

Ministry of Education and Science of the Russian Federation  
Kalashnikov Izhevsk State Technical University

# EQ 2017 PROGRAM

**FIFTH FORUM OF YOUNG RESEARCHERS**

**February 21-22, 2017**



**Izhevsk, Russia**

## INTERNATIONAL PROGRAMME COMMITTEE

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*B. A. Yakimovich*, Rector of Kalashnikov Izhevsk State Technical University

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*Bálint Bachmann*, Dean of Faculty of Engineering and Information Technologies of University of Pécs, Hungary

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### Chairman

*A. V. Elensky*, Vice-Rector for International Relations and Accreditation, Kalashnikov ISTU

### Committee members

*A. V. Abilov*, Dean of Faculty of Instrumentation Engineering, Kalashnikov ISTU

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*N. A. Surnina*, Associate Professor of Department of Technology of Industrial and Artistic Material Working, Kalashnikov ISTU

*Yu. V. Turygin*, Professor of Department of Mechatronic Systems, Kalashnikov ISTU

## ***Forum events***

### **February 20 (Monday)**

#### **Day of arrival**

Arrival and accommodation of the forum participants

ISTU campus

### **February 21 (Tuesday)**

<b>8<sup>00</sup>–9<sup>00</sup></b>	Breakfast (only for partner universities)	bld. 6, canteen
<b>9<sup>00</sup>–10<sup>00</sup></b>	Registration of the forum participants (only for partner universities)	Palace “Integral”
<b>10<sup>00</sup>–13<sup>30</sup></b>	Plenary session	Palace “Integral”
<b>13<sup>30</sup>–15<sup>00</sup></b>	Lunch (only for partner universities)	bld. 6, canteen
<b>15<sup>00</sup>–16<sup>00</sup></b>	Meeting of Prof. B. A. Yakimovich, Rector of Kalashnikov ISTU with the delegations of Russian and foreign universities	bld. 1, conference room
<b>17<sup>00</sup></b>	Departure to Opera and Ballet House (only for partner universities)	Palace “Integral”
<b>18<sup>00</sup>–20<sup>00</sup></b>	Solemn closing of XX Music Festival “Young Talents in the Native land of P. I. Tchaikovsky” (only for partner universities)	Opera and Ballet House of Udmurt Republic
<b>20<sup>00</sup>–21<sup>30</sup></b>	Buffet reception dedicated to the opening of VII International Conference “Technical Universities: Integration with European and World Education Systems” (only for partner universities)	Opera and Ballet House of Udmurt Republic

## February 22 (Wednesday)

<b>8<sup>00</sup>–9<sup>00</sup></b>	Breakfast (only for partner universities)	bld. 6, canteen
<b>10<sup>00</sup>–13<sup>00</sup></b>	V Forum of Young Researchers: <u>Session 1. Economics</u> <u>Session 2. Instrumentation Engineering</u> <u>Session 3. Technical Aesthetics and Design</u> <u>Session 4. Modern Technologies in Mechanical and Instrumentation Engineering</u>	Kalashnikov ISTU bld. 3, room 102 bld. 5, room 301 bld. 2, room 429 bld. 3, business incubator, room 17
<b>13<sup>00</sup>–15<sup>00</sup></b>	Lunch (only for partner universities)	bld. 6, canteen
<b>15<sup>00</sup>–17<sup>00</sup></b>	Extended session of Kalashnikov ISTU Senate. Solemn ceremony of awarding diplomas and gowns of Doctor Honoris Causa of Kalashnikov ISTU to Prof. Rosemarie Karger (Germany), Prof. Josef Eberhardsteiner (Austria) and Prof. Pavel Božek (Slovakia). Concert of performance groups	Palace “Integral”
<b>17<sup>30</sup>–21<sup>00</sup></b>	Official reception dedicated to 65 <sup>th</sup> anniversary of Kalashnikov ISTU (only for partner universities)	lobby of Palace “Integral”, 2 <sup>nd</sup> floor

## February 23 (Thursday)

### Day of departure

Departure of the forum participants

ISTU campus

**February 21, 2017**

**Plenary Session**

*Venue: Izhevsk, Palace “Integral”, at 10:00*

**Chairman**

*B. A. Yakimovich*, DSc, Prof., Rector of Kalashnikov Izhevsk State Technical University

Welcoming address of *A. V. Soloviev*, Head of the Udmurt Republic

Welcoming address of *D. A. Musin*, Chief Federal Inspector for Udmurt Republic of the Apparatus of the Plenipotentiary Representative of the President of the Russian Federation in Privolzhsky Federal District

