind on its own campus. For example, on the Höggerberg campus it has introduced an entirely new energy supply network which in 2012 won a prize from the International Sustainable Campus Network (ISCN).



An ageing population calls for innovations – such as the biocompatible micro-fibre material which has been developed at ETH Zurich to promote fast bone regeneration.

Health

A society with an ageing population poses major challenges for scientific research. At ETH Zurich, researchers from many different disciplines are working to ensure that we maintain a good quality of life into old age. They are taking an integrative, systemic approach, ranging from the study of individual molecules through cells and organs to the whole body. With their work on molecular basics, the researchers are making an important contribution to the understanding of neurological or metabolic diseases such as Alzheimer's and diabetes. Systems biologists are researching the dynamics

and interactions of entire biological systems and so paving the way for new findings which could lead to the development of more targeted methods of diagnosis and treatments with fewer side effects. At the same time, innovations in robotics and imaging technologies are leading to entirely new procedures for analysis and rehabilitation.

The ETH Department of Health Sciences and Technology brings together researchers from the disciplines of medical engineering, neurosciences, food and nutrition, as well as movement sciences and sport. The goal is to work with partners from science

and industry to develop future-oriented solutions to the key issues surrounding human health. ETH Zurich is working closely with hospitals and the University of Zurich in this field.

Risk research

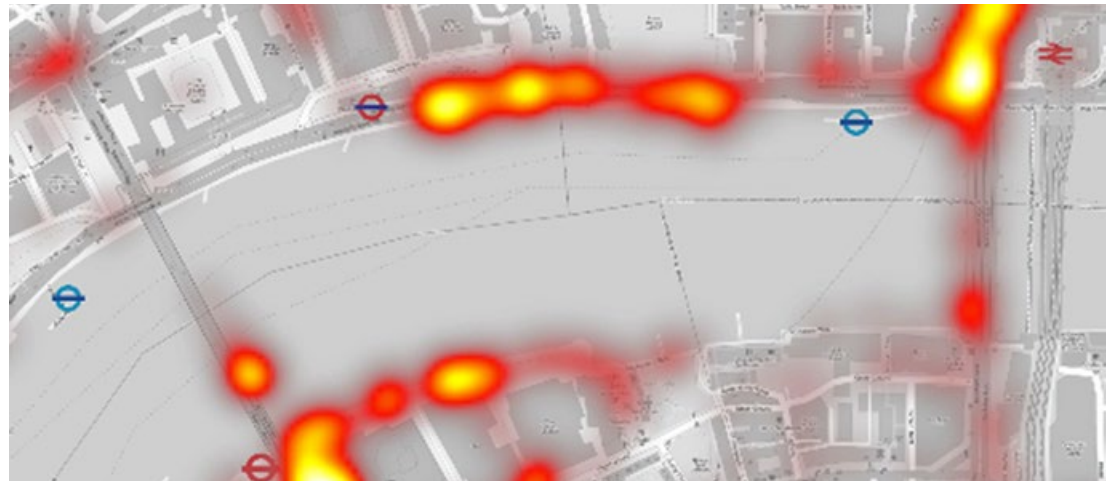
In an increasingly networked world, the risks also become more complex and can assume global proportions. It is important to identify, understand and model these risks in order to be able to react more effectively to crises. That is why ETH Zurich has combined its expertise in the Risk Center, which is intended to become one of the world's leading centres for interdisciplinary risk research and integrated risk management; there are also various research institutions focusing on different areas. The overriding objective is to improve the management of risk portfolios and develop innovative ways of making strongly interconnected social systems more resistant.

From traffic jams and climate change to the origins of wars: ETH researchers are investigating cascade effects in socio-economic systems and the associated risks. Under the auspices of the Zurich Information Security Center, ETH experts are studying the security gaps in computer systems and working on sophisticated encryption techniques and



Whether it is natural disasters, food shortages or financial crises: in order to counter risks effectively, you have to understand them. With its interdisciplinary risk research, ETH Zurich is helping to ensure that strongly interconnected social systems can be better protected from crises.

better operating systems. The ETH RiskLab combines expertise in mathematics, finance and insurance and carries out quantitative risk management to produce guidelines for banks and insurance companies. The findings obtained from the research on risks relevant to society are made available to the general public in a variety of ways. A whole range of publications and advisory services are available to support both professionals working in this field and government departments in Switzerland and abroad.



