

**Latvia University of Agriculture
Faculty of Engineering**

**Latvia Academy of Agricultural and Forestry Sciences
Division of Engineering**



8th International Scientific Conference

ENGINEERING FOR RURAL DEVELOPMENT

PROGRAMME

The Conference is supported by

Latvian Council of Science

SIA "UNI SAN"

SIA "AGRO SILJA"

Conference languages – English, Russian, Latvian

Jelgava, Latvia, May 28 – 29, 2009

PROGRAM COMMITTEE

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Guntars Uzklīņģis, prof., Dr.hab.sc.ing. Latvia University of Agriculture, Latvia

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<i>Jānis Vizbulis, lector, Mg.sc.ing.</i>	Latvia University of Agriculture (Latvia)
<i>Imants Trezuns, assistant, MG student</i>	Latvia University of Agriculture (Latvia)

Thursday, 28 May

- 9¹⁵ – 10⁰⁰** Registration of participants,
Faculty of Engineering, LUA, 5 J. Cakstes boulv., 4th floor
- 10⁰⁰ – 12⁰⁰** Opening of the conference and plenary session
Faculty of Engineering, Room 410
-
- 10⁰⁰ – 10¹⁰** **Māris Ķirsis**
Dean of Faculty of Engineering Latvia University of Agriculture (LUA)
OPENING SPEECH
- 10¹⁰ – 10²⁵** **Pēteris Rivža**
pro-rector of Latvia University of Agriculture
DEVELOPMENT TRENDS OF AGRICULTURAL RESEARCH
- 10²⁵ – 10⁴⁰** **Kaspars Vārtukapteinis**
Professor of Faculty of Engineering Latvia University of Agriculture
DEVELOPMENT OF AGRICULTURAL ENGINEERING EDUCATION
IN LATVIA
- 10⁴⁰ – 11⁰⁰** **Vilnis Rantiņš**
*Chairman of the Association Board of mechanical engineering and
metalworking industries of Latvia*
MECHANICAL ENGINEERING DEVELOPMENT IN LATVIA
- 11⁰⁰ – 11¹⁵** **Dukulis Ilmars, Pirs Vilnis, Jesko Zanis, Birkavs Aivars, Birzietis Gints**
Latvia University of Agriculture
TESTING OF AUTOMOBILE VW GOLF OPERATING ON THREE
DIFFERENT FUELS
- 11¹⁵ – 11³⁰** **Vilis Dubrovskis, Imants Plūme**
Latvia University of Agriculture
FORECASTING OF GHG EMISSIONS FROM BIOMASS ENERGY
USAGE IN LATVIA
- 11³⁰ – 11⁴⁵** **Telse Vogel, Matthias Ahlhaus, Mirko Barz**
University of applied science of Stralsund, Germany
OPTIMISATION OF THE BIOGAS PRODUCTION FROM GRASS BY
DRY-WET FERMENTATION
- 11⁴⁵ – 12⁰⁰** **Gints Birzietis, Kaspars Vārtukapteinis**
Latvia University of Agriculture
NETWORK FOR EDUCATION AND RESEARCH IN BIOSYSTEMS
ENGINEERING IN EUROPE
- 12⁰⁰ – 12¹⁵** **Imants Ziemelis**
Professor of Faculty of Engineering Latvia University of Agriculture
CONFERENCE PROGRAMME
-
- 12⁰⁰ – 13⁰⁰** Lunch
- 13⁰⁰ – 15⁰⁰** Work in sections
- 15⁰⁰ – 15¹⁵** Coffee break
- 15¹⁵ – 17³⁰** Work in sections
- Regulations:** *Presentations – 10 minutes*
Discussions – 5 minutes
- 19⁰⁰** Conference dinner
5 J.Cakstes boulv., Room 254

