Engineering education in the Czech Republic
Engineering education in the Czech Republic is provided in majority by state higher educational institutions defined by Higher education act

Czech Technical University in Prague, Czech University of Life Sciences, University of Chemistry and Technology Prague, Brno University of Technology, Technical University of Liberec, University of West Bohemia, University of Pardubice, VŠB – Technical University of Ostrava, Tomas Bata University in Zlin

University of Defence
Czech state technical universities

In Prague, Plzeň, Liberec, Pardubice, Brno, Zlín, Ostrava.

Are listed in the FEANI Index

Structured study scheme according to Bologna Declaration - Bachelor, Master and Doctoral degree courses

Degree courses of engineering programmes are accredited by independent Czech Accreditation Commission
Awarded academic titles protected by law

Bachelor title – Bc.

Master title - Mgr.,

At technical universities the equivalent of Mgr. title is Engineer, in Czech: “Inženýr” – Ing.

Doctoral title – Ph.D.
Standard length of studies

Bachelor studies: 3 years, for some fields like civil engineering degree courses: 4 years

Continuing Master studies: 2 years

Long Master studies: 5 years

Doctoral studies: 3 years
Czech Technical University in Prague

Founded in 1707 - the oldest technical university in Central Europe

Student body in 2013: 22146
Faculty of Civil Engineering
Departments
• Department of Mathematics
• Department of Physics
• Department of Languages
• Department of Social Sciences
• Department of Construction Technology
• Department of Materials Engineering and Chemistry
• Department of Building Structures
• Department of Micro Environmental and Building Services Engineering
Departments

• Department of Economics and Management in Civil Engineering
• Department of Urban Design, Town and Regional Planning
• Department of Applied Informatics
• Department of Architecture
• Department of Mechanics
Departments

• Department of Concrete and Masonry Structures
• Department of Steel and Timber Structures
• Department of Geo Technics
• Department of Road Structures
• Department of Railway Structures
• Department of Hydraulics and Hydrology
• Department of Hydraulic Structures
• Department of Irrigation, Drainage and Landscape Engineering
Departments
• Department of Sanitary and Ecological Engineering
• Department of Special Geodesy
• Department of Geomatics

Research Centres
• Experimental Centre
• Centre of Experimental Geo Technics
• Water Management Experimental Centre
• University Centre of Energy Efficient Buildings
Faculty of Mechanical Engineering
Faculty of Mechanical Engineering

Departments

• Department of Technical Mathematics
• Department of Physics
• Department of Languages
• Department of Mechanics, Biomechanics and Mechatronics
• Department of Instrumentation and Control Engineering
Faculty of Mechanical Engineering

Departments

• Department of Fluid Mechanics and Thermodynamics
• Department of Designing and Machine Components
• Department of Power Engineering
• Department of Environmental Engineering
• Department of Process Engineering
• Department of Automotive, Combustion Engine and Railway Engineering
Faculty of Mechanical Engineering

Departments

• Department of Aerospace Engineering
• Department of Materials Engineering
• Department of Manufacturing Technology
• Department of Machining, Project Planning and Metrology
• Department of Production Machines and Equipment
• Department of Management and Economics
Faculty of Mechanical Engineering

Departments

• Josef Božek Research Centre of Engine and Automotive Engineering
• Research Centre of Manufacturing Technologies
• Aerospace Research Centre
• Centre for Production Quality and Reliability
• Advanced Technologies and Systems for Power Engineering
Faculty of Electrical Engineering
Departments

• Department of Mathematics
• Department of Physics
• Department of Languages
• Department of Electro Technology
• Department of Electric Drives and Traction
• Department of Electro Energetics
• Department of Economics, Management and Humanities
• Department of Electromagnetic Field
Departments

• Department of Circuit Theory
• Department of Telecommunication Engineering
• Department of Cybernetics
• Department of Microelectronics
• Department of Control Engineering
• Department of Computer Science
• Department of Radio Electronics
• Department of Measurement
• Department of Computer Graphics and Interaction
Faculty of Nuclear Science and Physical Engineering
Departments
• Department of Mathematics
• Department of Physics
• Department of Languages
• Department of Solid Materials Engineering
• Department of Physical Electronics
• Department of Materials
• Department of Nuclear Chemistry
• Department of Dosimetry and Applications of Ionizing Radiation
• Department of Nuclear Reactors
• Department of Software Engineering
Faculty of Architecture
Departments

- Department of Applied Arts
- Department of Architecture Theory and History
- Department of Historic Preservation
- Department of Interior and Exhibition Management
- Cabinet of Model Designing
- Department of Building Studies
- Department of Urbanism
- Department of Landscape Architecture
- Department of Space Planning
- Department of Supporting Structures
Departments

• Department of Building Construction I
• Department of Building Construction II
• Department of Languages
• Department of Design I
• Department of Design II
• Department of Design III
• Department of Industrial Design
Faculty of Transportation Sciences
Departments

• Department of Applied Mathematics
• Department of Transportation Systems
• Department of Applied Informatics in Transportation
• Department of Languages and Humanities
• Department of Vehicle Technology
• Department of Logistics and Management of Transport
Departments

