

**Latvia University of Agriculture
Faculty of Engineering**

**14th International Scientific Conference
ENGINEERING FOR RURAL
DEVELOPMENT**

Proceedings, Volume 14

May 20-22, 2015

Jelgava 2015

PROGRAM COMMITTEE

Chairman:

Aivars Aboltins Latvia University of Agriculture, Latvia

Members:

| | |
|------------------------|--|
| Valeriy Adamchuk | National Academy of Agrarian Science of Ukraine (NAASU), Ukraine |
| Andres Annuk | Estonian University of Life Sciences, Estonia |
| Milan Brozek | Czech University of Life Sciences Prague, Czech Republic |
| Algirdas Jasinskas | Aleksandras Stulginskis University, Lithuania |
| Pavel Kic | Czech University of Life Sciences Prague, Czech Republic |
| Nikolai Morozov | All-Russia Scientific-Research Institute of Life-stock Farming Mechanization, Russia |
| Stasys Slavinskas | Aleksandras Stulginskis University, Lithuania |
| Juri Olt | Estonian University of Life Sciences, Estonia |
| Simon Popescu | Transylvania University of Brasov, Romania |
| Juris Priekulis | Latvia University of Agriculture, Latvia |
| 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 Osadcuks, Latvia University of Agriculture, Latvia

EDITORS

Editor of language: Larisa Malinovska

Technical editor: Vitalijs Osadcuks

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/>

ISSN 1691-5976

CONTENT

| | |
|--|-----|
| David Hoffmann, Petr Hermanek, Adolf Rybka, Ivo Honzik 3D RECONSTRUCTION OF MINING HARVESTER HEAD USING MULTI-VIEW PHOTO | 11 |
| Petr Novak, Jiri Masek, Lukas Benes, Jitka Kumhalova EVALUATION OF QUALITATIVE PARAMETERS OF SELECTED SOIL TILLAGE MACHINES FOR LOOSENING SOIL WITHOUT TURNING | 16 |
| Vasiliy Sysuev¹, Semjons Ivanovs², Peter Savinyh¹, Vladimir Kazakov¹ MOVEMENT AND TRANSFORMATION OF GRAIN IN TWO-STAGE CRUSHER..... | 22 |
| David Herak, Vladimir Sleger, Cestmir Mizera, Ales Sedlacek MECHANICAL BEHAVIOUR OF BULK RAPESEEDS UNDER QUASI DYNAMIC COMPRESSION LOADING..... | 28 |
| Volodimir Bulgakov¹, Semjons Ivanovs², Valerii Adamchuk³ ESTIMATED MATHEMATICAL MODEL OF PLANE-PARALLEL MOTION OF TRAILED HEMP HARVESTING AGGREGATE | 33 |
| Volodimir Bulgakov¹, Semjons Ivanovs², Valeriy Adamchuk³, Andrey Boris³ MATHEMATICAL MODEL FOR DETERMINATION OF LOSSES OF SUGAR BEARING-MASS WHEN SUGAR BEET TOPS ARE REMOVED | 41 |
| Lukas Benes, Petr Hermanek, Petr Novak TENSILE RESISTANCE OF WHEELED COMBINE HARVESTER | 46 |
| Egidijus Sarauskis¹, Kristina Vaitauskiene¹, Kestutis Romanekas¹, Antanas Sakalauskas¹, Algirdas Jasinskas¹, Vidmantas Butkus¹, Davut Karayel², Zita Kriauciuniene¹ RESEARCH IN STRIP TILLAGE MACHINE ROW CLEANER TECHNOLOGY PROCESS | 51 |
| Pavel Kic AERODYNAMIC PROPERTIES OF NOISE SILENCERS | 57 |
| Retta Zewdie, Pavel Kic SELECTED FACTORS AFFECTING MICROCLIMATIC CONDITIONS IN DRIVER'S CABIN | 61 |
| Vaclovas Kurkauskas, Algirdas Janulevicius, Gediminas Pupinis AIR PRESSURE IN TIRES EFFECTS ON SLIPPAGE OF TRACTORS | 67 |
| Milan Brozek RESISTANCE SPOT WELDING OF STEEL SHEETS OF DIFFERENT THICKNESS | 72 |
| Jiri Masek, Petr Novak, Tomas Pavlicek EVALUATION OF COMBINE HARVESTER FUEL CONSUMPTION AND OPERATION COSTS | 78 |
| Nikolajs Kopiks, Dainis Viesturs, Oskars Valainis FLEET OF TRACTORS ON FARMS OF LATVIA..... | 84 |
| Juris Priekulis¹, Aivars Aboltins¹, Armins Laurs¹, Ligita Melece² RESEARCH IN MANURE MANAGEMENT IN LATVIA | 88 |
| Andrievs Ilsters, Imants Ziemeļis, Henriks Putans EFFICIENCY OF HEAT RECOVERY FROM PIGSTY MANURE | 94 |
| Halil Unal, Hasan Kuraloglu DETERMINATION OF OPERATING PARAMETERS IN MILKING ROBOTS WITH FREE COW TRAFFIC | 100 |
| Pavel Kic CRITERIA FOR OPTIMIZATION OF MILKING PARLOUR ON DAIRY FARM | 106 |
| Jan Papez, Pavel Kic INDOOR ENVIRONMENT IN MILKING PARLOR AND COWSHED DURING THE MILKING PROCESS..... | 112 |

