



## Friday, September 20<sup>th</sup>, 2024

- 15:00-17:00** Registration  
**17:00-18:30** Roundtable: Enhancing Digital and Psychological Resilience through Peer Networking in Online Environment in Times of Crises [Room 232]  
Presentation of DigiPsyRes publications: The Guide, The Manual and The E-Magazine  
**Moderators:** Milica Stojković and Ivana Krsmanović  
**18:30-19:30** Cocktail dinner

## Saturday, September 21<sup>st</sup>, 2024

- 8:00-10:00** Registration  
**9:00-14:00** Exhibition of projects done by:  
1. Students and lecturers of FTS Čačak [Faculty hall]  
2. Students and teachers of secondary technical schools [Faculty hall]  
**10:00-11:00** Conference opening speech [Room 111]  
Ivan Milićević: introductory presentation  
**11:00-12:00** Plenary lectures [Room 111]  
**P1 Importance of Industry-Academia Collaboration in Robotics for Modern Education, Research and Industry**  
Kosta Jovanović  
**P2 Optimization in Acoustic Echo Cancellation using Adaptive Filters and Applied Machine Learning**  
Ashutosh Kar (online)  
**12:00-12:30** Lunch break  
**12:30-15:45** **Session I-1: Computer Science and Information Technology 1** [Room 115]  
**Moderators:** Uroš Pešović and Željko Jovanović  
**12:30-15:45** **Session II: Educational Technology** [Room 111]  
**Moderators:** Nebojša Stanković and Nikola Stanić  
**12:30-15:45** **Session III: Engineering Education and Practice** [Room 117]  
**Moderators:** Jasmina Vesić Vasović and Sanja Puzović  
**12:30-15:45** **Session IV: IT Education and Practice** [Room 14]  
**Moderators:** Olga Ristić and Marjan Milošević  
**12:30-15:45** **Session V: Professional Development for the New Technological Environment** [Room 15]  
**Moderators:** Vesna Ružičić and Andrijana Gaborović

**12:30-15:45** **Session VII: Resilience and Support in the Digital Environment** [Room 112]

**Moderators:** Milica Stojković and Marija Nikolić

**15:45-16:15** Coffee break

**16:15-18:45** **Session I-2: Computer Science and Information Technology** [Room 115]

**Moderators:** Uroš Pešović and Željko Jovanović

**16:15-18:45** **Session VI: Outlines of the Digital in ESP: Language and Technology** [Room 15]

**Moderators:** Vesna Petrović and Ivana Krsmanović

**16:15-18:45** **Session VIII: Technique, Technology, and Informatics in Primary Education** [Room 14]

**Moderators:** Marija Blagojević and Stefan Ćirković

**16:15-18:45** **Session IX: Engineering, Technology and Materials** [Room 112]

**Moderators:** Jelena Purenović and Milan Vesković

**16:15-18:45** **Symposium "Technology, Informatics, and Education: School Teachers for Teachers"** [Room 117]

**19:00-23:00** Dinner

## Session I: Computer Science and Information Technology

**I.1.** Programming Languages in Development of Embedded Systems: Preliminary Review

V. Amižić, Lj. Kazi, D. Radosav

**I.2.** Creating a PHP User Interface for Manipulating MySQL Databases

M. Mojsilović, G. Miodragović, S. Pepić, M. Saračević

**I.3.** Horizontal Scaling with Session Preservation of PHP Applications with MVC Architecture

V. Lončarević, Ž. Jovanović, V. Luković, M. Milošević, S. Šućurović, A. Iričanin

**I.4.** Enhancing Software Development with Microservice Architecture: Application to an Online Sales System

B. Savić, U. Milačić

**I.5.** Open Source Integrated Circuit Design Tools in Scientific Research: Yay or Nay?

M. Knežević, L. Paunović

**I.6.** Analysis of Approaches to Developing Kotlin Multiplatform Applications and Their Impact on Software Engineering

N. Stanić, S. Ćirković

**I.7.** PsAlchology: An Intelligent Direction in Psychological Sciences

H. Farahani, P. Watson, T. Bezan, N. Kovač, L. Winter, M. Blagojević, P. Azadfallah, A. Allahyari, S. Masoumian, P. Jiménez

