

# Introducing the Report



“It’s not the walls that make a school, but the spirit living inside.”  
King Ferdinand I, 1923

The needs for a modern society, in the context of a competitive global market, require highly skilled human resource development. In this context, the role of universities in the innovation process has increased continuously over time because the development of new products or technologies depends more and more on the findings of scientific research.

Established in 1920, shortly after the union of Romanian territories, in a European context marked by the redefinition of states and by the aftermath of World War I, the Polytechnic School in Timișoara – as it was originally called – was the answer to one of the requirements of the Romanian society of the time, namely the formation of engineers.

The mission of the Politehnica University Timișoara (UPT) is to offer nationally competitive and internationally recognized opportunities for Learning, Research, and Innovation at the highest levels of excellence. As a resource of knowledge for the public, the university builds partnerships with other educational institutions, community organizations, government agencies, and the private sector to fulfill the requirements for competences of the societal environment through superior professional training for students and graduates.

The present Research Report of Politehnica University Timișoara gathers the main results obtained through the research activities carried out within the university in 2018, Politehnica being renowned as a remarkable actor on the stage of scientific research, both at national and international level. Our research activity is facilitated by the existence of twenty-six research centres specialized in fields that are capital for the sustainable development of any modern society. Each of these research centres brings together various prestigious researchers, whom, by their effort and vision, provide UPT with the incentives needed to contribute to the progress of our society.

Most of the research activity carried out by our institution is financed through external sources, obtained either from national and international calls for projects, or through agreements with private companies. This represents a confirmation of the superior quality of the research, but also of the prestige and professional deontology of the researchers affiliated to our institution. Politehnica’s reputation as an institution of advanced research is also emphasized by the patents obtained by its researchers, by the medals and prizes obtained in both national and international competitions, and by the collaborations with important research centres and institutes from Romania and from abroad.

Each year we select the most talented young researchers for our doctoral school, providing them with the opportunity to transform their knowledge and ideas into the innovations of tomorrow. Many of them take part in peer learning programs and consolidate in this way the relationship between our university and similar partner institutions. They strive for becoming doctors in science.

This report is divided into twelve sections, each one presenting a specific component of the research activity performed within the institution.

The first section focuses on the research infrastructure, which comprises the twenty-six research centres hosted by the university. The order in which they are presented is given by the research fields. The research centres, respectively teams of researchers, on different themes, are highly important for our university since they manage to put into practice the scientific research strategy of the university successfully, within the framework of numerous grants and contracts won by competition. The research results are materialized in papers, patents and products, all bringing for the University prestige, as well as important funds.

# Research Report 2018

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The second section of the Research Report is dedicated to the Scientific Excellence Awards. These prestigious awards celebrate those colleagues who have made a significant contribution in their field of research and continue to inspire future generations to get involved in science.

The third and fourth sections include the research projects implemented by the university. The third section includes the projects supported by public funds, both national and international, while the fourth one includes the projects supported by private funds awarded by companies. For the purposes of this report, we have chosen the most relevant projects for our the most representative projects for our research strategy.

The innovative capacity of the Politehnica University Timișoara is supported by teachers and scientific researchers through patents and utility models invented, presented in the fifth section.

Politehnica University Timișoara recognizes scientific excellence by conferring the honorary degrees of Doctor Honoris Causa and Honorary Professor to distinguished Researchers for their contribution to the development of UPT of continuous support, as shown in section six of this Report.

Sections seven and eight include habilitation theses and PhD theses held in 2018 in our University.

Section nine presents an overview of the most relevant scientific conferences that brought together scholars and professionals from Romania and from abroad. The conferences hosted by our university encouraged the dialogue, facilitated the exchange of ideas, and offered a great opportunity for new collaborations.

The tenth section gathers the scientific journals that have been published by our institution. This category includes journals specialized in various fields, such as computer science, chemistry and environmental engineering, electronics and communications, economics and social sciences, electrical engineering, mathematics and physics, hydrotechnics, physical education and sport, modern languages, etc.

The dissemination of the research results and findings is an integral part of the research process and the career in academia. Section eleven presents the most relevant scientific researches that have been published in 2018. It comprises the results obtained by our researchers, namely the papers that obtained recognition from some of the most prestigious journals, from both Romania and abroad.

And finally the twelfth section comprises a collection of books written by our researchers, most of them published under Politehnica Publishing House.

Through research we generate ideas, through ideas we generate innovation and through innovation we contribute to the improvement of the quality of life; this is why research is our priority.