“ANGEL KANCHEV” UNIVERSITY OF RUSE
UNION OF SCIENTISTS – RUSE

РУСЕНСКИ УНИВЕРСИТЕТ “АНГЕЛ КЪНЧЕВ”
СЪЮЗ НА УЧЕНИТЕ – РУСЕ

Sessions Schedule & Abstracts

Програма & Резюмета

57th Annual Science Conference of Ruse University

NEW INDUSTRIES, DIGITAL ECONOMY, SOCIETY - PROJECTIONS OF THE FUTURE

57ma Годишна конференция на Русенския университет

НОВИ ИНДУСТРИИ, ДИГИТАЛНА ИКОНОМИКА, ОБЩЕСТВО – ПРОЕКЦИИ НА БЪДЕЩЕТО

2018 – Ruse, Razgrad, Silistra

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CONTENTS

PROGRAMME COMMITTEE **5**
ORGANIZING COMMITTEE **7**
MESSAGE FROM ORGANIZING COMMITTEE **9**
PROGRAM OVERVIEW **11**
OCTOBER RESEARCH CONFERENCE IN SILISTRA **11**
OCTOBER RESEARCH CONFERENCE IN RUSE **11**
NOVEMBER RESEARCH CONFERENCE IN RAZGRAD **12**
SESSION SCHEDULE **13**
OCTOBER RESEARCH CONFERENCE IN SILISTRA **13**
OCTOBER RESEARCH CONFERENCE IN RUSE **14**
NOVEMBER RESEARCH CONFERENCE IN RAZGRAD **29**
ABSTRACTS **32**
OCTOBER RESEARCH CONFERENCE IN SILISTRA **33**
FRI-110-1-LLIE(S)
Linguistics; Literature; Issues of Education 33
RI-216-1-NTS(S)
Natural and Technical Sciences 42
OCTOBER RESEARCH CONFERENCE IN RUSE **46**
FRI-2.101-KS
Key Speakers 46
FRI-8.121-1-AMT&ASVM
Agricultural Machinery and Technologies & Agrarian Sciences and Veterinary Medicine 48
FRI-1.202-1-MR
Maintenance and Reliability 65
FRI-9.3-1-THPE
Thermal, Hydro- and Pneumatic Equipment 69
FRI-9.2-1-EC
Ecology and Conservation 86
FRI-1.417-1-MEMBT
Mechanical Engineering and Machine-building Technologies 92
FRI-10.326-1-EEEA
Electrical Engineering, Electronics and Automation 107
FRI-2G.302-1-CSN
Communication Systems and Networks 120
FRI-2.203-1-TMS
Transport and Machine Science 138
FRI-2.203-2-TMS
Transport and Machine Science 156
FRI-2G.404-1-EM
Economics and Management 173
FRI-2G.509-1-LCSIPC
Linguistic and Cultural Science, Intercultural and Political Communication 194

FRI-1.405B-1-MIP
Mathematics, Informatics and Physics 196
FRI-2G.305-1-ERI
Education – Research and Innovations 198
FRI-2G.405-1-PP
Pedagogy and Psychology 209
FRI-2G.407-1-HEF
History, Ethnology and Folklore 232
FRI-2G.307-1-LL
Linguistics and Literature 236
FRI-2.205-1-AS
Art Science 241
FRI-K.201-1-HP
Health Promotion 244
FRI-2.114-1-SW
Social Work 259
FRI-2G.104-1-HC
Health Care 265
FRI-2G.104-2-HC
Health Care 275
FRI-2B.313-1-L
Law 287
FRI-2B.311-1-L
Law 302
FRI-2B.308-1-L
Law 309
FRI-K1-1-QHE
Quality of Higher Education 317
NOVEMBER RESEARCH CONFERENCE IN RAZGRAD 343
FRI-LCR-KS(R)
Key Speakers 343
FRI- LCR -1-CT(R)
Chemical Technologies 346
FRI–LCR-1-BFT(R)
Biotechnologies and Food Technologies 349
SAT–LB-P-1-CT(R)
Chemical Technologies 352
SAT–LB-P-1-BFT(R)
Biotechnologies and Food Technologies 369
CHAIR & AUTHOR INDEX 389
CHAIR INDEX 389
AUTHOR INDEX 390

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MESSAGE FROM ORGANIZING COMMITTEE

DEAR CONFERENCE PARTICIPANTS,

University of Ruse and Ruse Union of Scientists are pleased to welcome you to the 57th annual scientific conference, which is co-organized by our two institutions. Scientific and plenary sessions are being held respectively in Silistra, on October 20, in Ruse – on 25, 26 and 27 October, and in Razgrad, on 2 and 3 November, 2018.

Theme of the conference is "New Industries, Digital Economy, Society - Projections of the Future." The Booklet includes the program and the abstracts of 314 reports on research findings, which will be presented during all session days and other parallel forum events.

The authors will discuss their views in the following research areas and topics, which correspond to the conference theme:

Agricultural Machinery and Technologies; Maintenance and Reliability Thermal; Hydro- and Pneumatic Equipment; Ecology and Conservation; Chemical Technologies; Biotechnologies and Food Technologies; Mechanical Engineering and Machine-building Technologies; Electrical Engineering, Electronics and Automation; Communication Systems and Networks; Transport and Machine Science; Economics and Management; Linguistic and Cultural Science, Intercultural and Political Communication; Mathematics, Informatics and Physics; Education – Research and Innovations; Pedagogy and Psychology; History, Ethnology and Folklore; Linguistics, Literature and Art Science; Health Prevention and Social Work; Health Promotion.

We hope, that scientific reports and discussions will contribute to deepening the understanding related to various aspects of regional economic transformation based on the implementation of innovative strategies and approaches to *New Industries, Digital Economy, Society* and its relations to business environment and quality of life. The use of systematic thinking is the basis for creating effective applications and best practices in many areas of science and its impact on business development and growth.

Ruse Union of Scientists and Ruse University are characterized by their multi-profile identity, and they cover competencies in all above presented scientific fields and areas of research.

All abstracts with key words and reference lists in English, approved for presentation at the conference, meet the layout requirements and have been included in the **"Proceedings - Programme and Abstracts of the 57th ISC of the University of Ruse'18".**

Pending nominations by the Programme Committee, up to two papers from each section, which have been submitted and presented in English, will be published in Compiled works „Best Paper'18", as hard copy and on-line on the Conference Website.

After double blind reviewing, papers with significant contribution will be offered for publishing in the journal „Reports of the Union of Scientists - Ruse" and the thematic journals: „Journal of Entrepreneurship & Innovation" (paper/on-line); „Agricultural, Forest and Transport Machinery and Technologies", „Pedagogical Innovations" and "Journal of Applied Linguistic and Intercultural Studies (JALIS)", distributed in many libraries in Bulgaria and abroad. After double blind reviewing, papers with significant contribution will be offered for publishing in the following journals, in compliance with their requirement for publishing: Transport problems (Scopus); Proceedings of ComSysTech'19 (Scopus), Serbian Journal of Management (Scopus).

All the remaining papers, successfully approved by international double blind reviewing, will be published in the respective series of Proceedings of the University of Ruse, vol. 57, 2018 and on-

line on the Conference Website: ISSN 1311-3321 (print); ISSN 2535-1028 (CD-ROM); ISSN 2603-4123 (on-line).

The issue "Proceedings of the University of Ruse" was included in the international ISSN database, available at https://portal.issn.org/.

The online edition of "Proceedings of the University of Ruse" is registered in the portal ROAD scientific resources online open access.

The authors have one month to finalize their reports and summaries. The official collections of the conference will be posted online at: http://conf.uni-ruse.bg.

Welcome to University of Ruse! We wish you a pleasant and productive stay!

From the co-organizers of the Conference,

- **Chair:**

  COR. MEM Prof. Hristo Beloev, DTSc – Rector of UR, Chairperson of US - Ruse

- **Scientific Secretary:**

  Prof. Diana Antonova PhD, Vice-Rector Research

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PROGRAM OVERVIEW

OCTOBER RESEARCH CONFERENCE IN SILISTRA

Friday 19 October 2018

09:00 – 10:00	*Registration* (*Room 110 – Silistra*)
10:00 – 11:00	***Plenary session* (*Hall 216*)** ***Key speaker:*** *Prof. Angel Smrikarov, PhD* ***How to adapt the education system to the digital generation***
11:00 – 11:30	***Coffee-break***
11:30 – 13:00	***Parallel scientific events:***
FRI-110-1-LLIE(S)	Linguistics; Literature; Issues of Education (Room 110-Silistra)
FRI-216-1-NTS(S)	Natural and Technical Sciences (Room 216- Silistra)

OCTOBER RESEARCH CONFERENCE IN RUSE

Thursday 25 October 2018

14:00-17:00	*Registration - room 1.322*

Friday 26 October 2018

08:30 – 09:00	*Registration - room 1.322*
09:00 – 11:00	Round table: „Communicology of academic media“- CAM’18, Meeting hall, Main Building
11:00 – 13:30	***Plenary session* (*Hall SIEMENS - 2G.204*)** Key Speakers:
FRI-2.101-KS-01	**Prof. Stefan Dimov**, University of Birmingham, United Kingdom ***Hybrid Manufacturing: Enabling Technologies and Applications***
FRI-2.101-KS-02	**Todor Dobrev, PhD,** University of Derby, United Kingdom ***Industry 4.0 - Higher Education Perspective***
FRI-2.101-KS-03	**Assoc. Prof. Radoslav Kyuchukov, PhD,** University of Ruse ***Energetics of Lighting in Time Systems***
13:30-14:00	***Coffee break***
14:00 – 17:30	***Parallel scientific events:***
FRI-8.121-1-AMT&ASVM	Agricultural Machinery and Technologies &Agrarian Sciences Veterinary Medicine (Room 8.121)
FRI-1.202-1-MR	Maintenance and Reliability (Room 1.202)
FRI-9.3-1-THPE	Thermal, Hydro- and Pneumatic Equipment (Room 9.3)
FRI-9.2-1-EC	Ecology and Conservation (Room 9.2)
FRI-2G.404-1-EM	Economics and Management (Room 2G.404)
FRI-1.417-MEMBT	Mechanical Engineering and Machine-building Technologies (Room 1.417)
FRI-10.326-1-EEEA	Electrical Engineering, Electronics and Automation (Room 10.326)
FRI-2G.302-1-CSN	Communication Systems and Networks (Room 2G.302)
FRI-2.203-1-TMS	Transport and Machine Science (Room 2.203)
FRI-2.203-2-TMS	Transport and Machine Science (Room 2.203)

FRI-2G.404-1-EM	Economics and Management (Room 2G.404)
FRI-2G.509-1-LCSIPC	Linguistic and Cultural Science, Intercultural and Political Communication (Room 2G.509)
RI-1.405B-1-MIP	Mathematics, Informatics and Physics (Room *1.405B*)
FRI-2G.305-1-ERI	Education – Research and Innovations (Room 2G.305)
FRI-2G.405-1-PP	Pedagogy and Psychology (Room 2G.405)
FRI-2G.407-1-HEF	History, Ethnology and Folklore (Room 2G.407)
FRI-2G.307-1-LL	Linguistics and Literature (Room 2G.307)
FRI-2.205-1-AS	Art Science (Room 2.205)
FRI- K.201-1-HP	Health Promotion (Room K.201)
FRI-2.114-1-SW	Social Work (Room 2.114)
FRI-2G.104-1-HC	Health Care (Room 2G.104)
FRI-2B.313-1-L	Law (Room 2B.313)
FRI-2B.311-1-L	Law (Room 2B.311)
FRI-2B.308-1-L	Law (Room 2B.308)
FRI-K1-1-QHE	Quality of Higher Education (Room Kaneff Hall 1)
19:30	***Scientists' Ball* (*"Kaneff Centre"*)**

NOVEMBER RESEARCH CONFERENCE IN RAZGRAD

Friday 2 November 2018

09:00 **–** 13:00	*Registration – Hotel Cartoon* (*lobby bar*)
11:00 **–** 17:00	***Opening, plenary session***
FRI-LCR-KS(R)-01:	**Prof. Liviu Gaceu, PhD** Transilvania University of Brasov, Romania ***Grape Epicarp Flour Mixes as Functional Ingredient for Bakery Industry***
FRI-LCR-KS(R)-02:	**Nadezhda Mihaylova, PhD** University of Ruse, Branch Razgrad, Bulgaria ***Pharmaceutical Biotechnology Today – Principles, Acievments, Future***
14:00 – 17:00	***Parallel scientific events:***
14:00 – 15:30	***Parallel scientific events:***
FRI–LCR-1-CT(R)	Chemical Technologies (Room LCR)
15:30 – 17:00	***Parallel scientific events:***
FRI–LCR-1- BFT(R)	Biotechnologies and Food Technologies (Room LCR)
19:30	***Cocktail***

Saturday 3 November 2018

09:00 – 13:00	***Parallel scientific events:***
SAT–LB-P-1-CT(R)	Chemical Technologies (Room LB)
SAT–LB-P-1-BFT(R)	Biotechnologies and Food Technologies (Room LB)

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SESSION SCHEDULE

OCTOBER RESEARCH CONFERENCE IN SILISTRA

Friday 19 October 2018

09:00 – 10:00	*Registration* (*Room 110 – Silistra*)
10:00 – 11:00	***Plenary session* (*Hall 216*)** ***Key speaker:*** *Prof. Angel Smrikarov, PhD*
11:00 – 11:30	***Coffee-break***
11:30 – 12:30	***Parallel Sessions Room 110 - Silistra***
FRI-110-1-LLIE(S)	**Linguistics; Literature; Issues of Education** ***Session Chair: Todorka Georgieva***
FRI-110-1-LLIE(S)-01:	Doxologies in the Euangelium Didacticum by Constantine of Preslav **Mariya Tomova-Mihneva, Todorka Georgieva**
FRI-110-1-LLIE(S)-02:	The Language Use in a Script for Ivan N. Momchilov from 1869 **Ivo Bratanov**
FRI-110-1-LLIE(S)-03:	Some Problems of Educational Adaptation of Foreign Students in Bulgaria **Ivelina Angelova**
FRI-110-1-LLIE(S)-04:	Concepts and Reality in the Novel „Convicted Souls" Imagery Code Function **Rumyana Lebedova**
FRI-110-1-LLIE(S)-05:	The Golden Ratio. Word- Music- Light **Snejana Bunardjieva**
FRI-110-1-LLIE(S)-06:	Socio-Demographic Determinants of the Quality of Education **Vladislav Dimitrov**
FRI-110-1-LLIE(S)-07:	Discovering Language and Speech Pathologies in Pre-School and Primary School Children **Valentina Vasileva, Desislava Stoyanova**
11:30 – 13:00	***Parallel Sessions Room 216 - Silistra***
FRI-216-1-NTS(S)	**Natural And Technical Sciences** ***Session Chair: Milen Sapundzhiev***
FRI-216-1-NTS(S)-01:	Iinguodidactic Model for Foreign Language Learning with Integration of Computer Technologies **Desislava Baeva**
FRI-216-1-NTS(S)-02:	Study of the Fuel Pressure Impact on Injection Initiation by Electromagnetic Injectors CRI1 **Valentin Manev, Milen Sapundzhiev**
FRI-216-1-NTS(S)-03:	Electric Motors Used in Modern Hybrid and Electric Cars and Development Prospects **Milen Sapundzhiev, Valentin Manev**
FRI-216-1-NTS(S)-04:	Creating Knowledge Tests for Mobile Devices **Evgenia Goranova**

OCTOBER RESEARCH CONFERENCE IN RUSE

Thursday 25 October 2018	
14:00-17:00	*Registration - room 1.322*
Friday 26 October 2018	
08:30 – 09:00	*Registration - room 1.322*
09:00 – 11:00	Round table: „Communicology of academic media“- CAM’18, Meeting hall, Main Building
11:00 – 13:30	***Plenary session* (*Hall SIEMENS - 2G.204*)** Key Speakers:
FRI-2.101-KS-01:	**Prof. Stefan Dimov**, University of Birmingham, United Kingdom ***Hybrid Manufacturing: Enabling Technologies and Applications***
FRI-2.101-KS-02:	**Todor Dobrev, PhD,** University of Derby, United Kingdom ***Industry 4.0 - Higher Education Perspective***
FRI-2.101-KS-03:	**Assoc. Prof. Radoslav Kyuchukov, PhD,** University of Ruse ***Energetics of Lighting in Time Systems***
13:30-14:00	***Coffee Break***
14:00 – 17:30	***Parallel Sessions Room 8.121***
FRI-8.121-1-AMT&ASVM	**Agricultural Machinery and Technologies and Agrarian Sciences Veterinary Medicine** ***Session Chair: Atanas Atanasov***
FRI-8.121-1-AMT&ASVM-01:	Study of Vibrations Caused by Rotary Movement of Electric Motor **Radko Mihaylov, Vladimir Demirev**
FRI-8.121-1-AMT&ASVM-02:	Mechanization of Small Family Farms in Poland **Edmund Lorencowicz, Jacek Uziak**
FRI-8.121-1-AMT&ASVM-03:	Study Concerning the Effectiveness of Some Soil Herbicides to Wheat Variety "Venka 1" **Svetlana Stoyanova**
FRI-8.121-1-AMT&ASVM-04:	Effect of Herbicides on Yield and Structural Elements of Extraction in Hybrid Rs 464 and Parental Components **Dimitriya Ilieva, Svetlana Stoyanova**
FRI-8.121-1-AMT&ASVM-05:	Possibilities for Cultivation of Spring Forage Pea (Pisum Sativum L.) Cv. "Kerpo" for Forage Production in Change of Main Technological Factors **Todor Kertikov, Atanas Atanasov, Daniela Kertikova**
FRI-8.121-1-AMT&ASVM-06:	Biochemical Characteristics of Spring Forage Pea (Pisum Sativum L.) Cv. "Kerpo" Depending on the Technology of Cultivation **Todor Kertikov, Atanas Atanasov, Anna Ilieva, Daniela Kertikova**
FRI-8.121-1-AMT&ASVM-07:	About Informed Choice of Machinery for Field Crop Growing **Valery Spiridonov**
FRI-8.121-1-AMT&ASVM-08:	About Selection of Tractor’s Trailer for Linked Processes in Field Husbandry **Chavdar Vezirov, Atanas Atanasov**
FRI-8.121-1-AMT&ASVM-09:	Influence of Water Erosion Processes and Application of Soil Erosion Control Technologies on Sediment Enrichment Ratio **Gergana Kuncheva, Petar Dimitrov**
FRI-8.121-1-AMT&ASVM-10:	Influence of Water Erosion and Different Tillage Systems for Growing Corn on Sloping Agricultural Lands on the Loss of Available Forms of Phosphorus and Potassium from the Soil **Gergana Kuncheva, Petar Dimitrov, Hristo Beloev**

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FRI-8.121-1-AMT&ASVM-11:	Methodology for Technical and Economic Assessment of Soil Protection Technologies for Growing Crops on Sloping Agricultural Lands **Violeta Andreeva**
FRI-8.121-1-AMT&ASVM-12:	Experimental Research on the Implementation of the Operating and Construction Parameters of a Chain Trenchere in Wind Soils in Vietnam **Doan Dinh Diep, Dau The Nhu, Hristo Beloev**