Section 1: AGRICULTURAL MACHINERY

5 J.Cakstes boulv., Room 212

Chairman: Dr.sc.ing. Dainis Viesturs, *Latvia University of Agriculture*

Vice-chairman: Dr.sc.ing. Semjons Ivanovs, *Latvia University of Agriculture*

Secretary: MA student Imants Trezuns, *Latvia University of Agriculture*

1. Aigars Plume, Gundega Dinaburga, Janis Kopmanis, Dainis Lapins, Andris Berzins

Latvia University of Agriculture

EFFECT OF SOIL DEEP PLOUGHING ON WINTER WHEAT DEPENDING ON SOIL CONDITIONS

2. Ansis Saliņš, Juris Priekulis

Latvia University of Agriculture

RESEARCH IN MIXED FEED DISTRIBUTION LINE ON LATVIA UNIVERSITY OF AGRICULTURE TRAINING AND RESEARCH MILK FARM „VECAUCE”

3. Armīns Laurs, Juris Priekulis, Mārtiņš Puriņš

Latvia University of Agriculture

STUDIES OF OPERATING PARAMETERS IN MILKING ROBOTS

4. Arvids Vilde, Adolfs Rucins, Edmunds Pirs

Latvia University of Agriculture

IMPACT OF SOIL HUMIDITY ON THE DRAFT RESISTANCE OF THE PLOUGH BODY

5. Jānis Latvietis, Juris Priekulis

Latvia University of Agriculture

FEED COSTS FOR COWS IN RELATION TO MILK YIELD AND FEEDING

6. Jiří Mašek, Milan Kroulík and František Kumhála

Czech University of Life Sciences

BENEFITS OF CONTROLLED TRAFFIC FARMING

7. Opris Orlando - Sorin, Popescu Simion

Transilvania University of Brasov

THEORETICAL AND EXPERIMENTAL RESEARCHES CONCERNING THE INFLUENCE OF THE VERTICAL OSCILLATIONS OF THE PRECISION SEEDER UNITS ON THE DRILLING PARAMETERS

8. Petr Heřmánek, Adolf Rybka, Ivo Honzík, Bohuslav Jošt

Czech University of Life Sciences

HOP PROCESSING SYSTEM INNOVATION WITH FINAL PRODUCT QUALITY INCREASING

9. Oliver Sada, Boris Reppo

Estonian University of Life Sciences

EFFECT OF ANIMAL KEEPING TECHNOLOGIES ON THE PIGSTY INNER CLIMATE IN SUMMER

10. Vadim Kitikov, Eugene Ternov

The Republican Unitary Enterprise “Scientific-Practical Centre of the National Academy of Sciences of Belarus of Agriculture Mechanization”

COMPARATIVE TECHNICAL AND ECONOMIC ANALYSIS OF COMPLEX DAIRY MANAGEMENT SYSTEMS ON THE BASIS OF RADIO-FREQUENCY AND INFRA-RED IDENTIFICATION OF ANIMALS FOR MILKING PARLOR OF FOREIGN MANUFACTURE

11. Juris Priekulis, Jānis Latvietis

Latvia University of Agriculture

ECONOMIC PROFITABILITY OF MILK PRODUCTION

12. Emīls Pudāns, Guntars Uzklīņis

Latvia University of Agriculture

DETERMINATION OF GEOMETRIC AND KINEMATIC PARAMETERS OF CHAIN WITH ROLLING FRICTION JOINTS

13. Volodimir Bulgakov¹, Semjons Ivanovs²

¹National Agrarian University of Ukraine, ²Latvia University of Agriculture

MATHEMATICAL SIMULATION OF OSCILLATIONS OF TOWED AGRICULTURAL AGGREGATES

Section 2: VEHICLE AND FUELS

5 J. Cakstes boulv., Room 336

Chairman: Prof., Dr. sc. ing. Gints Birzietis
Latvia University of Agriculture

Vice-chairman: Docent, Mg. sc. ing. Ilmārs Dukulis
Latvia University of Agriculture

1. Aleksandras Kirka

Lithuanian University of Agriculture

INVESTIGATION OF PARAMETERS OF ACCUMULATOR TRANSMISSION OF SELF-MOVING MACHINE

2. Alexandr Arshanitsa¹, Inesa Barmina², Galina Telysheva¹, Tatjana Dizhbite¹, Anna Andersone¹, Maija Zake², Ilmars Grants²

