



**University of Kragujevac
Faculty of Technical Sciences Čačak**



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Technics, Informatics, and Education – TIE 2024**

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Preface

The tenth international scientific conference Technics, Informatics, and Education – TIE 2024 aims to promote and support research in the education of new generations in technical and technological fields across all levels of education. It also seeks to contribute to the development of technology and the improvement of education.

After a double-blind review process, 89 papers were accepted for the current edition of the Proceedings in the form of plenary lectures and original scientific papers covering various fields of technical, IT and technology-supported education at all educational levels – primary, secondary, higher education and education for adults. Five more papers were accepted to be published in Appendix A of the Proceedings (in Serbian) for the Symposium “Technics and Informatics in Education: School Teachers for Teachers” that is organized within TIE 2024.

Authors are responsible for any spelling, grammar and stylistic errors in their papers.

Articles in the *Proceedings TIE 2024* are organized by the following topics:

- Computer Science and Information Technology;
- Educational Technology;
- Engineering Education and Practice;
- IT Education and Practice;
- Professional Development for the new Technological Environment;
- Outlines of the Digital in ESP: Language and Technology;
- Resilience and Support in the Digital Environment.
- Technics, Technology and Informatics in Primary Education;
- Engineering, Technology and Materials.

Special activities within the Conference include:

- Round Table: Enhancing digital and psychological resilience through peer networking in online environment in times of crises.

The Scientific and Organizing Committee wishes to express its gratitude to all the professionals from various fields who contributed to the Conference.

We would like to thank the Partner Institutions which participated as co-organizers of the Conference.

We express special thanks to the Ministry of Science, Technological Development and Innovation of the Republic of Serbia for its financial contribution to this scientific gathering.

Ivan Milićević
Editor

Presidents' Foreword

Faculty of Technical Sciences Čačak, University of Kragujevac, has the honour to organize the tenth international scientific conference "Technics, Informatics, and Education – TIE 2024".

The Conference follows the tradition of gathering teachers, researchers and professionals engaged in various levels of technical, technological and IT education. From 2006 to 2016 the conference "Technics and Informatics in Education – TIE" was organised biennially at the Faculty of Technical Sciences as a national conference with international participation. As of 2018 TIE has a form of an international conference. Nine conferences titled "Technics, Informatics and Education - TIE" were held from 2006 to 2022. The TIE conferences have had a huge impact on the development of IT, technical and scientific subjects in both primary and secondary education. The significant impact has also been perceived in diverse fields related to technical and IT education at university level. However, the new circumstances necessitate organising scientific assemblies in the field of technics and the related technologies.

The TIE 2024 conference aims to improve the exchange of knowledge and experience between experts, professionals, researchers and teachers from Serbia and the region. The conference is expected to provide an analytical review of technical, technological and IT education, focusing on teacher training, terminology in the related fields, as well as the achievements regarding teaching aids, student books, educational assistive technology, technology supporting the enhancement of mental health and well-being, etc.

The Conference involves all the levels of technical, technological and IT education, from preschool institutions, primary and secondary schools over higher and university education, to various forms of lifelong learning. Furthermore, special emphasis is given to the importance and role of informatics and computer science in technical education, as well as the correlation between technical education and other natural, social and education sciences. Since TIE 2022, the thematic field of ESP, which encompasses foreign/second and professional languages in the realm of technics, technology and informatics, has been added to the Conference.

Within the TIE 2024 Conference a special thematic segment will be dedicated to the ongoing ERASMUS+ project which is realized under the section Strategic Partnerships in Higher Education and is run by the University of Kragujevac (2021-2024). Project activities propose a special session titled "Resilience and Support in the Digital Environment" and a round table to disseminate the project results and address the issues of psychological and social resilience of students in times of crises.

The results of the conference are expected to aid in shaping the development of education in the fields of technology, engineering, IT and computer sciences. Additionally, these outcomes will support the exchange of educational practices and align with regional, EU and global trends.

We hope that the experience gained from the Conference will be highly beneficial for both the participants and the advancement of the technical and technological education field.

Presidents of the Scientific Committee and Organizing Committee

Organization

The 10th International Scientific Conference Technics, Informatics, and Education – TIE 2024 is organized by the Faculty of Technical Sciences Čačak, University of Kragujevac, Serbia.

The Conference is held under the patronage of:

- Ministry of Science, Technological Development and Innovation of the Republic of Serbia
- University of Kragujevac, Faculty of Technical Sciences Čačak, Serbia

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