**I.8.** Predicting Student Academic Success with Hidden Markov Models

V. Lončarević, V. Lekić, N. Damljanović

**I.9.** The Influence of Daubechies Wavelet Order on Speech Recognition

B. Marković, M. Vesković

**I.10.** Effect of the Slope of Symmetric Saturated Activation Functions on Deep Learning

M. Lutovac Banduka, V. Poučki, V. Mladenović, M. Lutovac

**I.11.** Application of the YOLO algorithm for Medical Purposes in the Detection of Skin Cancer

S. Ćirković, N. Stanić

**I.12.** Privacy-Preserving in Machine Learning: Differential Privacy Case Study

A. Iričanin, O. Ristić, M. Milošević

**I.13.** Development of an Algorithm for Forecasting Inflation in the Economy Using Regression Models

N. Jovanović

**I.14.** Association Rules Mining for Educational Recommender Systems

M. Bursać, S. Jevtić, Z. Pavlović

**I.15.** Natural Language Processing in Meaning Representation for Sentiment Analysis in Serbian Language

M. Živanović, O. Ristić, S. Milunović Koprivica

**I.16.** Natural Language Processing in Contextual Modeling for Sentiment Analysis in Serbian and Languages of the Germanic-Romance Language Group

M. Živanović

**I.17.** Minimalistic User Interface Design and Dark Mode Usage in Human-Computer Interaction

Đ. Damjanović, D. Stojić, D. Vujičić, M. Milošević

**I.18.** Improving Spa Tourism in Republic of Serbia Through Information and Communication Technologies: Development and Application of Tools for Data Visualization

N. Marković, J. Lekić, S. Marković, S. Mitrović, P. Spalević

**I.19.** Detection of Broadcast Storms in Local Area Networks

U. Pešović, S. Đurašević Pešović, B. Savić, D. Marković

**I.20.** Exploring Geometrical Content with ICTs: A Case Study on Infinitesimal Bending of a Hyperbolic Paraboloid

M. Maksimović, M. Najdanović, E. Ljajko, N. Kontrec

**I.21.** Issues During Data Migration

M. Marković, N. Davidović, M. Vesković, S. Nogo, J. Govedarica

## Session II: Educational Technology

**II.1.** The New Role of the Teacher in Education 4.0

D. Purković, S. Kovačević, D. Delač

**II.2.** Advancing the Teaching Method in the Era of Widespread Artificial Intelligence Application: An Explorative Study

V. Ružičić, S. Cvetković, K. Mitrović

**II.3.** The Practice of Integrating Digital Tools into the Research of Natural Phenomena in Kindergarten Children

G. Stepić, S. Kljajić, S. Simić

**II.4.** How the Development of Technology Changes Teaching Practices

L. Stazić, Đ. Dobrota, A. Mišura, M. Račić

**II.5.** Impact of Digital Literacy and the Application of Educational Software on the Quality of Teaching

N. Denić, S. Gavrilović, J. Stojanović, K. Stojanović, M. Milić

**II.6.** LocalStack: A Practical Approach to Teaching Cloud Computing

Ž. Bogičević, M. Milošević

**II.7.** GeoGebra Interactive Simulations in Analytical Chemistry Education: Example of Lambert –Beer Law

T. Sekulić, V. Stankov Jovanović, V. Kostić

**II.8.** Benefits of Digitalization of Textbooks for Improving the Educational Process – A Case Study in the Republic of North Macedonia

D. Jovevski, T. Pachemska, A. Atanasova

**II.9.** Educational Technology – Benefits and Drawbacks in Enhancing Knowledge Acquisition Efficiency

M. Nikolić, L. Paunović, N. Gojgić

**II.10.** Students' Satisfaction with Online and Traditional Teaching

G. Rendulić Davidović, M. Damjanović, V. Gluvakov

**II.11.** Predictive Model for Early Detection of Students with Difficulties in Online Learning

K. Mitrović, D. Stojić, M. Janjić

**II.12.** The Influence of Instagram Promotions on Young People's Purchasing Decisions: A Study on Persuasion, Credibility, and Influencer Impact

I. Krsmanović, T. Urošević, A. Nikitović

**II.13.** Digital Dialogue in Practice: Statistical Analysis of Teacher and Student Activities by Time and Number of Interactions

M. Randelović, R. Jevtić, Lj. Stanojević

**II.14.** The Pixel Art as Computer Graphics Artistic Expression in Digital Games

V. Aleksić, V. Simeunović

**II.15.** Using Artificial Intelligence Concepts to Design Non-Playable Characters in Road Traffic Safety Games

V. Aleksić

**II.16.** A New Curriculum-Oriented 5G ICon Platform: Lab Exercises and Projects

V. Pantović, D. Milovanović

## Session III: Engineering Education and Practice

**III.1.** Modeling and Simulation of CNC Feed System Using MATLAB/Simulink Software Package

N. Dučić, G. Dragović, I. Milićević, V. Vujičić

**III.2.** Computational Analysis and Simulation of Geiger-Müller Counter Instrument F-factor Using Wolfram Mathematica Software: Case Study of LARA 10 as integrated part of Radiation Laboratory LR-M2