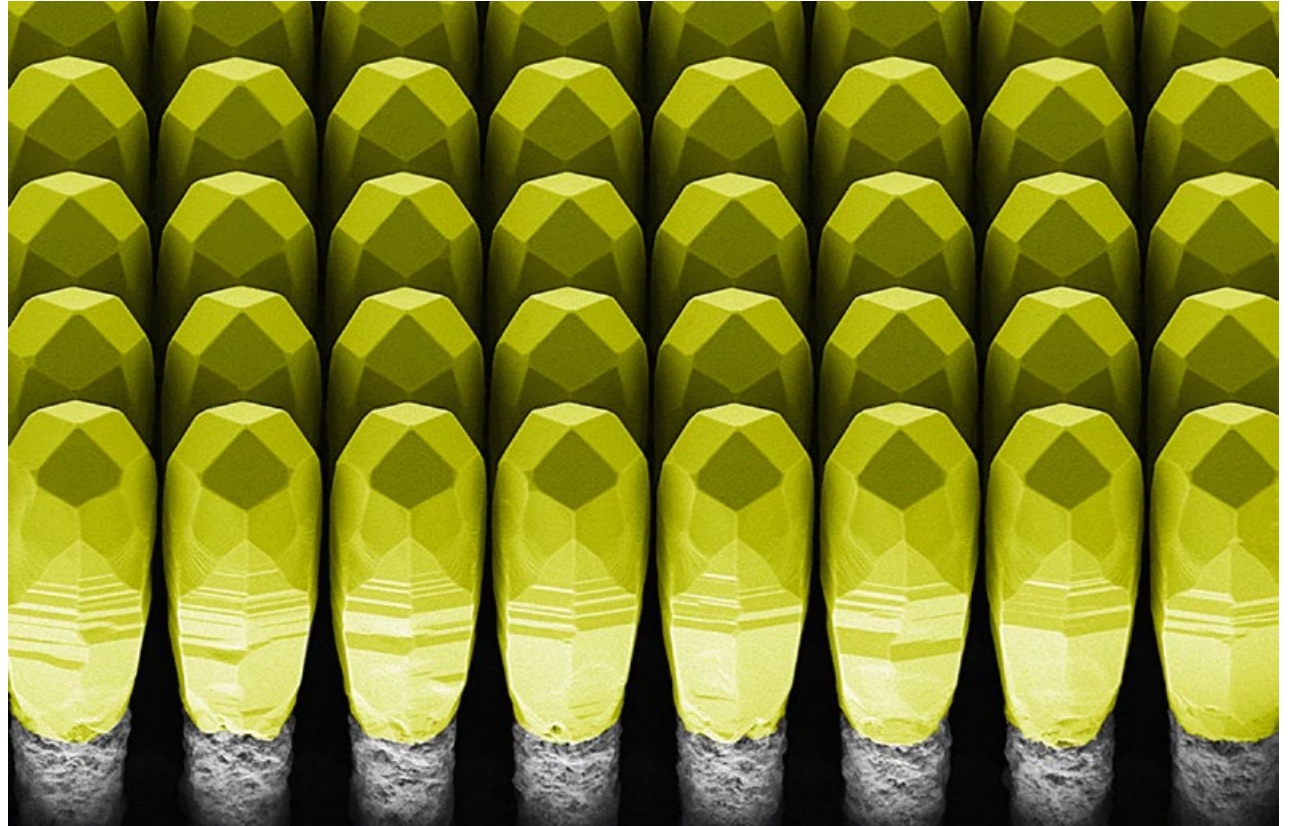
Increasingly efficient data processing leads to new applications, such as early recognition of hazardous situations: a mobile phone application developed at ETH Zurich allows the flow of pedestrians at big events to be recorded in real time.

Information processing

Nowadays, data can be processed more and more efficiently. ETH Zurich is carrying out ground-breaking work to tackle the technological, scientific and socio-economic challenges facing our information society. Its researchers are developing ever smaller and faster electronic and optical components made of nanostructured materials. These may be used in mobile wireless technology, optical networks and measuring systems and also in solar cells, bioelectronics and batteries. New methods of information processing are improving imaging techniques in

medicine and leading to new procedures for diagnosis and treatment. To find out how computer and communication systems can transmit, store and efficiently process the enormous volumes of data that are collected, ETH researchers are working on data analysis and machine intelligence. For example, they are exploring the ways in which autonomous systems can be used, and their limitations. To do this, ETH Zurich is using a model-based approach, a broad, interdisciplinary research portfolio and a new generation of supercomputers.

Intelligent systems are increasingly able to operate autonomously and they affect all aspects of modern society. That is why ETH Zurich is working with partners from industry on infrastructures to link the virtual and the physical worlds together, not only efficiently but also reliably and safely.



