14th International Scientific Conference

ENGINEERING FOR RURAL DEVELOPMENT

PROGRAMME

Jelgava, Latvia, May 20 – 22, 2015
PROGRAM COMMITTEE
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Vaclav Romaniuk, Institute of Technology and Life Sciences, Poland
Kaspars Vartukapteinis, Latvia University of Agriculture, Latvia
Yang Zhang, The University of Sheffield, United Kingdom
Vladimir Peredna, Scientific and Practical Centre of the National Academy of Sciences of Belarus for Agriculture Mechanization, Belarus
Semjons Ivanovs, Latvia University of Agriculture, Latvia

ORGANISING COMMITTEE
Chairman: Janis Palabinskis, Latvia University of Agriculture, Latvia

Members:
Aivars Aboltins, Latvia University of Agriculture, Latvia
Dainis Berjoza, Latvia University of Agriculture, Latvia
Baiba Briede, Latvia University of Agriculture, Latvia
Ilmars Dukulis, Latvia University of Agriculture, Latvia
Ainars Galins, Latvia University of Agriculture, Latvia
Imants Nulle, Latvia University of Agriculture, Latvia
Dainis Viesturs, Latvia University of Agriculture, Latvia
Vitalijs Osadeuks, Latvia University of Agriculture, Latvia

ABSTRACTED AND INDEXED: Elsevier SCOPUS, Thomson Reuters Web of Science, AGRIS, CAB ABSTRACTS, CABI full text, EBSCO Academic Search Complete

ONLINE: Proceedings ENGINEERING FOR RURAL DEVELOPMENT is available online at http://tf.llu.lv/conference/proceedings2015/
**Wednesday, 20 May**

16:00 – 18:00 Registration, welcome party, coffee and snacks, Faculty of Engineering, LUA, 5 J. Cakstes blvd., 2nd floor, Room 254

**Thursday, 21 May**

9:00 – 10:00 Registration of participants, Faculty of Engineering, LUA, 5 J. Cakstes blvd., 2nd floor, Room 254, Coffee

10:00 – 12:10 Opening of the conference and plenary session
Faculty of Engineering, Room 429

Chairman: Dr.sc.ing. Aivars Aboltins, Latvia University of Agriculture
Vice-chairman: Dr. sc.ing. Janis Palabinskis, Latvia University of Agriculture

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<td>Ilmars Dukulis</td>
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<td><em>Dean of the Faculty of Engineering, Latvia University of Agriculture</em></td>
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<td>10:10</td>
<td>SEVENTY YEARS OF AGRICULTURAL ENGINEERING EDUCATION AND SCIENCE</td>
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<td>ECONOMIC COST ANALYSIS IN HIGHER EDUCATION IN LATVIA</td>
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<td>Daina Vasilevska[1], Baiba Rivza[2]</td>
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<td>[1]Riga Technical University, Latvia; [2]Latvia University of Agriculture</td>
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<td>ISSUES OF SOLID WOOD BIOMASS DEVELOPMENT FOR BIOENERGY IN LATVIA</td>
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<td>Ligita Melece, Agnese Krievina</td>
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<td>3D RECONSTRUCTION OF MINING HARVESTER HEAD USING MULTI-VIEW PHOTO</td>
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<td>David Hoffmann, Petr Hermanek, Adolf Rybka, Ivo Honzik</td>
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<td>Regulations: Presentations – 10 minutes Discussions – 5 minutes</td>
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*Conference languages – English, Russian, Latvian*
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Czech University of Life Sciences Prague

2 MOVEMENT AND TRANSFORMATION OF GRAIN IN TWO-STAGE CRUSHER
Vasiliy Sysuev¹, Semjons Ivanovs², Peter Savinyh¹, Vladimir Kazakov¹
¹North-East Agricultural Research Institute, Russia; ²Latvia University of Agriculture

