



## TECHNICAL UNIVERSITY OF CIVIL ENGINEERING BUCHAREST - UTCB

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ROMANIA

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### 1. BRIEF HISTORY

Higher education in civil engineering in Romania came into being in 1818 with the "School for Land Surveyors" founded in Bucharest. In 1867 was established in Bucharest, too, "The School of Bridges, Roads and Mines" transformed in 1888 into "The National School of Bridges and Roads", the first proper technical university of the country. In 1920 "The National School of Bridges and Roads" became "The Polytechnic School of Bucharest", with a Division of Civil Engineering which was named Faculty of Civil Engineering in 1938. As a result of the Education Reform in 1948, the Faculty of Civil Engineering separated from the Polytechnic School and was transformed into an autonomous higher education establishment called "The Civil Engineering Institute Bucharest" which in 1994 adopted the present name: "The Technical University of Civil Engineering Bucharest" (T.U.C.E.B.), the only Romanian university entirely devoted to education in civil engineering and related fields (such as building services, construction machines and equipment, environmental engineering, geodesy).

### 2. ORGANIZATION OF THE UNIVERSITY

#### 2.1. Academic units. There are seven academic units at our university.

- Faculties:**
- (1) Faculty of Civil, Industrial and Agricultural Buildings – FCCIA
  - (2) Faculty of Hydrotechnics – F.H.
  - (3) Faculty of Railways, Roads and Bridges – CFDP
  - (4) Faculty of Building Services – FII (with training in French)
  - (5) Faculty of Technological Equipment – F.T.E.
  - (6) Faculty of Geodesy – F.G.

(The six faculties offer long academic training (4 years), providing education in Romanian).

(7) Faculty of Engineering in Foreign Languages FILS-(with training in English and French) 4 Years, 240 ECTS Cycle I, in the field of **Civil Engineering**

(8) Department of Foreign Languages and Communication – D.L.S.C.

#### 2.2. Chairs. There are 22 didactic dept/chairs (cathedrae) within the Technical University of Civil Engineering Bucharest, grouping members of the teaching staff covering all didactic activities (lectures, tutorials, laboratory and project works) specified in the curricula. The chairs are also in charge with the research work undertaken at the University.

### 3. ACADEMIC PROGRAMMES 2016

**3.1 The Romanian higher education in engineering.** After 2005, the Romanian higher education in engineering has become part of the "continental" system present in many European countries, with a nominal duration of 4 years.

U.T.C.B. also runs postgraduate programmes leading to a *Diploma of master of Engineering (2 years in Romanian language)* and to the *Doctor of Science in Engineering* degree (in Romanian language, but it is also possible in English and French).

#### 3.2. Undergraduate studies at UTCB.

##### 3.2.1. Fields of study and degree programmes

Four-year curricula –Eng. 240 ECTS

Field of study	Degree programme (specialization)	Academic unit offering the degree programme
1. Civil Engineering	1. Civil, Industrial and Agricultural Buildings	FCCIA
	2. Urban Engineering and Regional Development	FCCIA
	3. Hydraulic Structures	F.H.
	4. Sanitary Engineering and Environmental Protection	F.H.
	5. Railways, Roads and Bridges	C.F.D.P
	6. Civil Engineering (in English)	F.I.L.S.
	7. Civil Engineering (in French)	F.I.L.S.
2. Building Services	8. Building Services	F.I.I.
	9. Installations and Equipment for Atmospheric Protection	F.I.I.
3. Mechanical Engineering	10. Building Services (in French)	F.I.I.
	11. Construction Machinery	F.T.E
4. Geodesy	12. Construction Engineering and management of technological resources	F.T.E
	13. Geodesy and Land Cadastre	F.G.
5. Engineering Economics	14. Construction Engineering and Management	FCCIA
6.Environmental Engineering	15. Environmental Engineering	F.H.
7.Systems Engineering	16. Automation and Applied Informatics	F.H.

### Three-year curricula

Field of study	Degree programme (specialization)	Academic unit offering the degree programme
1. Applied Foreign Languages	Translation and Interpretation	D.L.S.C.

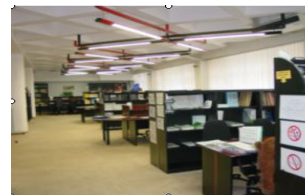
#### 3.2.2. Main characteristics of the degree plans (4 - years curricula) .