¹*Latvian State Institute of Wood Chemistry*, ²*Institute of Physics*

THE COMPOSITION AND FUEL CHARACTERISTICS OF NON-HYDROLYZED RESIDUES FROM WHEAT STRAW ETHANOL PRODUCTION

3. Antanas Juostas, Algirdas Janulevičius

Lithuanian University of Agriculture

INVESTIGATION OF INTERACTION BETWEEN TRACTOR LOAD AND DATA COLLECTED IN THEIR MODULES

4. Arne Kyyt, Jyri Olt

Estonian University of Life Sciences

PRODUCTION OF VEGETABLE OIL AS FUEL

5. Dainis Berjoza, Arnis Mickevičs

Latvia University of Agriculture

RESEARCH IN PARAMETERS OF BRAKING FOR AUTOMOBILES

6. Gunārs Brēmers¹, Gints Birzietis¹, Anita Blija¹, Arnolds Šķēle¹, Aleksejs Daņiļevičs²

¹*Latvia University of Agriculture*, ²*Latvia University*

BIOETHANOL CONGRUENT DEHYDRATATION

7. Gvidonas Labeckas, Stasys Slavinskas

Lithuanian University of Agriculture

PERFORMANCE AND EMISSION CHARACTERISTICS OF OFF-ROAD DIESEL ENGINE OPERATING ON RAPESEED OIL AND PETROL BLENDS

8. Dukulis Ilmars, Birkavs Aivars, Birzietis Gints, Pirs Vilnis

Latvia University of Agriculture

ADAPTING OF AUTOMOBILE VW GOLF FOR USING PURE RAPESEED OIL AS A FUEL

9. Dukulis Ilmars, Pirs Vilnis, Jesko Zanis, Birkavs Aivars, Birzietis Gints

Latvia University of Agriculture

DEVELOPMENT OF METHODICS FOR TESTING AUTOMOBILES OPERATING ON BIOFUELS

10. Nikolajs Kopiks, Dainis Viesturs

Latvia University of Agriculture

THE FLEET OF TRACTORS ON THE FARMS OF LATVIA AND THE TRENDS OF ITS DEVELOPMENT

11. Pavels Karabesko, Maija Strele, Rasma Seržane, Mara Jure

Riga Technical University

ENVIRONMENTALLY FRIENDLY PRODUCTION TECHNOLOGY OF BIODIESEL

12. Popescu Simion, Sutru Nastase

Transilvania University of Brasov

CONTRIBUTIONS TO THE STUDY OF THE DYNAMICS OF AGRICULTURAL TRACTORS EQUIPPED WITH FRONT-END LOADER AND REAR FORKLIFT LOADER

13. Tālis Paeglis, Pāvels Karabeško, Inese Mieriņa, Rasma Seržane, Maija Strēle, Velta Tupureina, Māra Jure

Riga Technical University

COMPOSITIONS OF HYDRAULIC FLUIDS BASED ON RAPESEED OIL AND ITS DERIVATIVES

Section 3: POWER ENGINEERING AND RENEWABLE ENERGY

5 J. Cakstes boulv., Room 403

Chairman: prof., Dr. sc. ing. Ēriks Kronbergs
Latvia University of Agriculture

Vice-chairman: assoc.prof., Dr. sc. ing. Aivars Kaķītis
Latvia University of Agriculture

1. Aivars Aboltins, Janis Palabinskis, Aigars Lauva, Guntis Rušķis
Latvia University of Agriculture

THE INVESTIGATIONS OF AIR SOLAR COLLECTOR EFFICIENCY

2. Aivars Aboltins, Janis Palabinskis, Aigars Lauva, Guntis Rušķis
Latvia University of Agriculture

THE STEEL-TINPLATE ABSORBERS INVESTIGATIONS IN AIR SOLAR COLLECTOR

3. Aivars Kaķītis¹, Mareks Šmits¹, Ina Belicka²
¹Latvia University of Agriculture, ²State Stende Cereal Breeding Institute

SUITABILITY OF CROP VARIETIES FOR HEAT ENERGY PRODUCTION

4. Lazdiņš Andis¹, Von Hofsten Henrik², Dagnija Lazdiņa¹, Lazdāns Valentīns¹

¹Latvian State Forestry Research Institute "Silava", ²The Forestry Research Institute of Sweden (Skogforsk)