3 MECHANICAL BEHAVIOUR OF BULK RAPESEEDS UNDER QUASI DYNAMIC COMPRESSION LOADING
David Herak, Vladimir Sleger, Cestmir Mizera, Ales Sedlacek
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4 ESTIMATED MATHEMATICAL MODEL OF PLANE-PARALLEL MOTION OF TRAILED HEMP HARVESTING AGGREGATE
Volodimir Bulgakov¹, Semjons Ivanovs², Valerii Adamchuk³
¹National University of Life and Environmental Sciences of Ukraine; ²Latvia University of Agriculture; ³National Research Centre of the National Sciences of Ukraine “Institute of Mechanization and Electrification of Agriculture”

5 MATHEMATICAL MODEL FOR DETERMINATION OF LOSSES OF SUGAR BEARING-MASS WHEN SUGAR BEET TOPS ARE REMOVED
Volodimir Bulgakov¹, Semjons Ivanovs², Valeriy Adamchuk³, Andrey Boris³
¹National University of Life and Environmental Sciences of Ukraine; ²Latvia University of Agriculture; ³National Research Centre of the National Academy of Agrarian Sciences of Ukraine “Institute of Mechanization and Electrification of Agriculture”

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Lukas Benes, Petr Hermanek, Petr Novak
Czech University of Life Sciences Prague

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Egidijus Sarauskis¹, Kristina Vaitauskiene¹, Kestutis Romanekas¹, Antanas Sakalauskas¹, Algirdas Jasinskas¹, Vidmantas Butkus¹, Davut Karayel², Zita Kriauciuniene¹
¹Aleksandras Stulginskis University, Lithuania; ²Akdeniz University, Turkey

8 AERODYNAMIC PROPERTIES OF NOISE SILENCERS
Pavel Kic
Czech University of Life Sciences Prague

9 SELECTED FACTORS AFFECTING MICROCLIMATIC CONDITIONS IN DRIVER’S CABIN
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Czech University of Life Sciences Prague
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RESISTANCE SPOT WELDING OF STEEL SHEETS OF DIFFERENT THICKNESS
Milan Brozek
Czech University of Life Sciences Prague

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Jiri Masek, Petr Novak, Tomas Pavlicek
Czech University of Life Sciences Prague

FLEET OF TRACTORS ON FARMS OF LATVIA
Nikolajs Kopiks, Dainis Viesturs, Oskars Valainis
Latvia University of Agriculture

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Juris Priekulis¹, Aivars Aboltins¹, Armins Laurs¹, Ligita Melece²
¹Latvia University of Agriculture; ²Latvian State Institute of Agrarian Economics

EFFICIENCY OF HEAT RECOVERY FROM PIGSTY MANURE
Andrievs Ilsters, Imants Ziemelis, Henriks Putans
Latvia University of Agriculture

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   \(^1\)Aleksandras Stulginskius University; \(^2\)Lithuanian Research Center for Agriculture and Forestry

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¹Latvia University of Agriculture; ²Riga Technical University, Latvia

14 RESEARCH IN OAK WASTE PREPARATION AND UTILIZATION FOR BURNING
Algirdas Jasinskas¹, Rolandas Domeika¹, Egidijus Sarauskis¹, Ramunas Mieldazys¹, Vytautas Kucinskas¹, Andres Annuk²
¹Aleksandras Stulginskis University, Lithuania; ²Estonian University of Life Sciences, Estonia

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Josef Pecen, Petra Zabloudilova
Czech University of Life Sciences in Prague
Section 3: MOTOR VEHICLES AND FUELS

5 J. Cakstes blvd., Room 431
Chairman: Dr.sc.ing. Gints Birzietis, Latvia University of Agriculture
Vice-chairman: Dr.sc.ing. Eriks Kronbergs, Latvia University of Agriculture

1 AERODYNAMIC CHARACTERISTICS OF CARS WITH TRAILERS IN ROAD EXPERIMENTS
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Latvia University of Agriculture

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Latvia University of Agriculture

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¹Riga Technical University; ²Latvia University of Agriculture

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\textsuperscript{1}Latvia University of Agriculture; \textsuperscript{2}Riga Technical University, Latvia

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University of Warmia and Mazury in Olsztyn
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¹Institute of Physical Energetics, Latvia; ²Ventspils University College, Latvia

