

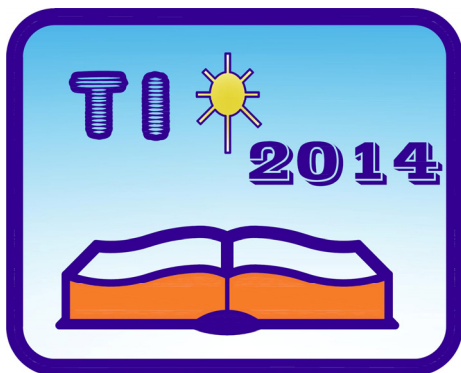
## 5<sup>TH</sup> INTERNATIONAL CONFERENCE TIO 2014

### ❖ Organizer:

Faculty of Technical Sciences Čačak  
University of Kragujevac

### ❖ Co-Organizers:

University of Kragujevac - Tempus project NeReLa  
Technical Faculty „Mihajlo Pupin“, Zrenjanin  
Teachers Training Faculty, Užice  
Faculty of Mechanical and Civil Engineering, Kraljevo  
Association of Technical Education Teachers, RS  
Association of Technical Educators, RS  
Association of Informatics Education Teachers, RS  
Regional Center for the Professional Development of  
the Employees in Education, Čačak  
Regional Center for Talents, Čačak



## Technics and Informatics in Education

- Pre-school education
- Primary education
- Secondary education
- University education
- Educational technology
- European experiences
- Professional development of teachers
- Lifelong learning

ČAČAK, 30–31st, May, 2014

## SCIENTIFIC COMMITTEE

**Honoured Chairman:** Prof. Dragan Golubović, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia

**Chairman:** Prof. Živadin Micić, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia

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3. Prof. Branislav Jeremić, prorector of University of Kragujevac
4. Prof. Milomir Gašić, dean of Faculty of Mechanical and Civil Engineering, Kraljevo, University of Kragujevac, Serbia
5. Prof. Milan Pavlović, dean of Technical Faculty „Mihajlo Pupin“, Zrenjanin, University of Novi Sad, Serbia
6. Prof. Radmila Nikolić, dean of Teacher-Training Faculty, Užice, University of Kragujevac, Serbia
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9. Prof. Mirela Toth Tascu, Faculty of Mechanical Engineering, Timișoara, Politehnica University of Timișoara, Romania
10. Prof. Nikolaos Vaxevanidis, Institute of Pedagogical & Technological Education, N. Heraklion Attikis, Greece
11. Olga Dziabenko, MSc., research project manager, DeustoTech Learning, University of Deusto, Bilbao, Spain
12. Prof. Cvetko Mitrovski, Associate Professor, Technical Faculty Bitola, University 'St. Kliment Ohridski', Macedonia
13. Prof. Samra Mujačić, Faculty of Electrical Engineering, University of Tuzla, Bosnia and Herzegovina
14. Prof. Dragana Glušac, Technical Faculty „Mihajlo Pupin“, Zrenjanin, University of Novi Sad, Serbia
15. Prof. Aleksa Maričić, emeritus professor, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
16. Prof. Miodrag Pantelić, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
17. Prof. Danilo Stojanović, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
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21. Prof. Branka Jordović, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
22. Prof. Radomir Slavković, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
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24. Prof. Miloš Radovanović, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia

25. Prof. Nebojša Mitrović, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
26. Prof. Snežana Dragičević, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
27. Prof. Slobodan Popov, CNTI, Novi Sad, Serbia
28. Prof. Radojka Krneta, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia, NeReLa project manager
29. Prof. Željko Papić, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia
30. Dr Milan Plazinić, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia

## ORGANIZING COMMITTEE

**Chairman:** dr Ivan Miličević, Faculty of Technical Sciences, Čačak, University of Kragujevac, Serbia

### Members:

Marko Popović, PhD	Đorđe Damjanović, MSc
Mag. Nebojša Stanković	Milka Jovanović, MSc
Mag. Mirjana Brković	Lena Tica, MA
Mag. Olga Ristić	Ana Radović Firat, MA
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## SPONSORS

Ministry of Education,  
Science and Technological  
Development of the  
Republic of Serbia



University of Kragujevac



## THEMATIC FIELDS

Technics and informatics in education:

- Pre-school education
- Primary education
- Secondary education
- University education
- Educational technology
- European experiences
- Professional Development of Teachers
- Lifelong Learning

## NeReLa at TIO 2014

The activities of the TEMPUS project NeReLa (Building a network of remote laboratories for strengthening the cooperation between universities and vocational secondary schools) will be presented within the plenary activities, round table and sections. The coordinator of the project is Prof. Radojka Krneta, Faculty of Technical Sciences in Čačak. The aim of the project is to improve engineering studies in Serbia by introducing innovative teaching methods concerning remote experiments, as well as strengthening the cooperation between universities and vocational schools through training vocational school teachers in using remote experiments in the classroom.

## CONFERENCE VENUE

TIO 2014 Conference will be held in Čačak, Serbia, at the Faculty of Technical Sciences, 65 St. Sava street, from 30<sup>th</sup> to 31<sup>th</sup> May, 2014.

## PAPER PRESENTATION

Official languages in the Conference are Serbian, English and Russian. The papers included in the programme will be presented orally. The time for the paper presentation is limited to ten minutes. Presentations of the papers can be prepared on PC computer in Power Point software.

The papers in the Conference will be printed in the Conference proceedings on CD, and they will be available at Website: <http://www.ftn.kg.ac.rs/tio2014/>

## CONTACT ADDRESSES

**Website:** <http://www.ftn.kg.ac.rs/tio2014/>

**E-mail:** [tio@ftn.kg.ac.rs](mailto:tio@ftn.kg.ac.rs)

### Conference Secretariat:

Milka Jovanović, MSc,  
Tel: +381 32 302 757, +381 64 676 7099

Milica Vučetić,  
Tel: +381 32 302 713

Ivan Milićević, PhD,  
Tel: +381 32 302 722

## EXIBITION AND TOURIST PROGRAMME

Instructional aids

Publications

Posters:

- Technical solutions realized at the Faculty
- The projects financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia
- Innovative projects

An exhibition of sponsor products will be held within the Conference and a display of their product range will be presented in brochures or other promotional material.

Participants of the Conference can also take part in an organized tour to the Monasteries in Ovčar-Kablar Gorge.

## ACCOMMODATION

Participants can make accommodation reservations directly by calling the following phone numbers:

Hotel "Beograd" +381 32 224 593

Motel "Livade" +381 32 381 088

Motel "Kole" +381 32 381 804

Motel "Čačak" +381 32 546 1030

## SCHEDULE OF EVENTS

### Friday, 30<sup>th</sup> May 2014

14<sup>00</sup> – 16<sup>00</sup> Registration of Participants and Guests

16<sup>00</sup> – 18<sup>00</sup> Poster presentation – Round Table -  
Research in the field of technical  
sciences and education

### Saturday, 31<sup>th</sup> May 2014

9<sup>00</sup> – 10<sup>00</sup> Admission of Participants

10<sup>00</sup> – 10<sup>30</sup> Conference Opening

10<sup>30</sup> – 12<sup>00</sup> Plenary Session

12<sup>00</sup> – 13<sup>30</sup> Round Table  
NeReLa – Network of Remote Labs

13<sup>30</sup> – 14<sup>00</sup> Cocktail

14<sup>00</sup> – 15<sup>30</sup> Papers Presentation in Sections

15<sup>30</sup> – 16<sup>00</sup> Pause (Coffee Break)

16<sup>00</sup> – 17<sup>30</sup> Papers Presentation in Sections

17<sup>30</sup> – 19<sup>00</sup> Round Table – Current issues at  
Technics and Informatics in Serbia

# PROGRAMME

Venue **Faculty of Technical Sciences Čačak**

**Friday 30<sup>st</sup> May 2014**

14 <sup>00</sup> – 16 <sup>00</sup>	<b>Registration</b>	Faculty hall
16 <sup>00</sup> – 18 <sup>00</sup>	<b>Poster presentation – Round Table</b> Research in the field of technical sciences and education	Faculty hall
Chairman:	Prof. Nebojša Mitrović	

**Saturday 31<sup>st</sup> May 2014**

9 <sup>00</sup> – 10 <sup>00</sup>	<b>Admission of Participants</b>	Faculty hall
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10 <sup>00</sup> – 10 <sup>30</sup>	<b>Conference Opening</b>	Amphitheatre
Chairman:	Chairmanship	