| | |
|--|-----|
| Lilija Degola | |
| EFFECT OF PULSE IN FINISHING PIG FEEDING | 119 |
| Inara Helena Konosonoka¹, Baiba Osmane¹, Sallija Cerina¹, Vera Krastina², Ira Irena Vitina², Anda Valdovska³ | |
| FEEDING TECHNOLOGY IMPACT ON BROILER PRODUCTIVITY AND INTESTINAL TRACT MICROFLORA | 126 |
| Aivars Kakitis, Imants Nulle, Martins Ozollapins, Janis Kjakste | |
| ASSESSMENT OF COMBUSTION PARAMETERS OF BIOMASS MIXTURES..... | 133 |
| Aivars Kakitis, Roberts Berzins, Uldis Berzins | |
| CUTTING ENERGY ASSESSMENT OF HEMP FIBRES | 140 |
| Martin Krupicka, Adolf Rybka | |
| HOP MATERIAL SEPARATION ON ROLLER CONVEYOR | 146 |
| Roberts Vanags | |
| INVESTIGATION OF SAPROPEL EXTRACTION TECHNICAL TOOLS | 151 |
| Harijs Kalis¹, Ilmars Kangro² | |
| ANALYTICAL SOLUTION FOR 3D MODEL OF PEAT BLOCKS..... | 155 |
| Aivars Aboltins¹, Pavel Kic² | |
| COMPARISON OF MINT PLANT AND PINE CONE DRYING BY CONVECTION..... | 162 |
| Zivile Volkaviciute¹, Algirdas Raila¹, Zydre Kadziulienė², Egidijus Zvicevicius¹, Vita Tilvikiene², Edgaras Tauras¹ | |
| DRYING RESEARCH IN PERENNIAL MUGWORT (<i>ARTEMISIA DUBIA</i> WALL.) | 168 |
| Petr Hrabec, David Herak | |
| MATHEMATICAL MODEL OF SUN DRYING OF SLICED TOMATO IN HAWASSA REGION - ETHIOPIA | 174 |
| Ilze Beitane, Aivars Aboltins, Anita Blija, Uldis Gross, Sigita Boca, Imants Skrupskis | |
| RESEARCH IN HEAT TRANSFER PROCESS DURING FREEZING BERRIES..... | 179 |
| Edmunds Visockis¹, Raimunds Selegovskis², Stanislavs Pleiksnis³ | |
| HEAT LOSSES DECREASING POSSIBILITIES THROUGH BUILDINGS WINDOWS | 184 |
| Elzbieta Szafranko, Joanna A. Pawlowicz | |
| INVENTORY OF AGRICULTURAL BUILDING OBJECTS BASED ON DATA OBTAINED FROM MEASUREMENTS BY LASER SCANNING | 190 |
| Iva Cerna, Josef Pecen | |
| DETERMINING MEAN VALUE OF MISSING PARTICLE SIZE FOR WEIGHT CALCULATION | 195 |
| Semjons Ivanovs¹, Adolfs Rucins¹, Oskars Valainis¹, Dana Belakova², Edgars Kirilovs², Rihards Vidzickis² | |
| RESEARCH OF TECHNOLOGICAL PROCESS OF HEMP SLAB PRODUCTION | 202 |
| Algirdas Jasinskas¹, Rolandas Domeika¹, Egidijus Sarauskis¹, Ramunas Mieldazys¹, Vytautas Kucinskas¹, Andres Annuk² | |
| RESEARCH IN OAK WASTE PREPARATION AND UTILIZATION FOR BURNING | 210 |
| Josef Pecen, Petra Zabloudilova | |
| VALUE OF COMBUSTION HEAT OF BIOMASS MATERIAL DEPENDING ON SIZE OF BIOMASS PARTICLES AND PERIOD OF MEASURING IN CALORIMETER..... | 216 |
| Sergey Rakutko¹, Elena Rakutko¹, Tranchuk Andrey² | |
| COMPARATIVE EVALUATION OF TOMATO TRANSPLANT GROWTH PARAMETERS UNDER LED, FLUORESCENT AND HIGH-PRESSURE SODIUM LAMPS..... | 222 |
| Aivars Aboltins, Janis Palabinskis | |
| RESEARCH IN BREWER'S™ SPENT GRAIN DRYING PROCESS | 230 |
| Petr Valasek | |
| UTILIZATION OF SECONDARY RAW BIOMATERIALS IN FORM OF MICROPARTICLES IN INTERACTION WITH REACTIVE RESIN | 236 |