PRODUCTIVITY AND COSTS OF STUMP HARVESTING FOR BIOENERGY PRODUCTION IN LATVIAN CONDITIONS

5. Andrievs Ilsters, Imants Ziemelis, Igors Kristutis

Latvia University of Agriculture

POSSIBILITY OF HEAT PUMP USE FOR PIGLET RESTING PLACE HEATING

6. Ēriks Kronbergs, Mareks Šmits

Latvia University of Agriculture

CUTTING PROPERTIES OF COMMON REED BIOMASS

7. Imants Ziemelis, Liene Kancevica, Zanis Jesko, Henriks Putans

Latvia University of Agriculture

CALCULATION OF ENERGY PRODUCED BY SOLAR COLLECTORS

8. Ilze Pelēce, Uldis Iljins, Imants Ziemelis

Latvia University of Agriculture

MEASUREMENTS AND THEORETICAL CALCULATIONS OF DIFFUSED RADIATION AND ATMOSPHERE LUCIDITY

9. Jūri Olt, Mihkel Laur

Estonian University of Life Sciences

BRIQUETTING DIFFERENT KINDS OF HERBACEOUS BIOMATERIAL

10. Maris Daugavietis, Mudrite Daugaviete, Janis Bisenieks

Latvian Forestry Research Institute "Silava"

THE MANAGEMENT OF GREY ALDER (ALNUS INCANA MOENCH.) STANDS IN LATVIA

11. Valery Karpov, Alexander Kotov

St.-Petersburk State Agrarian University

EFFECTIVE ENERGETICS FOR RURAL LOCALITY (TERRITORIES)

12. Vilis Dubrovskis, Imants Plūme, Vladimirs Koteļņecis, Indulis Straume

Latvia University of Agriculture

INVESTIGATION OF BIOGAS PRODUCTION FROM RELATIVELY DRY BIOMASS

13. Vilis Dubrovskis, Aleksandrs Adamovičs, Imants Plūme

Latvia University of Agriculture

BIOGAS PRODUCTION FROM REED CANARY GRASS AND SILAGE OF MIXED OATS AND BARLEY

14. Aivars Kaķītis, Imants Nulle

Latvia University of Agriculture

ELECTROSTATIC BIOMASS MIXING

15. Vilis Dubrovskis, Imants Plūme, Indulis Straume

Latvia University of Agriculture

INVESTIGATION OF BIOGAS PRODUCTION FROM MINK AND COW MANURE

Section 4: AUTOMATION AND MATERIAL SCIENCES

5 J. Cakstes boulv., Room 314

Chairman: Prof, Dr. sc. ing. Ainārs Galiņš, *Latvia University of Agriculture*

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1. Arvids Vilde¹, Aivars Cesnieks¹, Janis Kleperis², Vadims Ogorodniks² Sandris Cesnieks¹

¹*Latvia University of Agriculture*, ²*Institute of Solid State Physics of University of Latvia*