14:00 – 17:30	***Parallel Sessions Room 2.202***
FRI-1.202-1-MR	**Maintenance and Reliability** ***Session Chair: Mitko Nikolov***
FRI-1.202-1-MR-01:	Study of the State of Maintenance Shops for Agricultural Machinery in Northern Bulgaria **Daniel Bekana, Krasimir Radev, Vladislav Ivanov**
FRI-1.202-1-MR-02:	Investigating the Unevenness of the Brake System of Cars **Daniel Bekana, Aleksandar Asenov, Kaloyan Nikolaew**
FRI-1.202-1-MR-03:	Determination of the Degree of Influence of Basic Structural Parameters on the Change of the Iec Technical and Economic Characteristics **Evgeni Enchev, Todor Delikostov, Veselin Rusinov**
FRI-1.202-1-MR-04:	Effective Maintenance of Agricultural Machinery **Mitko Nikolov, Vasil Stoynov, Plamen Kangalov, Jordan Valchev**

14:00 – 17:30	***Parallel Sessions Room 9.3***
FRI-9.3-1-THPE	**Thermal, Hydro- and Pneumatic Equipment** ***Session Chair: Gencho Popov***
FRI-9.3-1-THPE-01:	The Porous Foam Dust Collector **Alexander Genbach, Kudaybergen Shokolakov, Iliya K.Iliev**
FRI-9.3-1-THPE-02:	Application of the Stirling Engine for Creating Autonomous Sources of Heat and Electrical Supply **Musabekov Rasulbek, Adilbekov Askar**
FRI-9.3-1-THPE-03:	Bimit Thermal Fluxes and Thermal Stresses in Porous Coatings of a Heat-Energy Installation **Alexander A. Genbach, David Yu. Bondarcev, Iliya K. Iliev**
FRI-9.3-1-THPE-04:	Design of Fuzzy Self-Tuning Pid Controller for Electrohydraulic System **Krasimir Ormandzhiev**
FRI-9.3-1-THPE-05:	Numerical Modeling of the Heat Transfer Process at Movement of Air in Tube **Zhivko Kolev, Plamen Mushakov, Pencho Zlatev**
FRI-9.3-1-THPE-06:	Analitical Investigation on the Operational Characteristics of a Heat Exchanger with Thermosyphons **Veselka Kamburova, Svetla Baeva**
FRI-9.3-1-THPE-07:	Research for the Possibilities and Areas for the Application of Hydrostatic Transmissions for the Transmission of Energy from the Propeller to the Electro Generator of the Wind Turbines **Ilcho Ivanov Angelov, Petko Kyorgogov**
FRI-9.3-1-THPE-08:	Investigation of Robust Stability of Electro-Hydraulic Control Module for Hydraulic Steering System with Linear-Quadratic Regulator **Alexander Mitov, Tsonyo Slavov, Jordan Kralev, Ilcho Angelov**
FRI-9.3-1-THPE-09:	Cfd Analysis for Cavitation Flow Through a Converging-Diverging Nozzle **Georgi Panchev, Hristo Hristov**
FRI-9.3-1-THPE-10:	Research Regarding the Pyrolysis of Poultry Waste as an Alternative for its Use in Energy Production **Gheorghe Lăzăroiu, Lucian Mihăescu, Ionel Pîşă, Viorel Berbece, Gabriel Negreanu**

FRI-9.3-1-THPE-11:	Particulate Matter Measurements in Indoor Air **Tsvetelina Petrova, Ognyan Sandov, Iliyana Naydenova, Rositsa Velichkova, Iskra Simova**
FRI-9.3-1-THPE-12:	Technical - Economical Analyse of the Air Heater When Switching Coal from Natural Gas **Iliya Iliev, Angel Terziev, Milen Venev, Emilian Velkov**
FRI-9.3-1-THPE-13:	Analytical Presentation of the Dimensionless Characteristics of Centrifugal Fans **Gencho Popov, Kliment Klimentov, Boris Kostov, Alexandar Bozhinov**
FRI-9.3-1-THPE-14:	Technical – Economical Analysis of the Air Heater When Switching Coal from Natural Gas **Emilian Velkov, Iliya Iliev, Angel Terziev, Milen Venev**

14:00 – 17:30	***Parallel Sessions Room 9.2***
FRI-9.2-1-EC	**Ecology and Conservation** ***Session Chair: Lyubomir Vladimirov***
FRI-9.2-1-EC-01:	Development of a New Precise and Sensitive Analytical Method for Quercetin Quantification **Zvezdelina Yaneva**
FRI-9.2-1-EC-02:	Influence of Artificial Light on Tomato Productivity in Greenhouse Conditions in South East Kazakhstan **Indira Belgitayeva, Kussainova Gulzhan**
FRI-9.2-1-EC-03:	Environmental Impact of the Noise, Generated from Two Centrifugal Pumps, Operating in Parallel – Statistical Aproach of the Levels Distribution **Nikolay Kovachev**
FRI-9.2-1-EC-04:	The Feasability of Growing Tomatoes in the Crossing Turnover in the Greenhouses of South East Kazakhstan **Indira Belgitayeva, Kussainova Gulzhan**
FRI-9.2-1-EC-05:	Innovative Methods and Technology for Derivation of Carbohydrate-Silicone Containing Materials from Waste Biomass **Simeon Borisov**, **Plamen Manev**
FRI-9.2-1-EC-06:	Riskmetrics to Environmental Protection **Lyubomir Vladimirov**

14:00 – 17:30	***Parallel Sessions Room 1.417***
FRI-1.417-1-MEMBT	**Mechanical Engineering and Machine-Building Technologies** ***Session Chair: Ivan Loukanov***
FRI-1.417-1-MEMBT-01:	Vibration Steering of Vibration-Driven Mobile Robot **Ivan Loukanov, Venko Vitliemov, Ivelin Ivanov, Velina Bozduganova**
FRI-1.417-1-MEMBT-02:	Overview of the Faesibility of Simulating Welding Processes Using the Finite Element Method **Ivo Draganov, Yulian Angelov, Stiliyana Mileva**
FRI-1.417-1-MEMBT-03:	Dissolution and Mechanical Properties of 3d Printed Polylactic Acid for Bio-Implants **Mariana Ilieva, Dimitar Kamarinchev, Danail Godpodinov, Ekaterin Minev, Emil Yankov, Roussi Minev**
FRI-1.417-1-MEMBT-04:	Influence of the Variable Character of Anizotropy on the Hardening Curves in Hydraulic Buljing Test of Copper Sheet **Emil Yankov**
FRI-1.417-1-MEMBT-05:	Models for Investigating Nonlinearity Errors of Static Characteristics **Dimitar Dichev, Fotini Kogia, Hristo Hristov, Tsanko Karadzhov**
FRI-1.417-1-MEMBT-06:	Energy Consumption and Energy Efficiency of Machine Tools – an Overview

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	Krasimir Ivanov, Borislav Tonkovski
FRI-1.417-1-MEMBT-07:	About the Information Assurance of Technological Processes by Machining Parts **Svetlana Koleva, Milko Enchev, Emil Belyov**
FRI-1.417-1-MEMBT-08:	Problems During Highly Productive Complex Quality Assessment of Objects **Deniz Chakar, Tihomir Todorov**
FRI-1.417-1-MEMBT-09:	Examination of Crane Booms About Their Propensity for Vibration in Mechanical Machining **Nikolay Nikolov**
FRI-1.417-1-MEMBT-10:	Experimental Setup and Preliminary Research of the 3d Touch Probe When Working on a Touch Signal **Valentin Mihov**

14:00 – 17:30	***Parallel Sessions Room 10.326***
FRI-10.326-1-EEEA	**Electrical Engineering, Electronics and Automation** ***Session Chair: Prof. Plamen Daskalov, Phd***
FRI-10.326-1-EEEA-01:	Characterization of the Total Harmonic Distortion Factor in Marine Power Systems **Vasile Dobreff, Florentiu Deliu, Petrică Popov**
FRI-10.326-1-EEEA-02:	Spectral Analysis of the Bipolar Power Supply of a Mobile Integrating Equipment for Measuring Forces and Torques with Strain Gauges Sensors **Svilen Stoyanov**
FRI-10.326-1-EEEA-03:	A Research of the Relation Between Main Chemical Elements and Soil Properties **Nadezhda Paskova, Tsvetelina Georgieva, Plamen Daskalov**
FRI-10.326-1-EEEA-04:	A Review of Methods for Determination of Chemical Elements in Plants **Nadezhda Paskova**
FRI-10.326-1-EEEA-05:	Study on the Higher Harmonics in Commercial Facilities **Lyudmul Michailov, Tsvetan Naumov**
FRI-10.326-1-EEEA-06:	Information Package for Electricity Quality Control in Type Modul of Electricity Distribution Grids **Tsvetan Naumov**
FRI-10.326-1-EEEA-07:	Current Status and Future Directions of Renewable Energy Use in Afghanistan **Najmuddin Noorzad, Nicolay Mihailov**
FRI-10.326-1-EEEA-08:	Methods for Assessing the Quality and Freshness of Meat and Dairy Products **Ioanna Angelova**
FRI-10.326-1-EEEA-09:	Maximum Power Point Tracking for Photovoltaic System **Penko Binkov, Seher Kadirova**
FRI-10.326-1-EEEA-10:	Design of Direct Alternating Current Driver System for Decrease of Flicker Index **Denis Sami, Seher Kadirova, Oznur Sanatsever**
FRI-10.326-1-EEEA-11:	Web-Based System for Control of Environment Parameters **Ivan Evstatiev, Seher Kadirova, Nikolay Kamenov, Miroslava Hristova**

14:00 – 17:30	***Parallel Sessions Room 2G.302***
FRI-2G.302-1-CSN	**Communication Systems and Networks** ***Session Chair: Prof. Mihail Iliev, Dsc***
FRI-2G.302-1-CSN-01:	Optimization and Studies of a Quadrature Generator **Boyan Karapenev**

FRI-2G.302-1-CSN-02:	Determination of the Memebership of Teletraffic Parameters of Markov Chains by Neuro-Fuzzy Classifier **Mihail Iliev, Ivelina Balabanova, Georgi Georgiev**
FRI-2G.302-1-CSN-03:	Synthesis of Neuron Models for Prediction of Traffic Parameters of Markov Chain M/M/C/K **Georgi Georgiev**
FRI-2G.302-1-CSN-04:	Regression Models for Prediction of Parameters of Teletraffic System M/M/1/K **Mihail Iliev, Ivelina Balabanova, Georgi Georgiev**
FRI-2G.302-1-CSN-05:	Use of Unmanned Aerial Vehicles for Photogrammetric Data Gathering and Digital 3D Reconstruction of Archaeological Excavation Sites **Georgi Hristov, Plamen Zahariev, Diyana Kinaneva, Ivanka Tsvetkova, Jordan Raychev**
FRI-2G.302-1-CSN-06:	Comparative Analysis of Technologies for 3D Laser Scanning of Objects **Ivanka Tsvetkova, Plamen Zahariev, Georgi Hristov**
FRI-2G.302-1-CSN-07:	A Solution for Early Forest Fire Detection Using Aircraft Platform and Neural Network Computing Engine **Diyana Kinaneva, Jordan Raychev, Georgi Hristov, Plamen Zahariev, Ivanka Tsvetkova**
FRI-2G.302-1-CSN-08:	Observation and Analysis of Remote Forest Areas and Early Forest Fire Detection Using Drones **Georgi Hristov, Plamen Zahariev, Jordan Raychev, Diyana Kinaneva, Todor Gechev**
FRI-2G.302-1-CSN-09:	A Methodology for Environmental and Air Quality Monitoring Using Lorawan Sensor Platforms **Georgi Hristov, Plamen Zahariev, Jordan Raychev, Diyana Kinaneva, Ivan Mihov**
FRI-2G.302-1-CSN-10:	Conceptual Model of a Hardware Platform for Development of Complete Solutions for Home Automation **Georgi Hristov, Plamen Zahariev, Todor Gechev, Ivan Mihov**
FRI-2G.302-1-CSN-11:	A Comparative Analysis of Software Defined Networking Controllers **Jordan Raychev**
FRI-2G.302-1-CSN-12:	Analysis of Different Antenna Types for Wireless Communications Using a Laboratory Testbed **Ivanka Tsvetkova, Plamen Zahariev**
FRI-2G.302-1-CSN-13:	Development and Evaluation of an Urban Concept Vehicle Powered by Alternative Fuel Source **Georgi Hristov, Plamen Zahariev, Jordan Raychev, Diyana Kinaneva, Ivanka Tsvetkova**
FRI-2G.302-1-CSN-14:	Overview of the Blockchain Technologies and Their Use in the Telecommunication Systems and Processes **Plamen Zahariev, Jordan Raychev, Diyana Kinaneva**
FRI-2G.302-1-CSN-15:	Big Data Lifecycle in Modern Web Systems **Svetalana Stefanova, Iliya Draganov**

14:00 – 16:00	***Parallel Sessions Room 2.203***
FRI-2.203-1-TMS	**Transport and Machine Science** ***Session Chair: Emiliyan Stankov***
FRI-2.203-1-TMS-01:	Opportunities for Work and Distribution of Technical Documentation in Small Machine-Building Companies **Yuliyan Dimitrov**
FRI-2.203-1-TMS-02:	Methods for Calculating Power Losses in Worm Gear Drives **Vasko Dobrev, Yuliyan Dimitrov**
FRI-2.203-1-TMS-03:	Methods for Experimental Research of Worm Gear Drives

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	Vasko Dobrev, Yuliyan Dimitrov
FRI-2.203-1-TMS-04:	Differences in Calculations of Involute Gear Trains in Three Main Standards **Gergana Mollova, Antoaneta Dobreva**
FRI-2.203-1-TMS-05:	Study the Fatigue Strength of Welded Suspension for a Electromobile Prototype **Ivo Draganov, Stiliyana Mileva**
FRI-2.203-1-TMS-06:	Design and Study of Electromobile Prototype by Catia V5 **Emil Mitev, Simeon Iliev, Dancho Gunev**
FRI-2.203-1-TMS-07:	Equipment of a Diesel Engine Working with Gas Fuel Additives **Krasimir Bogdanov, Radostin Dimitrov, Daniel Kostadinov**
FRI-2.203-1-TMS-08:	System for Regulating the Composition of Biogas Used as Fuel for Internal Combustion Engines **Zdravko Ivanov, Radostin Dimitrov, Veselin Mihaylov, Delyan Petkov**
FRI-2.203-1-TMS-09:	Performance of 100% Electric Car Renault ZOE in of Real Driving Condition Operation **Borislav Penchev, Trifon Uzuntonev**
FRI-2.203-1-TMS-10:	Experimental Study of the Influence of the Electrohydraulic Injector Control Valve's Stroke Over the Performance Characteristics of a Diesel Engine **Nikolay Yordanov, Emilian Stankov, Kiril Xadjiev**
FRI-2.203-1-TMS-11:	Application of the "Growth Factor" Model for Projecting Passengers in a City Route Line **Mirena Todorova, Silvia Assenova**
FRI-2.203-1-TMS-12:	Assessment and Analysis of the Organization of the Trolleybus Movement **Alexander Tsekov**
FRI-2.203-1-TMS-13:	Territorial Peculiarities on Road Transport Accidents in the Republic Bulgaria **Velizara Pentcheva, Asen Asenov, Stanimir Penev**
FRI-2.203-1-TMS-14:	Study of the Organization of Regular Groupages as Part of Integrated Suply in the Conditions of 3PL Operator **Ivan Petrov, Velizara Pentcheva, Asen Asenov**
FRI-2.203-1-TMS-15:	Main Issues and Perspectives for the Development of Urban Transport **Velizara Pentcheva, Asen Asenov, Ivan Georgiev, Aleksander Sladkowski**

16:30 – 18:30	***Parallel Sessions Room 2.203***
FRI-2.203-2-TMS	**Transport and Machine Science** ***Session Chair: Asen Asenov***
FRI-2.203-2-TMS-01:	Collision Speed Estimation Using a Different Mathematical Models **Daniel Lyubenov, Svilen Kostadinov, Filip Kirilov**
FRI-2.203-2-TMS-02:	Comparative Analysis of the Methods for Determining of the Values of Damages to Vehicles in Road Traffic Accidents **Svilen Kostadinov, Daniel Lyubenov, Toncho Balbuzanov**
FRI-2.203-2-TMS-03:	Improving the Safety of Vulnerable Road Users **Toncho Balbuzanov, Daniel Lyubenov, Svilen Kostadinov**
FRI-2.203-2-TMS-04:	A Study of the Driving License Exams in Ruse District to Improve Road Traffic Safety **Polina Atanasova, Daniel Lyubenov**
FRI-2.203-2-TMS-05:	Analysis and Assessment of the Conditions for Transportation of Dangerous Goods Along the Danube as Part of a Multimodal Scheme **Kamen Ivanov, Asen Asenov, Stanimir Penev**

FRI-2.203-2-TMS-06:	Optimizing Time to Transport Transit Loads in a Multimodal Scheme Between the Sea and River Ports with Automobile Transport **Boril Ivanov, Asen Asenov, Velizara Pentcheva**
FRI-2.203-2-TMS-07:	Influence of Risky Driving a Vehicle on Driver's Condition **Dimitar Grozev**
FRI-2.203-2-TMS-08:	Study and Analysis of New Universal Learning Training Models in the European Union **Nikolay Paunov, Velizara Pentcheva, Asen Asenov**
FRI-2.203-2-TMS-09:	A Study of Motorcycle Acceleration in Real Traffic Flow **Filip Kirilov, Daniel Lyubenov**
FRI-2.203-2-TMS-10:	A Study of Bicycle Travel Speed **Ivo Balevski, Daniel Lyubenov**
FRI-2.203-2-TMS-11:	The Organization of the Work of Taxi Cars, Working with Mobile Application in "Happy" Company in Ruse **Dimitar Grozev**
FRI-2.203-2-TMS-12:	Investigation and Modeling of Road Traffic in the Area of Intersections in Ruse **Pavel Stoyanov**
FRI-2.203-2-TMS-13:	Research on the Organization of Urban Passenger Transport in Ruse **Rositsa Angelova**
FRI-2.203-2-TMS-14:	The Impact of Urban Passager Transport to the Environment Is Assessed **Rositsa Angelova, Velizara Pencheva, Dimitar Grozev, Pavel Stoyanov**
FRI-2.203-2-TMS-15:	Analysis of the Transport Work in the Company "ACT LOGISTIC" **Dimitar Grozev, Mihail Milchev**

14:00 – 17:30	***Parallel Sessions Room 2G.404***
FRI-2G.404-1-EM	**Economics and Management** ***Session Chair: Milena Kirova***
FRI-2G.404-1-EM-01:	Analysis of the Innovation Activity and Protection of the Innovative Products Through Intellectual Property Rights at the Small Bulgarian Businesses **Neli Rasheva, Daniel Pavlov**
FRI-2G.404-1-EM-02:	Foreign Direct Investment – Importance, Main Changes and Trends **Anzhela Petrova**
FRI-2G.404-1-EM-03:	Models for the Development of Agricultural Cooperation in Bulgaria **Mihail Bilev**
FRI-2G.404-1-EM-04:	Bulgarian Markets for High Nature Value Products **Lyubomir Lyubenov**
FRI-2G.404-1-EM-05:	Leasing Market of Agricultural Engineering in Bulgaria **Seraozha Kosev**
FRI-2G.404-1-EM-06:	Practical Aspects of Innovative Leasing in Agribusiness **Seraozha Kosev**
FRI-2G.404-1-EM-07:	Public Spending and its Impact on Gross Domestic Product (GDP) **Kamelia Asenova**
FRI-2G.404-1-EM-08:	Theoretical Aspects of the Impact of Conflicts on Employee Motivation **Svilena Ruskova, Ivalina Ruseva**
FRI-2G.404-1-EM-09:	Methodology for Initiating a Public-Private Partnership with a Higher Education Institution **Diana Avramova, Daniel Pavlov**
FRI-2G.404-1-EM-10:	Management Decisions Related to the Depreciation of Budget Organiations **Bozhana Stoycheva**