| | |
|---|-----|
| Aleksandrs Gehsbargs, Vitalijs Krjacko ON PREDATOR-PREY POPULATION DYNAMICS UNDER STOCHASTIC SWITCHED LIVING CONDITIONS | 242 |
| Dainis Berjoza AERODYNAMIC CHARACTERISTICS OF CARS WITH TRAILERS IN ROAD EXPERIMENTS | 250 |
| Dainis Berjoza, Inara Jurgena ANALYSIS OF DISTRIBUTION OF ELECTRIC VEHICLE CHARGING STATIONS IN THE BALTIC | 258 |
| Denis Makarchuk¹, Juris Kreicbergs¹, Aivis Grislis¹, Maris Gailis^{1,2} ANALYSIS OF ENERGIES AND SPEED PROFILES OF DRIVING CYCLES FOR FUEL CONSUMPTION MEASUREMENTS | 265 |
| Juris Kreicbergs, Denis Makarchuk, Gundars Zalcmanis, Aivis Grislis CITY DRIVING ELEMENT COMBINATION INFLUENCE ON CAR TRACTION ENERGY REQUIREMENTS..... | 272 |
| Edgars Repsa, Eriks Kronbergs EFFECT OF RHOMBOID PRESSING MECHANISM ON BRIQUETTING ENERGY..... | 278 |
| Gundars Zalcmanis, Aivis Grislis, Juris Kreicbergs EVALUATION OF SOCIAL LEGISLATION INFRINGEMENTS FOR INTERNATIONAL HAULAGE TRUCK DRIVERS INVOLVED IN ROAD TRANSPORT ACCIDENTS..... | 283 |
| Mareks Smits, Eriks Kronbergs EXPERIMENTAL INVESTIGATION OF SHREDDER CUTTER HEAD VIBRATION PARAMETERS | 290 |
| Sandis Vilums HIGH RISK OF ABRUPT CLIMATE CHANGE REQUIRING CLOSELY ESTIMATE BIOFUEL GREENHOUSE GAS EMISSIONS BY LIFE CYCLE ASSESSMENT..... | 295 |
| Kiril Kazancev, Egle Sendzikiene, Irina Kazanceva APPLICATION OF ENZYMATIC PROCESS FOR BIODIESEL SYNTHESIS FROM VEGETABLE OIL WITH HIGH FATTY ACID CONTENT USING BUTANOL..... | 301 |
| Maris Gailis^{1,2}, Vilnis Pirs¹ ASSESSMENT OF COMPATIBILITY OF FUEL SUPPLY SYSTEM POLYMERIC PARTS WITH BIOETHANOL/GASOLINE BLEND E85 | 307 |
| Vladimir Honig, Jan Taborsky, Zdenek Linhart DETERMINATION OF N-BUTANOL AND ISOBUTANOL IN GASOLINE USING GAS CHROMATOGRAPHY (GC-FID)..... | 313 |
| Vladimir Honig, Zdenek Linhart, Matyas Orsak USE OF BLEND OF FAME FROM ANIMAL FATS WITH BIOBUTANOL AS FUEL IN DIESEL ENGINES..... | 319 |
| Vladimir Honig, Zdenek Linhart, Matyas Orsak USE OF BLEND OF HYDROTREATED VEGETABLE OIL WITH BIOBUTANOL FOR APPLICATIONS IN DIESEL ENGINES..... | 324 |
| Renata Marks-Bielska, Stanislaw Bielski, Krystyna Kurowska, Hubert Kryszk POTENTIAL ABILITY TO INCREASE THE AREA OF WINTER RAPESEED CULTIVATION FOR BIOFUEL PRODUCTION IN POLAND | 330 |
| Vytautas Kucinskas, Algirdas Jasinskas, Vidmantas Butkus, Egle Jotautiene, Antanas Pocius INVESTIGATION OF SAWDUST AND GLYCEROL BLEND BIOFUEL BRIQUETTE PRODUCTION AND USAGE | 336 |
| Marian Lukes, Martin Kotek, Miroslav Ruzicka COMPARISON OF TRANSPORT SYSTEMS IN RURAL AND SUBURBANIZED AREAS WITH REGARDS TO ENERGY CONSUMPTION AND TRAVEL SPEED | 342 |