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¹Transport and Telecommunication Institute, Latvia; ²Latvia University of Agriculture; ³AUTO CADA AJ LTD., Latvia; ⁴TransfoElectric, Latvia

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¹Armgate LLC, Latvia; ²Latvia University of Agriculture; ³University of Latvia

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¹Riga Technical University, Latvia; ²Ventspils University College, Engineering Research Institute “VSRC”, Latvia

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¹Latvian Maritime Academy; ²Riga Technical University, Latvia

10 VOLTAGE BALANCE CONTROL OF TWO-LEVEL DC-DC CONVERTER
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¹Institute of Physical Energetics; ²Riga Technical University
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   Ilze Pelece
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   ¹Latvia University of Agriculture; ²TransfoElectric, Latvia

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   Riga Technical University

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   ¹Latvia University of Agriculture, Latvia; ²Karamanoglu Mehmetbey University, Turkey; ³TUBITAK Marmara Research Center Genetic Engineering and Biotechnology Institute, Turkey

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5 J. Cakstes blvd., Room 410
Chairman: Dr.sc.ing. Vilis Dubrovskis, Latvia University of Agriculture
Vice-chairman: Dr.sc.ing. Laima Berzina, Latvia University of Agriculture

1 BIO FUEL CONTRIBUTION IN MEETING RENEWABLE ENERGY AND CLIMATE POLICY TARGETS IN LATVIA
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¹University of Warmia and Mazury in Olsztyn, Poland; ²Nicolaus Copernicus University in Toruń, Poland

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¹Latvia University of Agriculture; ²Latvia State Forest Research Institute “Silava”
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Stanislaw Bielski
University of Warmia and Mazury in Olsztyn, Poland

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Aleksandras Stulginskis University

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Aleksandras Stulginskis University, Lithuania

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Latvia University of Agriculture

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Latvia University of Agriculture

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Latvia Univeristy of Agriculture

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Federal State Budget Scientific Institution “Institute for Engineering and Environmental Problems in Agricultural Production” IEEP, Russia
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   ¹Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic; ²University of Žilina, Slovakia

2 EVALUATING COMPETENCES WITH COMPUTERIZED TESTS
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   Baltic Computer Academy Ltd., Latvia

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   Latvia University of Agriculture

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   North-Western Branch of Academy of Information Technologies in Education, Russia

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   North-Western Branch of Academy of Information Technologies in Education, Russia

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   Elena Vakhtina¹, Zuzana Palkova²
   ¹Stavropol State Agrarian University, Russia; ²Slovak University of Agriculture in Nitra, Slovakia

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   Janis Judrups, Uldis Zandbergs, Maksims Kazakovs
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   University of Warmia and Mazury in Olsztyn, Poland

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    ¹Latvia University of Agriculture; ²Fulda University of Applied Sciences, Germany
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Latvia University of Agriculture

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Stavropol State Agrarian University, Russia
1. **INFLUENCE OF OVERLAPPING LENGTH ON PEELING STRENGTH OF ADHESIVE BONDS**
   
   **Jan Cidlina, Miroslav Muller**
   
   *Czech University of Life Sciences in Prague*

2. **INFLUENCE OF ADDITIONAL CHEMICAL COMPONENTS ON MACHINING PROPERTIES OF SELECTED ALUMINIUM-SILICON ALLOY**

   **Natasa Naprstkova¹, Dana Kalincova²**
   
   ¹Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic; ²Technical University of Zvolen, Czech Republic