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FRI-2G.404-1-EM-11:	Methodological Approach for Internal Assessment of Influential Factors on the Innovation Activity of an Industrial Enterprise **Svilen Kunev, Irina Kostadinova, Galina Angelova**
FRI-2G.404-1-EM-12:	Decreased Motivation in the Health Sector - Reasons, Effects and Possible Solutions **Svilena Ruskova, Antoaneta Yabanozova**
FRI-2G.404-1-EM-13	Trends and the Main Issues of the Bulgarian Textile Industry: The Role of Internal Branding to Increase the Engagement and Motivation of the Human Resouses **Irena Milkova Kenarova-Pencheva**
FRI-2G.404-1-EM-14	Analysis of Results from Survey Report on Social Responsibility's Learning Needs **Irina Kostadinova, Svilen Kunev**
FRI-2G.404-1-EM-15	A Concept for Quadra-Helix Collaboration for Stimulating Transregional Development **Saad Abdullah Alanssari , Svilen Kunev**

14:00 – 17:30	***Parallel Sessions Room 2G.509***
FRI-2G.509-1-LCSIPC	**Linguistic and Cultural Science, Intercultural and Political Communication** ***Session Chair: Yuliana Popova***
FRI-2G.509-1-LCSIPC-01:	Biblical Idioms in Contemporary Discourse **Diana Stefanova**
FRI-2G.509-1-LCSIPC-02:	Dimensions of Cultural Variability Among Local Communities in the Town of Ruse (1878-1920 Years) **Lilyana Slavianova, Rozalina Bozhilova-Kouncheva**

14:00 – 17:30	***Parallel Sessions Room 1.405B***
FRI-1.405B-1-MIP	**Mathematics, Informatics and Physics** ***Session Chair: Magdalena Andreeva***
FRI-1.405B-1-MIP-01:	Network Risks in Markov Decision Processes **Vassil Sgurev, Stanislav Drangajov**
FRI-1.405B-1-MIP-02:	Extremal Problems for the Circles Inscribed in a Given Semicircle or in a Given Segment **Todor Mitev**

14:00 – 17:30	***Parallel Sessions Room 2G.305***
FRI-2G.305-1-ERI	**Education – Research and Innovations** ***Session Chair: Ion Mierlus-Mazilu***
FRI-2G.305-1-ERI-01:	Students and Digital Mathematics Teaching **Ion Mierlus-Mazilu, Emiliya Velikova, Ralitsa Vasileva-Ivanova**
FRI-2G.305-1-ERI-02:	About the STEM Education **Emiliya Velikova, Ion Mierlus-Mazilu, Ralitsa Vasileva-Ivanova**
FRI-2G.305-1-ERI-03:	Problem Solving Model in Mathematics **Desislava Georgieva, Emiliya Velikova, Ralitsa Vasileva-Ivanova**
FRI-2G.305-1-ERI-04:	Creative Out-of-Class Work in a Team - Complete Learning: Open, Adaptive, Mobile **Velislava Doneva, Niya Peneva**
FRI-2G.305-1-ERI-05:	Apprenticeship Cluster in Mechanical Engineering and Mechatronics **Irena Rashkova, Tsvetelina Petrova**
FRI-2G.305-1-ERI-06:	Using of the Mathematical Software GEOGEBRA for Solving the Stereomerical TASKS in Education of Mathematics **Ivanka Mincheva, Zhorzheta Angelova**

FRI-2G.305-1-ERI-07:	On the Synthesis in the Cognition and Building of Interdisciplinary in the Training Process **Boryana Todorova**
FRI-2G.305-1-ERI-08:	Practical Activities in the Vth Grade Mathematics Education **Antoaneta Mihova**

14:00 – 17:30	***Parallel Sessions Room 2G.405***
FRI-2G.405-1-PP	**Pedagogy and Psychology** ***Session Chair: Bagryana Ilieva, Lora Radoslavova***
FRI-2G.405-1-PP-01:	On the Subject of Educational Psychology **Stoyko Vanchev Ivanov**
FRI-2G.405-1-PP-02:	Individual Psychological Characteristics and the Cinema Preferences of the Modern Viewer **Nelly Koleva**
FRI-2G.405-1-PP-03:	Nature and Specificities of Child Development in the Context of Pedology **Petya Cheshmedzhieva**
FRI-2G.405-1-PP-04:	Logopedical Prevention and Diagnostics of Communicable Disorders in Children in Pre-School and Primary School Education **Valentina Vasileva, Desislava Stoyanova**
FRI-2G.405-1-PP-05:	Interdisciplinarity in the Study of the Air Concept in the Context of the United Cognition **Boryana Todorova, Zlatina Angelova**
FRI-2G.405-1-PP-06:	Teacher Views About Establishment and Functionality of the System of Professional Development of Teachers in Republic of Macedonia **Sonja Petrovska, Despina Sivevska, Jadranka Runceva**
FRI-2G.405-1-PP-07:	Requirements for Teacher Education in Vocational Education and Training **Katerina Petrusheva, Biljana Popeska, Snezana Jovanova – Mitkovska**
FRI-2G.405-1-PP-08:	Levels of Motivational Willingness of the Students Second Year of Majoring Physical Education and Sports at Sofia University St. Kliment Ohridski **Iliana Petkova, Georgi Ignatov**
FRI-2G.405-1-PP-09:	Swot Analysis in Physical Education for Promotion of Movement Activity of Students **Iskra Ilieva**
FRI-2G.405-1-PP-10:	Management Structures in University Sport **Snezana Jovanova – Mitkovska, Biljana Popeska, Trajco Dimkov, Katerina Mitevska – Petrusheva**
FRI-2G.405-1-PP-11:	Study of Students Weightlifters' Attitudes Towards "Language Through Sport" Method of Teaching **Eleonora Mileva, Nely Yankova, Valentin Panajotov, Vesela Slavova**
FRI-2G.405-1-PP-12:	Application of the Variable Intensity in Boxing **Evtim Lefterov**
FRI-2G.405-1-PP-13:	Some Sociological Aspects of Kung Fu **Albena Dimitrova**
FRI-2G.405-1-PP-14:	Increasing Self-Humanity, Activity, Settlement and Psychic Stability of Pupils Resulting from Kung Fu Training **Vasil Dimitrov**
FRI-2G.405-1-PP-15:	Gender Specific in the Aggressive Behavior of Women **Denitsa Alipieva**

14:00 – 17:30	***Parallel Sessions Room 2G.407***
FRI-2G.407-1-HEF	**History, Ethnology and Folklore** ***Session Chair: Lyubomir Zlatev***

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FRI-2G.407-1-HEF-01:	The Temporary Russian Government in the Memories of Evgeniye Utin **Emil Indzhov**
FRI-2G.407-1-HEF-02:	The Position of the Ruse Chamber of Commerce and Industry for the Conclusion of a Trade Contract with Austria-Hungary **Kremena Todorova, Lyubomir Zlatev**
FRI-2G.407-1-HEF-03:	Kindergartens in Ruse Between the Two World Wars **Polya Cherneva**

14:00 – 17:30	***Parallel Sessions Room 2G.307***
FRI-2G.307-1-LL	**Linguistics, Literature** ***Session Chair: Mira Dushkova***
FRI-2G.307-1-LL-01:	The Language Use in Two Literary Texts by Stoyan Robovsky **Ivo Bratanov**
FRI-2G.307-1-LL-02:	"The Bulgarian in Prison" – a Forgotten Polish Poem from 1877 **Kamen Rikev**
FRI-2G.307-1-LL-03:	The Meaning of the Labyrinth in One Text by Stoyan Robovsky **Zvezdelina Bratanova**
FRI-2G.307-1-LL-04:	Poette and Others **Ivaylo Dimitrov**
FRI-2G.307-1-LL-05:	The Personality of Academician Mikhail Arnaudov in the Context of the Ten Arnaudov Readings **Nikola Benin, Iliyana Benina**

14:00 – 17:30	***Parallel Sessions Room 2.205***
FRI-2.205-1-AS	**Art Science** ***Session Chair: Petya Stefanova***
FRI-2.205-1-AS-01:	Introduction to Music Theory – a System for Basic Music Knowledge **Nikolay Gradev**
FRI-2.205-1-AS-02:	Enrichment of Children's Creative Potencial Through Music Games **Petya Stefanova**
FRI-2.205-1-AS-03:	A Musical Experiment – Writing a Five-Voiced Triple Compound Fugue with Retrograde Counterpoint **Sabin Levi**
FRI-2.205-1-AS-04:	Sound Absorption **Pavel Stefanov**

14:00 – 17:30	***Parallel Sessions Room K.201***
FRI-K.201-1-HP	**Health Promotion** ***Session Chair: Stefka Mindova, Moderator: Denitsa Vasileva***
FRI-K.201-1-HP-01:	A Serious Trauma on a Woman at the Age of 21. She is Actually 47 Now with Big Walking Difficulty Even Using Codivilla Springs. She Has Been Treated with B.A.E. Method for Ten and a Half Months **Tiziano Pacini, Elisabetta De Juliis, Andrea Pacini, Loredana Granata**
FRI-K.201-1-HP-02:	A Case of Scoliosis in a 20 Year- Old Woman Person Reports Headache, Panic Crisis and Some Rare Back Pain. Person Wore an Orthopedic Corset at the Age of 10 for a Year. Treated with B.A.E. Method: Controlled After Eight Months **Tiziano Pacini, Elisabetta De Juliis, Andrea Pacini, Loredana Granata**
FRI-K.201-1-HP-03:	Biogenic Amines in Meat Produkts – Health Consequence and Legislation **Daniela Mitreva, Elka Toseva**
FRI-K.201-1-HP-04:	Parents' Awareness of the Impact of the Traffic-Related Urban Air Pollution on Children's Health

	Tanya Turnovska, Slaveya Petrova, Iliana Velcheva, Stanislava Harizanova, Elka Toseva
FRI-K.201-1-HP-05:	Contemporary Aspects of Kinesitherapy in Parkinson's Disease **Aleksandar Andreev, Yuliana Pashkunova, Kiril Panayotov**
FRI-K.201-1-HP-06:	Massage Applied in Bell's Palsy **Yuliana Pashkunova, Alexandar Andreev**
FRI-K.201-1-HP-07:	Assessment Tools OF the Activities of Daily Living in Pediatric Occupational Therapy **Elitsa Velikova, Petya Mincheva**
FRI-K.201-1-HP-08:	Aspets of Occupational Therapy Assessment in Neurorehabilitation **Petya Mincheva, Elitsa Velikova**
FRI-K.201-1-HP-09:	Tools to Assessing Rehabilitation After Stroke **Ivelina Stefanova**
FRI-K.201-1-HP-10:	Neurodynamic Tests for Functional Examination of the Sciatic Nerve **Radoslava Deleva, Petya Parashkevova**
FRI-K.201-1-HP-11:	Telemedicine in the Context of Low-Budget Healthcare **Konstantin Georgiev, Dimitar Stavrev, Georgi Kukushev, Vencislav Cvetkov, Cristo Bozov, Ivajlo Vazharov**
FRI-K.201-1-HP-12:	Dr. Stoyko Yordanov and the First Attempt to Establish a Bulgarian Medical Organization **Dimitar Stavrev**

14:00 – 15:30	***Parallel Sessions Room 2.114***
FRI-2.114-1-SW	**Social Work** ***Session Chair: Sasho Nunev***
FRI-2.114-1-SW-01:	Quality of Social Services-Theoretical Approaches and Practical Challenges **Lilyana Rusanova**
FRI-2.114-1-SW-02:	Unlawful Behaviour of Adolescents – Social and Psychological Aspects **Ivanka Stoyanova-Todorova**
FRI-2.114-1-SW-03:	Efficiency and Effectiveness of Application of Special Seismic Protection Methods **Plamen Kolev**
FRI-2.114-1-SW-04:	Study of Social Relationships as a Component of Quality of Life in Clients with Oncological Diseases of Working Age **Evgeniya Bratoeva**
FRI-2.114-1-SW-05:	Extracurricular Club Forms of Activity of Social Work Students and Formation of Positive Attitudes Towards People of Different Ethnic Background **Sasho Nunev**

14:00 – 17:30	***Parallel Sessions Room 2G.104***
FRI-2G.104-1-HC	**Health Care** ***Session Chair: Despina Georgieva***
FRI-2G.104-1-HC-01:	Analysis and Risk Assessment of "Knowledge Deficit" and Factors Associated with the Self-Application of Low-Molecular Fraxiparin at the Patients in the Postoperative Period **Mariana Bachewa, Daniela Velichkova-Hadjieva, Rosica Doinovska**
FRI-2G.104-1-HC-02:	Conflicts in Students ' Groups and Their Managemnt **Ivanichka Serbezova**
FRI-2G.104-1-HC-03:	Chess Therapy Or ... Life as a Game of Chess **Nikolina Angelova**
FRI-2G.104-1-HC-04:	Neonatal Pain

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	Nina Gamakova-Radkova
FRI-2G.104-1-HC-05:	Traditions and News in Inhalatory Corticosteroids **Svilen Dosev, Kina Velcheva**
FRI-2G.104-1-HC-06:	Examination of Physiometric Indicators in Students **Plamen Petkov, Petya Angelova**
FRI-2G.104-1-HC-07:	Free Time Fitness - Motivation for Feeding and Use of Food Additives and Anabolic Steroids **Plamen Petkov**
FRI-2G.104-1-HC-08:	The Pregnant Woman as a Subject of the Didactic Concept **Tsveta Hristova**

14:50 – 15:20	***Coffee-Break***

15:20 – 17:30	***Parallel Sessions Room 2G.104***
FRI-2G.104-2-HC	**Health Care** ***Session Chair: Despina Georgieva***
FRI- 2G.104-2-HC-01:	Kinesitherapy During Pregnancy **Yoana Lukanova**
FRI- 2G.104-2-HC-02:	The Basic Hygienic Health Care as a Factor for the Rise of Infections Due to Medical Service (Idms) **Irina Hristova**
FRI- 2G.104-2-HC-03:	Alternative Methods and Means for the Realization of Quality and Safe Compensatory Hygienic Care **Despina Georgieva**
FRI- 2G.104-2-HC-04:	Current State of the Hygiene Health Care in the Context of Quality and Patients' Safety **Greta Koleva**
FRI- 2G.104-2-HC-05:	Training of Relatives and Attendants of Hemodialysis Patients **Teodora Todorova**
FRI- 2G.104-2-HC-06:	Chronology of Medical Symbols and Emergency Help **Kristina Zaharieva, Teodora Nedeva, Tatyana Atanasova**
FRI- 2G.104-2-HC-07:	The Place of Women's Counseling in the Present **Kina Velcheva**
FRI- 2G.104-2-HC-08:	Strategies for Implementing Long-Term Care of Mental Health in the Community **Daniela Konstantinova**

14:00 – 17:30	***Parallel Sessions Room 2B.313***
FRI-2B.313-1-L	**Law** ***Session Chair: Elitsa Kumanova***
FRI-2B.313-1-L-01:	Eloquence and Argumentation **Lachezar Dachev, Doroteya M. Dimova-Severinova**
FRI-2B.313-1-L-02:	Protection of Persons with Non- Chemical Dependences **Elitsa Kumanova, Nikolina Angelova**
FRI-2B.313-1-L-03:	Religion, Culture and Law as Inclusive Conditions and Criteria for Belonging to the European Civilization and the European Union **Ivelin Velchev**
FRI-2B.313-1-L-04:	Roman Ideas for the Modern Concept of Legal Disciplinary Liability **Velislava Acheva**

FRI-2B.313-1-L-05:	From the Babylon Tower to Homo Ciberneticus/ Short Socio-Theological Analysis of Transhumanism **Svilen Spasov**
FRI-2B.313-1-L-06:	Historical Approach to Administrative Law **Emanuil Kolarov**
FRI-2B.313-1-L-07:	Resignation as a Reason for the Expiration of the Prerogatives of a National Representative **Zornitsa Yordanova**
FRI-2B.313-1-L-08:	Double Taxation and Double Non-Taxation. Avoidance Measures Legal Protection of Taxpayers in the Light of Administrative Cooperation in Tax Matters Between EU Member States **Elina Marinova**
FRI-2B.313-1-L-09:	Income from the Activity of Prostitution is Not Illegal It Must Be Subjected to Taxation and Therefore Meritful of Tax Protection **Eduardo Maria Piccirilli**
FRI-2B.313-1-L-10:	Legal Treatment of Inheritance Tax **Vania Panteleeva**
FRI-2B.313-1-L-11:	Tax Incentives for Video Games Development. Compatibility with EU Law **Hristina R. Georgieva**
FRI-2B.313-1-L-12:	Professions in Health Care System – Basic Terms and Critical Review **Maria Radeva**
FRI-2B.313-1-L-13:	Legdl-Dociological Parameters of National Anti-Discrimination Legislation Related to the Characteristics Age and Disability **Leyman Tyuleoglueva**
FRI-2B.313-1-L-14:	The Movable and Immovable Property and the Fight of Social Assistance in the Context of the Social Assistance Act **Byulent Mehmed**
FRI-2B.313-1-L-15:	Status and Position of Bulgarian National Audit Office Among the Bodies of State Governance **Zhivko Dimov**
FRI-2B.313-1-L-16:	About Measure of Law **Svetla Marinova**
FRI-2B.313-1-L-17:	Protection and Care for Refugee Children in Therepublic of Bulgaria **Desislava Mladenova Argirova**

14:00 – 17:30	***Parallel Sessions Room 2B.311***
FRI-2B.311-1-L	**Law** ***Session Chair: Krassimir Dimitrov***
FRI-2B.311-1-L-01:	Analysis and Comment of Paragraph 2 of Interpretative Decision № 8/2012 of Supreme Court in a Relation to the Subjective Property Rights Defense **Serghei Calincov**
FRI-2B.311-1-L-02:	Comparison Between the Inheritance and the Other Means for Substitution of the Debtor **Ventsislav L. Petrov**
FRI-2B.311-1-L-03:	Specifis of the Procedure of Stabilization **Tihomir Nikolov**
FRI-2B.311-1-L-04:	Legal Nature of the Plsan for Stabilization **Teodor Genev**
FRI-2B.311-1-L-05:	The Agreement Resulting from Mediation on Individual Labor Disputes **Antonina Dimitrova**
FRI-2B.311-1-L-06:	The Application of Mediation on Collective Labor Disputes **Antonina Dimitrova**

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FRI-2B.311-1-L-07:	Unfair Commercial Practices in Distance Contracts Under the Consumer Protection Act **Ioana Kaneva**
FRI-2B.311-1-L-08:	Insolvency Prroceedings of Members of a Group of Companies **Vladislav Ivanov**
FRI-2B.311-1-L-09:	The Determination of an Appropriate Adoptive Parent **Elena Todorova**
FRI-2B.311-1-L-10:	The Agent in the Role of a Procedural Substitute **Zlatozar Yordanov**