EQUIPMENT FOR ECOLOGICAL GRAIN DRYING WITH MICROCLIMATE MONITORING AND DISTANCES CONTROL

2. Alexandra Nováková, Milan Brožek

Czech University of Life Sciences Prague

BONDING OF NON-METALLIC MATERIALS USING THERMOPLASTIC ADHESIVES

3. Jurijs Meitalovs, Aleksejs Histjajevs, Egils Stalidzāns

Latvia University of Agriculture

AUTOMATIC MICROCLIMATE CONTROLLED BEEHIVE OBSERVATION SYSTEM

4. Gatis Muiznieks, Eriks Gerins

Riga Technical University

ANALYSIS OF POSSIBILITIES TO IMPROVE THE SURFACE PHYSICAL MECHANICAL PROPERTIES OF ROTORS OF SCREW TYPE PUMPS

5. Gunars Verdins, Daina Kanaska

Latvia University of Agriculture

THE CHANGES OF PHYSICALLY-MECHANICAL CHARACTERISTICS AND STRUCTURE OF STEELS, CUT BY PLASMA

6. Jānis Greivulis, Jānis Doniņš

Riga Technical University

PULSE DENSITY MODULATION CIRCUIT

7. Jānis Fridrihsons

Latvia University of Agriculture

HALF – AUTOMATIC COMBINED HEATING AND IRRADIATION DEVICE FOR PIGLETS

8. Jānis Fridrihsons, Ainārs Galiņš

Latvia University of Agriculture

THE EFFECTIVE ELECTRICAL LIGHTNING SYSTEM

9. Jānis Voītkāns, Andris Voītkāns, Ilmārs Osmanis

Riga Technical University

INVESTIGATIONS ON ELECTRICAL FIELDS AND CURRENT FLOW THROUGH SYSTEM OF ELECTRODE WITHIN ELECTRODE

10. Dalia Kasperīūnaitė, Juozas Navickas, Imants Ziemelis

Lithuanian University of Agriculture, Kaunas College of Forestry and Environmental Engineering, Latvia University of Agriculture

THERMAL AND ABSORPTION PROPERTIES OF UNBURNT CLAY SAMPLES

11. Milan Brožek, Alexandra Nováková

Czech University of Life Sciences Prague

SOLDERING OF STEEL USING SOFT SOLDERS

12. Uldis Antonovičs, Jānis Greivulis

Riga Technical University

THE ROTATION AND OSCILLATING MODES OF ASYNCHRONOUS MOTOR SUPPLIED FROM SINGLE-PHASE NET

13. Vadim Ogorodnik¹, Janis Kleperis¹, Albert Kristinsh¹, Irina Gvardyna¹, Aivars Cesnieks², Arvids Vilde²

¹ *Institute of Solid State Physics of University of Latvia*, ² *Research Institute of Agricultural Machinery of the Latvia University of Agriculture*

AUTOMATED CONTROL OF THE GRAIN DRYING PROCESS

14. Viesturs Bražis, Jānis Greivulis

Riga Technical University

THE APPLICATION OF SUPERCAPACITOR ENERGY STORAGE DEVICES IN INDUCTION DRIVES

15. Raimunds Selegovskis, Indulis Straume

Latvia University of agriculture

THE MODELLING OF CONTROL SYSTEM OPERATION OF COMBINED POWER AND HEAT PRODUCING PLANT

Section 5: ENGINEERING ECONOMICS AND EDUCATION

5 J. Cakstes boulv., Room 405

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Vice-chairman: Anete Mežote
Latvia University of Agriculture