M. Luković, V. Luković, M. Knežević, D. Miljanić

**III.3.** Mathcad PTC Software Towards IM Static/Dynamic Characteristics Simulation

M. Rosić, J. Radaković

**III.4.** Modeling and Analysis of an Aquifer System to Enhance Teaching in Control Systems

S. Antić, A. Milovanović

**III.5.** Project-Based Learning: Synthesis of Theory and Practice Through Interdisciplinary Projects

M. Božić, V. Vujičić, S. Ćurčić, M. Popović, M. Vesković, U. Pešović, N. Dučić

**III.6.** PLM Education: The State of the Art and Future Trends

S. Puzović, J. Vesić Vasović, V. Paunović

**III.7.** Application of Educational Software Packages for MRP Data Processing

J. Jovanović, D. Perišić

**III.8.** Technical Drawing in Engineering Education: Tool for Engineers' Communication, Design and Ability Development

J. Baralić, D. Bjekić

**III.9.** Creating the Flipped Classroom in the Course Engineering Graphics

A. Mitrović, M. Radović, A. Jovičić, A. Nikitović

**III.10.** Digital Analysis of Traffic in the Port of Split during the COVID-19 Pandemic: A Numerical Study for Technical Education

T. Stanivuk, B. Lalić, M. Čović, L. Stazić

**III.11.** Didactic Model of a Beeswax Foundation Sheet Forming Machine

N. Dakić, V. Reljić, L. Racković, S. Dudić, I. Milenković, J. Šulc, V. Jurošević

**III.12.** Selection of Personnel Based on a Two-Stage Multi-Attribute Decision-Making Model

D. Tadić, J. Vesić Vasović, K. Bogdanović, N. Komatina





**III.13.** The Importance of the Implementation of the 1C:ERP WE Information System in the Digitization of Organizations

J. Čurčić, Z. Nešić, I. Marković, N. Nikolić

**III.14.** Simulation of a Chess Game with an Industrial Robot

V. Vujičić, G. Bošković, S. Čepić, N. Dučić, I. Miličević

### Session IV: IT Education and Practice

**IV.1.** Advantages and Disadvantages of M-Learning in University Teaching

M. Semiz, M. Čutović, M. Ćirić

**IV.2.** Mobile Application for Efficient Exam Enrollment for Basic Studies

M. Murić, D. Knežević

**IV.3.** The Use of M-Learning in Teaching Methods Courses at Faculties of Education

M. Čutović, M. Semiz, N. Stevanović

**IV.4.** Expanding the Possibility of Performing Laboratory Exercises Using Solutions Based on the use of SCPI and LoRa Networks

P. Stolić, D. Milošević, Ž. Mravik, M. Grujičić, M. Jelić

**IV.5.** Conveying Expression in E-Learning Transactions with Asymmetric Audiovisual Learning Tools

R. Tzimas, N. Souliotis, D. Politis, N. Paris

**IV.6.** The Role of AI Tools in Education: Opportunities and Challenges

N. Stanković, I. Stanković, G. Marković, M. Blagojević

**IV.7.** The Integration of Artificial Intelligence across Educational Levels: From Primary School to University

Z. Majkić, D. Vranješ

**IV.8.** Regulating Artificial Intelligence for Higher Education

K. Stevanović

**IV.9.** Learning Challenges and Performance in the new Technical Databases Course

M. Radović, K. Karić, D. Milošević

### Session V: Professional Development for the new Technological Environment

**V.1.** The Analysis of IT Competences in the Hospitality Related Study Programs in the Republic of Serbia

D. Garabinović, M. Papić, I. Radojević Aleksić

**V.2.** Trends and Development Challenges of Entrepreneurial Education in Serbia

L. Gavrilović, K. Karić, M. Papić

**V.2.** Trends and Development Challenges of Entrepreneurial Education in Serbia

L. Gavrilović, K. Karić, M. Papić

**V.3.** Understanding and Addressing Motivational Challenges Among University Students

S. Cvetković, V. Ružičić

**V.4.** Prerequisites for Higher Quality Education: Teachers' Attitudes on the Application of Artificial Intelligence Tools in Teaching

V. Ružičić, M. Simeunović, N. Gojgić

**V.5.** Digital Competences in Preschool Education

V. Stevanović, M. Stevanović, M. Jović

**V.6.** Patentability of AI-Related Inventions in Practice of the European Patent Office and the Intellectual Property Office of the Republic of Serbia

S. Šarboh, S. Zdravković

**V.7.** The Impact of the KVINK Innovation Incubator on the Development of the Startup Ecosystem at the Faculty of Mechanical and Civil Engineering in Kraljevo