14:00 – 17:30	***Parallel Sessions Room 2B.308***
FRI-2B.308-1-L	**Law** ***Session Chair: Kremena Rayanova***
FRI-2B.308-1-L-01:	Essence of the Concept of National Security **Kremena Rayanova**
FRI-2B.308-1-L-02:	The Personal Security Survey **Milen Ivanov**
FRI-2B.308-1-L-03:	Can Mediation Be an Alternative to the Punishment of Imprisonment **Svetlin Antonov**
FRI-2B.308-1-L-04:	Interrogation as a Method for Gathering Non-Material Evidence of a Crime **Nevena Ivanova Ruseva**
FRI-2B.308-1-L-05:	Anonimous Signals as a Counter-Corruption Measude at the Ministry of Interior **Pavlin Iliev**
FRI-2B.308-1-L-06:	Modern Technologies for Improving the Level of Security of the Elderly People **Desislava Viktorova**
FRI-2B.308-1-L-07:	Punishments Imposed for Hooliganism in the Republic of Bulgaria **Ivaylo Ivanov**
FRI-2B.308-1-L-08:	To the Question is Transformative Nature of the Right to Personal Protection in the Criminal Process? **Lyuboslav Lyubenov**
FRI-2B.308-1-L-09:	Physiological Affect - Medical, Legal and Applied Aspects **Nikolay Nikolov, Nikolina Angelova**
FRI-2B.308-1-L-10:	A Comparative Analysis of Criminal Offenses Against Tax System **Nina Tagarova**
FRI-2B.308-1-L-11:	About the Operative Hearing in Criminal Proceedings **Anatoli Bobokov**

14:00 – 17:30	***Parallel Sessions Room Kaneff Hall 1***
FRI-K1-1-QHE	**Quality of Higher Education** ***Session Chair: Emil Trifonov***
FRI-K1-1-QHE-01:	The Internalization in the National Quality System of Higher Education **Hristo Beloev, Velizara Pencheva, Radoslav Kyuchukov**
FRI-K1-1-QHE-02:	The Academic Values in the Changing World (The University of Ruse, Bulgaria as a Signatory of Magna Charta Universitatum) **Hristo Beloev, Velizara Pencheva, Juliana Popova**
FRI-K1-1-QHE-03:	Regional Dimensions of the University Leadership (The Case with the University of Ruse, Bulgaria) **Hristo Beloev, Velizara Pencheva, Juliana Popova, Diana Antonova, Svilen Kunev**

FRI-K1-1-QHE-04:	Integration of Higher and Secondary Education in Bulgaria **Vyarka Ronkova**
FRI-K1-1-QHE-05:	The University Quality System of Education and its Functioning in the Branches of Ruse University **Stanka Damyanova**
FRI-K1-1-QHE-06:	Learning System for Experts for Internal and External Evaluation of the Quality of Higher Education **Hristo Beloev, Velizara Pencheva, Radoslav Kyuchukov**
FRI-K1-1-QHE-07:	Analysis of the Results of Lecturers Qualification Enhancing Through Participation in Specialized Courses **Plamen Daskalov, Asen Asenov, Tsvetelina Georgieva, Hristo Beloev, Velizara Pencheva, Diana Antonova**
FRI-K1-1-QHE-08:	INNOVENTER – an International Way to Support the Social Entrepreneurship Education **Daniel Pavlov**
FRI-K1-1-QHE-09:	Web Based Application for Improving the Quality of the Financial Service of Students in the University of Ruse **Rumen Rusev, Viara Ruseva, Vasil Kozov, Ivelin Chalov**
FRI-K1-1-QHE-10:	Methodology for Identification of Training Courses Expenditure by Structural Departments **Miglena Angelova, Veselin Grigorov**
FRI-K1-1-QHE-11:	Main Factors in Ensuring Access to Higher Education for Young People with Disabilities **Elena Lisnic**
FRI-K1-1-QHE-12:	Restraining Problems of Young People with Disabilities in Their Implementation for Learning in Universities **Julia Doncheva**
FRI-K1-1-QHE-13:	Increasing the Motivation for Learning of the Students from the Professional Field Mechanical Engineering at the University of Ruse **Tanya Grozeva**
FRI-K1-1-QHE-14:	Why to Use and How to Choose an Interactive Board **Angel Smrikarov, Aneliya Ivanova, Vanya Stoykova**
FRI-K1-1-QHE-15:	Quality of Distance Learining in Engineering **Tsvetelina Georgieva, Tzvetelin Gueorguiev, Nikolay Mihailov, Boris Evstatiev, Seher Kadirova, Nadezhda Paskova**
FRI-K1-1-QHE-16:	Culture of Quality of the Education. Borders of Lighting Design. Beyond Borders **Teodor Kyuchukov**
FRI-K1-1-QHE-17:	Culture of Quality of the Education in Lighting Design. Personalization and Individualization **Teodor Kyuchukov**
FRI-K1-1-QHE-18:	Training and Mobility Conditions of Students of the Example of the University of Ruse and the University of Uludag **Asen Asenov, Velizara Pentcheva, Gokhan Sevilgen, Ezgi Olgu, Mihail Milchev**
FRI-K1-1-QHE-19:	Concept of Web Based Solution for Evaluation of University Graduates Employment **Daniela Yordanova**
FRI-K1-1-QHE-20:	Shtakeholders Requirements Iin Corespondence of Neaa Criteria System for Programme Acreditation: Methodology for Assessment **Daniela Yordanova**

19:30	***Scientists' Ball* (*"Kaneff Centre"*)**

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NOVEMBER RESEARCH CONFERENCE IN RAZGRAD

Friday 2 November 2018

09:00 – 13:00	*Registration – Hotel Cartoon* (*lobby bar*)
11:00 – 17:00	***Opening, plenary session***
FRI-LCR-KS(R)-01:	**Prof. Liviu Gaceu, PhD** Transilvania University of Brasov, Romania *Grape epicarp flour mixes as functional ingredient for bakery industry*
FRI-LCR-KS(R)-02:	**Nadezhda Mihaylova, PhD** University of Ruse, Branch Razgrad, Bulgaria *Pharmaceutical biotechnology today – principles, acievments, future*
14:00 – 17:00	***Parallel Sessions Room LCR***
FRI- LCR -1-CT(R)	**Chemical Technologies** ***Session Chair: Miluvka Stancheva***
FRI- LCR-1-CT(R)-01:	Purification of Burgas Lake through Zeolit Type Clinoptility **Todor Mihalev, Gergana Peeva**
FRI- LCR-1-CT(R)-02:	Synthesis and Study of Ni-doped Willemite Ceramic Pigments **Tsvetalina Ibreva, Tsvetan Dimitrov, Irena Markovska**
FRI- LCR-1-CT(R)-03:	From Formamide to Nucleic Acid Monomers and Amino Acids by Using Various Energy Sources **Venelin Enchev, Ivan Angelov, Nadezhda Markova, Nina Stoyanova, Sofia Slavova, Ivayla Dincheva, Evgeny Krasavin, Mikhail Kapralov, Latchezar Avramov**
14:00 – 17:00	***Parallel Sessions Room BFT***
FRI–LCR-1-BFT(R)	**Biotechnologies and Food Technologies** ***Session Chair: Nastia Ivanova***
FRI–LCR-1-BFT(R)-01:	Phytochemical Evaluation and Antibacterial Effect of the Succulent Graptopetalum Paraguayense E. Walther **Nadezhda Markova, Maya Zaharieva, Hristo Najdenski, Ivayla Dincheva, Ilian Badjakov, Petia Genova-Kalu, Venelin Enchev**
FRI–LCR-1-BFT(R)-02:	Assessment Method for Hygienic Design in Food Industry. Water Drainage and Water Saving Study Case **Liviu Gaceu, Oana Bianca Oprea, Nicoleta - Raisa Samoila**
FRI–LCR-1-BFT(R)-03:	Sensory Evaluation and Rheological Behavoir of Yogurts Prepared from Goat Milk **Cristina Popovici, Mihaela Adriana Tita, Renata Brînza**
19:30	***Cocktail***

Saturday 3 November 2018

09:00 – 13:00	***Parallel Sessions Room LB***
SAT–LB-P-1-CT(R)	**Chemical Technologies** ***Session Chair: Tsvetan Dimitrov***
SAT–LB-P-1-CT(R)-01:	Estimation of Adsorption Ability of Rice Husks Based Bio-Char for Nickel Ions Removal from Aqueous Solutions **Velyana Georgieva, Lenia Gonsalvesh, Mariana Tavlieva**, **Ganka Kolchakova**
SAT–LB-P-1-CT(R)-02:	Synthesis of 1-Amino and 1-Nitroso Derivatives of 2',3'-Dihydro-2h,5h-Spiro[Imidazolidine-4,1'-Indene]-2,5-Dione **Neyko Stoyanov, Marin Marinov**

SAT–LB-P-1-CT(R)-03:	Composite Coatings Based on Chrome with Various Carbon Modifications **Evgenii Vinokurov, Roman Grafushin, Vera Makhina**
SAT–LB-P-1-CT(R)-04:	Interactive Training for Students in Technical Safety and Disaster Protection for Determining a Chemical Outbreak of Infection **Sabina Nedkova, Plamena Atanasova**
SAT–LB-P-1-CT(R)-05:	Investigation of Influence of Zeolite Based Spent Catalyst on Deposited in the Composition of Chamotte Refractory Mass **Ganka Kolchakova, Milena Ivanova, Louiza Dimowa**
SAT–LB-P-1-CT(R)-06:	A Strategy, Based on a Combination of Direct and Indirect Methods for Immobilization of Natural Compounds on Biopolymers **Stanislav Bayryamov**
SAT–LB-P-1-CT(R)-07:	Microencapsulation of Natural Compounds. a Literature Review **Stanislav Bayryamov**
SAT–LB-P-1-CT(R)-08:	Structural Features of Chalcones as Antiparasitic Agents **Nadezhda Markova, Daniela Batovska, Venelin Enchev, Shweta Sinha, Rakesh Sehgal**
SAT–LB-P-1-CT(R)-09:	Kinetic Studty of the Thermal Decomposition of Chitosan-Zeolite Nano-composite **Dilyana Zvezdova, Nedelcho Nedelchev**
SAT–LB-P-1-CT(R)-10:	Strategic Design of Integrated Supply Chains for Production and Distribution of Bioethanol **Yunzile Dzhelil, Evgeniy Ganev, Boyan Ivanov, Dragomir Dobrudzhaliev**
SAT–LB-P-1-CT(R)-11:	Kinetics of Magnesium Aluminium Spinel Synthesis in the Composition of Waste Aluminium Slag - Mgo **Ganka Kolchakova, Milena Ivanova, Mariana Tavlieva, Velyana Georgieva**
SAT–LB-P-1-CT(R)-12:	Inhibitor Activity of Maleimide and its Derivatives in Mild Steel Corrosion in 1M H_2SO_4 **Temenuzhka Haralanova, Angel Dishliev, Christian Girginov**
SAT–LB-P-1-CT(R)-13:	From Formamide to Glycine and Urea: an Ab Initio Study **Venelin Enchev**, **Sofia Slavova**
SAT–LB-P-1-CT(R)-14:	Reaction of Anilyne with 2-Nitrostyrene and 2-Bromo2-Nitrostyrene **Sonya Ivanova**
SAT–LB-P-1-CT(R)-15:	Preparation and Characterization of Chitosan-Zeolite Nanocomposite Films for Wound Healing Application Dilyana Zvezdova, Ivaylo Tankov, Valentin Vasilev, Snezhina Georgieva, Anife Veli, Radoslava Nikolova
SAT–LB-P-1-CT(R)-16:	Direct Microencapsulation of Rose Oil, Using Gelatin as Shell Material **Stanislav Bayryamov**
SAT–LB-P-1-CT(R)-17:	Synthesis of Glycerol Carbonate, Trimethylol Propane Carbonate and Tris Carbonate as Precursors for the Preparation of Biodegradable Engine Oil Additives **Stanislav Bayryamov**
09:00 – 13:00	***Parallel Sessions Room LB***
SAT–LB-P-1-BFT(R)	**Biotechnologies and Food Technologies** ***Session Chair: Iliana Kostova***
SAT–LB-P-1-BFT(R)-01:	Influence of Spirulina and Kelp Algae on the Degree of Increase in Dough Volume **Denka Zlateva, Mimi Petrova**

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SAT–LB-P-1-BFT(R)-02:	Environmental Impact Assessments of Co2 Emissions of Pollutants Produced Using Different Transportation Fleets for "Green" Dairy Supply Chain Desing **Elisaveta Kirilova, Natasha Vaklieva-Bancheva, Rayka Vladova**
SAT–LB-P-1-BFT(R)-03:	Determination of Rheological Properties with Farinograf and Extensigraf of Bio-Fortified Flour **Marija Menkinoska, Tatjana Blazhevska, Viktorija Stamatovska, Vinko Stanoev**
SAT–LB-P-1-BFT(R)-04:	Preparation of Hydrophobins from the Fruit Body of Pleurotus Ostreatus by Extraction with Formic Acid **Nikita Khrapatov, Artyom Khludin, Boris Kolesnikov, Mark Shamtsyan**
SAT–LB-P-1-BFT(R)-05:	Syntesis of Mechatronic Function Modules Drives of Flow Technological Lines in Food Production **Liudmyla Kryvoplias-Volodina, Alexander Gavva, Taras Hnativ**
SAT–LB-P-1-BFT(R)-06:	Quality Characteristics of Honey: a Review **Tatjana Pavlova, Viktorija Stamatovska, Tatjana Kalevska, Ivan Dimov, Gjore Nakov**
SAT–LB-P-1-BFT(R)-07:	Basic Physico-Chemical Studies of Orange-Colored Snow (Razgrad, Bulgaria) **Sevdalina Todorova, Maria Stefanova, Maya Petkova, Emel Djevdetova**
SAT–LB-P-1-BFT(R)-08:	Comparison of Alexa 488, DR110 and Fitc Conjugated to Antibody for Microscopic Assays **Zlatina Becheva, Yavor Ivanov, Tzonka Godjevargova**
SAT–LB-P-1-BFT(R)-09:	Use of Essential Oils in Dairy Products 4. Essential Oil of Oregano (Origanum Vulgare L.) **Iliana Kostova, Stanka Damyanova, Nastya Ivanova, Albena Stoyanova**
SAT–LB-P-1-BFT(R)-10:	The Influence of Industrial and Facial Water on the Fifth Channel Situation in the City of Bitola **Tatjana Blazhevska, Marija Menkinoska, Gjore Nakov, Nastya Ivanova, Vinko Stanoev**
SAT–LB-P-1-BFT(R)-11:	Painting with Yeasts on Chromogenic Differential Culture Media **Sevdalina Todorova, Neli Atanasova, Mirela Atanasova**
SAT–LB-P-1-BFT(R)-12:	Determination of Fatty Acids Profile of Sunflower Oil Samples by Nmr 1h Spectroscopy **Svitlana Kovaleva, Larysa Mazur, Inna Hutsalo**
SAT–LB-P-1-BFT(R)-13:	Studying the Borrowing Structure of Bakery Products **Vitalii Rachok, Ivanna Telychkun,Volodymyr Telychkun**
SAT–LB-P-1-BFT(R)-14:	Influence of Electrophysical Water Treatment on the Process of Beverages Saturation **Oleksiy Nescuba, Olena Chepeliuk**
SAT–LB-P-1-BFT(R)-15:	Residues of Organophosphorus Pesticides in Apples **Vezirka Jankuloska, Ilija Karov, Gorica Pavlovska, Gjore Nakov**
SAT–LB-P-1-BFT(R)-16:	Investigation of the Uniformity of Distribution of Different Test Components After Following Discharge **Vitalii Rachok, Ivanna Telychkun, Yuliya Telychkun**
SAT–LB-P-1-BFT(R)-17:	Justification of the Production Lines Arrangement Based on Quantitative and Graphic Methods for Assessing the Level of Equipment Excellence **Volodymyr Vasylkov, Oleksander Chepeliuk, Olena Chepeliuk**

ABSTRACTS

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OCTOBER RESEARCH CONFERENCE IN SILISTRA

FRI-110-1-LLIE(S)

FRI-110-1-LLIE(S)-01

DOXOLOGIES IN THE EUANGELIUM DIDACTICUM BY CONSTANTINE OF PRESLAV

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Abstract: *The focus of the report is on the construction and functions of specific to biblical and Christian books introducing or finishing doxologies - prayers in which the glory of God is given. They have all the features of a one-dimensional microtext, whose main function is text-based. The introductory and final doxologies in Euangelium didacticum by Constantine of Preslav are studied, examining the specifics of the microcomposition's schemes used for the arrangement of the constituent building blocks.*

Keywords: *Biblical and Christian books, doxology, "Euangelium didacticum", Constantine of Preslav*

JEL Code: *I29*

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FRI-110-1-LLIE(S)-02

THE LANGUAGE USE IN A SCRIPT FOR IVAN N. MOMCHILOV FROM 1869

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Abstract: *The report exploits the language use in a Bulgarian Revival script, named "Contract" from1869. This script is signed by Ivan M. Mollov, Stoyan Marinov and R. M. Radoslavov. It is restricted to a single page and contains 20 rows.The report focuses on the graphic, spelling, phonetic and grammatical peculiarities of the text. The characteristic features of the language in this text are compared to the set of linguistic norms and rules defined by Ivan Momchilov's "Grammar of The New Bulgarian Language"*(*Ruse, 1868*) *which is the primary codification document of the Tarnovo Literary language school.*

Keywords: *history of the contemporary Bulgarian literary language; slavic literary language; Ivan N. Momchilov; graphic, spelling, phonetic and morphological peculiarities; language-spelling model; dialect; literary tradition.*

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FRI-110-1-LLIE(S)-03

SOME PROBLEMS OF EDUCATIONAL ADAPTATION OF FOREIGN STUDENTS IN BULGARIA

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Abstract: *The paper reviews some problems of adaptation of foreign students to the education system at the Higher education institutions, in particular the English speaking students at the Medical University of Bulgaria. More and more students choose to receive their higher education in Bulgaria. The attitude of foreign students towards adapting to the new socio-cultural environment is a complex and differentiated process. The realization and development of personal potential, the relative adaptation to the new socio-cultural environment in many respondents is achieved above all at the expense of changes in stereotypes and behavior patterns, but there is often an internal alienation from the social environment, from the new recipients culture, they must fit in order to live and learn fully. The systematic study of the peculiarities of realization and development of the personal potential, as well as of the socio-linguistic adaptation of foreign students to life and learning in Bulgaria could help optimize the Bulgarian higher education system, which in turn will support the international prestige of Bulgaria, confirming the high level of its science, culture and education. Moreover, the analysis of different aspects of the educational adaptation of foreign students and the practical recommendations made on this basis will allow to increase the competitiveness of Bulgarian universities in the field of international education services.*

Keywords: *Foreign Students, Adaptation, Foreign language learning*

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FRI-110-1-LLIE(S)-04

CONCEPTS AND REALITY IN THE NOVEL „CONVICTED SOULS" IMAGERY CODE FUNCTION

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Abstract: *In D. Dimov's novel „Convicted Souls", the imagery code mediates between the characters and the world - discreetly, but very persistently, it clarifies what implies their worldview and sensitivity. The imagery code provokes the overthrow of the masks, clarifies the essence of human nature, stimulates the understanding of the characters, and illuminates the grounds for a certain type of reaction and assessment.The boundary between real and fictional is outlined through it, and it is from the inability to distinguish it,why the tragism most often arises. The imagery code is active when the psychological plan is compacted in the narrative. It sets patterns of perception by being committed to works by Velasquez, El Greco and Goya, and determines the existence of syncretism in the novel world.The result of the interconnection of literature and art in the novel „Convicted souls" is expressed in various aspects, both in the presence of common images, themes, conceptual suggestions and in the peculiarities of style and poetics, as well as through references to the life of artists and their views on art. The imagery code outlines meaningful and emotional trajectories, and illustrates personal and national psychology features that explain the tragedy of the characters in the border space between their ideas and reality.*

Keywords: *Dialogue, Literature, Fine Art, Imagery Psychology, Tragedy, Cultural Styles*

JEL Code: I29

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FRI-110-1-LLIE(S)-05

THE GOLDEN RATIO. WORD- MUSIC- LIGHT

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Abstract: *The word is also vibration. As in music, every sound of the spoken word, apart from the meaning, carries also specific vibrations, the frequencies of which can be beneficial or destructive for the human body. The history of Bulgarian ethnography and folk traditions also shows the exceptional significance of word and music sound: from ancient times folk healers were treating ill people with special sounds* (*word and singing spells*)*; or it was known that some spells can make you ill.*

And what is the significance of light? Light is the ultimate energy that affects every living being – which has been used in many schools of healing with colours and, as well as with the invisible form of that higher energy.