The programme is intended to educate graduates with strong knowledge and understanding in mathematics, science and engineering, able to solve complex civil engineering problems and to use the techniques, skills and modern engineering tools necessary for civil engineering practice. Romania being located in a zone of high seismicity, a strong emphasis is put on Earthquake Engineering education.

In the first two years (four semesters), the curriculum is identical for all degree programmes (specializations) of a given field, prevailing subjects in basic sciences and general engineering disciplines. The third year is in most part devoted to common core engineering subjects for the given field, while the fourth year is almost entirely reserved for in-depth studies in the area of specialization, including a diploma project. Students is granted the degree in engineering after fulfilling all the course requirements, passing a graduation examination and successfully defending their diploma project.

**3.2.3 General provisions.** The academic year is divided into two terms, each of 14 weeks duration. The term concludes with an examination session of 4 weeks. The number of contact hours per week is 28. The subjects in the curriculum are taught through a combination of lectures, problem-solving classes (tutorials), design classes and laboratory works.

**3.2.4 The credits system at UTCB.** A Credits Accumulation and Transfer System is implemented at the Technical University of Civil Engineering Bucharest. The system follows the general lines of the European Credits Transfer System (ECTS). To all subjects present in the curriculum in an academic year are assigned 60 credits. Rules for progression from one year of a degree programme to the next are established. By graduation, 240 credits are required for the 4-year curriculum.



#### 3.3. Postgraduate studies. Master studies.

The master studies comprise 4 semesters of 14 weeks each, with 20-24 contact hours per week. For master studies of 2 years (120 credits) are eligible the best graduates of 4 years curricula. The following specializations for master studies are offered by the Technical University of Civil Engineering of Bucharest (in Romanian language):

Field	Specializations of master studies 2 years (120 ECTS)
Civil engineering	Structural engineering (in Romanian language, French and English)
	Interactions in the built environment (in English)
	Building engineering
	Design of civil and industrial constructions in seismic areas
	Technology and Management of Construction Structures
Building services	Urban and regional development
	Hydraulic engineering
	Geotechnical engineering
	Bridges and Tunnels
	Transport infrastructure engineering
Mechanical engineering	Energetic efficiency of building installations (in Romanian and French)
	High-level technologies for the protection of the urban environment
Mechanical engineering	Energy, comfort and sustainable development
	Technological equipment for the scrapping / demolition of buildings and for the recycling of materials

	Research, projection and experimenting of advanced mechanical systems
Geodesy	Informational systems in cadastral registration and in real-estate publicity
	Geospatial data processing and analysis
Geomatics	Geomatics
Engineering - management	Management of construction designs
Educational science	Educational Management

Master studies are concluded with the presentation and defence of a dissertation. By completing successfully the 2<sup>nd</sup> year, the candidate receives a **diploma of master**.

**Doctorate.** The Technical University of Civil Engineering of Bucharest offers doctorate studies in the following fields: 1. Statics, Dynamics and Stability of Structures; 2. Strength of Materials, Elasticity and Plasticity; 3. Earthquake Engineering and Safety of Structures; 4. Buildings; 5. Geotechnical and Foundation Engineering; 6. Reinforced Concrete Structures; 7. Steel Structures; 8. Hydraulic Structures; 9. Hydraulics and Fluid Mechanics; 10. Water Supply, Sewerage, and Waste Water Treatment; 11. Land Reclamation; 12. Roads and Airfields; 13. Railways; 14. Construction Management; 15. Building Materials; 16. Building Services; 17. Heat Engineering; 18. Machines, Apparatus and Electric Control; 19. Electrotechnics; 20. Construction Machines and Equipment; 21. Technical Mechanics and Vibrations; 22. Geodesy, Cartography, Photogrammetry and Remote Sensing; 23. Machine Construction Engineering.

The candidates have to obtain min. 300 credits (Master of engineering).

Instead, 3-4 comprehensive examinations, on basic and specialty subjects, have to be passed, and a number of reports have to be elaborated and presented to the Chair to which the scientific supervisor belongs. Finally, a thesis has to be written and publicly defended in order to get a Doctor of Science in Engineering (equivalent to Ph.D.) degree.

### 4. UNIVERSITY STATISTICS

**4.1. Students.** In the academic year 2016, around 6150 students (Cycles I, II, and III) were registered at the Technical University of Civil Engineering Bucharest.