The development of new materials leads to innovations, for example in semiconductor technology: the production of structures which combine silicon with monolithic germanium will revolutionise many areas, not just parts of the X-ray technology.

New materials

Many of the achievements of modern society have only been made possible by the development of new materials. Materials research at ETH Zurich makes an important contribution to this work. Controlling and manipulating processes on a micro- and nano-scale makes it possible to produce new polymers, superconductors, functional surfaces and biocompatible materials which can be used in the fields of information technology, energy and medicine.

In the Materials Research Center (MRC) and the Micro and Nano Science Platform (MNSP), over 80 research groups from different disciplines have been brought together to work on questions relating to materials and process engineering. The range of subjects they are studying extends from exploring the atomic principles of materials to developing actual technical solutions. Close cooperation with industry results in targeted research and efficient

knowledge transfer. New materials form the basis for a better quality of life, but may also bring new risks. This must never be forgotten. ETH Zurich is playing a pioneering role in researching the effects of materials and technology on man and the environment.

Industrial processes

The commercial success of a company depends on its ability to produce innovative and reliable products while making efficient use of resources. Modern manufacturing technologies and production processes use computer-assisted design methods and material flow planning. They integrate complex materials and systems and organise all operational processes efficiently.

The “Manufacturing across Scales – from Nano to Macro” initiative combines the specialist expertise of several departments at ETH Zurich. At its heart is fundamental research into the development of controlled, reproducible and scalable processes and manufacturing techniques. Areas for research include the integration of functional materials such as nanoparticles, thin films and nanostructured coatings on large surfaces, the optimised use of sensors and converters and the modelling of manufacturing tools and processes. The aim is to improve the properties of materials, components and machinery and develop processes for manufacturing them in a reliable, environmentally friendly and cost-effective way. By working closely with industry, ETH Zurich hopes that this initiative will contribute to the long-term competitiveness of Swiss industry.



Modern manufacturing technologies and production processes are the key to a competitive economy. At the Binnig and Rohrer Nanotechnology Center, which ETH Zurich runs jointly with IBM Research – Zurich, researchers are studying ways of manufacturing innovative electronic devices and sensors.

Stimulating the economy

Scientific findings and new technologies from ETH Zurich are strengthening the Swiss economy and creating jobs.



The ETH spin-off VirtaMed develops simulation models as training aids for surgeons: the surgical procedure is carried out on the model knee using real instruments, with sensors recording movements. A software programme generates a lifelike simulation of the inside of the knee on the screen.

Year after year, hundreds of new ETH graduates feed the latest knowledge into society and the economy. In countless collaboration projects involving industry and research groups at ETH Zurich, new technologies are being researched which partners in industry convert into products and services.

There are also 60 to 80 patents registered each year based on the results of research carried out at ETH Zurich. Some of these patents are used by new companies founded specifically for that purpose – often by the inventors themselves – as spin-offs from ETH Zurich. Surveys show that these companies are extremely successful and regularly win prizes for young entrepreneurs. ETH Zurich supports would-be company founders with its Pioneer Fellowships. They are given the opportunity to further develop their research in Innovation and Entrepreneurship Labs and to work with external coaches and industry representatives.

Since the mid-1990s, the internal technology transfer office, ETH transfer, has been linking the university and industry. The team of experts supports researchers in their dealings with cooperation and licensing partners in business and advises them on all aspects relating to protecting their inventions and setting up spin-off companies.

www.spinoff.ethz.ch/index_EN →



Since 1996 over 300 spin-off companies have emerged from ETH Zurich. The scanner mouse developed by Dacuda is just one example of a successful product: it scans anything from business cards and post-it notes to A4 pages, photographs and pictures.

Strong partnerships with industry

Fundamental research is highly relevant to practical applications and this makes ETH Zurich an important partner for companies.



Siemens Building Technologies and ETH Zurich, together with other partners, are jointly developing intelligent control concepts for the future. The "OptiControl" project combines the latest developments in buildings technology, weather forecasting and control technology to reduce energy consumption in office buildings.

ETH Zurich is deliberately extending its cooperation with industry on research. ETH Industry Relations is the central entry point which receives enquiries from industry and matches them up with the research skills that are available at ETH Zurich. As the next stage, it arranges for companies to contact the relevant research groups and experts and organises initial meetings and laboratory visits. Further discussions may take place in the context of idea and project workshops held with ETH experts and industry representatives.

If a company is interested in a definite partnership with ETH Zurich, the technology transfer office, ETH transfer, helps to work out the best solution and draw up the relevant agreements. The focus is always on sharing knowledge efficiently and providing access to the research results on fair terms. This is intended to ensure that new technologies are implemented as quickly as possible and made available for the benefit of society.

ETH Zurich does not only address big companies but is also interested in developing practical solutions with SMEs. It is actively engaged in sharing information with a number of national industry associations and it organises Industry Days to give interested companies an insight into the latest trends in research. ETH Zurich also uses various platforms and initiatives to encourage its industrial partners to sponsor and support imaginative projects, gifted students and young entrepreneurs.

www.transfer.ethz.ch/index_EN →

www.ethz-foundation.ch →



Magnetic resonance scanners provide insights into the human body. ETH researchers are working with partners like Philips to make the devices even faster, more accurate and cheaper in the future.

Serving society

ETH Zurich performs many services for the federal government and uses its expertise to make important contributions to public debate.



Supercomputers such as those at the CSCS are essential if Swiss universities are to maintain their international competitiveness.



The holdings of the ETH-Bibliothek comprise about 7.5 million printed and electronic documents.

ETH Zurich places the results of its education and research at the service of society and makes an indispensable contribution towards securing Switzerland's international competitiveness. It also performs other services on behalf of the federal government which promote security and improve the quality of life in Switzerland.

Economic research

The KOF Swiss Economic Institute at ETH Zurich supplies soundly based information from its economic research. Its forecasts are an important aid in the decision-making processes of the federal government and the private sector. The KOF works closely with experts from other countries.

www.kof.ethz.ch/en →

Swiss Seismological Service

The Swiss Seismological Service (SED) at ETH Zurich is responsible for monitoring and investigating earthquakes in Switzerland, but is also internationally renowned beyond Switzerland's borders. As the federal government's centre of expertise, the SED uses its seismic measuring equipment to monitor earthquake activity in Switzerland and neighbouring countries and draws up hazard maps to evaluate seismic risk.

www.seismo.ethz.ch/index_EN →

Swiss National Supercomputing Centre

On behalf of the federal government, ETH Zurich operates the Swiss National Supercomputing Centre (CSCS) in Lugano, where the ultra-modern

supercomputing infrastructure is constantly being expanded. The supercomputing systems are available to all Swiss universities and research institutions and also provide computing services for industry.

www.cscs.ch →

Library

The ETH-Bibliothek is the largest scientific library in Switzerland and one of the leading scientific and technical libraries in Europe. As a public library it serves not only university staff and students but also companies and any interested members of the public.

www.library.ethz.ch/en →



ETH Zurich demonstrates its awareness of its social responsibilities by encouraging open dialogue – because complex questions require information to be shared between academia, industry and society. It is also one of the duties of ETH Zurich to make its research accessible to the general public.

Excellent national networks

ETH Zurich works very closely as a partner with numerous other educational and research institutions in Switzerland.

As an institution with national roots and a wide international network, ETH Zurich is the driving force behind many research projects of strategic importance. By working with selected partners, ETH Zurich is able to expand the range of subjects covered by its research and education in a targeted manner and make best use of the available infrastructures.

It concentrates its activities mainly on its sites in Zurich, Basel and the Ticino.