| | |
|---|-----|
| Aleksejs Zacepins¹, Valerijs Bezrukovs², Vitalijs Komasilovs¹, Vladislavs Bezrukovs² ANALYSIS OF WIND POWER FLOW ON DIFFERENT HEIGHTS IN VENTSPILS REGION BASED ON MEASUREMENTS BY PENTALUM SPIDAR | 348 |
| Arvids Jakusenoks, Aigars Laizans HOUSEHOLD ELECTRIC POWER SUPPLY GRID POWER FACTOR TRENDS | 355 |
| Aleksejs Gedzurs OPERATION IMPROVEMENT OF INDUCTION MOTOR TEMPERATURE PROTECTION DEVICE UNDER EXTREME OVERLOAD | 361 |
| Igors Graurs¹, Aigars Laizans², Peteris Rajeckis³, Aivars Rubenis⁴ PUBLIC BUS ENERGY CONSUMPTION INVESTIGATION FOR TRANSITION TO ELECTRIC POWER AND SEMI-DYNAMIC CHARGING | 366 |
| Revik Vardanjan¹, Aigars Laizans², Andris Jakovics³, Stanislavs Gendelis³ BIOGAS SPECIFIC HEAT CAPACITY VARIATIONS DURING UPGRADING | 372 |
| Ugis Sirmelis, Linards Grigans STATIONARY ESS CONTROL ACCORDING TO TRAM TRAFFIC INTENSITY | 377 |
| Marina Griscenko, Renars Vitols STATOR CORE VIBRATION AND TEMPERATURE ANALYSIS OF HYDROPOWER GENERATION UNIT AT 100 HZ FREQUENCY | 383 |
| Vladimirs Gonca¹, Svetlana Polukoshko², Egons Lavendelis¹ TUNEABLE ELASTOMERIC VIBRATION ISOLATOR | 389 |
| Aleksandrs Gasparjans¹, Maria Hramcova¹, Aleksandrs Terebkovs¹, Anastasia Zhiravetska² WIND POWER INDUCTOR GENERATOR WITH ELECTROMAGNETIC REGULATION OF AIR GAP FOR ALTERNATIVE POWER ENGINEERING..... | 396 |
| Kaspars Kroics¹, Ugis Sirmelis¹, Viesturs Brazis² VOLTAGE BALANCE CONTROL OF TWO-LEVEL DC-DC CONVERTER | 402 |
| Ilze Pelece CYLINDRICAL SOLAR COLLECTOR WITH REFLECTOR | 408 |
| Viktorija Zagorska, Henriks Putans, Ilze Pelece, Imants Ziemelis ROLLED UP HEMP MASS DESICCATION IN FIELD CONDITIONS BY SOLAR RADIATION | 414 |
| Aigars Laizans¹, Ainars Galins¹, Vitalijs Osadcuks¹, Aldis Pecka¹, Aivars Rubenis² FERROMAGNETIC COILS FOR WIRELESS POWER TRANSFER | 420 |
| Janis Viba, Abdessemed Chaouki, Oskars Ozolins, Valters Cipruss DECOMPOSITION METHOD FOR ANALYSIS OF ROBOT VERTICAL VIBRATION MOVEMENT | 428 |
| Janis Viba, Maris Eiduks, Martins Irbe DOUBLE PENDULUM VIBRATION MOTION IN FLUID FLOW | 434 |
| Armands Kviesis¹, Aleksejs Zacepins¹, Mahmut Durgun², Saban Tekin³ APPLICATION OF WIRELESS SENSOR NETWORKS IN PRECISION APICULTURE | 440 |
| Armands Kviesis, Aleksejs Zacepins, Gatis Riders HONEY BEE COLONY MONITORING WITH IMPLEMENTED DECISION SUPPORT SYSTEM | 446 |
| Aleksandr Vostrukhin¹, Elena Vakhtina² ANALOG-TO-DIGITAL CONVERTER BASED ON THE TRANSIENT PROCESS IN RC- CIRCUIT | 452 |
| Vaclav Papez¹, Stanislava Papezova² ISOLATED SOLAR POWER STATION | 458 |
| Jan Hart, Veronika Nidlova TESTING OF DETECTORS OF OPENING IN INTRUSION AND HOLD-UP ALARM SYSTEMS | 466 |

