

# **TECHNICAL UNIVERSITY OF CIVIL ENGINEERING OF BUCHAREST EXTERNAL INSTITUTIONAL EVALUATION REPORT 2020**

## **Introduction**

I was invited to join to the evaluation team of the institutional evaluation process of the Technical University of Civil Engineering of Bucharest (TUCEB) as an external evaluator for the Romanian Agency for Quality Assurance in Higher Education (ARACIS). The online evaluation took place between 10 December and 16 December 2020. In this process as a foreign expert evaluator, I was responsible for establishing an overview of TUCEB focusing on the main points of improvement of quality, the future development aspects and the main dimensions of present and future challenges of the university. Before the online evaluation I received the self-evaluation report of TUCEB from ARACIS. During the evaluation process with the help of the colleagues of the university I had the possibility to collect information about the operation of the TUCEB. My report is roughly following the structure of the self evaluation report of the institution.

## **Background**

According to the self-evaluation report of the institution, higher education in civil engineering in Romania started in 1864 when The School of Bridges and Roads, Mines and Architecture was founded. It became The School of Bridges, Roads and Mines in 1867 and The National School of Bridges and Roads in 1888. In 1921, it turned into the Polytechnic School of Bucharest where civil engineers were trained in the Division of Civil Engineering, which was named The 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 (which became The Polytechnic Institute) and became an independent higher education institution called the Civil Engineering Institute Bucharest. From 1994 this institution operates under the present name, the Technical University of Civil Engineering of Bucharest. With its old traditions TUCEB has a significant role in Romania. According to the self-evaluation report, from 1948 to 2014, more than 60.000 engineers graduated from the Technical University of Civil Engineering. In this period the academic staff of the university included many well-known academic personalities of science and civil engineering.

This long history, under the changing socio-economic systems, restructuring processes and transformations have resulted educational programs that permanently met the needs of the students. As one of the leader universities in Romanian higher education this institution has been attractive for those who wanted to get knowledge, skills and competencies in the field of civil engineering. Of course, there are other institutions offering educational programs on the field of civil engineering in the country, but it is important to point out that these universities, which are operating in the other parts of the country, are not real competitors for TUCEB. This situation is a great advantage for the institution as it certainly results good partnership and academic cooperation instead of permanent competition with the other institutions.

The tradition, the experience, the prestige, and the competences of TUCEB show the importance of this institution in the internal and international environment, and support and develop scientific research activities both national and international level. The institution meets the cultural, social, and economic needs of the community. According to the self-evaluation report of the TUCEB the strategic objectives focusing on the maintenance of the present position and provide future development to be one of prestigious universities in Central-Eastern Europe

## **Legal and Organizational Framework, Mission and Objectives**

The Technical University of Civil Engineering Bucharest is creating specialists with advanced training in constructions, building services, machines and technological equipment, geodesy, environmental engineering as well as in the connected fields such as engineering economics, systems engineering, technical translation, and interpretation. The fundamental mission of the university is to be a national center for educating new generations of specialists on the field of civil engineering, offering educational programs at bachelor, master, and doctoral level.

The Technical University of Civil Engineering of Bucharest has 7 faculties out of which 6 have educational programs in Romanian and 1 has tuition in foreign languages (English and French). In addition, there is separate department for studying foreign languages. The six faculties with Romanian educational programs (the Faculties of Civil, Industrial and Agricultural Buildings, Hydrotechnics, Railways, Roads and Bridges, Building Services, Technological Equipment and Geodesy) provide academic training both for Cycle I, of bachelor's studies of 4 years, ensuring the qualification of an engineer, and for Cycle II, of master's studies (4 semesters). The Faculty of Engineering in Foreign Languages provides 4-year academic training for engineers and the Department of Foreign Languages and Communication provides 3-year academic training for applied modern languages (translation – interpretation). TUCEB also provides 4-year study programs of evening classes at the Faculty of Building Services and the Faculty of Technological Equipment. Right now, TUCEB has 20 teaching departments within the 7 faculties and one teaching department directly subordinated to the Administration Council.