Welcoming address of *Yu. A. Tyurin*, Head of the city of Izhevsk

1. Development through integration, university as an open system

Speaker: *R. G. Strongin*, President of National Research Nizhniy Novgorod State University named after N. I. Lobachevsky, Chairman of Council of Rectors of HEIs of Privolzhsky Federal District, Russia

2. Design thinking – a new method to create successful innovations

Speaker: *Ekbert Hering*, Emeritus Rector of Aalen University, Germany, Doctor Honoris Causa of Kalashnikov ISTU

3. TU Wien international – global teaching strategy

Speaker: *Josef Eberhardsteiner*, Vice-Rector for Infrastructure of Vienna Technical University, Austria

4. Practice-oriented study programs for engineers

Speaker: *Bálint Bachmann*, Dean of Faculty of Engineering and Information Technologies, University of Pécs, Hungary

5. Campus of Kalashnikov Izhevsk State Technical University: Innovative educational resources

Speaker: *B. A. Yakimovich*, Rector of Kalashnikov ISTU

**February 22, 2017**

**Session 1  
Economics**

*Venue: Izhevsk, Kalashnikov ISTU, bld. 3, room 102, at 10:00*

**Chairperson:**

*E. V. Grakhova*, Senior Lecturer of Department of Industrial and Civil Engineering  
Kalashnikov Izhevsk State Technical University

1. *A. N. Bagrovnikova, PhD student.* Historical aspects and economical essence of controlling as a modern concept in management of industrial enterprises  
Kalashnikov Izhevsk State Technical University
2. *Anna Lagunova, MSc student, G. E. Onchukova, PhD, Assoc. Prof.* Financial performance in assessment operations  
Kalashnikov Izhevsk State Technical University
3. *Yana Lubkova, MSc student.* Analysis of Udmurt Republic status within the country and its impact on Russian economic development  
Kalashnikov Izhevsk State Technical University
4. *Irina Nikitina, Pavel Ogarkov, MSc students, M. M. Gorokhov, DSc, Prof.* The use of the ERP-systems standard in relation to the complex automation holding of business processes of the educational institution  
Kalashnikov Izhevsk State Technical University
5. *L. G. Saetova, PhD student.* Currency market and commodity currencies  
Kalashnikov Izhevsk State Technical University
6. *K. A. Sannikova, student, D. M. Malikova, PhD, Assoc. Prof.* Development of innovation regional clusters in Udmurtia and Tatarstan  
Kalashnikov Izhevsk State Technical University
7. *Konstantin Zavalishin, MSc student, G. E. Onchukova, PhD, Assoc. Prof.* Evaluation of financial condition of an enterprise  
Kalashnikov Izhevsk State Technical University

## Session 2

### Instrumentation Engineering

*Venue: Izhevsk, Kalashnikov ISTU, bld. 5, room 301, at 10:00*

#### **Chairpersons:**

*V. N. Emelyanov*, Associate Professor of Department of Communication Networks and Telecommunication Systems

Kalashnikov Izhevsk State Technical University

*Jaroslav Koton*, Associate Professor of Department of Telecommunications, Faculty of Electrical Engineering and Communication

Brno University of Technology Brno, Czech Republic

1. *Radim Burget, Assoc. Prof., Martin Rajnoha, PhD student.* Microscope image data segmentation for signature analysis

Brno University of Technology, Czech Republic

2. *Jan Hajny, Assoc. Prof., PhD, Lukas Malina, Ph.D., Petr Dzurenda, MSc.* Modern cryptography in physical access control systems

Brno University of Technology, Czech Republic

3. *Jaroslav Koton, PhD, Assoc. Prof.* Impedance transformation of RC-EDP based fractional-order elements

Brno University of Technology, Czech Republic

4. *Ondrej Krajsa, PhD, Radek Fujdiak, PhD student, Petr Mlynek, Assoc. Prof.* Communication unit for energy networks control system

Brno University of Technology, Czech Republic

5. *David Kubanek, PhD, Jaroslav Koton, Assoc. Prof., PhD, Peter Ushakov, DSc, Prof.* Fractional-order multiple-feedback filter employing RC element with distributed parameters

Brno University of Technology, Czech Republic

Kalashnikov Izhevsk State Technical University

6. *Martin Mierka, MSc student.* Design and construction of half controlled rectifier