10 <sup>30</sup> – 12 <sup>00</sup>	<b>Plenary Session</b>	Amphitheatre
Chairman:	Prof. Dragan Golubović Prof. Živadin Micić	

## P1 Dragan Golubović

Redefining of technology and information education in Serbia

## P2 Aleksandra Grujić-Jankuloski, Snežana Dragičević

Programme and educational standards of technics and informatics education

## P3 Radojka Krneta, Đorđe Damnjanović, Marjan Milošević

Building Network of Remote Labs for strengthening university-secondary vocational schools collaboration

12 <sup>00</sup> – 13 <sup>30</sup>	<b>Round table</b> NeReLa – Network of Remote Labs	Hall 232
Chairman:	Prof. Radojka Krneta	

13 <sup>30</sup> – 14 <sup>00</sup>	<b>Cocktail</b>	Faculty hall
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14 <sup>00</sup> – 17 <sup>30</sup> 15 <sup>30</sup> – 16 <sup>00</sup> Pause	<b>SECTION 1: Technics and Informatics Education Challenges: from Kindergarten to University</b>	Hall 232
Chairman:	<b>Prof. Dragan Golubović</b> <b>dr Željko M. Papić, associate professor</b>	
Assistant:	<b>Nedeljko Dučić, M.Sc.</b>	

- 1.1. **Jasna Stojanović**  
Research of geographic information systems' presence in the fields of technics and informatics
- 1.2. **Srdan Pelkić, Radojka Vučinić**  
Usage of CAD/CAM system in technical education
- 1.3. **Milan Sanader, Gordana Sanader**  
Project method in technics and informatics education
- 1.4. **Dragana Smiljanić**  
The role of technical and IT education in the development of vocational guidance of students
- 1.5. **Marijana Bačanin, Miljana Kostić**  
Designing presentations from idea to realization
- 1.6. **Goran Manojlović**  
School workshops in technics and informatics education
- 1.7. **Natalija Diković**  
The use of Moodle in technics and informatics education
- 1.8. **Dragan Golubović, Aleksandar Marjanović**  
Application of educational software "Machines and mechanisms" in teaching technics and informatics
- 1.9. **Aleksandar Marjanović**  
Experimental results of the application of educational software „Machines and mechanisms“ in technics and informatics education
- 1.10. **Jelena Stamatović**  
Support for teachers of technics and informatics in teaching students with dyslexia
- 1.11. **Goran Ivković**  
Methodical instructions for realization of mind mapping in teaching technical and informational education (TIE)
- 1.12. **Milena Maric, Milena Jeretin**  
The impact of collaborative learning on student's achievement in the field of trigonometry
- 1.13. **Nataša Vuković**  
Video lessons - didactic and technical - technological aspects
- 1.14. **Darko Nešković, Marija Nešković, Snežana Mitrović**  
Firefighting for kids
- 1.15. **Tatjana Bajić, Marija Lukić**  
Educational multimedia presentation for preschool children

14 <sup>00</sup> – 17 <sup>30</sup> 15 <sup>30</sup> – 16 <sup>00</sup> Pause	<b>SECTION 2: Education of Engineer</b>	Lecture Hall 14
Chairman:	<b>Prof. Snežana Dragičević</b> <b>dr Momčilo Vujičić, associate professor</b>	
Assistant:	<b>Marko Šučurović, M.Sc.</b>	

- 2.1. **Dragana Bjekić, Milena Stanisavljević, Miroslav Bjekić**  
Team competence of specialized teams in the field of energy efficiency of electric drives
- 2.2. **Milena Stanisavljević**  
The status of economic courses in education of engineers
- 2.3. **Branko Babić, Nataša Subić**  
Organization of computer animation and 3D modelling course in higher education