And where in this configuration is the Golden Ratio? Everywhere – in the proportions of the Leonardo Da Vinci's human body, in the structure of musical pieces, in poetry and prose, in paintings and architecture. In mathematics, two quantities are in the golden ratio if their ratio is the same as the ratio of their sum to the larger of the two quantities. And that is how mathematics and physics explain every creative activity of the human mind – science and art.

But before everything else, the Golden Ratio symbol of beauty, harmony and perfection, is everywhere in nature, as well as in humankind and its creations. The connection between all kinds of energy in the universe, on Earth and in humankind is ever present and perpetual. And is life-creating or life-destroying, depending on which way it manifests itself.

This is why many physicians and healers of all times have been taking in consideration the different energies- invisible, or transformed into visible matter, in the construction of our bodies; as well considering the Golden Ratio proportions. And many of them are using the vibration energy of music, words and poetry, colours, paintings and architecture, different sources of light.

Let's take a moment for each of us to think which energies could be most beneficial to you.

Keywords: *The Golden Ratio, Energies of Speech, the Arts, and the Light*

JEL Code: *I29*

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FRI-110-1-LLIE(S)-06

SOCIO-DEMOGRAPHIC DETERMINANTS OF THE QUALITY OF EDUCATION

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Abstract: *The paper reviews different socio-demographic determinants of education and their influence on the results of the students and their marks at school. Some of these are as follows: environment, social and ethnic origin, family, media influence and geographical location. The paper aims to show us how many different factors, which Ministry of education and schools cannot control, could be reasons for bad results at school. The report also provides some studies in this field, using quotes by some scientists form Bulgaria and other countries, which gives an international outlook to the topic.*

Keywords: *Socio-demographic determinants, Environment, Social origin, Ethnic origin, Family, Media influence, Geographical location.*

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FRI-110-1-LLIE(S)-07

DISCOVERING LANGUAGE AND SPEECH PATHOLOGIES IN PRE-SCHOOL AND PRIMARY SCHOOL CHILDREN[1]

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Abstract:*Discovering language and speech pathologies in pre-school and primary school children: Speech and language abnormalities are associated with communication problems and violation of the sound-articulation features of a person's speech. Breaches of this type that are of a biological nature are known as speech-language pathologies. Speech and language disorders are explored by the science of speech therapy.*

The term logopedics (*from logos, speech, and paideia-education*) *means science of speech disorders and methods of their prevention, diagnosis, overcoming, social rehabilitation of children and persons with speech and speech disorders. The Subject and focus of speech therapy are the regularities and peculiarities in the occurrence and development of speech disorders and the main processes of correction and rehabilitation of speech functions. In the scope of logopedics is children from preschool and school age as well as adults with abnormal speech status. The main aim of speech therapy is to develop and implement scientifically proven and practically verified methods of speech prevention and treatment of speech pathologies through specialized systems for education, education and socialization of speech pathologists. Theoretical research and the development of tools for the early discovery of linguistic and speech pathologies are the subject of a project INTERACTIVE TOOLS FOR TEACHERS AND CHILDREN AT INITIAL EDUCATION. This project* (*2017-1-BG01-Ka201-036295*) *has been funded with support from the European Commission* (*Erasmus+ Programme*)*.*

Keywords: *Education, Speech and language disorders, speech pathologies*

JEL code: *I29*

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RI-216-1-NTS(S)

FRI-216-1-NTS(S)-01

LINGUODIDACTIC MODEL FOR FOREIGN LANGUAGE LEARNING WITH INTEGRATION OF COMPUTER TECHNOLOGIES

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Abstract: *Regardless of the potential of electronic technology for the revolutionary transformation of the learning the dominant model in the world still has not changed substantially. This article describes the main characteristics of learning to integrate computers in the study of a foreign language through the focus of a university course of study. It outlines current trends, entered the world of education practice.*

Keywords: *Multimedia, Foreign language teaching, Innovation*

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FRI-216-1-NTS(S)-02

STUDY OF THE FUEL PRESSURE IMPACT ON INJECTION INITIATION BY ELECTROMAGNETIC INJECTORS CRI1

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Abstract: *This report presents the results of an experiment to determine the changein the hydraulic characteristics of a first-generation Common Rail electromagnetic injectors by changing the fuel pressure atthestart of the injection. The mostwidely used electromagnetic injectors CRI1 with a maximum pressure of 1350 bar waschosenas the subject of the study. The characteristics are studied by using an universal bench for testing of diesel fuel systems CMX6000X.*

Keywords: *fuel pressure impact, injection initiation, electromagnetic injectors*

JEL Codes: *L10, L11*

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FRI-216-1-NTS(S)-03

ELECTRIC MOTORS USED IN MODERN HYBRID AND ELECTRIC CARS AND DEVELOPMENT PROSPECTS

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Abstract: *This report provides an analysis of the advantages and disadvantages of electric motors used by hybrid cars and electric cars. The essential requirements for their exploitation and future development trends are listed.*

Keywords: *hybrid car, electric car, electric motor*
JEL Codes: *L10, L11*

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FRI-216-1-NTS(S)-04

CREATING KNOWLEDGE TESTS FOR MOBILE DEVICES

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Abstract: *Mobile learning is a reality in which mobile devices are used to learn and share learning resources at any time and from anywhere. Using them to create fun games to test the learning outcomes with the help of the Kahoot platform enhances students' motivation for learning activities, leads to better learning outcomes and optimizes the teacher's work in his evaluation work.*

Keywords:*mobil learning, mobildivices, kahoot platform, kahootquiz.*

JEL Codes: *I20, I21*

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OCTOBER RESEARCH CONFERENCE IN RUSE

FRI-2.101-KS

FRI-2.101-KS-01

HYBRID MANUFACTURING: ENABLING TECHNOLOGIES AND APPLICATIONS

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Abstract: *Additive Manufacturing (AM) of metal parts made a significant progress in the last two decades. Especially, there have been significant advances in single-step Powder Bed Fusion (PBF) technology and currently laser-based PBF can be considered the most widely adopted process for metal AM. Multi-step Binder Jetting follow by Sintering (BJ+S) technology has advanced too and now it is commercially offered for one-off and batch manufacture of metal parts. In general, the metal AM technologies has matured to reach a level where they can be considered as viable alternatives for producing near net shape parts that can meet the requirements of niche markets, mostly for small batch manufacture. However, to increase productivity, quality and cost-effectiveness of such single and multi-step metal AM technologies, it is necessary to integrate them in production lines with complementary and at the same time mature and widely used by industry technologies, e.g. the whole range of machining, heat treatment and surface engineering processes. To achieve this it is necessary to create system-level tools for interfacing metal AM processes with pre-processing and post-processing machining technologies into production lines and thus to meet specific application requirements. The talk will provide an overview of recently developed enabling technologies for hybrid manufacturing in EC and nationally funded research programmes. The talk will discuss generic integration issues in improving the system-level performance of metal AM technologies. In particular, the talk will discuss the design and implementation of modular work holding systems, automated workpiece setting up routines and inline inspection/monitoring solutions for interfacing BJ+S and laser-based PBF technologies with pre- and post-processing processes. Pilot implementations will be used to demonstrate the flexibility and operability of the proposed tools to address important system-level issues in integrating metal AM technologies in production line. Case studies will be used to illustrate the capabilities of these tools when employed for producing complex parts.*

Keywords:*. additive manufacturing, powder bed fusion, metal*

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FRI-2.101-KS-02

INDUSTRY 4.0 - HIGHER EDUCATION PERSPECTIVE

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Abstract: *Industry 4.0 is a broad enough category to interpret modern achievements and change in the way of thinking – a strategy for smart, sustainable and inclusive a growth.*

The Plenary Report focuses on the requirements of the modern technological revolution and what it means to educate and acquire competencies and skills in the areas of knowledge such as: laser material processing, advanced manufacturing technology, robotics and process chains.

The author will present a new training system that started as a pilot program at the Derby University, United Kingdom.

Keywords:*. industry 4.0, higher education, laser Micro- and Nano-manufacturing; Ultra-fast lasers; CAD/CAM; advanced design for X; design for sustainability*

FRI-2.101-KS-03

ENERGETICS OF LIGHTING IN TIME SYSTEMS

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Abstract: *The organization of the light part of the day is applied for rational use of electrical energy for lighting. Historically, Daylight Saving Time is introduced as a measure to save electricity for lighting. Later on, he has grown inertia and motivated himself as a measure to improve the quality of life.*

At the University of Ruse, systematic studies have been carried out on the usability of artificial lighting. A methodology has been developed for assessing the usability of arti-ficial lighting in two systems of time – zone time and summer time. A national database containing the energy-economic indicators of artificial lighting in 27 geographic points in Bulgaria was established.

From this objective information base are presented representative data. The expected better use of daylight at daylight saving time is not confirmed. Under certain work-time plans, in some parts of the country, energy costs even increase. The increase is both in absolute terms and through the change in the usability of lighting throughout the tariff zones (eg redistribution from night to day energy).

Keywords:*. lighting, daylight saving time, zone time, summer time*

FRI-8.121-1-AMT&ASVM

FRI-8.121-1-AMT&ASVM-01

STUDY OF VIBRATIONS CAUSED BY ROTARY MOVEMENT OF ELECTRIC MOTORS

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Abstract: *The object of the study is devices and facilities in which the main purpose is realized by rotational motion. The vibrations as a signal of the excited vibrations caused by it are recorded in digital form. Transformation from time domain to frequency domein is made. The resulting spectrum i.e., the amplitude-frequency characteristics is analyzed. They provide rich information about the general condition of the object being investigated and the state of the individual nodes that make a rotating motion relative to a fixed axis, such as bearings. Conclusions and recommendations on the technical condition of the investigated objects were made.*

Keywords: *signal, vibration, spectrum, diagnosis.*

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FRI-8.121-1-AMT&ASVM-02

MECHANIZATION OF SMALL FAMILY FARMS IN POLAND

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Abstract: *One of the main problems of small family farms is mechanization of farm works. However, machinery ownership is limited due to lack of funds. One of the possible solutions is to develop cooperation in machinery usage by group of farmers. Polish farming is traditionally very fragmented with the average farm area is around 10.3 ha, and 54% below 5 ha of UAA. Such small acreage affects the level of mechanization, making it very limited and inadequately low. Approximately 1.4 million farms are using almost 956,000 tractors, however their age and quality are key limitations in the introduction of new technologies. The paper presents common forms of collaboration between farmers to provide better access to machinery under Polish conditions.*

Keywords: *small farms, mechanization, farmers co-operation*

JEL Codes: *Q16*

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FRI-8.121-1-AMT&ASVM-03

STUDY CONCERNING THE EFFECTIVENESS OF SOME SOIL HERBICIDES TO WHEAT VARIETY "VENKA 1"

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Abstract: *During 2013-2016 in the experimental field of the Institute of Agriculture and Seed Science "Obraztsov Chiflik" - Ruse,in field experiment on soil type strongly leached chernozem, on the experimental field on the density and species composition of weeds in wheat variety „Venca 1".*

For this purpose the effectiveness at three soil herbicides - Afalon 45CK (*450g.l^{-1} linuron*), *Stomp 330EK* (*330 g.l^{-1} pendimethalin*) *and Zenkor 70VG* (*700 g.kg^{-1} metribuzin*), *applied in optimal and double increased doses was studied.*

The experiment was started after the block method in four replications, the experimental plot being 50 m^2.

The objective of the study was the establish effectiveness at three soil herbicides, applied in optimal and double increased doses on the species composition of weed associations in wheat variety „Venca 1".

The highest effectiveness against mixed type of weedness is showed by herbicides Stomp 330EK (*98%*) *and Zenkor 70VG* (*95%*), *in the double increased dose. The lowest effectiveness against annual grassy weeds is showed by soil herbicid Afalon 45CK, average for the period from 72 to 77%.*

All three soil herbicides inhibit the growth and development of Convolvulus arvensis (*L.*), *Cirsium arvense* (*L.*) *and Cardaria draba* (*L.*) *at the tested doses but do not reduce their density.*

Keywords: *wheat, weeds, herbicides, efficiency, grain yield*

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EFFECT OF HERBICIDES ON YIELD AND STRUCTURAL ELEMENTS OF EXTRACTION IN HYBRID RS 464 AND PARENTAL COMPONENTS

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Abstract: *In 2008 – 2010 y. in the experimental field of the Institute of Agriculture and Seed science "Obraztsov Chiflik" - Rousse, on a soil type highly leached chernozem, a field experiment was conducted with maize hybrid RS 464 and its parental forms - lines R 619 and MO 17. The influence on the yield and its structural elements of two vegetative herbicides against Johnson grass Titus 25 DF* (*250 g.kg-1 rimsulfuron*) *and Mistral 4 CK* (*40 g.l-1 nicosulfuron*) *was tested. The herbicides were introduced in the 4-5th leaf phase in an optimal dose, once and twice, in an interval of 14 to 20 days. The experiment was carried out with the perpendicular method of Shanin, with the size of the experimental plot of 10 m2. A control free of weeds was maintained throughout the growing season. The grain yield obtained from the variants treated with the tested herbicides was lower than that of the relevant control variant of the respective genotype Only line Mo 17, in the variant with application of Titus 25 MF, applied twice, was reported a higher yield of 7%, which was not statistically proven. The studied herbicides have no influence not only on grain yield but also on its structural elements. Statistically proven differences were established compared to the control variant for the values of the parameters: number of grains in the row of the line RM 619 and the length of the cob of the line MA 17.*

Keywords: *maize, hybrids, lines, herbicides, productivity, structural elements*

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POSSIBILITIES FOR CULTIVATION OF SPRING FORAGE PEA (PISUM SATIVUM L.) CV. "KERPO" FOR FORAGE PRODUCTION IN CHANGE OF MAIN TECHNOLOGICAL FACTORS

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Abstract: *The field experiment was conducted in the period 2011-2013 with spring forage pea (Pisum sativum L.) cv. "Kerpo". The aim is to establish the possibilities for its cultivation in the change of basic technological factors, as well as the changes in some biometric and quantitative indicators of productivity. Variants: 1 control - by standard technology including fertilization and treatment with herbicides and insecticides; 2 - without the use of preparations of inorganic origin (biological); 3 - treatment only with bio insecticide ("Ecofil P") of organic origin. It was found that the applied different technologies have a significant impact on the change of some biometric and quantitative indicators of productivity. With the highest number of plants, root weight and number of nodules is the crop grown under standard technology. With the lowest percentage of crop lodging, the highest dry weight of a plant and the highest number of branches per plant is the crop also grown by standard technology. When growing the spring pea for the forage production by the biological method and by treatment with the bio insecticide "Ecofil P", the resulting differences in the yield compared to the standard technology are mathematically proven to lower.*

Keywords: *spring pea, technology, biometrics, forage yield*

JEL Codes:

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BIOCHEMICAL CHARACTERISTICS OF SPRING FORAGE PEA (PISUM SATIVUM L.) CV. "KERPO" DEPENDING ON THE TECHNOLOGY OF CULTIVATION

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Abstract: *The purpose of the experiment is to make a biochemical characterization of spring forage pea cv. "Kerpo" depending on the cultivation technology. The study was conducted in the period 2011-2013. It used the split plot method with four repetitions of the variants and a size of 10 m^2 of the harvest plot. For biochemical analysis, plant samples are taken annually during the first and second ten days of June. Of each variant are taken five pieces of monoliths measuring 20x20x30 cm. The number of nodules has been counted, and the nitratreductase activity in the leaves, stems and roots is determined. The content of plastid pigments is also determined in the leaves. It has been established that the treatment of spring forage pea with the "Ekofil P" has a negative impact on the content of plastid pigments in the pea leaves. Regardless of the technology of cultivation, in the crops harvested in the first period, the content of macro elements is higher than that recorded in the later harvesting phase. Nitratreductase activity is highest in the root mass. It changes both on structural elements* (*leaves, stems and roots*) *and depending on the cultivation technology. The total nitratreductase activity and total content of plastid pigments, depending on the technology, increased with respect to the results recorded in the control crop* (*standard technology of cultivation, including fertilization and treatment with herbicides and insecticides*)*.*

Keywords*: spring pea, technology of cultivation, biochemical characteristics*

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ABOUT INFORMED CHOICE OF MACHINERY FOR FIELD CROP GROWING

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Abstract: *To be a choice informed potential buyer need to have enough data about process of crop growing, technological and technical characteristics of farm machinery. Usually manufactures and traders offer only some information presenting positively machines. That is why in the paper is presented list of essential data to make well-founded decision. For level of tractor-machine units a method and procedure are suggested. They are based on summarized agricultural management data from standards, handbooks, and manuals. A spreadsheet make easier the process of field capacity and fuel consumption prediction. Field efficiency values are defined by analogy or for linked processes by simulating. Procedure is included in an ergatic system. For level of tractor-machines fleet a similar approach is used. This allows complex improvement of tractors and attachments selection. Moreover decision making take into consideration crops rotation sequence, duration of plants growth phases, data for field capacity and fuel consumption, yearly equipment used and employment of workers. In such way, farmers can decide what to buy on base of enough objective information.*

Keywords: *tractors and attachments selection, ergatic system, multistage procedure*

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ABOUT SELECTION OF TRACTOR'S TRAILER FOR LINKED PROCESSES IN FIELD HUSBANDRY

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Abstract: *Trailers are the main tools for transport and for application of fertilizer and manure in agriculture. The proper decision of their type, parameters and number relatively determinate field capacity and fuel expenditure not only of agricultural goods, but also efficiency of a lot linked farm processes. In the paper are discussed issues of tractor and trailer mass ratio, preconditions for tractor-trailer unit's movement, proportion of trailers' carrying and fertilizers' capacities and the combination of appropriate tractors, trailers and other farm machinery as types and number. There are shown procedures for calculation of possible and desired values of the system energetic machines and implements in agriculture. Some examples of cooperative works are presented by diagrams for changing of amounts of manure, fertilizer or other goods in trailers and applicators during the shift time. The important of process' organization is marked for direct and indirect scheme of agricultural transport performance. A necessity of complex solving of relative problems is found.*

Keywords: *tractors and trailers selection, linked processes, field husbandry*

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INFLUENCE OF WATER EROSION PROCESSES AND APPLICATION OF SOIL EROSION CONTROL TECHNOLOGIES ON SEDIMENT ENRICHMENT RATIO

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Abstract: *Soil water erosion and loss of soil organic matter are degradation processes causing considerable damages to agricultural production, both in the world and in our country. Various agro-technical methods and technologies are used to overcome these two degradation processes. There are a number of models for predicting soil and organic matter losses when erosion processes occur. One of the methods for prediction the loss of soil organic matter under the action of water erosion is parametric method with application of parameter sediment enrichment ratio. The present study is focused on the change of the erosion sediment enrichment ratio of humus in application of various erosion control measures for maize and wheat production on inclined terrains on soil calcareus chernozem***.**

Keywords: *soil water erosion, sediment enrichment ratio, loss of soil organic matter, minimum tillage, vertical mulching, surface mulching*

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FRI-8.121-1-AMT&ASVM-10

INFLUENCE OF WATER EROSION AND DIFFERENT TILLAGE SYSTEMS FOR GROWING CORN ON SLOPING AGRICULTURAL LANDS ON THE LOSS OF AVAILABLE FORMS OF PHOSPHORUS AND POTASSIUM FROM THE SOIL

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Abstract: *One of the results of the action of soil water erosion is loss of nutritients with surface water runoff and eroded soil. This, along with the other negative consequences of this degradation process, leads to a decrease in crop yields, loss of mineral fertilizers, environmental pollution. The application of different methods and technologies to limit the action of water erosion processes reduces these negative consequences. In the present study, we analyze the loss of available forms of phosphorus and potassium, using conventional and soil protection technologies for growing maize on sloping agricultural lands under the conditions of moderately eroded calcareous chernozem.*

Keywords*: water erosion, loss of available forms of phosphorus and potassium, minimum tillage, vertical mulching, surface mulching.*

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FRI-8.121-1-AMT&ASVM-11

METHODOLOGY FOR TECHNICAL AND ECONOMIC ASSESSMENT OF SOIL PROTECTION TECHNOLOGIES FOR GROWING CROPS ON SLOPING AGRICULTURAL LANDS

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Abstract: *In the Republic of Bulgaria, various soil protection technologies are used to combat water erosion, soil compaction and the loss of soil organic matter. Determination of their effectiveness requires carrying out of agro-technical, erosion, technical and techno-economic assessmenst. This study considers methodolody for such technico-economic assessment.*

Keywords: *water erosion, soil compaction, soil organic matter, methodology, techno-economic assessment.*

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EXPERIMENTAL RESEARCH ON THE IMPLEMENTATION OF THE OPERATING AND CONSTRUCTION PARAMETERS OF A CHAIN TRENCHERE IN WIND SOILS IN VIETNAM

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Abstract: *The main objective of this research was to investigate the relationship between parameters* (*traverse speed machine, tangential cutting tool speed, cutting angle and longitunal space*) *and the performance index of chain trencher in order to reduce the power consumption. In this article authors present experimental rerults on the effect of various parameters on operation efficiency of chain trencher and base on these result we determine suitable parameters for the given power.*

Keywords: *chain trencher, traverse speed, tangential cutting tool speed, cutting angle, longitunal space, power.*

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STUDY OF THE STATE OF MAINTENANCE SHOPS FOR AGRICULTURAL MACHINERY IN NORTHERN BULGARIA

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***Abstract**: The study of the state of the maintenance workshop for the servicing of the agricultural machinery in northern Bulgaria is necessary for solving the emerging problems with the activity of the companies in this sphere and the agricultural companies that use their services for their activities in cultivation the land. This article discusses some of the main problems that arise in maintaining machines as well as scientifically solving these problems. An analysis and conclusion of the state of the problem are given .*

***Keywords:** maintenance, services workshop for agricultural machinery*

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INVESTIGATING THE UNEVENNESS OF THE BRAKE SYSTEM OF CARS

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***Abstract**: In this research brake efficiency and unevenness are investigated. The measurements are given in tables and are processed with softer for statistical data. Results are the results are discussed and analyzed.*

***Keywords:** brake system, brake system performance, brake system unevenness*

***JEL Codes:** L10, L11*

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Стоянов В., М. Николов, Д. Бекана, П. Кангалов. Проблеми на поддържането на земеделската техника в България.// Механизация на земеделието, 2015, брой 12, стр. 25-27, ISSN 0861-9638

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FRI-1.202-1-MR-03

DETERMINATION OF THE DEGREE OF INFLUENCE OF BASIC STRUCTURAL PARAMETERS ON THE CHANGE OF THE IEC TECHNICAL AND ECONOMIC CHARACTERISTICS

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***Abstract**: The evaluation of the hourly and specific fuel consumption and the main components of the exhaust gas composition in case of internal combustion engine failures are examined. A structural investigation scheme was developed to determine the impact of the structural parameters of the main subsystems on the change of the main components of the exhaust gases.*

***Keywords:** diagnostic, fuel consumption, compositions exhaust gas, internal combustion engine*
***JEL Codes:** L10, L11*

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FRI-1.202-1-MR-04

EFFECTIVE MAINTENANCE OF AGRICULTURAL MACHINERY

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***Abstract**: Maintenance of agricultural equipment is carried out by agricultural machinery dealer . Their business interests forbid them to implement strategies that decrease maintenance such as proactive maintenance or condition based maintenance. They implement preventive and emergency maintenance. For this reason farmers incur unnecessary financial losses. The article shows the necessity and effectiveness of implementing early diagnosis in agricultural machinery maintenances.*

***Keywords:** maintenance, agricultural machinery*

***JEL Codes:** L10, L11*

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THE POROUS FOAM DUST COLLECTOR

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Abstract: *Development of the foam capillary porous generators and dust-and-gas collectors of new type was derived from study of pure liquids boiled in the porous structures and managed by different physical fields: mass* (*gravity and pressure forces*)*, capillary, vibration and wave* (*ultrasound*)*. The different physical processes such as boiling, injection, suction* (*condensation*)*, bubbling, foam generation, pseudo fluidization were summarized with a single criterial equation with accuracy ± 20%. The nozzle-free foam generators of air mechanical foam were designed along with its case, inlet and outlet nozzles, a set of grids and sprayer. They help to conduct foam generation processes with high effectiveness under low hydro-and-gas dynamic resistance. For further enhancement of the combined processes of gas mechanical foam and collecting micro-and-ultramicroscopic dust, a dust collector along with its case, inlet and outlet nozzles, a set of grids and sprayer was proposed, which is equipped with defoaming grid porous structure, whereas foam generating and defoaming structures are installed into in case consequently as per the dusty gas movement and sludge collector.*

Keywords: *Efficiency, Effectiveness, GPS, Seismic Protection Methods, Model porous foam, dust collector, capillary porous structures, foam generator*

JEL Codes: *Q3, Q55, Q01, O13, O33, L43, L51*

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FRI-9.3-1-THPE-02

APPLICATION OF THE STIRLING ENGINE FOR CREATING AUTONOMOUS SOURCES OF HEAT AND ELECTRICAL SUPPLY

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Abstract: *To convert thermal energy into electrical energy, it is proposed to use a Stirling external combustion engine. A comparison of the structures of the energy balance, the fundamental differences between the Stirling engine and the internal combustion engine are given. Advantages of the Free-piston Stirling engine in relation to other structures are described.*

Keywords: *Free piston engine;Stirling's engine; Thermodynamic cycle; Thermal energy,*

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FRI-9.3-1-THPE-03

LIMIT THERMAL FLUXES AND THERMAL STRESSES IN POROUS COATINGS OF A HEAT-ENERGY INSTALLATION

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Abstract: *The methods and devices for power plants and the creation of scientific methods have been developed. Investigations of the limiting heat fluxes in metallic and poorly heat-conducting porous structures operating under the combined action of gravitational and capillary forces and cooling various devices of thermal power plants are carried out. Based on the solution of the problem of thermoelasticity and experimental data, the mechanism of destruction of metal steam generating surfaces and poorly heat-conducting coatings of small porosity made of natural mineral media* (*granite*) *is described. On the basis of the analogy of the phenomena, the dependences of the heat fluxes on the time of their action and the depth of penetration of temperature disturbances are revealed. Capillary-porous systems have high intensity, high heat transfer ability, reliability, compactness. The results of calculations and experiments showed that the maximum thickness of the particles that break off under the action of compression forces for coatings from granite is* (*0,25÷0,3*)*x10-2 m. Sections of compression curves that determine the separation of particles with dimensions greater than 0,3x10-2 m for large heat fluxes and short delivery times are screened by the melting curve, and in the case of small heat fluxes and significant time intervals, the expansion curve. The research is aimed at the creation of porous cooling systems from well- and poorly-heat-conducting materials.*

Keywords: *heat exchange, porous structure, voltage, cooling system, thermal power plants.*

JEL Codes: *Q3, Q55, Q01, O13, O33, L43, L51*

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DESIGN OF FUZZY SELF-TUNING PID CONTROLLER FOR ELECTROHYDRAULIC SYSTEM

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Abstract: *The article examines the work of electrohydraulic system with rotary actuator. Developed a mathematical model describing the dynamics of the processes. A fuzzy self-adjusting PID controller with variable coefficients is synthesized. The transient processes in the system are compared to processes where the classical PID controller. The results are presented in graphical form.*

Keywords: *Electrohydraulic System, Fuzzy Control, Mathematical Model, PID Controller, Rotary Actuator, Pressure Pipeline..*

JEL Codes: *L10, L11*

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NUMERICAL MODELING OF THE HEAT TRANSFER PROCESS AT MOVEMENT OF AIR IN TUBE

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Abstract: *In this paper, numerical modeling of heat transfer process by forced convection of autmosferic air in tube, has been presented. The process of heat transfer between the flowing fluid and the environment has been modeled. For this purpose, computer simulations have been realized using ABAQUS software. Certain peculiaritis have been analyzed. The initial conditions have been determined. Different variants to perform numerical modeling of heat transfer processes in order to obtain the temperature field in the fluid and in the tube wall, have been discussed. The presented study is an initial stage of a summarized investigation of the possibilities of numerical modeling of different heat transfer processes, realized in heat exchangers.*

Keywords: *Numerical modeling, Computer simulation, Heat transfer processes, Heat exchangers*

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FRI-9.3-1-THPE-06

ANALITICAL INVESTIGATION ON THE OPERATIONAL CHARACTERISTICS OF A HEAT EXCHANGER WITH THERMOSYPHONS

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Abstract: *In the recent years, the interest towards the application of two-phase thermosyphons as an element of heat recovery systems has significantly increased. The application of thermosyphons is steadily gaining popularity in a wide range of industries and energy solutions. In the present study, the construction of a heat exchanger utilizing the heat of the waste gases from a gas boiler is presented. Utilised heat is used to heat water. An analytical model of the thermal and hydrodynamic processes taking place in a thermosyphone is made. The model is multiplied for the represented heat exchanger.*

Keywords: *Heat exchanger,Thermosyphon, Thermal and hydrodynamic processes, Waste heat,*

JEL Codes: *L10, L11*

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RESEARCH FOR THE POSSIBILITIES AND AREAS FOR THE APPLICATION OF HYDROSTATIC TRANSMISSIONS FOR THE TRANSMISSION OF ENERGY FROM THE PROPELLER TO THE ELECTRO GENERATOR OF THE WIND TURBINES

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Abstract: *The growing need for electricity and the norms requiring this energy to be from renewable sources are at the base of the rapid development of wind generators facilities. However, one of the main problems remains the transmission and transformation of energy from the propeller to the electro generator. This paper presents research work in to for the areas of an application of the different hydrostatics transmissions depending on the wind power. The main results here are achieved by the deep analysis for the together work of the different devices like propeller, hydrostatic transmission and the electro generator. Especially attention are given here of the research characteristics which are connected with an applications and using of the types of the pumps and hydromotors which will work under high efficiency by the transport the energy in different fields depending on the rotational speed and the size of wind power.*

Keywords: *wind power, wind turbines, hydrostatic transmissions, electro generators*

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FRI-9.3-1-THPE-08

INVESTIGATION OF ROBUST STABILITY OF ELECTRO-HYDRAULIC CONTROL MODULE FOR HYDRAULIC STEERING SYSTEM WITH LINEAR-QUADRATIC REGULATOR

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Abstract: *The paper investigates the robust stability of an embedded robust controller for optimal reference tracking of electrohydraulic steering systems. The regulator is sinthesized on the base of multivariable system identification and quadratic cost function. A Kalman filtering algorithm is used for the state estimation. In order to describe the system in robust control framework we introduce a small uncertain element into the model from identification in the form of input multiplicative uncertainty. Then the system is represented as a* $M - \Delta$ *interconnection which allows to calculate the structured singular value* (μ) *of the closed loop system with the linear quadratic regulator. This singular value is a measure of the loop stability in presence of bounded variations in the model characteristics in frequency domain or in its parameters. Therefore the present paper proves that the closed loop system keeps its stability in presence of unmodelled dynamic effects caused for example by the inherent nonlinearities in the hydraulic steering units.*

Keywords: *Multivariable system identification, linear-quadratic regulator* (*LQR*), *Kalman filter, Robust stability, steering system.*

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CFD ANALYSIS FOR CAVITATION FLOW THROUGH A CONVERGING-DIVERGING NOZZLE

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Abstract: *Converging-diverging nozzles* (*Venturi tubes*) *play a very important role in various engineering fields. Due to its specific geometric dimensions, this CD is used to determine and visualize the conditions under which the cavitation phenomenon arises. In this paper, a numerical CFD* (*Computational Fluid Dynamics*) *method is used to simulate the internal flow field passing through the CD nozzle and the conditions in which cavitation occurs, the working fluid being a hydraulic oil. The ultimate volume method is used to convert differential equations from fluid mechanics into algebraic equations using the first order sampling approach. To solve the pair of pressure-velocity dispersion equations, a typical SIMPLE algorithm was used. In the present work the conditions in which cavitation occurs in a converging-diverging nozzle are discontinued. Results can be used to prevent this process from being triggered in various hydraulic machines.*

Keywords: *Cavitation, CFD, GPS, Venturi tubes.*

JEL Codes: *L10, L11*

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RESEARCH REGARDING THE PYROLYSIS OF POULTRY WASTE AS AN ALTERNATIVE FOR ITS USE IN ENERGY PRODUCTION

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Abstract: *In the actual ecological conception, the poultry waste can be stored at carefully chosen distances so that the bad odors do not disturb human communities or commercial societies. From these storing facilities, the farmers can use the manure as fertilizer, especially for vegetables.*

Through surface water, but also by phreatic water from the soil, the pollution can be significant. In the paper the qualities of the chicken manure, in the form of elemental analysis and energy characteristics are presented. On the basis of these data, the possibility of its energy use emerges, either by pyrolysis or by direct burning.

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From the point of view of combustion, the main impediments are the very high moisture and the low heat value. The data resulted from the research have application in taking the decision regarding the ecological possibility of combustion of the poultry wastedeposits, including a positive energy effect.

Keywords: *chicken waste, two stage pyrolysis, energy balance.*

JEL Codes: *Q2, Q4, Q5*

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FRI-9.3-1-THPE-11

PARTICULATE MATTER MEASUREMENTS IN INDOOR AIR

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Abstract: *The paper presents results concerning indoor air measurements of particulate matter with mean diameters 10 μm and 2.5 μm. The tests are performed with experimental module for particulate matter emission control based on optical principle. The work compares the data from measurements which are conducted with different types biofuels burned out at the same conditions.*

Keywords: *Particulate matter, Biofuels, Combustion*

JEL Codes: *L10, L11*

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FRI-9.3-1-THPE-12

PERFORMANCE ASSESSMENT OF SORPTION REGENERATOR FOR DEHUMIDIFICATION IN AIR HANDLING UNIT

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Abstract: *Nowadays the studying various solutions to reduce energy consumption has a great importance. Air to air heat exchangers have the potential to increase the energy savings. In particular, interest in desiccant wheels is increasing due to their high effectiveness and possibiliety to dehumidify. This paper reviews the potential to transfer of heat and moisture in regenerative heat exchangers as a part of air conditioning system in pharmaceutical industry. A comparission of performance between the different types of regenarators is made under different operating parameters.*

Keywords: *Air conditioning, Dehumidification, Desiccant wheel, Efficiency, Energy consumption, Heat and mass transfer, Regenerative heat exchangers.*

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FRI-9.3-1-THPE-13

ANALYTICAL PRESENTATION OF THE DIMENSIONLESS CHARACTERISTICS OF CENTRIFUGAL FANS

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Abstract: *This work consists of a good number of analytically presented characteristics of centrifugal fans. The found analytical equations, apllied together with the well-known methods of similarity, have been used to determinate the fan's main geometric sizes. The proposed method ensure a quick and automated way for the determination of these sizes, as well as provides an opportunity for its predictive characteristics, in case the specific speed of rotation is preliminary known, to be found.*

Keywords: *Centrifugal Fan; Dimensionless Characteristic; Specific speed.*

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FRI-9.3-1-THPE-14

TECHNICAL – ECONOMICAL ANALYSIS OF THE AIR HEATER WHEN SWITCHING COAL FROM NATURAL GAS

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Abstract: *This paper presents a feasibility study of a two-phase thermosiphon while changing fuel from coal to natural gas. A large-scale experimental study was conducted to determine the operating parameters of the two-phase thermosiphon - temperatures before and after the heat exchanger, on the path of air and flue gases, for the two different types of fuels. On the basis of the conducted experimental tests, while using the normative method, the percentage increase in the efficiency of the boiler was determined - using coal - 2.72% and natural gas - 2.43%. The higher coefficient is due to the greater amount of excess air during coal use resulting in more intense heat exchange. The total investment for realization of the two-phase thermosiphon is EUR 185 000. Energy savings are expected to be achieved, with the payback period of 1.93 years when using coal and 0.52 years while using natural gas. The environmental effect of changing the type of fuel is significant - using the thermosiphon while burning coal saves 5 192 t/yr greenhouse gas emission and while burning natural gas - 2 788 t/yr greenhouse gas emission.*

Keywords: *Fuel switch, Techno – iconomical analysis, Boiler efficiency, Emissions reduction*

JEL Codes: *L10, L11*

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DEVELOPMENT OF A NEW PRECISE AND SENSITIVE ANALYTICAL METHOD FOR QUERCETIN QUANTIFICATION

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Abstract: *Quercetin has been demonstrated to play an important role in the protection against environmental oxidative stress. The aim of the current study was to develop a new rapid, sensitive and precise analytical methodology for the determination and quantification of the natural antioxidant in pure form. Two direct spectrophotometric and a RP-HPLC-PDA methods for the bioflavonoid analyses were established. The influences of wavelength, pH, temperature and mobile phase on the biologically active compound determination were investigated. The proposed RP-HPLC-PDA procedure characterized by short retention time* (*5.9 min*), *high precision* (*RSD = 1.326%*), *and excellent linearity* (*R2 = 0.9997*), *which together with the lowest determined values of the lower limit of detection* (*LOD*) *and lowesr limit of quantification, undoubtedly proved the undeniable advantages of the chromatographic method over the proposed spectrophotometric techniques.*

Keywords: *quercetin, RP-HPLC, UV-VIS spectrophotometry, quantitative analyses*

JEL Codes: *L10, L11*

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FRI-9.2-1-EC-02

INFLUENCE OF ARTIFICIAL LIGHT ON TOMATO PRODUCTIVITY IN GREENHOUSE CONDITIONS IN SOUTH EAST KAZAKHSTAN

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Abstract: *The paper reviews influence of different lightning level on tomatoes productivity in greenhouse conditions in Kazakhstan. Few lightning levels and LED lightning was used to study efficiency of each options.*

In order to gain more insight into the influence on production, was performed an experiment in green house conditions in the east Kazakhstan, were greenhouses more developed. In total used 5 lightning options, on beef type tomato (“Torero”) from 22 July 2017 to 20July 2018. 5 lightning treatment were applied, in one greenhouse, in the similar conditions: control without lightning (1),top lightning HPS-15000lux(2), top lightning HPS-10000lux(3), top lightning Led white (4), top lightning LED-blue red(5). A strong good crop was developed under HPS(2), under LED light we noted long and thin steam, and very small fruits settled per truss. But if to tell about taste of tomatoes, the best were under LED lamps(5). Economic efficiency on HPS much higher compare to other options. So, using artificial light in greenhouses of Kazakhstan profitable, and necessary.

Keywords: *energy use, greenhouse climate, lightning, HPS lamps,LED lamps*

JEL Codes:*Q19*

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FRI-9.2-1-EC-03

ENVIRONMENTAL IMPACT OF THE NOISE, GENERATED FROM TWO CENTRIFUGAL PUMPS, OPERATING IN PARALLEL – STATISTICAL APROACH OF THE LEVELS DISTRIBUTION

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Abstract: *The paper presents the results of a noise study of a hydraulic system of centrifugal pump operating in parallel. A methodology of experimental studies has been developed and noise testing has been carried out at various pump operating modes. Measurement was performed for 2,000 seconds for each mode, with 2000 values averaged over 1 second on the A-weighted sound pressure level. Statistical data was performed on the test data to determine the influence of the pump operating mode on statistical parameters of distribution laws - dispersion, standard deviation, mathematical expectation, and density of distribution. Depending on the increase of the noise, the flow rate of the pump is determined. An analysis of the environmental impact of the noise from parallel centrifugal pumps was carried out.*

Keywords: *Noise, environmental impact, centrifugal pumps, distribution laws, noise parameters, spectral distribution of sound pressure level, frequency;*

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THE FEASABILITY OF GROWING TOMATOES IN THE CROSSING TURNOVER IN THE GREENHOUSES OF SOUTH EAST KAZAKHSTAN

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Abstract: *The article presents the results of the research on the product and the benefits of the production, greenhouse of LLP "BRB APK", in tomato department. In the winter, when light is limiting factor, was growing tomatoes under different light levels. East West Kazakhstan located in the 7th lighted zone, what means growing tomatoes in greenhouses possible, but only with using supplementary lightning. Supplemental lightning, traditionally provided by high-pressure sodium (HPS) lamps, which is recommended for greenhouse production of vegetables during light-limiting conditions. In the research used 3type of treatment HPS, LEDs with 2 different spectrum. HPS shows good truss settles than other lamps, LED contain more sugar but less profit, LEDs good shape, good taste, sugar content*

Limited light conditions is the point to research in supplementary lightning in Kazakhstan.

Growing tomatoes in greenhouses with supplementary lightning economically feasible.

Keywords*: supplementary light, HPS lamps, tomatoes, light conditions, greenhouse*

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INNOVATIVE METHODS AND TECHNOLOGY FOR DERIVATION OF CARBOHYDRATE-SILICONE CONTAINING MATERIALS FROM WASTE BIOMASS

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Abstract: *Exhaustion of global reserves of mineral raw materials and fossil energy sources, periodically arising energy crises, and environmental pollution are among the major challenges facing modern society. In the search for new alternative energy and raw materials sources, increasing attention is paid to the processing of industrial, household and agricultural waste into valuable products for the practice. It is of paramount importance in this case to create technologies that are economically viable in achieving the ultimate goal. From renewable agricultural waste, waste from rice production deserves particular attention. The processing of the barley, which separates the grain from the skin, is associated with the accumulation of rice husks, representing about 20 wt. % of total raw material.*

From this point of view, the high content of amorphous SiO_2 and pure carbon in rice husks defines them as a promising cheap, ecological and renewable raw source of Si and C.

Keywords: *Efficiency, Effectiveness, Environmental protection, Methods, Model.*

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RISKMETRICS TO ENVIRONMENTAL PROTECTION

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Abstract: *The paper presents the foundations of a new direction in the theory of risk for environment – Riskmetrics. It derives its purpose, tasks, scope and object. The principles of Riskmetrics have been formulated. It proposes riskmetric technology and riskmetric fund. They include new methods for case modeling, taxonomy, risk measuring, criticality assessment and respectively environmental security. Analysis is made of the uncertainty of measuring and sensitivity of risk models. Results are filtered and ranked in five-grade scales*

Keywords: *risk, metric, environment, environment protection, criticality, security.*

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VIBRATION STEERING OF VIBRATION-DRIVEN MOBILE ROBOT

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Abstract: *This paper presents a method and control devices aimed at vibration steering of a vibration-driven mobile robot, previously designed, developed, tested and reported. To achieve a proper steering of the robot its control system is appropriately modified and fitted out with a two-way control unit. The proposed steering method is based upon a specially arranged transmission of the generated vibrations by the robot's propulsion mechanism to the chassis through the wheel's shaft. There is no steering mechanism involved as it is in the modern motor vehicles, but pulsing turning moments are generated and applied to the robot chassis through the wheel's shaft in a diagonal manner. The approach appears to be applicable but requires more powerful turning moments, because when turning the lateral sliding of the wheels has to be overcome. To improve and verify this idea a new vibration-driven robot with independent elastic suspensions of the wheels, having novel internal vibration thrust transmission to the wheels and more powerful propulsion mechanism is designed manufactured and tested. The idea is found to work very well and the turning effect of the robot was greater than in the previously developed robot version. Moreover, to increase the vibration steering effect it is also proposed to offset the position of the mass centre of the robot propulsion mechanism combined together with the above steering method. This means that the mass centre of the propulsion mechanism at which the inertial propulsion force acts, has to be shifted perpendicular to the direction of motion in the desired direction left or right, generating additional turning moments, and as a result improving the turn-off abilities of the robot.*

Keywords: *vibration steering, pulsing turning moments, independent elastic suspension, propulsion mechanism, vibration-driven mobile robot, steering control unit*

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OVERVIEW OF THE FAESIBILITY OF SIMULATING WELDING PROCESSES USING THE FINITE ELEMENT METHOD

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Abstract: *The present paper examines the possibilities of simulation of welding processes by the finite element method. A historical review was made, starting with the application of the electric arc welding. Retrospectively, the progress of the finite element modeling of welding processes is considered. The latest developments in this area have been described.*

Keywords: *Finite Element Simulation, Welding Processes*

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DISSOLUTION AND MECHANICAL PROPERTIES OF 3D PRINTED POLYLACTIC ACID FOR BIO-IMPLANTS

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Abstract: *The paper represents preliminary results of dissolution of 3D printed meshes of PLA* (*polylactic acid*) *in a biologically active media. The issue of biocompatible polymers dissolution is important as the knowledge of its mechanism and kinetics allows designing bio-implants with required and time controlled properties. Not only dissolution kinetics but also the change in mechanical properties of biocompatible polymers suitable to be used as implants is important. In this study, we investigated the influence of bioactive media on hardness and tensile behaviour of the PLA. Density, mass loss, hardness and tensile strength of the material after soaking in a bioactive media were determined. Mass loss was determined after different soaking times in order to establish a relationship between the rate of PLA dissolution and the geometry of meshes. The results draw some conditions for next experiments to study the kinetics of the PLA dissolution.*

Keywords: *Bio-implants, PLA, Polylactic acid, 3D printing, Polymer dissolution, Tensile test*

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INFLUENCE OF THE VARIABLE CHARACTER OF ANIZOTROPY ON THE HARDENING CURVES IN HYDRAULIC BULJING TEST OF COPPER SHEET

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Abstract: *The study of sheet material of biaxial tensile test gives, as is known, additional useful material information at elevated deformation rates. One of the widely used modern methods of testing is hydraulic buljing test (HBT). Usually the hardening curves in biaxial tensile test in one or another degree differ with the respective curves*

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of one axial tensile test. In the present study an attempt was made to introduce a correction by using an anisotropy change equation in function of the degree of deformation in order to match the oneaxial tensile and biaxial tensile curves. Copper sheet material was investigated and hardening curvs for oneaxial tensile test and HBT were obtained, as well as data for the variation of planar and normal anisotropy within the deformation interval. Satisfactory result gives the correction by introducing a functional dependence of anisotropy on the deformation in the Hill equation by 1978.

Keywords: *Tensile test, Hydraulic buljing test, Anisotropy, Copper, Sheet material*

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MODELS FOR INVESTIGATING NONLINEARITY ERRORS OF STATIC CHARACTERISTICS

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Abstract: *The paper views the static characteristic properties which influence the measurement result. The terms "measuring instrument error" and "nonlinearity error of the static characteristic" are considered in terms of the logical sequence of operations used within the measurement procedures. In addition, the methods for investigating the nonlinearity error and those for experimentally determining the true static characteristic of a "Parr 6400" calorimeter are presented. The analysis of the experimentally obtained results is based on the five models been developed to investigate the static characteristic.*

Keywords: *metrology, static characteristic, nonlinearity error, metrological characteristics, investigating models.*

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ENERGY CONSUMPTION AND ENERGY EFFICIENCY OF MACHINE TOOLS – AN OVERVIEW

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Abstract: *Being a main source of energy consumption in production systems, globally the machine tools are a base study object for research communities. This paper presents the research methodology, sustainability trends in the manufacturing industry, the technologies for colleting basic information and forecasting the energy effectiveness, as well as the scientific development in this topic. In addition, there is a connection to vaious economic, ecological and design aspects when developing research of the energy consumption and the effectiveness of machine tools. The results outline the leading countries, institutions, authors and thematic areas in this domain.*

Keywords: *CNC machining; machine tools; energy; sustainable manufacturing.*

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ABOUT THE INFORMATION ASSURANCE OF TECHNOLOGICAL PROCESSES BY MACHINING PARTS

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Abstract: *The increasing of the effectiveness of the technological processes at different stages of producing parts – design, adoption and regular production, is directly related to their information assurance. Based on the information modelling of the technological process, the article presents and analyzes the capabilities of the proposed scientific approaches for assuring the characteristics for its effectiveness, including the issue of their assessment. Discussed is the state of modern information assurance of technological processes and the ways of its implementation. The need of a new approach for modeling technological processes is justified. This allows overcoming the main problem at their creation – the uncertainty of the values of technological parameters and their influence on the effectiveness characteristics. Formulated are the tasks and approaches that have to be applied to build a reliable and up-to-date information system, which provides the effectiveness of technological processes when machining parts.*

Keywords: *Effectiveness, technological processes, machining parts, information assurance*

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PROBLEMS DURING HIGHLY PRODUCTIVE COMPLEX QUALITY ASSESSMENT OF OBJECTS

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Abstract: *This paper aims to reach the technological capacity of complete and complex quallity assessment of products* (*objects*) *from the following industries- wood processing, textile, metal processing, construction, agriculture, road construction, etc., through the elimination of the human* (*subjective*) *factor and improvement of the control systems existing on the market. Manual measurement and visual quality assessment of products are frequently applied in industry, and this is very ineffective for highly productive processes and is also very subjective. It is possible to eliminate the human factor in the operations for detecting and measuring 3D objects using an innovative technological process. This process uses a system of cameras, lasers and specifically developed software. It enables high precision and productivity of quality assessment of products against predetermined criteria.*

Keywords: *wood processing,* (*3D*) *objects, complex quality assessment of products.*

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EXAMINATION OF CRANE BOOMS ABOUT THEIR PROPENSITY FOR VIBRATION IN MECHANICAL MACHINING

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Abstract: *It is known that in the case of mechanical processing by cutting on the efficiency of the process, the stability of the technological system is of great influence. Therefore, processing an unstable workpiece with a rotating tool* (*milling or scraping*) *is often accompanied by vibrations. They become a cause for a deterioration in the quality of the treated surface and a decrease in the life of the cutting tool. The positioning of a part in the attachment is binding with the requirement to ensure the accuracy of its processing. To reduce the vibration of the system to vibrations in such cases, an increasing part stability is applied by additional positioning and fixing. These are measures that are often applied intuitively, without analysis, justification and supposed effect. The publication examines the possibility to choose and apply solutions based on a preliminary modal analysis of the construction of the processed parts. Admittedly, such an approach makes sense and should be expected to be effective in processing parts of one type. These are common cases, even for large nomenclature enterprises. Typical examples of unstable construction are the thin-walled box-shaped parts. These are details that perform the role of hull base part in assembled product and require mechanical processing by cutting. Among them are the so-called columns which are part of the crane's arrows.*

Keywords*: Metal cutting, vibrations.*

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EXPERIMENTAL SETUP AND PRELIMINARY RESEARCH OF THE 3D TOUCH PROBE WHEN WORKING ON A TOUCH SIGNAL

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Abstract: *For coordinate measurements with the 3D touch probe, the measuring tip of the stylus must touch the measured surface. As a result, a signal is generated that is used to determine the coordinates at the control point. With mass-triggered constructions, this signal is generated when the nib base is disrupted and a normally closed loop is interrupted. Because of the peculiarities of the structure, the signal is delayed after the touch. The delay is the cause of the so-called zone of insensitivity. The magnitude and unevenness of this area in the space, and especially in the XY plane, negatively affects measurement accuracy. In order to compensate for the zone of insensitivity, calibration is usually performed, which has shortcomings and limited capabilities in measurements on machining centers. Different manufacturers of 3D touch probe, offer their designs with a smaller and more uniform zone of insensitivity. These models, however, have a higher cost and have additional requirements for the work environment. The publication explores the possibility of using a signal from the closing of a normally open loop in contact of the measuring stylus with the measured surface. In order for such a scheme to work is requires the stylus and the measured object to be electrically conductive.*

Keywords: *Accuracy, 3D Touch probe, Efficiency, Zone of insensitivity*

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CHARACTERIZATION OF THE TOTAL HARMONIC DISTORTION FACTOR IN MARINE POWER SYSTEMS

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Abstract: *With the increase in the number and types of electric propulsion in both civilian and military naval vessels, the problem of the electric power quality on-board is a challenge. In this respect, a large number of static power converters, DC power converters, inverters, etc. are present in the power generation systems, whose powers reach the order of tens of MW.*

The high number of these devices that work at high powers, inevitably leads to the appearance, in the power distribution system, of harmonics with very high weights.

This paper presents a study of the THD index from the perspective of the quality of electricity and several relevant measurements were made onboard of naval vessel under the conditions of using the ship's finite power plant.

Keywords: *Total Harmonic Distortion, static power converters, current and voltage harmonics*

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SPECTRAL ANALYSIS OF THE BIPOLAR POWER SUPPLY OF A MOBILE INTEGRATING EQUIPMENT FOR MEASURING FORCES AND TORQUES WITH STRAIN GAUGES SENSORS

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Abstract: *In this paper, a study of the pulsations, random and / or noise signals in the bipolar power supply voltage of the operating amplifiers of an integrated measuring transducer, in the composition of mobile equipment for measuring forces and torques is presented. Spectral analysis was carried out and the spectral density determined for the specified bandwidth. The results were obtained by simulating the operation of the transducer with an exemplary resistive decade ± 0.5Ω and a frequency spectrum of 600Hz - 120 kHz. The results obtained are the basis for the development of a prototype measuring transducer.*

Keywords: *Integrating Equipment, Measurement, Spectral analysis, Spectral density, Transducer*

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A RESEARCH OF THE RELATION BETWEEN MAIN CHEMICAL ELEMENTS AND SOIL PROPERTIES

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Abstract: *A research of the relation between basic chemical elements and soil properties is present in the paper. An overview of basic chemical elements and soil properties, basic indicators of soil status, soil sampling methods and existing instruments and systems for measuring basic indicators are made. An approach is proposed to conduct the experimental study of the influence of basic chemical elements and soil properties. A system for measuring basic soil indicators is designed and developed. Statistical methods are used to process the results and the dependency of basic chemical elements and soil quality indicators was investigated. The results obtained from the correlation analysis of basic chemical elements and soil properties indicate that nitrogen has a strong dependence on conductivity, phosphorus - significant dependence on acidity indicator, and potassium - moderate dependence on acidity indicator. A model for the indirect determination of the content of basic chemical elements is developed by measuring basic soil indicators.*

Keywords: *Soil properties, Correlation analysis, Soil indicators, Soil conductivity, Mathematical model*

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A REVIEW OF METHODS FOR DETERMINATION OF CHEMICAL ELEMENTS IN PLANTS

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Abstract: *The paper presents an overview of methods for determining chemical elements in plants. Chemical composition of plant cells as well as the basic chemical elements on which the full development of plants depends are analyzed. The influences of the redundancy or deficit of the main chemical elements on the plants are presented. The methods for determining one of the basic chemical elements of the plant nitrogen are analyzed. Computer vision offers objective and non-destructive determination of nitrogen levels in plants.*

Keywords: *Plant chemical elements, Nitrogen, Computer vision*

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STUDY ON THE HIGHER HARMONICS IN COMMERCIAL FACILITIES

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Abstract: *As a result of the conducted studied over the higher harmonics in a commercial facility* ***(M)*** *and commercial facility* ***(Л)*** *the average values of phase voltages have been estimated* (*U L1 - average, U L1 min, U L1 max*). *The total harmonic stress distortion coefficients for the three phases are less than 5% and satisfy the requirements of BDS EN 50160: 2007. The mutual coefficients of the harmonics current distortion in maximum values reaches up to 26,4 % for facility* ***(M)*** *and up to 31,1 % for facility* ***(Л)*** *and are less than the critical 50 % of BDS EN 50160:2007. The change of current in the neutral conductor is: for facility* (***M***) *- 52 A max; facility* (***L***) *- 70 A max. The change of the total harmonic distortion coefficient in the neutral conductor THD I L4 is: for facility* (***M***) *- 123.7% on average, 2545% max; facility* (***L***) *-173.92% average, 2550% max. Thevaverage values are above the critical 50% of BDS EN 50160:2007, respectively, in facility* (***M***) *- 2.5 units and for facility* (***L***) *- 3.5 units. Definitely the current and harmonics in the neutral conductor are extremely high. Quick measures are needed to neutralize them.*

Keywords: *electricity grids, higher harmonics, monitoring*

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INFORMATION PACKAGE FOR ELECTRICITY QUALITY CONTROL IN TYPE MODUL OF ELECTRICITY DISTRIBUTION GRIDS

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Abstract: *Information package for electricity quality control in type modul of the electricity distribution grids has been synthesized. The package contains matrices for: phase voltages, phase currents, phase active powers, total harmonic distortion of phase voltages, phase currents and phase reactive powers. Through the given matrices other matrices for phase full powers, power factor, effective phase voltages and harmonics electricity are created. The results are used for further development of the active systems for control and management of the quality of the electricity.*

Keywords: *electricity grids, higher harmonics, monitoring*

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CURRENT STATUS AND FUTURE DIRECTIONS OF RENEWABLE ENERGY USE IN AFGHANISTAN

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Abstract: *This paper reviews the existing status of renewable energy resources, assesses their potential for the contribution of energy demand in Afghanistan, and in order to make the best possible use of these resources, it examines the future prospects. Afghanistan's viable renewable energy sources are hydro, wind, solar, biomass and geothermal, which are spread over wide geographical areas throughout the country. Now, the power sector of Afghanistan has mainly relied on importing electricity from the neighbor countries, which is not an optimum solution for the long-term. The most hopeful and promising source for everlasting electricity generation in Afghanistan is renewable energy, which offers a wide array of opportunities. Afghanistan can produce around 318 GW of electricity through utilizing renewable energy resources available in the country. The rapid and high deployment of renewable energy empowers a sustainable future in Afghanistan. By using its energy potential, Afghanistan will be capable of providing its own energy at self-sufficiency level. Afghanistan's energy sector and its economy are at crossroads of the region. With the cooperation of Regional Energy and Natural Resources, this potential can be harnessed timely for the benefit of the country and entire region. Therefore, to establish PEACE and PROSPERITY for all, we need to make a leap beyond our past limitations, get rid of barricades at our borders, and secure a Regional Power Trade.*

Keywords: *Renewable Energy, Potential, Electricity Generation, Power, Sustainable Future*

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METHODS FOR ASSESSING THE QUALITY AND FRESHNESS OF MEAT AND DAIRY PRODUCTS

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Abstract: *This paper presents the different methods of assessing the quality and freshness of meat and dairy products. A comparative analysis of the used methods, techniques and resources for giving an express evaluation of the freshness of the products studied is made. Applicability of spectroscory in the near infrared and visible area, analisis of the hyper-spectral images, electronic nose, predictive models and techniques of the computer vision for evaluation of the quality and freshness of the meat is analyzed. The same analysis goes for evaluating the quality and freshness of the dairy products. Spectroscopy in the near infrared area allows some of the ingridients in the dairy products to be measured simultaneously.*

Keywords: *Computer vision, Spectroscopy, Analysis of the hyper-spectral images, Meat, Dairy products*

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MAXIMUM POWER POINT TRACKING FOR PHOTOVOLTAIC SYSTEM

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Abstract: *The increasing energy demands, depleting fossil fuels and increasing global warming due to carbon emission has arisen the need for an alternate, overall efficient and environment-friendly energy system. Solar energy is considerred as one of the most promising alternative energy sources, but it has the problem of low efficiency due to varying environmental conditions. To increase its efficiency, a maximum power point tracking* (*MPPT*) *algorithm is required to harvest maximum power from the Photovoltaic* (*PV*) *array. This work is based on the idea to trun ON and OFF the MPPT through the night. Real time clock to set time in wich MPPT is ON is proposed in the paper. Possibility to collect information for produced energy in time is softwarely organized in database.*

Keywords: *MPPT, Simulation, RTC, Photovoltaic*

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DESIGN OF DIRECT ALTERNATING CURRENT DRIVER SYSTEM FOR DECREASE OF FLICKER INDEX

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Abstract: *This paper presents the process of design and investigation of electronic modules, as well as preparing of lighting specifiers, installers and ways to avoid flickering effects. All new generations of LED industry involve in their production a DACD* (*Direct Alternating Current Driver*) *system to decrease a production cost and provide quality products to the market. For achieving the aim, inventors are required. Applying LED lamps direct to the AC networks seems straightforward, but should be done with care to achieve similar light quality as the conventional lamp that the user is trying to replace. Light flicker is one of the aspects that need to be considered carefully during LED lamp design to avoid customer complaints from the field. This application note explains the LED lamp flicker phenomena in relation to driver topology and LED characteristics. A practical flicker measurement method is explained as well, that can be used to measure light flicker in LED lamps.*

Keywords: *LED, DACD, light quality, flicker index.*

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WEB-BASED SYSTEM FOR CONTROL OF ENVIRONMENT PARAMETERS

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Abstract: *The papers combines knowledge in Computers* (*Operating Systems and Computer Hardware*) *with knowledge in the field of Electronics in University of Ruse. Building an IoT project requires knowledge of computer operating systems and basic programming and understanding how sensors are made, for example single sensor has analog input and receives some type of environmental data like temperature, humidity and then converts data to digits that computers can interpret. IoT becoms wide adopted in automotive industry, healthcare, home automation, werables, industrial and a lot more areas. All big names in IT indurstiry like Microsoft, VMware, Cisco, Amazon, HPE, IBM and many other companies are focusing on providing IoT cloud based services. Bulidling an IoT based Raspberry Pi project is relatively easy because a lot of sensors are ready for use and can be attached to the board directly, also there is wide support of program libraries for languages like C++ and Python. Result from sensors are visualised in IoT cloud, adding some functions it the code we can control relays, solenoids and many more execution mechanisms.*

Keywords: *Efficiency, IoT, Control system.*

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OPTIMIZATION AND STUDIES OF A QUADRATURE GENERATOR

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Abstract: *This paper presents the special features of RC harmonic oscillation generators and their widespread use and in particular the quadrature generators which provide two output signals dephased at 90º or 270º. Quadrature generators can be classified as those with an aperiodic frequency-determining circuit or with a phase inverter group which are used to generate oscillations of one or more fixed frequencies. An optimization of a quadrature generator circuit has been performed. The results obtained from the simulation and experimental studies performed are presented for the proposed circuit. It can be assumed that the experimental and simulation results completely coincide to an accuracy up to 0,26% for the amplitude of the generated signals and to an accuracy of 0,64% for the generated frequency. Quadrature generators are very widely used in communication technology and, most importantly, in the structure of digital frequency, phase and quadrature-amplitude modulators and demodulators.*

Keywords: *Quadrature Generator, Optimization, Studies*

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DETERMINATION OF THE MEMBERSHIP OF TELETRAFFIC PARAMETERS OF MARKOV CHAINS BY NEURO-FUZZY CLASSIFIER

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Abstract: *The study presents a methodological sequence for the synthesis of Classifier for identification and categorization of M / M / 1 and M / M / 1 / k telegraphic systems with Markov Laws of Information Streams based on the adaptive neural-fuzzy interface systems* (*ANFIS*). *For the purpose of the research, a simulation modeling of Markov chains is completed. Experimental data for Custumer ID, Arrival Time, Start Execution and Exit System parameters were obtained. Teleraphic parameters in training of neuronal-fuzzy structures at different algorithms and membership function of the input variables for increase the classification accuracy were selected. An ANFIS structure by excluding the Customer ID in a hybrid learning algorithm and trapezoidal membership function of the input variables with the best accuracy has been synthesized fot teletraffic system identification.*

Keywords: *Markov Chains, Teletraffic Parameters, Neuro-Fuzzy Classifier, System Parameters Identification*

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SYNTHESIS OF NEURON MODELS FOR PREDICTION OF TRAFFIC PARAMETERS OF MARKOV CHAIN M/M /C/K

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Abstract: *This paper presents the results of the M/M/c/k Markov chain simulation and the synthesis of artificial neural networks for prediction of teletraffic parameters. In searching for appropriate neural models, the neurons in the hidden layers in range of 5 to 20 were changed. Neural networks with 9 and 6 hidden neurons were synthesized to predict of Arrival rate and Exit System parameters at respective input variables Average Arrival Rate, Average Service Time and Maximum Station Capacity for the Markov chain based on absolute network errors. The procedure of Post-training analysis is applied to the selected models. A technical approach has been introduced to determine the influence of neural network input variables on the change of predictive parameters by analysis of the correlation coefficients.*

Keywords: *Simulation, Markov Chain, Teletraffic Parameters, Artificial Neural Networks, Prediction Models*

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REGRESSION MODELS FOR PREDICTION OF PARAMETERS OF TELETRAFFIC SYSTEM M/M/1/K

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Abstract: *In this paper presents the results in modeling and investigaton of Markov chain M / M / 1 / k as the object of experimental research related to obtaining models for predicting of the traffic parameters - Arrival Time and Exit System. A technical approach based on simulation of the system in defined parameters Average Arrival Rate, Average Service Time and Maximum Station Capacity and different types of design of experiments was applied. The best plan of experint is selected by regression analysis. Regression models for prediction of targeted teletraffic parameters were obtained.*

Keywords: *Design of Experiment, Markov Chain, Regression Analysis, Teletraffic Parameters, Regression Prediction Models*

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USE OF UNMANNED AERIAL VEHICLES FOR PHOTOGRAMMETRIC DATA GATHERING AND DIGITAL 3D RECONSTRUCTION OF ARCHAEOLOGICAL EXCAVATION SITES

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Abstract: *The modern unmanned aerial vehicles* (*UAVs*) *are equipped with cameras and sensor modules and compared to the traditional methods and approaches for remote sensing have many key advantages. They are very reliable and can function autonomously, but if needed, they can also be piloted by operators with limited experience. The UAVs can also be instructed to fly over any predefined geographic area and to do this at a specific speed or by maintaining a fixed flight altitude. These characteristics are of a great importance when the UAVs are used to obtain information, which will then be used for various purposes, including for crops and vegetation studies, ecological surveys, remote observations or for archaeological analyses. By studying the past using modern technologies, like the UAVs, the archaeologists can take full advantage of the new opportunities to survey and identify objects and artefacts using the remote sensing methods. These methods allow researchers to explore objects on the ground without the need to utilize invasive methods, while at the same time they can concentrate their research on a specific geographic area to maximize results. These remote sensing methods have been expensive and hard to access over the past decades, but with the development of the UAVs, they can now be used by small teams and in projects with limited funding. In this paper we present a complex methodology for obtaining, processing and analysis of digital images of archaeological excavations, which are performed with the help of UAVs. The paper presents also the main results from the processing of the data, which include georeferenced high-resolution ortho-photographic images, detailed digital surface models* (*DSM*) *and 3D models of the archaeological locations.*

Keywords: *UAV, Digital Photogrammetry, Digital Dense Map, 3D reconstruction, 3D Documentation, Excavation*

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COMPARATIVE ANALYSIS OF TECHNOLOGIES FOR 3D LASER SCANNING OF OBJECTS

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Abstract: *A 3D scanner is a device that analyses a real-world object or environment to collect data on its shape and possibly its appearance. The collected data can then be used to construct digital three-dimensional models, which can be processed and analysed. The final products of this digital scanning method are sets of point clouds of varying densities and accuracies. Processing of these point clouds requires the use of specialized software, which can produce 3D meshes, 3D surface models and 3D rendered models of varying resolutions. Whit the evolution of the 3D scanning technologies, three main categories of 3D scanners have emerged. In this paper we present, analyse, discuss and compare the different technologies for 3D scanning and we a provide real-life scenarios and case studies for the use of every one of them.*

Keywords: *3D scanning, 3D scanners, 3D technologies*

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A SOLUTION FOR EARLY FOREST FIRE DETECTION USING AIRCRAFT PLATFORM AND NEURAL NETWORK COMPUTING ENGINE

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Abstract: *The goal of this paper is to make thorough analysis of the conceptual operating principle of neural networks. The neural networks are the hot topic in today's computing systems because of their ability to "learn" how to perform tasks by considering examples, generally without being programmed or instructed to follow specific rules. The neural networks are inspired by the biological neural networks that constitute human brains. In today's computing systems these networks become widely use in various aspects. The authors of this paper will make a review of how*

this technology can be implemented in a system for early fire detection. Forest and even urban fires have been and still are serious problem for many countries in the world. Different methods for early fire detection exist and they really help to mitigate fire damages but most of the early fire detection system are implemented inside and they prevent fire damages in close ranges. The planet may also suffer from outside fire damages. In order to decrease the damages from outside (forest or urban) fires we the humans need to implement different techniques. In this paper we present an emerging solution for early fire detection by using an aircraft platform that is capable of taking multiple photos or video of dedicated land fields that are susceptible to fires. All of the captured material are going to be used together with computer vision techniques to predict the existence of fire on the observed lands. Early fire detection could prevent a lot of fire related accidents. In order to implement computer vision technique we first need to train the neural network that we are going to use for making that predictions. Currently, on the market there are available solutions for neural network implementation. Such a solution is the Movidius neural stick which is a development kit for ultra-low power embedded deep learning environment developed by Intel.

Keywords: *Aircraft platform, Deep learning, Early fire detection, Neural networks*

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OBSERVATION AND ANALYSIS OF REMOTE FOREST AREAS AND EARLY FOREST FIRE DETECTION USING DRONES

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Abstract: *The unmanned aerial vehicles* (*UAVs*)*, sometimes simply referred to as drones, are becoming increasingly popular. Recent technological and scientific advances in the manufacturing processes have led to significant reduction in the drone prices and have made them simpler to control, use and maintain. Besides being used for capturing of aerial photos and videos, the unmanned aerial vehicles are also being implemented in and for various other activities and processes. One of them is for observation and analysis of remote or hard to reach zones, where the drones are replacing the conventional aircrafts or the satellite technologies. Nature parks, forest agencies and even governmental institutions have taken advantage of this technology and are now using UAVs to perform vegetation analysis, to detect poachers, to fight invasive species of animals and plans, to observe remote forest areas or to develop systems for early forest fire detection. In this paper, we provide analysis on the UAVs applications, in terms of their use specifically for observation and analysis of forest areas. We present briefly the structure and the components of the UAVs and then continue with their potential payload, which can range from a simple camera to a sophisticated sensor system for multispectral analysis. The paper continues with an actual analysis of a forest area, which is part of the Rusenski Lom Nature Park in Bulgaria. We further investigate also the possibility for implementation of drones for early forest fire detection in the Balkan-Mediterranean area and we analyse and present a solution based on several different types of UAVs.*

Keywords: *Unmanned aerial vehicles, drones, forest fires, 3D and digital surface models, location analyses*

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A METHODOLOGY FOR ENVIRONMENTAL AND AIR QUALITY MONITORING USING LORAWAN SENSOR PLATFORMS

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Abstract: *The paper presents a methodology for the use of small, compact and low-power wireless sensor devices to obtain data about various environmental and air quality parameters. The introduction section of the paper provides a brief overview of the technology trends in the sensor systems and a short analysis on the most significant reasons and the most important parameters for air quality and environmental monitoring. The paper continues with a comparative analysis on the telecommunication standards for low-power wireless communications, which are used in the modern sensor systems. The focus of the next section is on the presented methodology for environmental and air quality monitoring. Detailed specifications and guidelines for the development of LoRaWAN sensor platforms for air quality and environmental analysis are also provided and the benefits from their use are shortly discussed.*

Keywords: *Air quality monitoring, environmental monitoring, sensor systems and networks, LoRaWAN*

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CONCEPTUAL MODEL OF A HARDWARE PLATFORM FOR DEVELOPMENT OF COMPLETE SOLUTIONS FOR HOME AUTOMATION

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Abstract: *The evolution of the embedded technologies and the improvement of the communication systems allowed the integration of numerous applications directly on the end devices used for home automation. The development of energy-efficient IP communication protocols, such as the 6LoWPAN protocol, is a prerequisite for the discovery of new connectivity options to link heterogeneous sensor devices. A major challenge for the integration of these protocols is the need for transformation and modification of the end devices, for extension of their capabilities and for assuring their accessibility trough services and applications from the upper layers of the telecommunication stacks and models. This paper presents a conceptual model of a platform for development of complete solutions for home automation. Besides the description of the hardware components of the platform, the paper also provides an analysis on the protocol stacks, which are assuring its modular functionality.*

Keywords: *IoT, Building automation, Automation infrastructure, Information Systems and Conceptual Modeling;*

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A COMPARATIVE ANALYSIS OF SOFTWARE DEFINED NETWORKING CONTROLLERS

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Abstract: *Software defined networking* (*SDN*) *is an emerging paradigm that plays an important role into networks within the networking research field. The SDN technology provides a possibility to decouple the control plane from the physical plane of networking devices, while traditional telecommunication equipment encompasses both the control and data planes into a single device. All of the decoupled control function are implemented in a single centralized server called a SDN controller, making it the only device that could control the network as a whole entity. The centralized management approach has proven its benefits over the past several years. On good example about that is the server virtualization technology. Like the SDN technology, the server virtualization allows server administrators to manage tens even hundred virtual machines from a single instance called a hypervisor.*

The objective of this paper is to show how the two technologies can co-exists in a single environment and how they can benefits from each other. In an addition to that a comparative analysis is going to be conducted in order to show how different SDN instances (*controllers*) *handle the network traffic and how network resources are affected by that. In order to achieve the objective, a virtual test laboratory is going to be built on top of type one hypervisor. The virtual test laboratory is going to be comprised of several components – a management platform that serves as a single point of management, a control plane* (*a virtual instance of a SDN controller that has the ability to adapt to changes in network behavior*) *and a data plane* (*a virtual representation of a software-defined networking data plane*). *The objective of the comparative analysis is to show how different SDN controller behave under various types of load – change in traffic volume by a single device, change in traffic volume from multiple sources and so on.*

Keywords: *Comparative SDN analysis, Network virtualization, Server virtualization, Software-defined networking*

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ANALYSIS OF DIFFERENT ANTENNA TYPES FOR WIRELESS COMMUNICATIONS USING A LABORATORY TESTBED

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Abstract: *Antennas are integral parts of every radio-communication device. Throughout the years the antennas have evolved in size and functionality and have found their place in many different applications - from commercial devices, like mobile phones and tablets, trough RFID tags and wireless printers to defence applications, such as phased array antennas for aircraft radar systems or in satellite-based systems where they are used in the integrated ground based communication systems. To decide whether a specific type of an antenna is suitable for a given application, its basic parameter need to be measured and then compared to the results obtained from similar evaluations of different other antenna types. In this paper, we present analyses on different antenna types using only the free-space propagation model and the corresponding measurements. To evaluate the antenna parameters the RadPat software and a RF analyser are used. The software evaluation product is then connected to an Agilent N9912A FieldFox RF analyzer and to a RF detector to form a laboratory antenna testbed. This testbed is capable of rotating the receiver module antenna and by doing this it also displays the antenna angular position and the obtained measurements. Based on this evaluation testbed we have evaluated several different types of antennas and we have provided analysis on the received results.*

Keywords: *Antennas, RadPAd software, RF analyzer, Free-space propagation*

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DEVELOPMENT AND EVALUATION OF AN URBAN CONCEPT VEHICLE POWERED BY ALTERNATIVE FUEL SOURCE

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Abstract: *The vehicles powered by internal combustion engines (ICE) are one of the primary factors for air pollution. The pollutants released by these vehicles, such as particulate matter (PM), ozone, nitrogen dioxide, carbon, monoxide, sulphur dioxide are responsible for a number of adverse environmental effects. To reduce the levels of harmful emissions and to minimize the noise pollution, many leading countries have started pilot project and initiatives for the gradual transition to electrical vehicles or vehicles powered by alternative fuel sources, including natural gas, hydrogen, propane, biofuels and methanol. The focus of this paper is to present the design, development and evaluation stages from the construction process of a hydrogen fuel cell powered vehicle, which is being created by students from the University of Ruse, Bulgaria. In the paper we discus some of the most important stages from the design process, including the evaluation of the forces acting on the moving vehicle, including the air resistance, the rolling drag, the grade and curve resistance. