Outline

History and Campus
Profile
Teaching
Internationalization
History and Campus

19th century

21st century
History and Campus | Origin

1770 – 1821
• Founding of the forerunner academies: Mining Academy, Building Academy, Vocational Academy

1879
• Unification into Royal Technical College of Berlin

1945 – 1946
• Closure of the Technische Hochschule Charlottenburg and re-establishment under the new name: Technische Universität Berlin

1950
• Establishment of the School of Humanities
<table>
<thead>
<tr>
<th>Name</th>
<th>Years</th>
<th>Contribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Franz Reuleaux</td>
<td>1829 - 1905</td>
<td>Machine kinematics</td>
</tr>
<tr>
<td>Adolf Slaby</td>
<td>1849 - 1913</td>
<td>Radiotelegraphy</td>
</tr>
<tr>
<td>Alois Riedler</td>
<td>1850 - 1936</td>
<td>Motor vehicle construction</td>
</tr>
<tr>
<td>Adolf Miethe</td>
<td>1862 - 1927</td>
<td>Three-color photography, the flashlight</td>
</tr>
<tr>
<td>Georg Schlesinger</td>
<td>1874 - 1949</td>
<td>Machine tool design and factory management</td>
</tr>
<tr>
<td>Hermann Föttinger</td>
<td>1877 - 1945</td>
<td>The fully automatic gear box</td>
</tr>
<tr>
<td>Gustav Hertz*</td>
<td>1887 - 1975</td>
<td>Laws governing the impact of an electron upon an atom</td>
</tr>
<tr>
<td>Hans Geiger</td>
<td>1882 - 1925</td>
<td>The Geiger Counter</td>
</tr>
<tr>
<td>Dennis Gábor*</td>
<td>1900 - 1979</td>
<td>Holography</td>
</tr>
<tr>
<td>Eugene Wigner*</td>
<td>1902 - 1995</td>
<td>Quantum mechanics</td>
</tr>
<tr>
<td>Ernst Ruska*</td>
<td>1902 - 1988</td>
<td>The electron microscope</td>
</tr>
<tr>
<td>Konrad Zuse</td>
<td>1910 - 1996</td>
<td>The first freely programmable computing machine</td>
</tr>
<tr>
<td>Gerhard Ertl*</td>
<td>1936 -</td>
<td>Chemical processes on solid surfaces</td>
</tr>
</tbody>
</table>

*Nobel prize laureate
• around 600 000 m² base area distributed over several locations in Berlin
• 122 buildings (19 000 rooms)
Technische Universität Berlin, a university with international reputation in Germany's capital and in the heart of Europe

- Third largest university of technology in Germany
- Intensive cooperation between science and industry
- Research and teaching ranging from engineering and natural sciences to humanities and social sciences
- Alliance between technology and humanities to meet the challenges of the future
- Joint research projects with numerous non-university research institutes
Profile | TU Berlin in figures (09.2018)

Staff

- **355** Professors
- **363** Visiting professors and associated lecturers
- **2727** Scientific staff
  - Financed by third-party funds: 1719 (63%)
- **2121** Other employees
  - Financed by third-party funds: 248 (12%)
Profile | TU Berlin in figures (2016)

FUNDING IN MILLION €

- State funding
- External funding

2011: 158.9
2012: 159.6
2013: 174
2014: 178.8
2015: 177.5
2016: 168.2
2017: 170.9

- In 2017: about 480,000 € of external fundings acquired per professor
- In the past 8 years: a total rise of funding of more than 15%

Split up external funding:
- Federal Government: 31%
- EU: 19%
- Private: 14%
- DFG: 27%
- Foundations: 2%
- Public Institutions (state level): 7%
<table>
<thead>
<tr>
<th>Faculty</th>
<th>Institutes / Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty I</td>
<td>7 institutes / centers</td>
</tr>
<tr>
<td>Faculty II</td>
<td>6 institutes</td>
</tr>
<tr>
<td>Faculty III</td>
<td>6 institutes</td>
</tr>
<tr>
<td>Faculty IV</td>
<td>6 institutes</td>
</tr>
<tr>
<td>Faculty V</td>
<td>7 institutes</td>
</tr>
<tr>
<td>Faculty VI</td>
<td>8 institutes</td>
</tr>
<tr>
<td>Faculty VII</td>
<td>3 institutes</td>
</tr>
</tbody>
</table>