The Charter of Technical University of Civil Engineering of Bucharest is the basic document that provides the guidelines regarding the structure, strategy, and principles of functioning, development, and regulations. The charter provisions have been harmonized with both the Romanian legislation and the principles of the

European Space of Higher Education. According to the information and written documents the academic and the administrative leadership of TUCEB have the appropriate competencies to do their work correctly. The managerial structures of the faculties of the university, departments, centers, and other organizational units of the institution have a transparent, logical structure and they are suited for the correct management of the organization. The operation of the institution relies on a system of regulations, procedures and tools covering the whole set of university life parallel with the permanent evaluation of different types of programs, teaching staff and the other personnel of the university. The web page of the university features the organizational structure, the managerial team, as well as the offices and services available in the university.

Overall, from the beginning the university has the mission of carrying on specific higher education activities in the fields of civil engineering, having the purpose of training high-skilled specialists, developing and improving professional competences, improving constantly the education process and scientific research, in permanent cooperation with similar institutions, as well as with institutions from the national, European and international environment. It is also an important aim to build and strengthen the connections with economic actors and the society.

The management structures of the Technical University of Civil Engineering of Bucharest include the University Senate (45 members, 25% of students), the Administration Council (rector, vice-rectors, deans, the general director for administration and a student representative), the Boards of the Faculties and Departments. Each faculty is represented in the University Senate, based on the principle of representativeness on departments and education cycles. The Senate convenes for regular sessions every two months, during periods of teaching activity and for extraordinary meetings, upon the request of the Rector or of at least one third of the members of the University Senate. In the Technical University of Civil Engineering of Bucharest there are four vice-rectors. The management positions of

rector, vice-rector, dean, vice-dean, and director of department cannot be cumulated. The same person may occupy the position of rector or dean for at most two four-year mandates each.

### **Educational Programs, Teaching Staff**

The university has 7 faculties and offering educational programs at bachelor, master, and doctoral level. In the 2019/2020 academic year the university had 3514 undergraduate students, 1343 master, and 312 doctoral students. TUCEB offers 7 bachelor programs (Civil Engineering, Engineering and management, Environmental engineering, System engineering, Building services engineering, Mechanical engineering, Geodesy). These educational programs have the following specializations: Civil, industrial and agricultural buildings, Urban engineering and regional development, Economic engineering in constructions, Hydraulic works and structures, Sanitary engineering and environmental protection, Environmental engineering, Automatics and applied computer science, Railways, roads and bridges, Infrastructure of metropolitan transportation, Building services, Installations and equipment for atmosphere protection, Technological equipment, Engineering and management of technological resources, Territorial measurement, Civil Engineering (in English), Civil Engineering (in French), and Building Services for Civil Engineering (in French). The university has 35 accredited 4 semester long masters programs.

There is only one doctoral school within TUCEB which has 52 doctorate coordinators and over 312 doctoral students. The Doctoral School is organizing programs on the fields of Civil Engineering and Installations, Electrical Engineering, Mechanical Engineering, Industrial Engineering with 30 specializations.

In 2001, the Technical University of Civil Engineering of Bucharest signed a Double-Diploma agreement with École Nationale des Ponts et Chaussées, the first

agreement of this kind in the Romanian technical higher education. The strategic orientation to develop double diploma agreements in the next years was also an important priority, so right now there are also other cooperation, and students could take advantages from these programs. According to the received data, the number of students participating in these initiatives is not large, and the numbers show certain fluctuation from year to year. On the other hand, to maintain and operate these programs is a great advantage for the university: of course, these initiatives are not just about student mobility but also about academic cooperation and a moderate level of student interest seems to be permanent.

Currently, the Technical University of Civil Engineering of Bucharest has remarkable academic staff composed of 327 members (42 professors, 84 associate professors, 163 lecturers and 38 assistant professors), famous both for their teaching and research activity, and for their direct contribution to some of the most important construction works in the country. The titular teaching staff in TUCEB has proper competencies, qualifications, and academic degrees which results a good level of performance in education and training processes. According to the self-evaluation report of the institution the scientific potential and quality of human resources of TUCEB are on a good level. University has now a highly qualified staff. Beyond the professional competences it is important to point out that foreign language skills of the staff are good. The academic staff is also involved in research and civil engineering related activities, contributing to fundraising for future development, enriching knowledge and scientific results, and raising the quality of education. It is also important to add that the teaching staff of TUCEB enjoys a large national and international recognition and appreciation, which is also leading to their presence in specialized bodies and committees in the country and abroad.

