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

*Nobel prize laureate*
• around 600 000 sq m 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 (2018)

Staff

- **351** Professors
- **370** Visiting professors and associated lecturers
- **2718** Scientific staff
  - Financed by third-party funds: 1706 (63%)
- **2135** Other employees
  - Financed by third-party funds: 253 (12%)
In 2016: about 523,000 € of fundings acquired per professor
In the past 10 years: a rise of 230%
<table>
<thead>
<tr>
<th>Faculty</th>
<th>Institutes / Centers</th>
</tr>
</thead>
</table>
| Faculty I
Humanities       | 7 institutes / centers |
| Faculty II
Mathematics and Natural Sciences | 6 institutes |
| Faculty III
Process Sciences | 6 institutes |
| Faculty IV
Electrical Engineering and Computer Science | 6 institutes |
| Faculty V
Mechanics Engineering and Transport Systems | 7 institutes |
| Faculty VI
Planning - Building - Environment | 8 institutes |
| Faculty VII
Economics and Management | 3 institutes |

<table>
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<tr>
<th>Central Institutes</th>
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<tbody>
<tr>
<td>Central Institute El Gouna</td>
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<tr>
<td>Central Institute School of Education</td>
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</tbody>
</table>

SETUB
School of Education
TU Berlin
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
- Infrastructure and Mobility
- Human Health

Planning and Management

Our Vision: Solutions for Societal Challenges

Technological Innovation

- Competitive Qualification
- Natural Sciences
- Computer Science
- Mathematics
- Creating New Job Areas
- Humanities
- Knowledge Management

Technische Universität Berlin | International Scientific Cooperation
Profile | Collaborative Research (selection)

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.
An inter-university nucleus for research on the digitalization of our society. Its aim is to foster innovative, cutting-edge interdisciplinary research, and to provide outstanding training for talented young scholars.

An interdisciplinary centre linked to the Cluster of Excellence and aims to inspire, initiate, and promote novel collaborations between research networks and institutions in Berlin on cutting-edge projects in chemistry and the molecular life sciences that may, in turn, open new directions for future catalysis.

A network to support mathematical research in selected innovation areas and to establish and strengthen a network structure of excellent joint initiatives in Berlin.
Collaborative Research Centers (SFB): 18
Research Units (FOR): 10
Research Training Groups: 10

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)
Profile | Strategic Partnerships R&D

non-university research institutions, i.a.:

industry and private investors, i.a.:

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: 33,577
Male: 22,517 (67%)
Female: 11,060 (33%)

Doctorates: 499

Post doctoral lecture qualification: 13

International students: 8040 (24%)

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
## Teaching | Courses in English

<table>
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<tr>
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<tbody>
<tr>
<td>Engineering</td>
<td>Space Engineering, M.Sc.</td>
</tr>
<tr>
<td>Environmental Planning, M.Sc.</td>
<td>Sustainable Mobility Management, M.B.A.</td>
</tr>
<tr>
<td>European Studies</td>
<td>Urban Development, M.Sc.</td>
</tr>
</tbody>
</table>
Teaching | Students by subject (Summer 2017)

Engineering Sciences 23,062

Natural Sciences & Mathematics 6,215

Social and economic sciences 1,863

Others 3,757

Humanities 1,894
Institutions with an existing student exchanges, dual degree programs or Memorandi of Understanding
Internationalization | Facts and figures

Student body

- 23% 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
(Winter 17/18, more than 10 students per country)
What most international students study

- Physics: 182
- Civil engineering: 241
- Architecture: 354
- Industrial engineering: 382
- Global production engineering, industrial and network economics: 417
- Energy and process technology: 449
- Mathematics, business mathematics, business information systems: 524
- Electrical engineering: 543
- Mechanical engineering and transportation: 802
- Computer science and engineering: 1,041
Internationalization | Reasons to study at TUB

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

Survey among 300 international students in december 2015
Worldwide approx. 5000 contacts outside of Germany in 138 countries
Join students from more than 40 countries around the world and take part in our unique, hands-on academic program at the TU Berlin.

We offer courses in both winter and summer for 4 to 10 weeks. Classes are taught in English and participants can earn European Credit Points (ECTS) for their studies.

For programs, topics and applications please visit us at: http://www.tu-berlin.de/summer_university/
Internationalization | TU Berlin Summer University

- Total of 204 students (2017)
- 42 different countries (2017)
- 3 four-week-terms in summer, one in winter
- A total of 18 different courses with innovative topics (e.g. “blue engineering“
- Cultural activities
- Participants can achieve up to 13 ECTS
Thank you for your attention!