T. Dulović, S. Pajović, P. Mladenović, V. Grković

**V.8.** Empowering Student Entrepreneurship Education: The Role of Academic Innovation Incubators

N. Radosavljević, S. Dragičević, M. Đoković

**V.9.** Paradigms of Digital Competencies of Students in Higher Education in the Age of COVID-19

I. Bulut Bogdanović, N. Denić, J. Stojanović, K. Stojanović, M. Milić

### Session VI: Outlines of the Digital in ESP: Language and Technology

**VI.1.** Students' Evaluation of ESP Textbook in the IT Field – A Pilot Study

M. Kočović Pajević

**VI.2.** Information and Communication Technology as a Valuable Tool for Enhancing Students' Performance in ESP

M. Nikolić, M. Đukić, V. Petrović

**VI.3.** Digital Games as Informal Medium in English Language Learning

V. Marković, V. Aleksić

**VI.4.** The Role of Study Field and Gender in University Students' Attitudes towards Computer-Assisted Language Learning

L. Tica, I. Krsmanović, N. Vidanović Miletić, M. Stojković

**VI.5.** Public Speaking Anxiety: Can It Be Reduced in an Online Environment?

V. Petrović, B. Đorić, N. Gojgić

### Session VII: Resilience and Support in the Digital Environment

**VII.1.** Empowering Psychological Resilience: Evaluation of Training

D. Bjekić, M. Bojović, M. Beara Benjak

**VII.2.** Implementation and Evaluation of a Digital Resilience Program

M. Milošević, B. Đorić, K. Mitrović, M.G. Mada Logrieco

**VII.3.** Horizontal Psychological Support in the Digital Network: DigiPsyRes Project Training Evaluation

M. Stojković, I. Krsmanović, L. Tica

**VII.4.** Factorial Structure of Knowledge and Risky Behavior of Information System Users Among Adolescents

M. Ćosić, M. Ivanović

**VII.5.** Biological Framework of Psychological Resilience: Literature Review

D. Bjekić, M. Petrović

**VII.6.** Encounters of Digital Technologies and Educational Psychology: Challenges of Interdisciplinarity

N. Simić, M. Simić

**VII.7.** Empowering Digital Resilience: Exploring the Role of School Psychologists

J. Krsmanovic, K. Buck

### Session VIII: Technics, Technology and Informatics in Primary Education

**VIII.1.** Gamification in Primary Education: What It Is, Benefits and How to Use It

B. Arsović

**VIII.2.** The Effects of Implementing Educational Software in Subject-Specific Mathematics Instruction

S. Gavrilović, M. Mojsilović, N. Denić, J. Stojanović, K. Stojanović

### Session IX: Engineering, Technology and Materials

**IX.1.** Training Tasks and Test in Micro- and Nanosystem Technique in the Specialty of Mechatronics at TU Gabrovo, Bulgaria

S. Kartunov

**IX.2.** Analysis of a Simple Algorithm for Phase Shift Measurement Between Sinusoidal Voltage Signals

L. Miladinović, B. Koprivica

**IX.3.** Mechanical Properties of Hybrid Materials Based on Aliphatic Polyurethanes and Al<sub>2</sub>O<sub>3</sub> Nanoparticles

D. Kojić, N. Vukić, M. Špirkova, D. Duplákova, S. Baloš, J. Pavličević

**IX.4.** Change in Magnetization of the Fe/Pb/Zr/BaTiO<sub>3</sub> System Driven by Time of Mechanochemical Activation and Thermal Treatment

N. Stojanović, A. Kalezić-Glišović, A. Maričić

### Symposium "Technics, Informatics, and Education: School Teachers for Teachers"

**S.1.** Ecological Management in Elementary School

K. Čutović, B. Mihailović, L. Čutović

**S.2.** The Importance of Using Educational Software in Teaching Technology and Engineering to Empower Problem-Solving Skills

N. Tasić, M. Kovačević, I. Vecštejn, T. Milić

**S.3.** Tourism Technician in the Digitalization Era: Interdisciplinary Implementation of Web-Based Services

V. Vasiljević, S. Luković

**S.4.** Knowledge Capacity and Problems of Work of Technology and Informatics Teachers in the 21<sup>st</sup> Century

D. Paripović

**S.5.** Windows MultiPoint Server 2016 in Modern Teaching of Computing and Informatics

V. Poledica

### Sunday, September 22<sup>nd</sup>, 2024

**11:00-14:00** Ovčar Banja tour  
[departure from the faculty building at 10:15 a.m]

**14:00-15:00** Chairpersons' reports on sessions and main conclusions [room 111]

**Moderators:** Marija Blagojević, Miloš Papić and Marko Popović

**15:30-16:00** Best conference paper award and closing remarks [room 111]

**Moderators:** Marija Blagojević, Miloš Papić and Marko Popović



University of Kragujevac  
Faculty of Technical Sciences Čačak



10<sup>th</sup> International Scientific Conference  
Technics, Informatics, and Education  
**TIE 2024**

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20-22 September 2024



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