Slovak University of Technology in Bratislava, Slovak Republic

7. *Marek Vimpel, MSc student.* Diode peak detector

Slovak University of Technology in Bratislava, Slovak Republic

8. *Rishat Akhmetgaliev, MSc student, Lidiya Dolgacheva, MSc student, P. A. Ushakov, Prof.* Research of characteristics of flip-flop fractional order

Kalashnikov Izhevsk State Technical University

9. *G. D. Baboshkin, PhD student, S. Dulesov, engineer, P. A. Ushakov, DSc, Prof.* Fractional order PID-controller based on fractional impedance component

Kalashnikov Izhevsk State Technical University

10. *Irina Kaysina, MSc student, Danil Vasiliev, PhD.* Simulation-based comparison of OLSR protocol and static routing approach in FANET

Kalashnikov Izhevsk State Technical University

11. *M. Podszertsev, PhD student.* Development of principles of RC-based fractional impedance elements synthesis program

Kalashnikov Izhevsk State Technical University

12. *Olesya Shabalina, MSc student.* Analysis of the peak-factor of multi-channel signals with a phase in the sub-channels

Kalashnikov Izhevsk State Technical University

### Session 3

## Technical Aesthetics and Design

Venue: Izhevsk, Kalashnikov ISTU, bld. 2, room 429, at 10:00

#### Chairperson

*N. A. Surnina*, Associate Professor of Department of Technology of Industrial and Artistic Material Working

Kalashnikov Izhevsk State Technical University

1. *Galina Evstafyeva*, senior lecturer, *Marina Fedotova*, PhD, Assoc. Prof., *N. A. Sofronova*. Values of dislocation density and residual surface stresses of diamonds of gem-quality and technical quality

M. K. Ammosov North-Eastern Federal University in Yakutsk

2. *A. E. Dryukova*, *V. V. Ostapchuk*. Automation of laser engraving's processes inside glass  
MIREA, Moscow

3. *A. Yu. Emelyanov*, PhD., Assoc. Prof. Technology of artistic processing of metal in Turkmen traditional jewelry

Saint-Petersburg Marine Technical University

4. *Majd Gharib*, MSc student, *O. M. Sandu*, PhD, Assoc. Prof. The Courtyard House: History, design, and psychological aspects

Kalashnikov Izhevsk State Technical University

5. *K. Korsunskaya*, MSc student, *A. Zhigunova*, BSc student, *M. Sokolova*, DSc, Prof. The problem of universal design in Russia

Moscow University of Technology

6. *M. A. Martynov*, PhD student *I. Yu. Mamedova*, PhD, Assoc. Prof. Perspectives of 3D printing in jewelry production and particularly in metal printing

Moscow Technological University

7. *Kristina Nikolaeva*, MSc. Spectral analysis of heat-treated corundum natural crystals

M. K. Ammosov North-Eastern Federal University in Yakutsk

8. *S. V. Nikolenko*, PhD, Assoc. Prof., *V. L. Zhukov*, PhD, Assoc. Prof., *L. T. Zhukova* PhD, Prof., *V. V. Zhukov*. Process of restoration as the preservation of the design objects cultural code at the moment of critical state of visual cognitive information dynamic system

St. Petersburg State University of Industrial Technologies and Design

9. *M. V. Romanova*, student, *O. M. Sandu*, PhD, Assoc. Prof. Technology used in landscape design

Kalashnikov Izhevsk State Technical University

10. *D. A. Smirnov*, MSc student, *A. A. Pershin*, MSc student. Problems of navigation and ergonomics in the apartment

Moscow Technological University



## Session 4

### Modern Technologies in Mechanical and Instrumentation Engineering

*Venue: Izhevsk, Kalashnikov ISTU, bld. 3, business incubator, room 17, at 10:00*

#### **Chairperson**

*Yu. R. Nikitin*, Associate Professor of Department of Mechatronic Systems  
Kalashnikov Izhevsk State Technical University  
*Aiman Al Akkad*, Associate Professor of Software Department  
Kalashnikov Izhevsk State Technical University