| | |
|---|-----|
| Agnieszka Dawidowicz, Anna Klimach, Ryszard Zrobek INTELLIGENT LIGHTING - NEW DIRECTION OF RURAL AREAS DEVELOPMENT IN POLAND | 470 |
| Liene Kancevica, Imants Ziemelis, Aivars Aboltins MATHEMATICAL MODEL FOR SOLAR ENERGY COLLECTOR WITH REFLECTORS | 477 |
| Ligita Melece, Agnese Krievina ISSUES OF SOLID WOOD BIOMASS DEVELOPMENT FOR BIOENERGY IN LATVIA..... | 483 |
| Gaidis Klavs, Ivars Kudrenickis, Janis Rekis BIOFUEL CONTRIBUTION IN MEETING RENEWABLE ENERGY AND CLIMATE POLICY TARGETS IN LATVIA..... | 490 |
| Vilis Dubrovskis, Vladimirs Kotelenecs, Imants Plume ANAEROBIC DIGESTION OF VEGETABLE PROCESSING WASTES WITH CATALYST METAFERM AND MICROELEMENTS | 497 |
| Vilis Dubrovskis, Imants Plume BIOGAS POTENTIAL FROM FRESHWATER ALGAE..... | 502 |
| Inesa Barmina, Antons Kolmickovs, Raimonds Valdmans, Sergejs Vostrikovs, Maija Zake ELECTRIC FIELD CONTROL OF BIOMASS GASIFICATION..... | 510 |
| Inesa Barmina, Aleksandrs Cipijs, Janis Valdmans, Raimonds Valdmans, Maija Zake ELECTRIC FIELD EFFECT ON BIOMASS COMBUSTION CHARACTERISTICS | 516 |
| Krystyna Kurowska¹, Roman Rudnicki² ENERGY CROPS IN POLISH AGRICULTURE BASED ON RESULTS OF AGRICULTURAL CENSUS OF 2010 | 522 |
| Jan Chyba, Milan Kroulik, Vaclav Brant, Jiri Masek YIELD CROP DEPENDENCE ON SOIL PROPERTIES AND SOIL WATER AVAILABILITY | 530 |
| Aleksandrs Adamovics, Rasma Platece FLUE GASES EMITTED BY TIMOTHY AND MEADOW FESCUE PELLETS | 536 |
| Rasma Platece¹, Aleksandrs Adamovics¹, Liena Poisa¹, Edgars Cubars², Skaidrite Bumane³ ASH CONTENT IN GRASS BIOMASS YIELDED IN 1 ST AND 2 ND CULTIVATION YEAR AND EVALUATION OF SUITABILITY THEREOF FOR PELLET PRODUCTION..... | 541 |
| Sarmite Rancane¹, Aldis Karklins¹, Dagnija Lazdina², Peteris Berzins¹ BIOMASS YIELD AND CHEMICAL COMPOSITION OF PERENNIAL GRASSES FOR ENERGY PRODUCTION..... | 546 |
| Stanislaw Bielski ENERGY BALANCE EVALUATION OF WINTER TRITICALE PRODUCTION | 552 |
| Kestutis Romaneckas, Remigijus Zinkevicius, Dainius Steponavicius, Antanas Maziliauskas, Vidmantas Butkus, Ausra Marcinkeviciene PRINCIPLES OF PRECISION AGRICULTURE IN ON-FARM SPRING WHEAT FERTILIZATION EXPERIMENT | 558 |
| Vilma Naujokiene, Egidijus Sarauskis, Kristina Vaitauskiene, Ieva Skukauskaite INFLUENCE OF BIO-PREPARATION ON CUTTING CHARACTERISTICS OF CANNABIS RESIDUES | 564 |
| Irina Pilvere, Arnis Lenerts AGRICULTURAL GHG EMISSION AND MITIGATION MEASURES IN LATVIA | 571 |
| Ritvars Sudars, Laima Berzina, Juris Priekulis DAIRY FARMING AND GREENHOUSE GAS EMISSIONS IN LATVIA: SOME METHODOLOGICAL ASPECTS OF GREENHOUSE GAS INVENTORY | 577 |