3. **EVALUATION OF NEW TYPE OF CHEMICAL PRE-TREATMENT APPLIED ON LOW-CARBON STEEL SUBSTRATE USING SEM AND EDS ANALYSIS**

   **Jaroslava Svobodova**
   
   *Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*

4. **BENDING STRAINS OF STEEL CONSTRUCTION IN PROCESS OF WELDING BY MAG TECHNOLOGY**

   **Gunars Verdins¹, Daina Kanaska¹, Mareks Kairiss²**
   
   ¹Latvia University of Agriculture; ²EASTMETAL Ltd., Latvia

5. **EFFECT OF IMPURITIES ON BENDING FATIGUE STRENGTH OF STRUCTURAL STEEL**

   **Tomasz Lipinski, Anna Wach**
   
   *University of Warmia and Mazury in Olsztyn, Poland*

6. **METHODS OF EVALUATION DEGRADED PARTS**

   **Sylvia Kusmierczak**
   
   *Jan Evangelista Purkyně University in Ústí nad Labem, Czech Republic*

7. **MORPHOLOGY OF IMPURITIES IN STEEL AFTER DESULFURIZATION AND VACUUM DEGASSING**

   **Tomasz Lipinski**
   
   *University of Warmia and Mazury in Olsztyn, Poland*

8. **RESEARCH IN MECHANICAL PROPERTIES OF ADHESIVE CONTAMINATED WITH DUSTY MICRO-PARTICLES FROM PRODUCTION PROCESS**

   **Alena Krofova, Miroslav Muller**
   
   *Czech University of Life Sciences Prague*

9. **SURFACE TEXTURE PARAMETERS FOR FLAT GRINDED SURFACES**

   **Natalija Bulaha, Janis Rudzitis**
   
   *Riga Technical University*

10. **POLYHARMONIC METAL DETECTOR**

    **Jakub Svatos¹,², Miloslav Linda¹**
    
    ¹Czech University of Life Sciences Prague; ²Czech Technical University in Prague
11 LABORATORY DETERMINATION OF REFLECTANCE COEFFICIENT SELECTED FOR THE BEDDING MATERIALS RELATED TO THE PROPERTIES OF THE LIGHT SOURCES USED IN THE BARNS
Josef Pecen¹, Petra Zabloudilova²
¹Czech University of Life Sciences Prague; ²Research Institute of Agricultural Engineering; Czech Republic

12 INVESTIGATION OF GRANULATION PROCESS INFLUENCE TO GRANULATED ORGANIC COMPOST FERTILIZER PROPERTIES
Antanas Pocius, Egle Jotautiene, Rolandas Domeika, Algirdas Jasinskas, Vytautas Kucinskas, Mecys Palsauskas
Aleksandras Stulginskis University, Lithuania

13 APPLICATION OF OVERLAY MATERIALS FOR REDUCING ABRASIVE WEAR
Jiri Cieslar¹, Milan Brozek²
¹ATG s.r.o. (Advanced Technical Group), Czech Republic; ²Czech University of Life Sciences Prague
Friday, 22 May

1000 - 1700  Social tour
Departure from 5 J. Cakstes blvd. at 945

The Bauska Castle

The castle surrounded by a picturesque scenery is located in the territory of Bauska town, on the land strip between the rivers Mūsa and Mēmele, not far from the place where the rivers meet to form the river Lielupe. The Bauska castle complex consists of two parts. The oldest of them – Livonia Order Castle – was built in the middle of the 15th century, but only ruins have remained up to nowadays. While the newest – residence for the Duke of Kurzeme (Courland) – was built at the end of the 16th century.

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You have a unique opportunity to visit our brewery in Bauska. We are offering you a 1-1.5 hours guided tour. You will learn some important points about the history of our brewery, as well as it’s secret process of beer producing. At the end of excursion, you will have time to test our beer and non-alcoholic beverages.

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9TH INTERNATIONAL SAND SCULPTURE FESTIVAL

On 23 and 24 May, we invite you to the 9th International Sand Sculpture Festival “Summer Signs” which takes place annually in Jelgava. The sand sculpting theme for this year’s festival participants will be the “Future in 750 Years” which is dedicated to the anniversary of the city. Visitors will be able to see the various interpretations and artists’ visions of the future on 23 and 24 May on Pasta (Post) Island.

The judging committee has selected 15 professional sculptors from eleven countries – Latvia, Estonia, Russia, France, Bulgaria, Turkey, Ukraine, Hungary, Lithuania, Poland, and China. Jelgava Sand Sculpture Festival has become the largest competition of its kind in the Baltics. More than 900 tonnes of sand in total will be used for the preparation of the works.

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