### **Material assets**

According to the self-evaluation report and the received information, the university has proper material bases for the educational and research process. The spaces

dedicated for the didactic and research-related activities are owned by the university and meet the norms and legal requirements, the present capacity of the educational facilities (classrooms, auditoriums, seminar rooms, laboratories) is in accordance with the existing regulations. It is also important to point out that from last year due to the COVID situation, the university, just like other higher education institutions, has started to organize the educational activities online. According to the received information, the university managed to cope with this atypical situation. On one hand, because of the online solutions the current use and utilization of the infrastructure is certainly lower than the previous periods, but the university must pay permanent attention to maintain and develop the infrastructure of the education.

### **Financial activity**

As a nonprofit institution, the university is establishing funds for activity from the annual state finance, school tuition taxes, from donations and sponsorships and other incomes. According to the details and the consultations with the staff of the university the financial activities, incomes, and expenses of TUCEB are well balanced and research projects are also playing an important role in the budget.

Beside the state support the university permanently has to find the way to realize more own, extra budget incomes to maintain and finance its activities in a reasonable level and quality. Right now, the effects of the virus crisis seem to be relatively moderate, but this situation could change easily if the crisis is going to drag on and the negative tendencies start to influence the present operation of the institution. In this case the university has to be proactive and has to have plans to utilize the available resources and find also new directions to make extra incomes.

It is important to add that the university permanently tries to attract potential students. The good reputation of TUCEB attracts lot of potential students and the university also has good connections with the secondary education institutions and other private and state organizations and companies. There is also a financial

assistance for students as granting scholarships and other forms of financial supports.

## **Students**

According to the opinions of some colleagues from the university there is no need to get more students, because the present number of students is 'enough' to maintain the institution and quality of educational processes, but on the other hand if there is a possibility for growing with keeping an appropriate level of quality of the education programs it would be worth to expand the education services and activities of the university.

There is a large number of international cooperation with other universities and there are many bilateral agreements exists in TUCEB. TUCEB is also participating in the ERASMUS program where parallel with the student mobility there is also teacher mobility which usually means a one-week long visit different European destinations basically with the same main directions as student mobility. Although these connections are operating quite well, it is recommended to maintain and manage these contracts permanently with the partner institutions and permanently increase the number of students and staff members taking part in mobility activities. Even in the period of COVID, when the personal contacts are missing, and nobody knows when this situation is going to change, the institution must pay attention to find the appropriate management of its contacts if the present situation drags on and the online world lasts longer.

The public information can be found on the TUCEB site, which is one of the most important parts of the communication with the external environment including correct information about the main aspects of the education process in Romanian language. The English version of the website exists, although it is very incomplete. In connection with this it is highly recommended to develop the English version,

because this could help to grow the visibility and internationalization of the institution as well.

TUCEB also has a regulation for granting scholarships; other forms of social protection for students are presented, as well as the types of scholarships granted and the conditions for obtaining these scholarships. Large number of the graduates at bachelor level chose to attend the master programs of TUCEB. According to the data of the self-evaluation report of the institution, in 2018, 95% of the graduates have started the master's degree studies and in 2019, 96% of the graduates have started the master's studies of TUCEB. This ratio is very high and shows that the master programs are very attractive for the students of the institution. Students' participation is intensive in international and national competitions and fairs. There is also a Career Counseling and Guidance Center in the university that helps students to find their place easier on labor market. TUCEB provides for undergraduate students, master students and PhD students a wide range of social, cultural and sport services as well.

Online ARACIS team meeting with students, graduates and employers was a little bit different from the similar meetings of other evaluation processes and without permanent translation it was not easy to understand every part of the conversations. It seemed that the participants were satisfied with the university, the quality of the educational programs, the knowledge and competences of the graduates and the way how the university is organizing the education and practice in the online world of COVID.

TUCEB is also stimulating internships within the mobility of the ERASMUS + program and extends the double diploma system with prestigious universities. TUCEB offers wide range of possibilities for students who want to spend more or less time in a foreign higher education institution.

## **Research activities**

TUCEB plays a very important role in scientific research, with promoting the enrichment of knowledge in different fields. The importance of research activities seems to be significant in the university and the results of these activities are apparently integrated to the educational process. In TUCEB, just like everywhere in the European Union member countries of Central-Eastern Europe, the European financial resources, projects, and funds become more and more important in financing the different kinds of research activities. For national and international visibility and recognition on scientific, educational, and other fields a higher education institution has to develop connections with its academic and social-economic environment. In case of TUCEB these connections seem to be in a perfect level as national and international collaboration has been in focus from the beginning.