The distribution of students among various academic units:

Faculty of Civil, Industrial and Agricultural Buildings – 2000; Faculty of Hydrotechnics – 700; Faculty of Railways, Roads and Bridges – 600; Faculty of Building Services – 1100; Faculty of Technological Equipment – 350; Faculty of Geodesy – 700; Faculty of Engineering in Foreign Languages – 400; Department of Foreign Languages and Communication – 150, Department of Pedagogical Preparation – 150,

**4.2. Teaching staff.** In the academic year 2015-16 the teaching staff of the Technical University of Civil Engineering Bucharest comprised 400 members, divided between the 22 Didactic Departments.

The didactic duties pertaining to these positions are covered either by some of the University teachers or by qualified people working outside the University.

### 5. THE PREMISES

The University is housed in 14 buildings with a total area of 33000 m<sup>2</sup> from which teaching rooms cover 18500 m<sup>2</sup>, laboratories 7500 m<sup>2</sup> and offices 7000 m<sup>2</sup>.

The main campus of the University is located in the section of the town named Tei (Lime- tree). Four of the six faculties, Faculty of Engineering in Foreign Languages and the Department of Foreign Languages and Communication operate in the Tei campus. Also situated here are the Rectorate, the Administrative units and the Civil Engineering Students Society.

The Faculty of Building Services is located in 66 Boulevard Pache Protopescu. A third site of the University, close to the centre of the city is 59 Plevnei Avenue, comprising several buildings of the Faculty of Technological Equipment.

### 6. FACILITIES

**Library.** The Library is of an encyclopaedic structure possessing books from almost all fields of human knowledge. The greatest part (85%) is composed of science and technical books, among which dominate books closely connected with the degree programmes offered at the University. The total number of books is about 525 000.

There are 8 libraries possessing book funds, distributed among all faculties and departments of the University.

**Computing service.** The University has six computer networks, one for each faculty, with over 500 terminals. A cluster of workstations provides CAD facilities.

**Foreign language teaching units.** Four audio- visual laboratories offer facilities for the study of 7 different languages (English, French, German, Spanish, Russian, Italian and – for foreign students - Romanian).

**Accommodation.** The University has halls of residence for 2 400 students, with an area of 35 000 m<sup>2</sup> and a canteen seating 500 students with an area of 3 000 m<sup>2</sup>.

**Sports and recreation.** Two gymnasias.

Four sports grounds (basketball, volleyball, handball).

A student club on the premises of the Faculty of Building Services, for music and artistic events, taking advantage of a 400- seat hall.

## 7. RESEARCH

At the Technical University of Civil Engineering of Bucharest research work is carried out by the teaching staff and by a limited number of research employees, with the involvement of postgraduate students and of doctoral candidates. The promotional, contractual and financial administration of research funding in the University is in the responsibility of the Department for Research and Development working in close cooperation with the Chairs. In the year 2016, 350 teachers took part in the contract research programmes under the auspices of the Department.

The research infrastructure consists mainly of the 46 laboratories belonging to the Chairs of the University, among which are the Laboratory of Hydraulics, the Laboratory of Soil Mechanics, the Laboratory of Structures, the Laboratory of Roads, the Laboratory of Building Materials, the Laboratory of Geodesy, the Laboratory of Building Services, the Laboratory of Water Treatment, the Laboratory of Construction Machines, etc.

There are 18 research centers in UTCB. Endowed with experience and a great potential for research, These research centers have focused on major fields of scientific, technological and public interest. The most significant research topics are enumerated below:

- Probabilistic assessment of natural hazards and zonation of Romanian territory;
- Seismic behavior and earthquake resistant design of reinforced concrete, masonry, steel and timber structures;
- Rehabilitation and sustainability of buildings and structures;
- Seismic vulnerability and risk analysis of buildings;
- Development of codes and standards in line with the current Eurocodes (civil engineering, building services, roads, bridges and railways, environmental protection);
- Energy efficiency of buildings;
- Wind engineering;
- Computational fluid dynamics;
- Modeling of the static and dynamic linear and non-linear response of transport infrastructure structures (roads, bridges, railways, tunnels);
- Rebuilding, expansion and modernization of the water supply systems, sewage and sewage treatment;
- Static and seismic response of hydraulic structures; risk and safety analyses of hydraulic structures;
- Soil-structure interaction;
- Environmental impact studies;
- Exploitation and protection of the underground water resources and the dispersion of the polluting agents in the porous and fluid media;
- Improving water supply networks;
- Technologies of investigating and valuing industrial waste;
- Chemical analyses of the polluting agents and physical and chemical methods to avoid pollution;
- Safety, steadiness and reliability of building services; (thermal, refrigeration, sanitary, electric, illumination and air conditioning equipment);
- Qualification of installation equipments;
- Hydro mechanical driving systems, automation and robotizing of the technological processes within the field of civil engineering;
- Machines with vibrating drive and machine dynamics;
- Designing and producing the geodesic propping networks; modernization of the national geodesic network and its inclusion in the European networks;
- Using the remote sensing data for obtaining information about the space;
- Development of the cadastre computerized system for locality management by the local administrators and others.