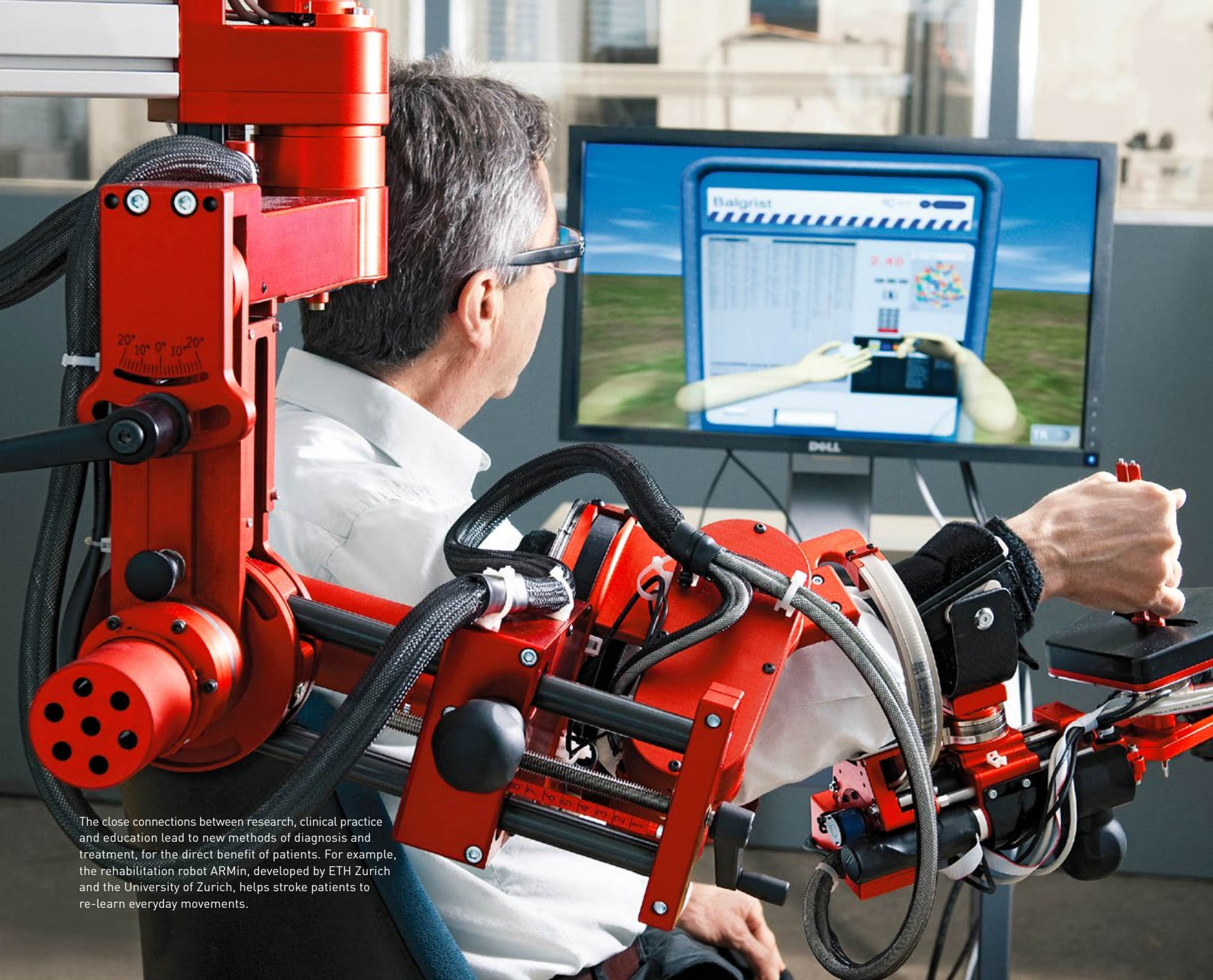
As a knowledge centre with an international reputation, the Zurich area offers an excellent environment: ETH Zurich and the University of Zurich, along with university and private hospitals, universities of applied sciences and commercial research

institutions, constitute a network for education and research that is quite unique in Switzerland. ETH Zurich and the University of Zurich have many joint chairs and build continuously on the close collaboration that has existed since they were first established. For example, together with the University Hospital they make up the “Hochschulmedizin Zürich” group which combines clinical medicine, fundamental biomedical research and engineering sciences.

Together with EPF Lausanne and the four research institutions Eawag, WSL, Empa and PSI, ETH Zurich makes up the federally headed ETH Domain, a network which works closely together to put Swiss research in a leading position internationally: with its joint centres of competence in the fields of the environment and sustainability, energy and mobility, materials and technology and bioimaging, the ETH Domain covers a very wide range of subject areas from which education and research at ETH Zurich profit greatly. One key feature of the cooperation is the more than twenty jointly funded chairs in the areas of greatest interest.



ETH Zurich works closely with national research institutions including shared use of infrastructure. The Swiss Light Source (SLS), one of the largest installations at the PSI, enables researchers to study the properties of all kinds of different materials.



The close connections between research, clinical practice and education lead to new methods of diagnosis and treatment, for the direct benefit of patients. For example, the rehabilitation robot ARMin, developed by ETH Zurich and the University of Zurich, helps stroke patients to re-learn everyday movements.