- 2.4. **Danijela Živojinović, Siniša G. Minić, Miloš Vorkapić**  
Analysis of results obtained by NASGRO and Abaqus softwares on example of thin plate tension
- 2.5. **Miloš Božić, Miroslav Bjekić, Marko Rosić**  
Concept of pocket laboratory example of control of DC motor
- 2.6. **Đorđe Damnjanović, Radojka Krneta, Aleksandar Peulić**  
A microcontroller laboratory setup for teaching data acquisition systems
- 2.7. **Aleksandar Lazić, Marko Rosić, Miloš Božić**  
Graphical user interface for comparison of direct torque control characteristics of induction motor with discrete and continuous voltage vectors
- 2.8. **Marko Šučurović, Momčilo Vujičić, Đorđe Kolarević**  
Application of RELUX software in teaching electric lighting
- 2.9. **Milan Vesković, Milan Plazinić, Ana Plazinić**  
Application of the PSPICE software package in teaching of theory of electrical circuits
- 2.10. **Stojan Savković, Milosav Šekarić, Vojislav Vujičić, Aleksandar Petrović, Petar Marić, Ivan Miličević**  
Modelling and simulation of shaping machine tool coulisse mechanism via Matlab and SolidWorks software
- 2.11. **Lidija Palurović, Lena Tica, Ana Radović Firat**  
Teaching technical English: difficulties and solutions revisited
- 2.12. **Ana Radović Firat, Lena Tica, Lidija Palurović**  
Application of Berlitz method in teaching technical English
- 2.13. **Sanja Marković, Jelena Rajović, Nenad Marković**  
Strategic elements of education quality at institutions of higher education
- 2.14. **Duško Tešanović, Ilija Čosić, Alempije Veljović, Lidija Paunović**  
Elements of an educational function in the re-engineering of production processes shown on the example of mono-block wheels
- 2.15. **Mladen Janjić, Vera Lazarević**  
Covariance and correlation of high school success and entrance exam results

14 <sup>00</sup> – 17 <sup>30</sup> 15 <sup>30</sup> – 16 <sup>00</sup> Pause	<b>SECTION 3: IT and Educational Technology</b>	Lecture Hall 15
Chairman:	<b>Prof. Živadin Micić</b> <b>dr Danijela Milošević, associate professor</b>	
Assistant:	<b>mr Marjan Milošević</b>	

- 3.1. **Živadin Micić, Nebojša Stanković, Marija Blagojević**  
Knowledge innovation trends in standardized IT application subfields
- 3.2. **Milica Andevski, Jasmina Arsenjević**  
Dimensions and structure of media education
- 3.3. **Siniša Minić, Dragan kreculj, Miloš Vorkapić**  
Educational aspects of cloud computing concept
- 3.4. **Jezdimir - Luka Obadović**  
Information literacy in health care oriented at ICT with an emphasis on lifelong learning
- 3.5. **Željko Eremić**  
The question bases of the Android application supporting the preparation for the entry exam
- 3.6. **Marjan Milošević, Danijela Milošević**  
Monitoring as an element of information security architecture of e-learning systems
- 3.7. **Miloš Papić, Nebojša Stanković, Vladan Paunović**  
Comparative analysis of students' assessments of the IT courses

- 3.8. Ilhan Ibryam, Zhivka Ilieva, Petranka Ruseva**  
Acquisition of notions in English and information technology by means of Microsoft access and Microsoft visual C++
- 3.9. Zoran Mitrašinović, Slavica Dimitrijević**  
The Internet as a source of information in education
- 3.10. Mile Penkov**  
Digital resources in primary school library
- 3.11. Irena Paleček Radmanović**  
Application of ICT in the section for illustration and graphic design
- 3.12. Aleksandra Topalović**  
Application of ICT in teaching mathematics (with special emphasis on the application of PowerPoint)
- 3.13. Zoran Vučetić, Borislav Odadžić, Danijela Mitov, Miloš Pešović, Jasmin Biberović**  
J2ME application in the teaching of programming
- 3.14. Kristina Krstić**  
The work of teachers in new IT environment
- 3.15. Jasmina Živković, Miloš Janković, Miroljub Cvetković**  
Improvisation in children's musical creativity and ICT

14 <sup>00</sup> – 17 <sup>30</sup> 15 <sup>30</sup> – 16 <sup>00</sup> Pause	<b>SECTION 4: E-Learning</b>	Lecture Hall 16
Chairman:	<b>dr Ivan Milićević, assistant professor dr Marko Popović, assistant professor Veljko Aleksić, M.Sc.</b>	
Assistant:		