## 8. INTERNATIONAL LINKS

Over the years the Technical University of Civil Engineering of Bucharest has received a large number of students from foreign countries. Between 1975 and 2016, more than 2500 foreign students have graduated from our University. In the same period, around 100 foreign graduates completed their doctoral studies and received a doctoral degree from the Technical University of Civil Engineering of Bucharest.

At present, a major point of attraction for foreign students is the Faculty of Engineering in Foreign Languages created in 1990, which offers 4 years engineering education in **English and French**. Weak and sporadic before December 1989, the University's international contacts have developed strongly during the following twenty years.

The Technical University of Civil Engineering of Bucharest has been a partner in 15 TEMPUS Joint European Projects and the coordinator of seven of them. It has been also involved in a number of research projects financed by the E.U. Starting with the academic year 1998-1999, the Technical University of Civil Engineering Bucharest took part to various activities in the frame of the SOCRATES-ERASMUS programme of the E.U.

Our university initiated and coordinates the SOCRATES-ERASMUS Thematic Network Project EUCEET (**E**uropean **C**ivil **E**ngineering **E**ducation and **T**raining)

involving 125 partners from 29 European countries, among which 100 leading European universities offering education in civil engineering. In March 2001 the Technical University of Civil Engineering Bucharest concluded with *École Nationale des Ponts et Chaussées*, Paris, a *Double-Diploma* agreement. Close links have been established, in the framework of international programs or based on bilateral agreements, with a large number of universities and research institutions.

## 9. ADMISSION OF STUDENTS (Romanians, E.U AND E.E.A. CITIZENS)

Admission of Romanian citizens to study at the Technical University of Civil Engineering of Bucharest is based on the results of an entrance examination. The candidates must have the Diploma of Bacalaureate obtained at the end of secondary school studies. The number of places for each academic year is proposed by the Senate of the University and is subject to the approval of the Ministry for Education and Research. The entrance examination is organized for each degree programme (specialization) separately. Studies at the Technical University of Civil Engineering of Bucharest, like at all other state higher education institutions of the country, are free of fees for Romanian citizens for the nominal duration of programmes (4-years). However, there can be some small fees for the entrance examination, for registration, for repeating the academic year or the graduation examination, etc.

For non-budget places, for Romanians, UE, and **EEA** citizens the tuition of studies is around 4200 – 4500 lei/year.



## 10. ADMISSION OF STUDENTS AND SUPPLEMENTARY INFORMATION FOR FOREIGN STUDENTS (NON E.U. CITIZENS)

### 10.1. Undergraduate studies (4-year programmes)

**Admission:** The documents required for the admission of foreign citizens for undergraduate studies are: - a copy of the High School graduation Diploma; - a copy of the birth certificate; - a medical certificate.

There is no entrance examination. If university studies are to be followed in Romanian, a preparatory year is mandatory for studying Romanian language and improving knowledge in some core sciences (mathematics, physics). If the applicants want to study in a foreign language (English or French) at the Faculty of Engineering in Foreign Languages they must pass a language proficiency test.

**Tuition:** The tuition is of 270 EURO per month for the whole duration of the academic year (9 months= 2430 EURO or 2700 Euro including autumn session), including practical stages and examination sessions. The costs for accommodation (60-90 Euro/month) and meals 200/250 Euro/ month are not included.

Applicants should send the documents required and the application to the Secretariat of Rectorate ([secretariat@utcb.ro](mailto:secretariat@utcb.ro)) or to the International Office of the University ([iro@utcb.ro](mailto:iro@utcb.ro)). Foreign students involved in exchange programmes with UTCB pay tuition to their home university.