Central Institutes

- Central Institute El Gouna
- Central Institute School of Education

Technische Universität Berlin | International Scientific Cooperation
Main focus of the degree programs and research:
Growth of population and climate change require new strategies to tap new living spaces, water and energy.
Profile | Core areas in research and education

Beneficial Processes and Products

Engineering

Materials, Design and Manufacturing
Cyber-Physical Systems
Knowledge and Communication Systems
Energy Systems and Sustainable Resource Management
Infrastructure and Mobility
Human Health
Planning and Management

Our Vision: Solutions for Societal Challenges

Competitive Qualification
Natural Sciences
Mathematics
Creating New Job Areas
Knowledge Management

Technological Innovation
Computer Science

Technische Universität Berlin | International Scientific Cooperation
TU Berlin coordinates three Einstein Centers

- Einstein Centers are a Programme line of the Einstein Foundation
- Einstein Centers bundle and harness interdisciplinary scientific expertise in particularly innovative research fields
- The programme offers top research alliances in Berlin the opportunity to establish cross-institutional research and teaching networks
- The aim is to generate new research priorities beyond the existing clusters and schools
Profile | Collaborative Research (selection)

Technische Universität Berlin | International Scientific Cooperation

**DFG**

- Collaborative Research Centers (SFB): 20
- Research Units (FOR): 10
- Research Training Groups: 10

**BMBF**

- TU Berlin as coordinator
- with participation of the TU Berlin

- BeMobil
- Berlin Big Data
- BerlinHECOR
- Software Campus

- Bernstein Center for Computational Neuroscience Berlin (BCCN)
- The German Internet Institute

and others (e.g. EU Research and Innovation Projects such as Horizon 2020 and FP7)
German Excellence Strategy 2019

- Funding programme of the Federal Government and State Governments
- Aims to promote leading edge research at outstanding universities sustainably
- In total 533 Mio. € per year are provided
- A University Alliance has to be successful in at least three Clusters of Excellence to apply for the title of „University of Excellence“
- In a Cluster of Excellence interdisciplinary research at an internationally competitive level is conducted
- TU Berlin is host to three out of seven Clusters of BUA
German Excellence Strategy 2019
University of Excellence

On 19 July 2019, the four partner universities of the Berlin University Alliance (BUA) – Freie Universität Berlin, Humboldt Universität zu Berlin, Technische Universität Berlin und Charité Universitätsmedizin – were jointly awarded the title of University of Excellence.
German Excellence Strategy 2019
3 Clusters of Excellence for TU Berlin out of 7 Clusters for Berlin in total

A cross-institutional and transdisciplinary Cluster in order to explore and further develop new approaches in application-oriented mathematics

A Cluster with five interdisciplinary research areas on the elucidation and evolution of catalytic networks. The aim is to understand how reactants, intermediates, and reaction products come into customized contact with the various catalysts involved

A Cluster focusing on the better understanding of intelligence in all its facets. The aim is to fundamentally advance our ability to construct intelligent technological artifacts for applications of societal importance.
non-university research institutions, i.a.:

- Fraunhofer
- Helmholtz Gemeinschaft
- Max-Planck-Gesellschaft
- Leibniz-Gemeinschaft

industry and private investors, i.a.:

- Deutsche Telekom
- Laboratories
- SIEMENS
- Bayer HealthCare
  - Bayer Schering Pharma
- thyssenkrupp
- BASF
  - We create chemistry
- VOLKSWAGEN
  - Aktiengesellschaft
- Daimler Center for Automotive Information Technology Innovations
- SAP

