
13th International Scientific Practical Conference “Environment. Technology. Resources”

Rezekne Academy of Technologies
Faculty of Engineering
Rezekne, Latvia
June 17 – 18, 2021

Programme



Rezekne
2021

17.06.2021.

CONFERENCE OPENING

10.15-10.30	WELCOME SPEECHES Organizing Committee Chairman Dr.habil.geol. G.Noviks, Scientific Committee Co-Chairman Dr.sc.ing. A.Teilāns
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17.06.2021.

Section 1

INFORMATION TECHNOLOGIES

Chairmen: Sergejs Kodors and Gilberto Marzano

10.30-10.45	ENHANCED PARTICIPANTS' REGISTRATION MODEL ON OPEN PUBLIC EVENTS Aigars Andersons, Siegfried Ritter, Rafail Prodan, Jozef Bushati
10.50-11.05	INDUSTRY 4.0: SOCIAL CHALLENGES AND RISKS Gilberto Marzano, Luis Ochoa Siguencia
11.10-11.25	THE PRESSURE OF TECHNOLOGICAL INNOVATIONS IN MEETING AND EVENT INDUSTRY UNDER THE COVID-19 INFLUENCE Galina Bukovska, Anda Mezgaile, Andris Klepers
11.30-11.45	EDUCATIONAL MODEL FOR CROSS-GENERATIONAL COLLABORATION Rafal Głębocki, Alina Gil, Urszula Nowacka, Joanna Górna, Monika Kowalczyk-Gnyp
11.50-12.05	AUTOMATED SENSORY MONITORING SYSTEM PROTOTYPE FOR CONTINUOUS MONITORING OF MATERIAL AND STRUCTURE STATE Maris Hauka, Vitālijs Pavelko, Ilmars Blumbergs, Raivis Kubulins
12.10-12.25	KEYWORDS OF THE COVID-19: THE USE OF THE INDEX OF THE INTERNET AGGRESSIVENESS IN THE ANALYSIS OF THE NEWS COMMENTARY CORPUS Sandra Murinska
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	IMPROVING ADAPTIVE LEARNING IN A SMART LEARNING ENVIRONMENT Gilberto Marzano, Anda Abuze, Yeliz Nur
13.50-14.05	THE SPATIAL MODELLING OF DISTRIBUTION PATTERNS AND ECOLOGICAL RELATIONSHIPS OF THE GROUND-DWELLING AND GRASS-DWELLING SPIDERS AND OTHER INVERTEBRATES WITHIN THE APŠUCIEMS MIRE OF LATVIA Maija Štokmane, Andris Ziemelis
14.10-14.25	GOVERNMENT COMMUNICATION AND INTERNET RESPONSES: PROFILE OF PRIME MINISTER KRISJĀNIS KARIŅŠ IN SELECTED DIGITAL MEDIA USERS' COMMENTS DURING THE COVID-19 PANDEMIC Vineta Kleinberga
14.30-14.45	SIMULATION OF A SCHOOL CANTEEN TO UNDERSTAND MEAL DURATION IMPACT ON FOOD WASTE Sergejs Kodors, Vitaliy Zhukov, Imants Zarembo, Lienite Litavniece, Jelena Lonska, Anda Zvaigzne
14.50-15.05	CHALLENGES OF ADVANCED ANALYTICS MATURITY MODEL DEVELOPMENT Santa Lemsā
15.10-15.25	SPECIAL SPLINE APPROXIMATION FOR THE SOLUTION OF THE NON-STATIONARY 3-D MASS TRANSFER PROBLEM Ilmārs Kangro, Harijs Kalis, Ērika Teirumnieka, Edmunds Teirumnieks

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Section 2

ENGINEERING EDUCATION

Chairmen: Velta Ļubkina, Edmunds Teirumnieks and Anda Abuže

10.30-10.45	TRANSVERSAL COMPETENCIES FOR DIGITAL READINESS AND DEVELOPMENT OF HUMAN CAPITAL IN ENGINEERING EDUCATION Anda Abuže, Velta Ļubkina
10.50-11.05	ENGINEERING MASTER STUDENTS' VIEWS ON DIGITAL ENTREPRENEURSHIP IN A HOST EUROPEAN COUNTRY Andreas Ahrens, Parulkumari P Bhati, Jelena Zascerinska, Mihails Zascerinskis, Anastasija Aleksejeva, Irina Abjalkiene
11.10-11.25	CONCRETE, REINFORCED BY CARBON FIBRE COMPOSITE STRUCTURE, LOAD BEARING CAPACITY DURING CRACKING Krishna Kiran Annamaneni, Bhumika Vallabhbhai Dobariya, Krasnikovs Andrejs
11.30-11.45	FORMATION OF TOP JOB SKILLS OF TOMORROW AMONG COMPUTER ENGINEERING AND INFORMATION TECHNOLOGIES UNDERGRADUATE STUDENTS IN THE PROCESS OF LEARNING ENGLISH Oleksandr Malykhin, Nataliia Aristova, Nataliia Dichek, Nataliia Dyka
11.50-12.05	SOFT SKILLS DEVELOPMENT STRATEGIES FOR COMPUTER ENGINEERING AND INFORMATION TECHNOLOGIES UNDERGRADUATE STUDENTS DEVISED IN THE PROCESS OF LEARNING ENGLISH Oleksandr Malykhin, Nataliia Aristova, Susanna Melikova

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Section 3

ENVIRONMENT AND RESOURCES

Chairmen: *Gotfrīds Noviks and Andris Skromulis*

10.30-10.45	USING OF AIRBORNE LIDAR ALTIMETRY AND SEMI-AUTOMATED GIS TOOLS FOR IDENTIFICATION AND MAPPING OF FLUVIAL TERRACES IN THE AUGŠDAUGAVA SPILLWAY VALLEY Juris Soms, Valdis Vorsalvs
10.50-11.05	EXPRESSION OF COMMUNICATION SKILLS AND BENEFITS FOR CREATING AN EFFECTIVE MENTORING ENVIRONMENT. COMPARATIVE ANALYSIS OF THE CASE OF LITHUANIA AND LATVIA Vitalija Bartuševičienē, Vaida Bartkute-Norkuniene, Rasa Jodienē, Anda Zvaigzne, Inta Kotāne, Iveta Mietule, Sandra Murinska
11.10-11.25	FINANCIAL MANAGEMENT OF MICRO-ENTERPRISES IN LATVIAN FISHERIES SECTOR Inese Biukšāne
11.30-11.45	EVALUATION OF VIBRATION-BASED GLOBAL STRUCTURAL HEALTH MONITORING METHOD FOR MEDIUM-RISE BUILDINGS Līga Gaile, Ivars Radins
11.50-12.05	ON ONE SCIENTIFICALLY BASED SOWING MANAGEMENT FOR GETTING PARETO-OPTIMAL CROPS HARVEST Sharif E. Guseynov, Ruslans Aleksejevs, Sergey Matyukhin, Jekaterina Aleksejeva, Galina Semenova
12.10-12.25	RESEARCH OF BIOMASS MICRO-COGENERATION SYSTEM INTEGRATION WITH A SOLAR PV PANELS IN ZERO-ENERGY FAMILY BUILDING Janis Kramens, Edgars Vīgants, Ivars Liepiņš, Viktorija Terjanika
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	COMPARISON OF AS, HG AND TL HIGH-FREQUENCY ELECTRODELESS LAMPS FOR DETECTION OF ENVIRONMENTAL POLLUTION Natalja Zorina, Atis Skudra, Gita Revalde, Zanda Gavare
13.50-14.05	IMPACT OF CULTIVATION TECHNOLOGIES ON SOYBEAN PRODUCTION AND QUALITY Inga Jansone, Vita Sterna, Veneranda Stramkale, Aldis Stramkalis, Arnis Justs, Sanita Zute
14.10-14.25	CRITICAL THINKING AS GROUNDS OF SOCIALLY RESPONSIBLE COMMUNICATION Iveta Linina, Velga Vevere
14.30-14.45	ON THE ISSUE OF PLANNING SOWING AGRICULTURAL CROPS WITH THE MINIMUM RISK UNDER THE PRESENCE OF VARIOUS AGROCLIMATIC CONDITIONS Sharif E. Guseynov, Sergey Matyukhin, Misir J. Mardanov, Jekaterina v. Aleksejeva, Olga Sidorenko
14.50-15.05	ASSESSING MERCURY POLLUTION USING BLACK STORK EGGSHELLS Anda Abola, Maris Strazds, Zanda Gavare, Rita Veilande 📧

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Section 4

ENGINEERING SCIENCES AND PRODUCTION TECHNOLOGIES

Chairmen: Lyubomir Lazov and Risham Singh Ghalot

10.30-10.45	INFLUENCE OF THE OVERLAP COEFFICIENT ON THE CONTRAST IN LASER MARKING OF C110W STEEL Nikolay Angelov, Lybomir Lazov, Edmunds Teirumnieks
10.50-11.05	EVALUATION OF DAMAGE OF ROUNDWOOD ASSORTMENTS CAUSED BY VARIED CONSTRUCTION, TECHNICAL SOLUTIONS AND CONDITIONS OF HARVESTER HEAD FEED ROLLERS Ziedonis Miklašēvičs
11.10-11.25	EXPERIMENTAL STUDY AND NUMERICAL MODELLING FOR FLEXURAL CAPACITY OF FRC STRUCTURAL ELEMENTS Liva Luize Bleive, Vitalijs Lusiš
11.30-11.45	RIGID CONNECTION WITH GRANITE CHIPS IN THE TIMBER-CONCRETE COMPOSITE Karina Buka-Vaivade, Dmitrijs Serdjuks, Andrejs Podkoritovs, Leonids Pakrastins, Viktors Mironovs
11.50-12.05	INVESTIGATION OF THE INFLUENCE OF THE NUMBER OF REPETITIONS ON THE PROCESS OF LASER MARKING OF HS6-5-2-5 STEEL Lyubomir Lazov, Nikolay Angelov, Edmunds Teirumnieks
12.10-12.25	CLEANING OF CERAMIC ULTRAFILTRATION MEMBRANES AFTE FILTRATION OF HAY HYDROLYSATE Kamila Gruskevica, Martins Strods, Janis Rubulis, Linda Mezule
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	COMSOL SIMULATION OF LASER WELDING OF ALUMINUM Ivaylo Balchev, Lyubomir Lazov, Nikolaj Angelov, Erika Teirumnieka
13.50-14.05	LASER ABLATION OF PAINT COATINGS IN INDUSTRY Lyubomir Lazov, Nikolay Angelov, Edmunds Teirumnieks, Imants Adijāns, Antons Pacejs, Ērika Teirumnieka
14.10-14.25	PLAIN AND PVA FIBRE-REINFORCED GEOPOLYMER COMPACT TENSION SPECIMEN CRITICAL AREA SURFACE COMPOSITION ASSESSMENT Rihards Gailītis, Andina Sprince, Leonids Pakrastins, Patrycja Bazan, Kinga Koniejenko
14.30-14.45	METHODS FOR OBTAINING SILVER NANOPARTICLES – A REVIEW Risham Singh Ghalot, Lyubomir Lazov
14.50-15.05	ON THE POSSIBILITY OF MARKING EGGS WITH A CO ₂ LASER Lyubomir Lazov, Pēteris Čeirs, Imants Adijāns
15.10-15.25	ON THE POSSIBILITY OF LASER STRIPPING OF COMMUNICATION CABLES WITH LOW-POWER CO ₂ LASER Lyubomir Lazov, Andris Sņikeris
15.30-15.45	INFLUENCE OF FOREST STAND DENSITY ON PINUS SYLVESTRIS ROUNDWOOD QUALITY IN EVEN-AGED MIXED SCOTS PINE STANDS IN MYRTILLOSA MEL. MESOTROPHIC SITE TYPE Ziedonis Miklašēvičs
15.50-16.05	DEVELOPMENT OF THE OPTIMAL DESIGN OF MANUAL GARDEN FORK WITH THE ABILITY TO QUICKLY CLEAN THE WORKING SURFACE Ivan Voiku

18.06.2021.

Section 1

INFORMATION TECHNOLOGIES

Chairmen: Artis Teilāns and Sergejs Kodors


10.30-10.45	E-COMMERCE RETAIL CUSTOMERS REPURCHASE FACTORS INFLUENCING IDENTIFICATION Tereze Peksa, Janis Peksa
10.50-11.05	ON INTEGRATION OF EVOLVING INFRASTRUCTURE TOPOLOGY GRAPHS AND METRIC DATA STREAMS IN INFORMATION TECHNOLOGY INFRASTRUCTURE MANAGEMENT Jānis Kampars, Jānis Grabis, Ralfs Matisons, Artjoms Vindbergs
11.10-11.25	E-LEARNING: DEVELOPING TOMORROW'S EDUCATION Rohit, Peter Grabusts, Artis Teilans
11.30-11.45	COVID-19 NEWS AND AUDIENCE AGGRESSIVENESS: ANALYSIS OF NEWS CONTENT AND AUDIENCE REACTION DURING THE STATE OF EMERGENCY IN LATVIA (2020–2021) Anda Rozukalne, Vineta Kleinberga, Normunds Grūzītis
11.50-12.05	APPLE AND PEAR SCAB ONTOLOGY Imants Zarembo, Artis Teilāns, Toms Bartulsons, Olga Sokolova, Lienīte Litavniece, Anna Nikolajeva
12.10-12.25	EVENT-DRIVEN MANAGEMENT OF ECONOMICS AND THE EXIT OF ECONOMICS FROM STAGNATION Eugene Solozhentsev
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	ETHICAL DEVELOPMENT AND IMPLEMENTATION OF ARTIFICIAL INTELLIGENCE Aleksejs Zorins, Peteris Grabusts
13.50-14.05	FUZZY ROBUST ESTIMATES OF LOCATION AND SCALE PARAMETERS OF A FUZZY RANDOM VARIABLE Oleg Uzhga Rebrov, Galina Kuleshova
14.10-14.25	IMPLEMENTATION OF THE DIFFERENCE SCHEME FOR ABSORPTION EQUATION TYPE PROBLEMS APPLYING PARALLEL COMPUTING TECHNOLOGIES Maksims Zigunovs
14.30-14.45	THE ALZHEIMER'S DISEASE IMPACT ON ARTIFICIAL NEURAL NETWORKS Maksims Zigunovs
14.50-15.05	COVID-19 AND EDUCATION MANAGEMENT: THE CASE OF SILESIAN REGION - POLAND Luis Ochoa Siguencia, Gilberto Marzano, Renata Ochoa-Daderska, Zofia Gródek-Szostak, Anna Szelaḡ-Sikora
15.10-15.25	PROJECT "ADVANCED DIGITAL DESIGN COURSE ON MODERN BUILDINGS DEVELOPING SKILLS FOR YOUNG ENGINEERS" No. 2020-1-PL01-KA226-HE-095244 Aleksejs Zorins

18.06.2021.

Section 2

ENVIRONMENT AND RESOURCES

Chairmen: *Edmunds Teirumnieks and Ziedonis Miklašēvičs*

10.30-10.45	ALTERNATIVE UV LIGHT SOURCES FOR SURFACE DISINFECTION Atis Skudra, Linda Mezule, Karina Spunde, Gita Revalde, Anna Zajakina, Madara Ziņģe, Talis Juhna
10.50-11.05	SOURCES OF UNCERTAINTY AND PROBLEMS OF INCREASING THE ACCURACY OF FLOW ASSESSMENT FOR THE TRANSBOUNDARY NARVA RIVER Artem Iukhno, Tatiana Yakovleva, Yaroslav Kobears
11.10-11.25	PRODUCTIVITY OF DIFFERENT SOYBEAN CULTIVARS DEPENDING ON METEOROLOGICAL CONDITIONS AND GROWING MANNER IN LATGALE 2018–2020 Kintija Pekša, Arnis Justs, Veneranda Stramkale, Aldis Stramkalis, Sanita Zute
11.30-11.45	NUMBER OF FINE PARTICLES' AND THEIR MASS CONCENTRATION: COMPARISON OF EMISSION OF NEW PRINTING TECHNOLOGY VERSUS TRADITIONAL LASER TECHNOLOGY Linda Paegle, Žanna Martinšone, Ivars Vanadžiņš, Ilona Pavlovskā, Lāsma Akūlova
11.50-12.05	REVIEW OF CHARACTERISTICS OF ALNUS GLUTINOSA STANDS QUALITY ACCORDING TO FOREST TYPES AND AGES Ziedonis Miklašēvičs
12.10-12.25	EFFECT OF VERMICOMPOST DOSES ON CANABIS SATIVA PHOTOSYNTHESIS-RELATED PARAMETERS, GROWTH AND YIELD Veneranda Stramkale, Gederts Ievinš, Māra Vikmane, Agnese Kirse, Ieva Kroica
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	THE USE OF DIGITAL COMMUNICATIONS TOOLS BY LATVIAN ENVIRONMENTAL NGOS Denis Vasiliev
13.50-14.05	CLIENT RELATIONSHIP MANAGEMENT IN LATVIAN RETAIL ENTERPRISES UNDER COVID-19 CIRCUMSTANCES Iveta Linina, Rosita Zvirgzdina, Velga Vevere
14.10-14.25	APPLICATION OF LOW-COST OPTICAL PM SENSOR FOR MONITORING OF PARTICULATE MATTER AIR POLLUTION IN THE URBAN ENVIRONMENT: A CASE STUDY IN ESPLANĀDE HOUSING ESTATE, DAUGAVPILS CITY Juris Soms, Haralds Soms
14.30-14.45	STUDY OF THE DISTRIBUTION OF AIR TEMPERATURE IN A GREENHOUSE HEATED BY AIR TO AIR HEAT PUMP Agris Auce, Aivars Jermuss, Adolfs Rucins, Semjons Ivanovs, Ugis Grinbergs
14.50-15.05	WATER SPRINGS AS A RESOURCE FOR NATURE TOURISM IN LATVIA: A TOURIST PERSPECTIVE Jānis Bikse, Mahender Reddy Gavinolla 

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Section 3

ENGINEERING SCIENCES AND PRODUCTION TECHNOLOGIES

Chairmen: Sharif E. Guseynov and Lienīte Litavniece

10.30-10.45	RESEARCH OF HUMAN HAND MOVEMENTS REPEATABILITY USING ROBOTIC SYSTEM Paulius Sakalys, Loreta Savulioniene, Dainius Savulionis
10.50-11.05	APPLICATION OF ARTIFICIAL NEURAL NETWORKS IN THE CONTEXT OF ACTIVE MAGNETIC BEARING CONTROL SYSTEMS Alexander Kravtsov, Konstantin Vukolov, Igor Plokhov, Igor Savraev, Sergei Loginov
11.10-11.25	3D MATHEMATICAL MODEL CHARACTERIZING THE DYNAMICS OF THE TEMPERATURE FIELD OF A WALL STRUCTURE WITH A DOUBLE-SIDED FACING FROM A SAPROPEL-HEMP COMPOSITE MATERIAL Sharif E. Guseynov, Janis Rimshans, Jekaterina V. Aleksejeva, Aleksandrs Bereznajs, Stanislavs Pleiksnis
11.30-11.45	EXPERIMENTAL COMPARE OF THE MECHANICAL PROPERTIES OF PULTRUDED GLASS FIBRE REINFORCED PLASTIC BASED ON POLYESTER AND VINYLESTER RESIN Andrejs Kovalovs, Andrejs Morozovs
11.50-12.05	INVESTIGATION OF RESIDUAL STRESSES AND DEFORMATIONS OF A PULTRUDED THIN BEAM PROFILE Endija Namsone
12.10-12.25	TIMBER-CONCRETE COMPOSITE RIBBED SLABS WITH HIGH-PERFORMANCE FIBRE-CONCRETE Karina Buka-Vaivade, Dmitrijs Serdjuks, Janis Sliseris, Andrejs Podkoritovs, Raimonds Ozolins
12.25-13.30	<i>Coffee-break</i>
13.30-13.45	WATER DISCHARGE MEASURING INSTRUMENTS: AN UP TO DATE OVERVIEW Artem Iukhno, Sergei Buzmakov, Alisa Zorina
13.50-14.05	EXPLORING THE IMPACT OF BURSTINESS ON THE SERVICE PROCESS AT THE CASH REGISTER Detlef Hartleb, Andreas Ahrens, Jelena Zascerinska
14.10-14.25	STUDIES OF THE POSSIBILITIES TO USE OZONE FOR THE GRAIN STORAGE Adolfs Rucins, Evita Straumite, Dainis Viesturs, Alberts Kristins
14.30-14.45	OPTICAL PROPERTIES OF LASER-COLOURING MARKED STAINLESS STEEL Pavels Narica, Svetlana Pan'kova, Vladimir Solovyev, Alexander Vanin, Mikhail Yanikov
14.50-15.05	DOPPLER NON-CONTACT RADAR SENSORS FOR WATER DISCHARGE ESTIMATION: ADVANTAGES AND LIMITATIONS Artem Iukhno, Sergei Buzmakov, Alisa Zorina
15.10-15.25	RESEARCH OF POWER GENERATOR PROTOTYPE DEVELOPMENT AND INTEGRATION INTO AUTONOMOUS ROBOTIC SYSTEMS Matutis Vaidotas, Loreta Savulioniene, Paulius Sakalys, Simonas Cesnauskas
15.30-15.45	PRODUCTION OF MAGNESIUM BINDER COMPOSITES USING LOCAL RAW MATERIALS AND TECHNOGENIC PRODUCTS Elvija Namsone, Genadijs Sahmenko, Aleksandrs Korjakins

ERDF co-funded project "Funding of international projects in research and innovation at Rezekne Academy of Technologies" (No 1.1.1.5/18/I/012)

NATIONAL
DEVELOPMENT
PLAN 2020



EUROPEAN UNION
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Project „Education/Training in Laser Safety in the Baltic Region According to EU Guidelines“
(No 2021/3)



This project of the Baltic-German University Liaison Office is supported by the German Academic Exchange Service (DAAD) with funds from the Foreign Office of the Federal Republic Germany.

Project “Advanced digital design course on modern buildings developing skills for young engineers”
(No 2020-1-PL01-KA226-HE-095244)



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of the European Union

Project "Web-based Laser Safety Modules for Vocational Education/Training"
(No 2018-1- LV01-KA202-046957)



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18.06.2021. 10.00-13.00 MS Teams.

INNOVATIVE SOLUTIONS FOR THE TREATMENT
AND PROCESSING OF INDUSTRIAL HEMP

Project No.18-00-A01612-000026

The project is co-financed by the Rural Support Service (European Agricultural Fund for Rural Development)

NACIONĀLAIS
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EIROPA INVESTĒ LAUKU APVIDOS
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