International interaction

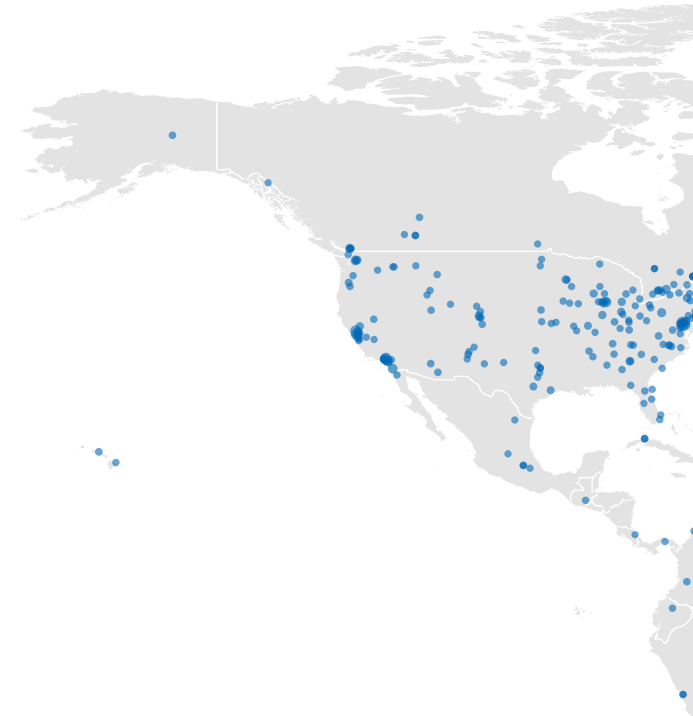
International cooperation is a high priority for ETH Zurich. It attracts talented students and top researchers from all over the world who in turn contribute to the university's excellent reputation.

A leading university thrives on interaction. That is why ETH Zurich encourages cooperation with premier universities worldwide. The outstanding conditions it offers for research and education have already made it an attractive place for people from over a hundred different countries to work and study. ETH Zurich is pursuing two strategic goals with this policy: it is reinforcing its status as a first-rate centre for training and education and strengthening its position as a leading technical and scientific research university.

ETH Zurich has especially been expanding its international activities in Asia in the last few years. At the Singapore-ETH Centre for Global Environmental Sustainability (SEC), researchers from Switzerland are working with partners from Singapore and other countries on areas of research of global importance. ETH Zurich also acts on behalf of the federal government as an ambassador in the Asia-Pacific region for Switzerland as a centre for science and education. Since it is the "Leading House" for China, Japan, South Korea and other countries, it has the task of strengthening cooperation with research and technology institutions there.

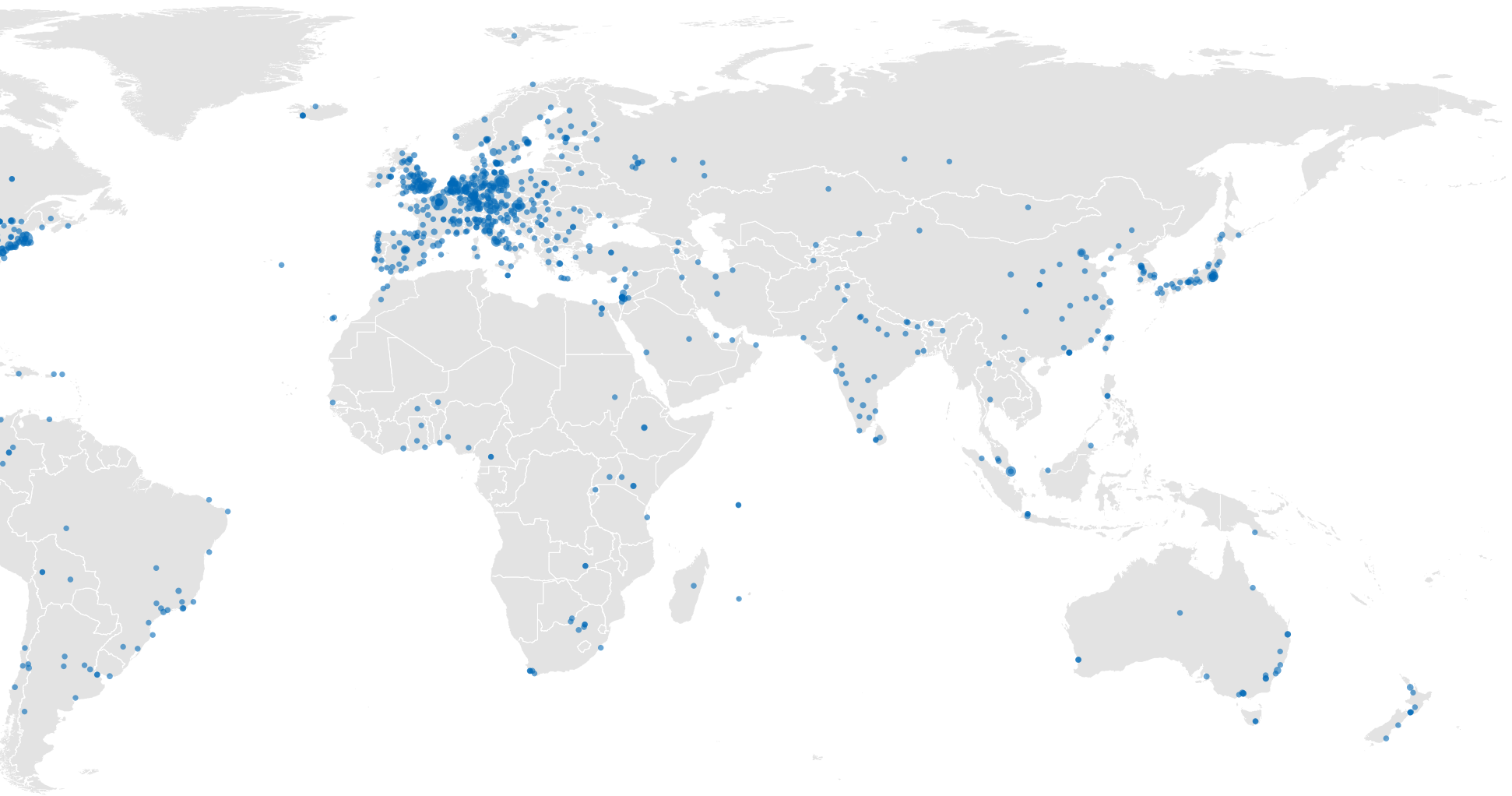
ETH Zurich is a member of various international alliances. These include the IDEA League, the International Alliance of Research Universities (IARU), the Global Alliance of Technological Universities (GlobalTech), the Global University Leaders Forum (GULF) and UNITECH International.