| | |
|--|-----|
| Dina Popluga, Kaspars Naglis-Liepa EVALUATION OF MEASURES FOR MITIGATION OF GREENHOUSE GAS EMISSIONS SUITABLE FOR LATVIAN AGRICULTURE | 584 |
| Evgenia Lantsova, Valerii Vtoryi, Sergei Vtoryi INVESTIGATION OF WATER EVAPORATION FROM CATTLE MANURE..... | 590 |
| Katarzyna Kocur-Bera, Malgorzata Dudzinska ROADSIDE VEGETATION - THE IMPACT ON SAFETY | 594 |
| Aiga Trupa, Elita Aplocina, Lilija Degola FORAGE QUALITY AND FEED INTAKE EFFECT ON METHANE EMISSIONS FROM DAIRY FARMING..... | 601 |
| Miroslav Cespiva, Petra Zabloudilova REDUCTION OF AMMONIA EMISSIONS FROM LIVESTOCK HOUSING BY BIOTECHNOLOGICAL AGENTS..... | 606 |
| Daina Vasilevska¹, Baiba Rivza² ECONOMIC COST ANALYSIS IN HIGHER EDUCATION IN LATVIA | 612 |
| Natasa Naprstkova¹, Pavel Kraus¹, Dana Stancekova² STUDENT WORK DURING PREPARATION OF MATERIAL DATASHEETS FOR SPECIFIC COMPANY | 619 |
| Uldis Zandbergs, Janis Judrups EVALUATING COMPETENCES WITH COMPUTERIZED TESTS | 625 |
| Ilze Kazaine OVERVIEW OF MULTIMEDIA E-LEARNING MATERIALS | 631 |
| Vladimir Romanenko, Galina Nikitina LEARNING OF TECHNOLOGIES: ROAD FROM NON-FORMAL EMPIRICAL DESCRIPTIONS TO FORMAL MATHEMATICAL STUDY | 636 |
| Vladimir Romanenko, Galina Nikitina COMPUTER ASSISTED INSTRUCTIONAL TECHNOLOGIES: NEW DEMANDS FOR TEACHERS' STAFF | 648 |
| Elena Zorina, Olga Chudnova DEVELOPMENTAL TEACHING IN THE PROCESS OF FORMATION COMMUNICATIVE COMPETENCE IN READING PROFESSIONALLY-ORIENTED TEXTS..... | 656 |
| Elena Vakhtina¹, Zuzana Palkova² DIDACTIC DESIGNING OF LEARNING OBJECTS | 661 |
| Janis Judrups, Uldis Zandbergs, Maksims Kazakovs COMPETENCE BASED HUMAN RESOURCE DEVELOPMENT SOLUTION | 669 |
| Alexandra Novakova EVALUATION OF TEACHING OF SUBJECT "MATERIAL SCIENCE" | 675 |
| Modrite Pelse, Sandija Zeverte-Rivza INNOVATIONS AND THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGIES IN ENTREPRENEURSHIP IN LATVIA..... | 681 |
| Krystyna Kurowska, Hubert Kryszk IDENTIFICATION OF FACTORS INFLUENCING THE TRANSACTION PRICE OF AGRICULTURAL REAL ESTATE..... | 688 |
| Aija Eglite¹, Barbara Freytag-Leyer² POTENTIAL RYE BREAD CONSUMERS | 694 |
| Dace Brizga, Ludis Peks WORK ENVIRONMENT ASSESSMENT IN THE ASPECT OF WORK PSYCHOLOGY PROCESSES | 699 |