Technische Universität Berlin | International Scientific Cooperation
• Currently 20 PhD projects
• 35 Tech startups per year
• 150+ Tech startups since 2007
• More than 80% of startups are still in business
• Labeled as „The Entrepreneurial University - EXIST“ („Die Gründerhochschule“) by the Federal Ministry for Economic Affairs and Energy
• Currently No. 2 in GER of EXIST-Universities
Teaching | Facts and figures

Students: 35,570
Male: 23,572 (66.3%)
Female: 11,995 (33.7%)

Doctorates: 636

International students: 9,443 (26.6%)

Post doctoral lecture qualification: 14

Degree Programs: more than 150

Double Degrees: 38
(with universities in Argentina, Brazil, Chile, China, France, Republic of Korea, Poland, Russia, Serbia)

Programs in English: 26

Technische Universität Berlin | International Scientific Cooperation
### Teaching | Courses in English

<table>
<thead>
<tr>
<th>Course Area</th>
<th>Degree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Architecture - Typology</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Building Sustainability - Management Methods for Energy Efficiency</td>
<td>M.B.A.</td>
</tr>
<tr>
<td>Business Engineering Energy</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Computational Neuroscience</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Computer Science</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Energy Engineering</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Energy Management</td>
<td>M.B.A.</td>
</tr>
<tr>
<td>Environmental Planning</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>European Studies</td>
<td></td>
</tr>
<tr>
<td>European and International Energy Law</td>
<td>M.B.L.</td>
</tr>
<tr>
<td>Geodesy and Geoinformation Science</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Global Production Engineering</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>ICT Innovation</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Industrial and Network Economics</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Information Systems Management</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Innovation Management, Entrepreneurship and Sustainability (IMES)</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>IT for Energy</td>
<td></td>
</tr>
<tr>
<td>Polymer Science</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Process Energy and Environmental Systems</td>
<td></td>
</tr>
<tr>
<td>Scientific Computing</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Space Engineering</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Sustainable Mobility Management</td>
<td>M.B.A.</td>
</tr>
<tr>
<td>Urban Development</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Urban Management</td>
<td>M.Sc.</td>
</tr>
<tr>
<td>Water Engineering</td>
<td>M.Sc.</td>
</tr>
</tbody>
</table>
Teaching | Study Structure

- Bachelor: 6-8 semesters
- Master: 2-4 semesters
- Professional Life
- Doctorate
- Assessment Test for PhD
Teaching | Students by subject (Summer 2017)

Engineering Sciences 23,856

- Natural Sciences & Mathematics 6,344
- Others 3,821

Social and economic sciences 1,980

Humanities 1,841
History and Campus
Profile
Teaching
Internationalization
Institutions with an existing student exchanges, dual degree programs or Memoranda of Understanding
Internationalization | Facts and figures

Student body
• 26.6% international students

Professorships
• 6% international professors
• more than 16% international research associates

Alumni
award winning alumni network maintains contacts with TU alumni from over 130 countries
Internationalization | Students by country of origin

(Summer 19, top 30 countries of origin)
Survey among 300 international students in December 2015

Importance in percent: 0 % = not important, 100 % = very important

- Good reputation of teaching staff
- To study in German
- Good rankings of the university
- Low fees and cost of living
- Good reputation of the study program
- Attractiveness of Berlin
- Good reputation of the university
- Good reputation of academic studies in Germany
- Professional/scientific focus of study program
- Profile of the study program

Importance in percent range from 0 to 100.
Worldwide approx. 5000 contacts outside of Germany in 138 countries
• We offer courses in both summer and winter of 2 to 12 weeks
• Classes are taught in English and participants can earn European Credit Points (ECTS) for their studies
• 4 four-week-terms in summer, one in winter
• different courses with innovative topics (e.g. „blue engineering“)
• course fees include a four-week academic program and course materials, class excursions, a fantastic cultural program, a ticket for public transportation and opportunities to interact with students from around the world
Thank you for your attention!