www.global.ethz.ch →



ETH Zurich is very well-connected worldwide. Its scientists work with numerous educational and research institutions all round the world.

● Research contact



Attractive locations

ETH Zurich offers students and researchers an excellent infrastructure and attractive working conditions in four locations.

ETH Zurich bears the name of its main site in Zurich with pride. The city is not only outstanding as a centre for science and business but also famous for its excellent quality of life: in city rankings, Zurich is regularly identified as one of the best cities in the world to live in.

Stylish shopping streets, winding alleyways in the Old Town, trendy cultural centres, open-air swimming pools and lakeside promenades – all these things give Zurich an unmistakable charm. The cultural activities range from the opera and a dynamic art and theatre scene to a vast choice of cinemas, clubs and restaurants. Thanks to the excellent transport infrastructure, it takes only 15 minutes to go from the city centre to the international airport. The Swiss Alps and many other nearby recreational areas are also within easy reach.

ETH Zurich has grown a great deal since it was first founded. Today it has a presence in three other locations as well as Zurich.

Zurich (main site)

ETH Zurich has two campuses in Zurich: the city-centre campus with its historic Main Building not only embodies the university's traditional roots but is also a lively place to socialise and study. On the outskirts of the city of Zurich is the modern Hönggerberg campus. This is a perfect example of the links between science, industry and the general public, which is why it won the European Cultural Award for Science in 2010.

Basel

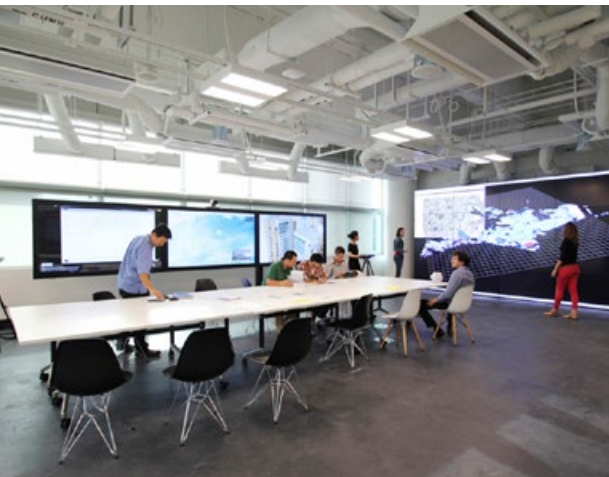
The Department of Biosystems Science and Engineering (D-BSSE) is located in Basel. Its proximity to biochemical and pharmaceutical companies offers scientists perfect conditions for interdisciplinary research projects. ETH Zurich also maintains close links with the University of Basel. In many fields, the areas of competence of the two universities complement each other ideally.

Lugano

In the Ticino, ETH Zurich runs the Swiss National Supercomputing Centre CSCS. Its ultra-modern supercomputers, including one in the petaflop performance class, are available to all Swiss universities and research institutions. Thanks to its sophisticated cooling system using water from the lake, the CSCS is now one of the most energy-efficient computing centres in the world.

Singapore

With the Singapore-ETH Centre for Global Environmental Sustainability (SEC), ETH Zurich has reinforced its presence in one of the world's most up-and-coming regions. This site in Asia enables the university to tackle research topics on a global scale and work closely with local institutions.