| | |
|---|-----|
| Aleksejs Nipers¹, Irina Pilvere¹, Agnese Krievina² SIZES OF FARMLAND NECESSARY FOR EARNING MINIMUM INCOME AND INVESTMENT REQUIRED FOR FARMS OF VARIOUS SPECIALISATIONS IN LATVIA | 705 |
| Irena Katane¹, Ineta Kristovska² EVALUATION OF SPECIALISTS' COMPETITIVENESS IN MODERN ENTERPRISE..... | 713 |
| Irena Katane¹, Ineta Kristovska², Edgars Katans³ EVALUATION OF DISTANCE EDUCATION ENVIRONMENTAL ADVANTAGES | 720 |
| Tomasz Salata, Barbara Prus, Jaroslaw Janus PLANNING AS TRIGGER FOR LAND USE CHANGES..... | 729 |
| Irina Plotka, Jelena Shaplavska, Nina Blumenau, Tatjana Gajevska RESEARCH IN HARDINESS OF SECURITY GUARDS WITH IMPLICIT ASSOCIATION TEST AND SELF-EVALUATION PROCEDURES | 735 |
| Dagnija Cedere, Inese Jurgena, Janis Gedrovics LONGITUDINAL RESEARCH IN THE CHANGE OF GRADE 9 PUPILS' COGNITIVE INTERESTS IN SCIENCES (2003-2013)..... | 742 |
| Sylvia Kusmierczak USAGE OF TECHNICAL EQUIPMENT IN TEACHING TECHNICAL SUBJECTS..... | 748 |
| Laimonis Zacs, Maksims Zigunovs, Anita Jansone USE OF HIGH PERFORMANCE COMPUTING TECHNOLOGIES AND SCRIPT RUN MEDIATOR MIDDLEWARE FOR EDUCATIONAL PROCESS IN LIEPAJA UNIVERSITY..... | 753 |
| Jan Cidlina, Miroslav Muller INFLUENCE OF OVERLAPPING LENGTH ON PEELING STRENGTH OF ADHESIVE BONDS | 761 |
| Natasa Naprstkova¹, Dana Kalincova² INFLUENCE OF ADDITIONAL CHEMICAL COMPONENTS ON MACHINING PROPERTIES OF SELECTED ALUMINIUM-SILICON ALLOY | 766 |
| Jaroslava Svobodova EVALUATION OF NEW TYPE OF CHEMICAL PRE-TREATMENT APPLIED ON LOW-CARBON STEEL SUBSTRATE USING SEM AND EDS ANALYSIS | 772 |
| Gunars Verdins¹, Daina Kanaska¹, Mareks Kairiss² BENDING STRAINS OF STEEL CONSTRUCTION IN PROCESS OF WELDING BY MAG TECHNOLOGY | 778 |
| Tomasz Lipinski, Anna Wach EFFECT OF IMPURITIES ON BENDING FATIGUE STRENGTH OF STRUCTURAL STEEL..... | 784 |
| Sylvia Kusmierczak METHODS OF EVALUATION DEGRADED PARTS | 790 |
| Tomasz Lipinski MORPHOLOGY OF IMPURITIES IN STEEL AFTER DESULFURIZATION AND VACUUM DEGASSING..... | 795 |
| Armands Grickus NOVEL INSULATION MATERIAL | 801 |
| Alena Krofova, Miroslav Muller RESEARCH IN MECHANICAL PROPERTIES OF ADHESIVE CONTAMINATED WITH DUSTY MICRO-PARTICLES FROM PRODUCTION PROCESS | 806 |
| Natalija Bulaha, Janis Rudzitis SURFACE TEXTURE PARAMETERS FOR FLAT GRINDED SURFACES | 810 |