Among the great number of projects, it is important to emphasize the EU-CONEXUS (European University for Smart Urban Coastal Sustainability) project, starting in 2019, and running for a period of three years (2019-2022). In this project, with partner universities from France, Greece, Spain, Lithuania, and Croatia, these institutions will prepare a European University for Smart Urban Coastal Sustainability. The project is coordinated by the University of La Rochelle, France, the project leader, and this initiative is certainly one of the most important international projects of TUCEB right now.

Research activities can be seen at institutional, individual as well as student level. The university promotes the teaching staff participation in research programs, the intensive collaboration with industrial and services companies, universities, and state institutions. Students are permanently participating on contests, exhibitions, and conferences. Their ideas, knowledge and concepts should be an integral part of the future of the university. It is also important to point out that the concept of sustainability appears in many projects: this strategic orientation could help to

prepare the next generations for the economic, social, and environmental challenges of humankind.

TUCEB has signed collaboration agreements in the field of research, being a full member in more than 16 international organizations and associations. These collaboration agreements are signed with universities/institutes/research centers of the Netherlands, Portugal, Germany, Switzerland, France, and Bulgaria as well. TUCEB is also part of three clusters. The scientific research activities within the university are coordinated by the Department of Research, Development, and Innovation Management.

Conspress Publishing House and the Copy Center are part of the Technical University of Civil Engineering of Bucharest. Teachers and researchers from TUCEB, but also for specialists outside the university, have the possibility to publish articles and scientific papers, specialized books, course materials, papers, and laboratory guides. 6 scientific periodicals edited in the university are published in Romanian and/or English, each with its own publishing schedule. The university has also hosted many scientific events – right now, these events could only be organized online.

### **Quality Assurance**

The quality assurance within the university can be defined as the set of organizational structures, responsibilities, regulations, standards, procedures, tools, and resources contributing to high quality educational services at all stages. An institutional quality management system is regulated and functions within the university. The main objective is the implementation of a quality evaluation and assurance system based on policies, an organizational structure and documentation able to permit monitoring and evaluating, prevention and adjusting interventions and the continuous quality increase.

Reviewing the structure and activities of the quality assurance of the university, these processes seem to operate well, but the main principle and an objective has to be that quality assurance must become the part of the organizational culture of the institution. The evolution and development of a real organizational culture of quality assurance at every stage of university operation should be in focus. The nation-wide competitive advantages of the university justify the need for the continuous quality assurance: the institution permanently has to face with economic, social and environmental challenges, so there is a continuous adaptation pressure for quality assurance processes to adjust to the changes and improve the quality of teaching and research processes.

## **Conclusion**

My report is based on what I have experienced; what I have read and have heard before and during the online evaluation. I hope that some of my comments will help the university management. Overall TUCED meets the needs of educational and professional training specific standards, the social and economic development needs of the community and European standards of education and scientific research as well. I recommend the level of confidence rate for the university with emphasizing the following:

- The university should pay enough attention to the permanent changes (number of students, financial stability, changing needs of the potential students, changing educational conditions in the online world during the COVID period, etc.) and has to adjust permanently its strategic plan that reflects the present challenges and draw up the main tasks for the next years.
- Parallel with traditional roles, the university has to adapt to the new needs of the students where permanent improvement of quality has to be in focus; keep

in mind that adaptation needs flexibility and continuous investment in human capital.

- University permanently has to develop its competitive factors and have keep the present role and the place in local and international market.
- TUCEB should continue to invest in the physical and human infrastructure and facilities when own resources, state support or any other funds allow.
- The English version of the website exists, although it is very incomplete. In connection with this it is highly recommended to develop the English version, because this could help to grow the visibility and internationalization of the institution as well.
- If the present pandemic situation drags on for longer time, TUCEB, just like other higher education institutions, has to pay intensive attention for taking the possible advantages of it and might keep some parts of the online methods when the pandemic is going to be over.

Finally, I would like to thank to the Rector and all the University staff for the support and help during this atypical evaluation. At last, but not least I would like to thank to ARACIS for giving me the opportunity to participate in this online evaluation process in Romania.

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