For the valuable students our university offer scholarships.

### 10.2. Postgraduate studies (Master 2-year programmes – 22 in Romanian and 4 in English and French)

**Admission:** The documents required for the for the admission of foreign citizens for master studies are: - a copy of the Engineer Diploma; - a copy of the birth certificate; - a medical certificate.

There is no entrance examination. If university studies are to be followed in Romanian, a preparatory year is mandatory for studying Romanian language and improving knowledge in some core sciences (mathematics, physics).

**Tuition:** The tuition is of 270 EURO per month for the whole duration of the academic year (9 months = 2430 Euro or 2700 Euro including autumn session), including practical stages and examination sessions. The costs for accommodation ( 60-90 Euro/ month) and meals (200/250 Euro/ month) are not included. Applicants should send the documents required and the application form by POSTE to the University. Foreign students involved in exchange programmes with UTCB pay tuition to their home university.

### 10.3. The Doctoral study programme

**Admission:** Graduates of 5 year undergraduate studies (in this case 4 years undergraduate + 1 or 2 years master) having an engineering degree are allowed to register for a doctoral programme.

The **Doctoral study** are organized both as a full time (intra-mural) programmes.

The period of study for intra-mural doctorate studies is of 3 years, maximum 5 years.

The documents required for the admission of foreign citizens for undergraduate studies are:

- a copy of the university graduation diploma and its supplement;
- a copy of the birth certificate;
- a medical certificate.

**Activities within the doctoral programme (examination, reports, thesis) can be carried out either in Romanian or in a foreign language (English or French).**

**Tuition:** The fee is 2610 Euro per year for the full-time (intra-mural) programme (3 years)

**10.4. Housing.** Foreign students can be housed in halls of residence of UTCB or in private accommodation, with the assistance of the International Relations Office. Meals can be served at the University cafeteria. The average room and board expenses for international students are currently around 200-250 Euro per month.

**10.5. Academic year.** The academic year at the Technical University of Civil Engineering of Bucharest begins at 1<sup>st</sup> October and continues through the year until mid-July, with holiday breaks in December, February and April.

## 11. CONTACTS

**Rector** Prof. Eng. Radu Sorin VACAREANU [radu.vacareanu@utcb.ro](mailto:radu.vacareanu@utcb.ro)

**ViceRector** Prof. Eng. Laurentiu RECE PhD-didactic activities [rece@utcb.ro](mailto:rece@utcb.ro)

**ViceRector** Prof. Eng. Radu SARGHIUTA- research activ. [radu.sarghiuta@utcb.ro](mailto:radu.sarghiuta@utcb.ro)

**ViceRector** Prof.Eng.Liviu DRUGHEAN –soc.activ. [liviu.drughean@utcb.ro](mailto:liviu.drughean@utcb.ro)

**ViceRector** Assoc.Prof.Eng. Manuela BALAN-institutional image

[manuela.balan@utcb.ro](mailto:manuela.balan@utcb.ro)

### Academic Units:

**Faculty of Engineering in Foreign Languages (with training in ENGLISH or FRENCH) :** [aldea@utcb.ro](mailto:aldea@utcb.ro)

**Faculty of Building Services with training in FRENCH):** [sorin.burchiu@utcb.ro](mailto:sorin.burchiu@utcb.ro)

**Faculty of Civil, Industrial and Agricultural Buildings:** [vpopa@utcb.ro](mailto:vpopa@utcb.ro)

**Faculty of Geodesy:** [badea.cadastru@utcb.ro](mailto:badea.cadastru@utcb.ro)

**Faculty of Hydrotechnics:** [aldi@utcb.ro](mailto:aldi@utcb.ro)

**Faculty of Railways, Roads and Bridges:** [mada.stoian@cdfp.utcb.ro](mailto:mada.stoian@cdfp.utcb.ro)

**Faculty of Technological Equipment:** [cristian.pavel@utcb.ro](mailto:cristian.pavel@utcb.ro)

**Department of Foreign Languages and Communication:** [traducatori@utcb.ro](mailto:traducatori@utcb.ro)

### APPLICATION FORM:

For further Information and **FORMULAR OF APPLICATION**, contact:

**Secretariat of RECTORATE** [secretariat@utcb.ro](mailto:secretariat@utcb.ro) Tel. +40-21-2433650

Fax +40-21-242 07 81 or,

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