• Department of Mechanics and Materials
• Department of Transport Telematics
• Department of Air Transport
• Department of Forensic Experts in Transportation
• Department of Security Technologies and Engineering
Faculty of Biomedical Engineering
Departments

• Department of Biomedical Technology
• Department of Biomedical Informatics
• Department of Natural Sciences
• Department of Health Care Disciplines and Population Protection
• Joint Department of Biomedical Engineering CTU and Charles University Laboratories
Faculty of Information Technology
Departments

• Department of Theoretical Computer Science
• Department of Software Engineering
• Department of Digital Design
• Department of Computer Systems
• Department of Applied Mathematics
Czech University of Life Sciences Prague
Founded in 1952
Student body in 2013: 22225
Faculties

• Faculty of Agrobiology, Food and Natural Resources
• Faculty of Tropical Agri-Sciences
• Faculty of Economics and Management
• Faculty of Engineering
• Faculty of Environmental Science
• Faculty of Forestry and Wood Sciences
University of Chemistry and Technology
Prague
Founded in 1952
Student body in 2013: 2931
Faculty of Chemical Technology

Departments

• Department of Inorganic Chemistry
• Department of Inorganic Technology
• Department of Metals and Corrosion Engineering
• Department of Glass and Ceramics
• Department of Solid State Chemistry
• Department of Organic Chemistry
Faculty of Chemical Technology

Departments

• Department of Organic Technology
• Department of Polymers
• Department of Solid State Engineering
• Laboratory of Inorganic Materials
• Laboratory of Informatics and Chemistry
• Department of Chemical Technology of Monument Conservation
Faculty of Environmental Technology

Departments

• Department of Petroleum Technology and Alternative Fuels
• Department of Gas, Coke and Air Protection
• Department of Water Technology and Environmental Engineering
• Department of Power Engineering
• Department of Environmental Chemistry
Faculty of Food and Biochemical Technology

Departments

• Department of Biotechnology
• Department Biochemistry and Microbiology
• Department of Carbohydrates and Cereals
• Department of Diary, Fat and Cosmetics
• Department of Food Analysis and Nutrition
• Department of Food Preservation
• Department of Chemistry of Natural Compounds
Brno University of Technology
Founded in 1899
Student body in 2013: 23588
Faculties and Parts

• Faculty of Architecture
• Faculty of Electrical Engineering and Communication
• Faculty of Chemistry
• Faculty of Information Technology
• Faculty of Business and Management
• Faculty of Civil Engineering
• Faculty of Mechanical Engineering
• Faculty of Fine Arts
• Institute of Forensic Engineering
• Central European Institute of Technology
Technical University in Liberec
Founded in 1953
Student body in 2013: 8896
Faculties and Institutes

- Faculty of Mechanical Engineering
- Faculty of Textile Engineering
- Faculty of Science, Humanities and Education
- Faculty of Economics
- Faculty of Arts and Architecture
- Faculty of Mechatronics, Informatics and Interdisciplinary Studies
- Institute of Health Studies
- Institute for Nanomaterials, Advanced Technologies and Innovation
University of West Bohemia
Founded in 1952
Student body in 2013: 15500
Faculties

• Faculty of Applied Sciences
• Faculty of Economics
• Faculty of Electrical Engineering
• Faculty of Philosophy and Arts
• Faculty of Education
• Faculty of Law
• Faculty of Mechanical Engineering
• Faculty of Applied Language Studies
• Ladislav Sutnar Faculty of Design and Art
• New Technologies – Research Centre
University of Pardubice
Founded in 1950
Student body in 2013: 10920
Faculties

• Faculty of Arts and Philosophy
• Faculty of Chemical Technology
• Faculty of Economics and Administration
• Faculty of Electrical Engineering and Informatics
• Faculty of Health Studies
• Faculty of Restoration
• Jan Perner Transport Faculty
VŠB - Technical University in Ostrava
Founded in 1945
Student body in 2013: 21613
Faculties

• Faculty of Economics
• Faculty of Civil Engineering
• Faculty of Mechanical Engineering and Computer Science
• Faculty of Mining and Geology
• Faculty of Safety Engineering
• Faculty of Metallurgy and materials Engineering
Tomas Bata University in Zlin
Founded in 2001
Student body in 2013: 11390
Faculties

• Faculty of Technology
• Faculty of Management and Economics
• Faculty of Multimedia Communications
• Faculty of Applied Informatics
• Faculty of Humanities
• Faculty of Logistics and Crisis Management
University of Defense
Faculties

• Faculty of Military Leadership
• Faculty of Military Technology
• Faculty of Military Health Sciences
• NBC Defense Institute
• Centre for Security and Military Strategic Studies
• Language Centre
• Physical Training and Sports Centre
Total number of students in bachelor, master and doctoral degree courses

At the Czech state technical universities in 2013

139 209 students in technical fields

13% of total Czech population
Development of numbers of students and graduates at higher education institutions in the Czech Republic in the period 2001 – 2013

On the graphics:

All students it thousands
All graduates in thousands
Percentage of students in the population of young generation of age from 20 to 29
Graf 1: Studenti a absolventi vysokých škol v ČR

- studenti VŠ - tisíce osob
- absolventi VŠ - tisíce osob
- studenti - % populace 20 - 29 let

Zdroj dat: MŠMT a vlastní doložky ČSÚ
Development of the distribution of higher education institution students according to the type of studies in the Czech Republic in the period 2000 – 2013

In the graphics:

Bachelor
Continuing Master
Long Master
Doctoral
Graf 2: Struktura studentů vysokých škol podle typu studijního programu

- Bakalářský
- Navazující magisterský
- Magisterský
- Doktorský

<table>
<thead>
<tr>
<th>Rok</th>
<th>Bakalářský</th>
<th>Navazující magisterský</th>
<th>Magisterský</th>
<th>Doktorský</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>61%</td>
<td>24%</td>
<td>9%</td>
<td>7%</td>
</tr>
<tr>
<td>2010</td>
<td>62%</td>
<td>21%</td>
<td>10%</td>
<td>6%</td>
</tr>
<tr>
<td>2008</td>
<td>61%</td>
<td>18%</td>
<td>14%</td>
<td>7%</td>
</tr>
<tr>
<td>2006</td>
<td>57%</td>
<td>11%</td>
<td>25%</td>
<td>7%</td>
</tr>
<tr>
<td>2004</td>
<td>46%</td>
<td>6%</td>
<td>40%</td>
<td>8%</td>
</tr>
<tr>
<td>2002</td>
<td>27%</td>
<td>6%</td>
<td>59%</td>
<td>8%</td>
</tr>
<tr>
<td>2000</td>
<td>18%</td>
<td>6%</td>
<td>68%</td>
<td>8%</td>
</tr>
</tbody>
</table>

Zdroj dat: MŠMT a vlastní doplňky ČSÚ
Distribution of higher education institution students according to their fields of studies and comparison between years 2001 and 2013

Fields of studies from left to right

• Education and cultivation (teaching)
• Humanities, Arts
• Social Sciences, Business, Law
• Natural Sciences, Mathematics, Informatics
• Technical Sciences, Production, Construction
• Agriculture, Veterinary Medicine
• Health Care and Social Care
• Services
Graf 4: Studenti vysokých škol podle oborů vzdělávání v ČR

Zdroj dat: MŠMT a vlastní doložky ČSÚ
Distribution of higher education institution students according fields of studies and gender in the Czech Republic in 2013

The same order of fields of studies as at previous graphics, columns from top, from left to right

Males: top row
Females: low row
Graf 7: Struktura vysokoškolských studentů podle oborů vzdělávání a pohlaví, 2013

- Vzdělávání a výchova
- Společenské vědy, obchod a právo
- Technické vědy, výroba a stavebnictví
- Zdravotnictví a sociální péče
- Humanitní vědy a umění
- Přírodní vědy, matematika a informatika
- Zemědělství a veterinářství
- Služby

muži
- 4%
- 8%
- 28%
- 19%
- 25%
- 4%
- 6%
- 7%

ženy
- 14%
- 12%
- 36%
- 9%
- 7%
- 4%
- 14%
- 3%

Zdroj dat: MŠMT a vlastní doložky ČSÚ
Structure of higher education institution students according to gender and field of studies in the Czech Republic in 2013

In the graphics:

Males
Females
In the graphics: Fields of studies from top

- Services
- Health Care and Social Care
- Agriculture, Veterinary Medicine
- Technical Sciences, Production, Construction
- Natural Sciences, Mathematics, Informatics
- Social Sciences, Business, Law
- Humanities, Arts
- Education and cultivation (teaching)
Graf 8: Struktura vysokoškolských studentů podle pohlaví a oborů vzdělávání, 2013

<table>
<thead>
<tr>
<th>Obor</th>
<th>Muži</th>
<th>Ženy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Služby</td>
<td>61%</td>
<td>39%</td>
</tr>
<tr>
<td>Zdravotnictví a sociální péče</td>
<td>25%</td>
<td>75%</td>
</tr>
<tr>
<td>Zemědělství a veterinářství</td>
<td>42%</td>
<td>58%</td>
</tr>
<tr>
<td>Technické vědy, výroba a stavebnictví</td>
<td>73%</td>
<td>27%</td>
</tr>
<tr>
<td>Přírodní vědy, matematika a informatika</td>
<td>62%</td>
<td>38%</td>
</tr>
<tr>
<td>Společenské vědy, obchod a právo</td>
<td>38%</td>
<td>62%</td>
</tr>
<tr>
<td>Humanitní vědy a umění</td>
<td>32%</td>
<td>68%</td>
</tr>
<tr>
<td>Vzdělávání a výchova</td>
<td>18%</td>
<td>82%</td>
</tr>
</tbody>
</table>
Conclusion

• The percentage of students studying technical fields at technical universities is about 15% of whole student population.
• The percentage of women studying technical fields at technical universities is about 27% of total technical fields student population.
• Due to declining demographic curve numbers of students studying higher education institutions in the Czech Republic gradually fall.
Thank you for your kind attention