1. Andres Menind, Jūri Olt

Estonian University of Life Sciences

BIOGAS PLANT INVESTMENT ANALYSIS, COST BENEFIT AND ITS MAIN FACTORS

2. Larisa Maļinovska, Silvija Štrausa, Anna Vintere, Anda Zeidmane

Latvia University of Agriculture

HOW BEST TO EDUCATE THE FUTURE ENGINEERS

3. Janīna Osnovina

Daugavpils University

ABOUT TECHNICAL DRAWING'S COMPOSITION

4. Larisa Maļinovska, Anete Mežote

Latvia University of Agriculture

DEVELOPMENT OF COMPETENCES NECESSARY FOR ENGINEERS IN THE PROCESS OF STUDIES

5. Andris Upītis, Miervaldis Kristapsons, Imants Ziemelis, Arnolds Šķēle

Latvia University of Agriculture

LOCAL RESOURCES IN THE SYSTEM OF POWER SUPPLY TO THE RURAL REGION

6. Pavels Patlins

Riga Technical University

DELIVERY PROBLEMS SOLUTION FOR SMALL-CARGO PHYSICAL DISTRIBUTION CONTROL

7. Kaspars Vārtukapteinis, Antoņina Čukure

Latvia University of Agriculture

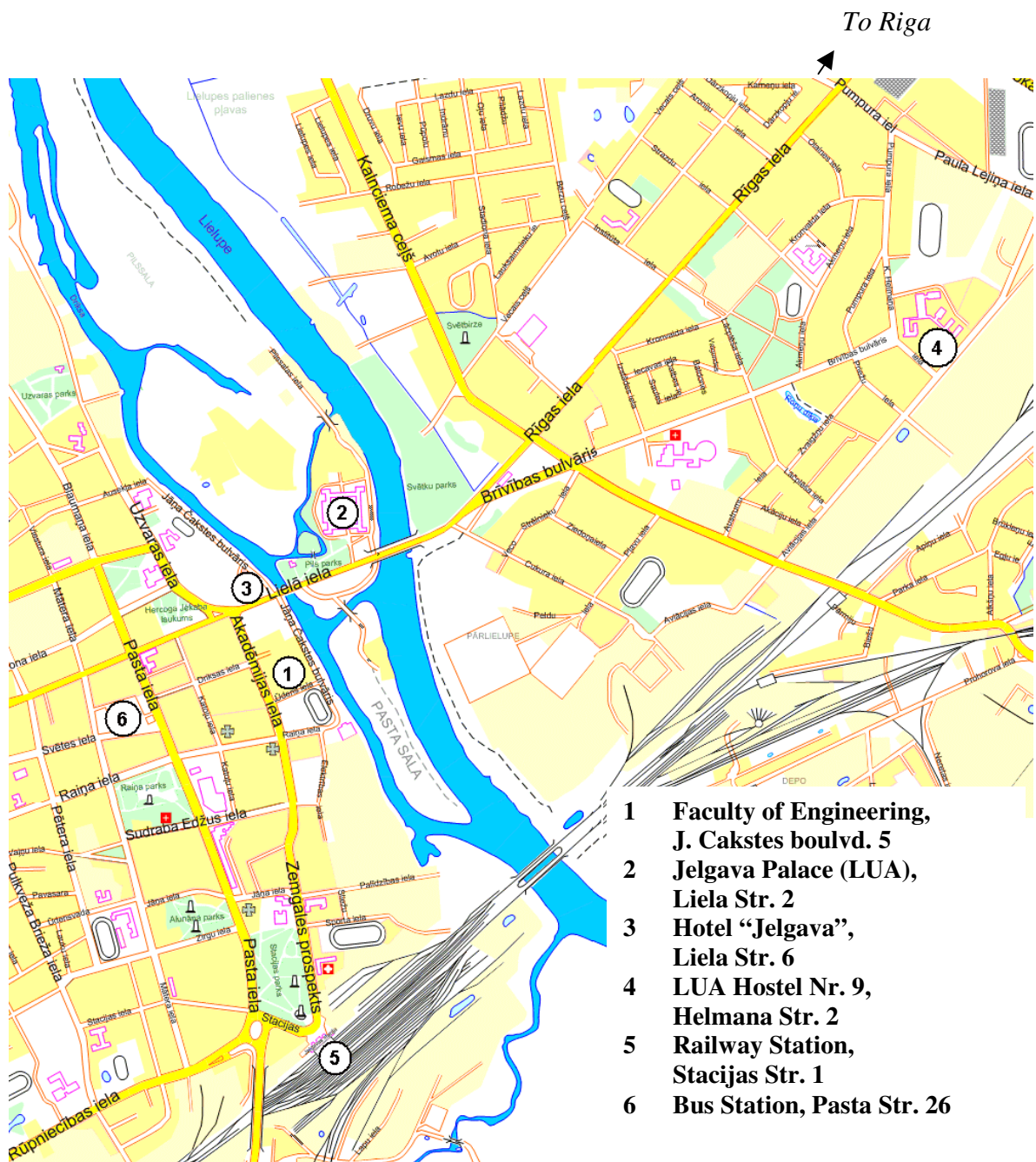
DEVELOPMENT OF COLLABORATION WITH GRADUATES THROUGH REUNION

Friday, 29 May

10⁰⁰ - 12⁰⁰ Closing session

5 J. Cakstes boulv., Room 403





- 1 Faculty of Engineering,
J. Cakstes boulvd. 5
- 2 Jelgava Palace (LUA),
Liela Str. 2
- 3 Hotel "Jelgava",
Liela Str. 6
- 4 LUA Hostel Nr. 9,
Helmana Str. 2
- 5 Railway Station,
Stacijas Str. 1
- 6 Bus Station, Pasta Str. 26

Address of the Conference Committee

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