| | |
|---|-----|
| Jakub Svatos^{1,2}, Miloslav Linda¹ POLYHARMONIC METAL DETECTOR | 817 |
| Josef Pecen¹, Petra Zabloudilova² LABORATORY DETERMINATION OF REFLECTANCE COEFFICIENT SELECTED FOR THE BEDDING MATERIALS RELATED TO THE PROPERTIES OF THE LIGHT SOURCES USED IN THE BARNS | 823 |
| Antanas Pocius, Egle Jotautiene, Rolandas Domeika, Algirdas Jasinskas, Vytautas Kucinskas, Mecys Palsauskas INVESTIGATION OF GRANULATION PROCESS INFLUENCE TO GRANULATED ORGANIC COMPOST FERTILIZER PROPERTIES | 829 |
| Jiri Cieslar¹, Milan Brozek² APPLICATION OF OVERLAY MATERIALS FOR REDUCING ABRASIVE WEAR | 835 |

REVIEWERS

Aboltins A. (LV), Balezentiene L. (LT), Bikse V. (LV), Birzietis G. (LV), Bielski S. (PL), Berzina L. (LV), Beresnevics V. (LV), Bracacescu C. (RO), Briede B. (LV), Brozek M. (CZ), Cespiva M. (CZ), Dawidowicz A. (PL), Dukulis I. (LV), Dobelis J. (LV), Dubrovskis V. (LV), Dvorak F. (CZ), Eglite A. (LV), Finnan J. (IE), Galins A. (LV), Gasparjans A. (LV), Gaworski M. (PL), Grickus A. (LV), Grislis A. (LV), Griscenko M. (LV), Gross U. (LV), Honig V. (CZ), Herak D. (CZ), Hrabe P. (CZ), Iejavs J. (LV), Iljins U. (LV), Ivanova T. (CZ), Ivanovs S. (LV), Jansons I. (LV), Jasinskas A. (LV), Jonkus D. (LV), Jotautiene E. (LT), Jurgena I. (LV), Kakitis A. (LV), Kanaska D. (LV), Kalis H. (LV), Kazaine I. (LV), Kazancev K. (LT), Katane I. (LV), Kalinnikova L. (LV), Karklins A. (LV), Kazakovs M. (LV), Kjakste J. (LV), Kreicbergs J. (LV), Kroics K. (LV), Komass T. (LV), Kuut A. (EE), Komasilovs V. (LV), Konosonoka I.H. (LV), Kusmierczak S. (LT), Kucinskas V. (LV), Kronbergs E. (LV), Laizans A. (LV), Lipinski T. (PL), Lukes M. (LV), Marks-Bielska R. (PL), Melece L. (LV), Muizniece-Brasava S. (LV), Morozovs A. (LV), Naglis-Liepa K. (LV), Naprstkova N. (CZ), Novak P. (CZ), Novakova A. (CZ), Nulle I. (LV), Osadcuks V. (LV), Osmane B. (LV), Palabinskis J. (LV), Papezova S. (CZ), Petrovska S. (LV), Peks L. (LV), Pelece I. (LV), Pepez V. (CZ), Pelse M. (LV), Pecen J. (CZ), Pecka A. (LV), Polukoshko S. (LV), Plotka I. (LV), Popluga D. (LV), Priekulis J. (LV), Raila A. (LT), Repsa E. (LV), Romaneckas K. (LT), Rubina T. (LV), Rucins A. (LV), Schulte R. (IE), Shaplavska J. (LV), Smits M. (LV), Stalidzans E. (LV), Sarauskis E. (LV), Selegovskis R. (LV), Smelds I. (LV), Sniders A. (LV), Trupa A. (LV), Unal H. (TR), Vakhtina E. (RU), Vasilevska D. (LV), Vartukapteinis K. (LV), Venslauskas K. (LT), Verdins G. (LV), Viesturs D. (LV), Vilkevicius G. (LT), Viitols G. (LV), Visockis E. (LV), Volkaviciute Z. (LT), Vostrukhin A. (RU), Zabloudilova P. (CZ), Zacepins A. (LV), Zandbergs U. (LV), Zeverte-Rivza S. (LV), Ziemelis I. (LV), Zvicevicius E. (LT)