About 120 scientists work at the Singapore-ETH Centre for Global Environmental Sustainability (SEC).



The Hönggerberg campus offers room for further development. Not only are new teaching and research buildings being constructed on the campus but also apartment blocks for students.

Campus life

An abundance of services and leisure opportunities make ETH Zurich an attractive place to study and work, providing a rich university life.

Dynamic campus

About 29,000 people study, teach, carry out research and work at ETH Zurich. That means the university is the same size as some small towns in Switzerland. And campus life is correspondingly varied: in addition to numerous scientific events, the attractions also include exhibitions, concerts, cinema showings, sports clubs, “science slams” and big social events like the Polyball, well-known far beyond the city.

www.vk.ethz.ch →

There are numerous canteens and cafeterias serving a wide range of different cuisines, and providing lively meeting places.

www.gastro.ethz.ch/index_EN →

Sport is very important at ETH Zurich. Whether you want individual training or a group course, the Academic Sports Association Zurich has something for everyone. It offers some 120 different sports, from Afro Dance to Zumba.

www.asvz.ch →

If you're looking for musical relaxation, you will find like-minded people in the orchestras, jazz bands and other musical and singing groups.

www.musikplattform.ethz.ch →

More and more ETH members want to show off their links with the university to the outside world. In the two ETH stores you will find an exclusive range of items specially designed for ETH Zurich.

www.eth-store.ch →

Playing an active role

Countless students and doctoral students play an active role in shaping life at their university by taking part in clubs and associations. ETH Zurich's student association (VSETH), with about 13,000 members, is one of the largest student organisations in Switzerland. It represents students in dealings with the university authorities, and the many events it organises are a key feature of student life. The specialist groups organised by the various ETH departments link university policy with social events.

www.vseth.ethz.ch →

The Academic Association of Scientific Staff at ETH Zurich (AVETH) represents the interests of doctoral students, research assistants and post-docs. It encourages interdisciplinary networking among employees and also helps colleagues from other countries with practical matters connected with living in Zurich.

www.aveth.ethz.ch →



Many graduates maintain links with their alma mater even after they have finished their studies. The ETH Alumni Association has over 24,000 active members. Together with its various members' associations, groups and clubs, it organises subject-specific, social and cultural events and brings together the alumni of ETH Zurich from all over the world in one organisation.

www.alumni.ethz.ch →

Services for students

ETH Zurich offers various services to make everyday life easier for students. They will find a large choice of places to study around the campus. A number of libraries provide students with scientific information of all kinds – including the ETH-Bibliothek, Switzerland's biggest university library.

www.library.ethz.ch/en →

The Student Orientation and Coaching (SoC) team advises students and prospective students on aspects of their studies. The members of this team are also the people to contact if things are not going too well.

www.soc.ethz.ch →

The Student Housing Cooperative Zurich (WOKO) has about 2000 rooms in Zurich for renting out to students. Thanks to the Student Housing Foundation Zurich (SSWZ), about 1000 new rooms will be added to that figure by 2015, some of them on the Hönggerberg campus.

www.woko.ch/en →

The ETH Career Center encourages contacts between companies and talented young people. It supports students and doctoral students until they start their career and prepares them thoroughly for the transition into the working world.

www.careercenter.ethz.ch/index_EN →



Shaping the future

ETH Zurich will continue to play its role in providing solutions for the major challenges facing society and in this way help strengthen Switzerland's reputation as a centre for education and research.

Keeping people healthy into old age, developing sustainable cities of the future and carrying out integrated risk research: these are all areas in which ETH Zurich's expertise enables it to make an important contribution. In the years to come, it will expand these key research areas with additional chairs and resources, competence centres and infrastructure.

As a university of international standing, ETH Zurich is attracting more and more students from Switzerland and all over the world, especially at Master level. The Swiss economy and ETH Zurich have long benefited from its well-trained graduates, from both Switzerland and abroad. However, this

positive trend does also result in a need for action: if ETH Zurich wants to continue to offer places to more talented students and maintain its research-focused training at a high level, it needs more professors, and also new buildings with lecture theatres, laboratories and places for students to work.

Excellence in education, research and knowledge transfer requires financial resources which allow for high-quality growth. It is thanks to the commitment of ETH graduates, private sponsors, foundations and companies which are conscious of their responsibilities that ETH Zurich is able to carry out projects of the utmost technical, scientific or social relevance

in the spirit of partnership. Their donations to the ETH Zurich Foundation, an independent foundation under private law, help ensure that ETH Zurich will still be able to respond quickly and flexibly to challenges in the future, and continue to set new benchmarks.

www.ethz-foundation.ch →





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