1. *Zdeněk Hazdra, Ing., PhD student, Jan Kudláček, Ing., PhD, Viktor Kreibich, CSc, Doc.* Friction in automotive internal combustion engines  
Czech Technical University in Prague, Czech Republic
2. *A. M. Elshanskaya, F. V. Fogel, MSc students, M. O. Elantsev, senior lecturer, R. O. Sultanov, Assoc. Prof.* Finding the way in automation systems of supply chains within the city conditions  
Kalashnikov Izhevsk State Technical University
3. *F. F. Gazimzyanov, MSc student, Aiman Al Akkad, Assoc. Prof.* Developing an automated system for evaluating 2D-image compositional characteristics  
Kalashnikov Izhevsk State Technical University
4. *Ibrahim N. Ibrahim, PhD student, Aiman Al Akkad, Assoc. Prof.* The dynamics model of a robotic humanlike index finger  
Kalashnikov Izhevsk State Technical University
5. *S. V. Klyukin, MSc student.* Modeling of deformation when pressing by “Conform” method  
Kalashnikov Izhevsk State Technical University
6. *K. A. Orekhov, N. M. Koscheev, V. V. Zhivotov, MSc students, M. O. Elantsev, senior lecturer, R. O. Sultanov, Assoc. Prof.* System of car movement detection using digital image processing  
Kalashnikov Izhevsk State Technical University
7. *T. V. Pronenko, MSc student.* Artificial neural network  
Kalashnikov Izhevsk State Technical University
8. *M. I. Shulyatev, PhD student, A. A. Trubitsyn, PhD student.* Process of accumulation of strain by method for producing of hardened sheet metal workpiece by longitudinal and transverse serial molding – rectification  
Kalashnikov Izhevsk State Technical University
9. *V. V. Sitnikov, MSc student.* Reliability analysis of railway security systems  
Kalashnikov Izhevsk State Technical University
10. *I. S. Zvonarev, student.* Development of multi-link wheeled model of road trains  
Kalashnikov Izhevsk State Technical University

## ORGANIZING COMMITTEE ADDRESS

*A. V. Elensky*

Vice-Rector for International Relations  
and Accreditation

Kalashnikov Izhevsk State Technical University

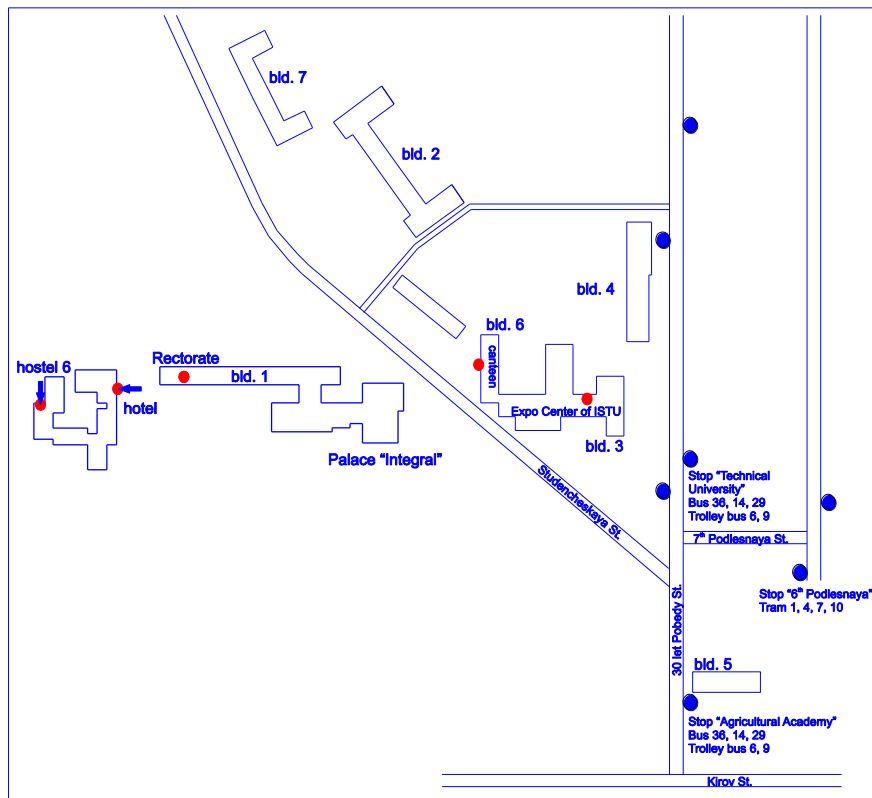
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## SCHEME OF ISTU CAMPUS



### Transportation

#### from the railway station:

tram No 1; stop "6<sup>th</sup> Podlesnaya"

bus No 36; stop "Technical University"

#### from the city center:

tram No 1, 4, 7, 10; stop "6<sup>th</sup> Podlesnaya"

trolley bus No 6, 9; stop "Technical University"

bus No 36; stop "Technical University"

## NOTES

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