- 4.1. Jasna Adamov, Stanislava Olić, Stanislava Tošanović, Branislav Banić**  
Effects of presentation mode on students' achievement in chemistry education
- 4.2. Samira Mujkić, Samra Mujačić, Muhdin Mujačić, Dinko Demirović**  
Applying Web conference systems in conducting engineering informatics study program
- 4.3. Slobodan Aleksandrov, Zoran Jovanović, Dragan Šešlija, Radica Aleksandrov**  
Analysis of the use of Web laboratory in mechatronics education
- 4.4. Olivera Janković**  
An example of application of learning environment in the context of more interesting form of learning
- 4.5. Momčilo Randelović, Janev Angel, Danijela Milošević, Alempije Veljović**  
Suggestions for overcoming motivational problems of students in online environment
- 4.6. Marija Radojičić, Slaviša Radović, Miroslav Marić**  
Innovative method of teaching mathematics by using interactive teaching materials
- 4.7. Slaviša Radović, Jovana Jezdimirović, Miroslav Marić**  
Interactive workbook for primary school mathematics – E-collection (Ezbirka)
- 4.8. Svetlana Vasileva, Iliana Paneva, Gergana Nikolova**  
An approach to design and realization of electronic textbooks
- 4.9. Ivan Milićević, Jelena Lajšić**  
Design of the low-cost interactive whiteboard and application in technics and informatics education
- 4.10. Snezana Stavreva Veselinovska**  
Use the interactive whiteboard in teaching biology
- 4.11. Vesna Lazić**  
Children's games in the computer culture

- 4.12. Veljko Aleksić, Mirjana Ivanović**  
Influence of computer games on students' social skills
- 4.13. Vesna Marković, Veljko Aleksić, Željko M. Papić**  
Using educational computer games to learn English vocabulary
- 4.14. Vojislav Ilić, Vladimir Nedić**  
Digital age and traditional artistic media in art education
- 4.15. Andrijana Šikl-Erski, Ana Novković, Predrag Spasojević**  
E-learning in class teaching: possibilities and resources

14 <sup>00</sup> – 17 <sup>30</sup> 15 <sup>30</sup> – 16 <sup>00</sup> Pause	<b>SECTION 5: Teacher Education and Lifelong Learning in New Environment</b>	Lecture Hall 17
Chairman:	<b>Prof. Dragana Bjekić dr Lidija Zlatić, assistant professor Marija Blagojević</b>	
Assistant:		

- 5.1. Živka Krnjaja**  
Digital technologies in the practitioners' research
- 5.2. Lidija Zlatić, Snežana Marinković, Milica Vučetić**  
Teachers' support systems in induction period in context of lifelong learning
- 5.3. Dragana Pavlović Breneselović**  
Preschool teachers' competences for using ICT in preschool program: more than a skill
- 5.4. Svetlana Obradović, Milica Vučetić**  
ICT in inclusive education
- 5.5. Biljana Kuzmanović**  
Specificities of checking and evaluating achievements of dyslexic students
- 5.6. Alpar Lošonc, Andrea Ivanišević**  
The extent to which ecological knowledge changes the meaning of knowledge and education
- 5.7. Nataša Starčević, Vanja Škrbić**  
Lifelong learning as a condition for democratization of education
- 5.8. Mira Jovanović**  
Redefining the role of educator and his professional development
- 5.9. Marina Pavlović, Nataša Turuntaš**  
An example of a database of professional development of teachers
- 5.10. Goran Bilandžija**  
Prevention of deviant behavior among adolescents
- 5.11. Dragana K. Markušev**  
Analysis of the effectiveness of various tools for teacher professional development
- 5.12. Čedomir S. Ivanović**  
Negative electromagnetic pulsed radiation as a new safety risk for the youth and the significance of development of their safety culture
- 5.13. Vladimir Radovanović, Gordana Rendulić**  
Knowledge - the path of economic development
- 5.14. Milorotka Simeunović**  
Improvement of professional training aimed to teachers of secondary vocational schools
- 5.15. Dragica Stanković**  
Professional development of teachers and Internet technology

17 <sup>30</sup> – 19 <sup>00</sup>	<b>ROUND TABLE: Current issues at Technics and Informatics in Serbia</b>	Hall 232
Chairman:	<b>Prof. Dragan Golubović</b>	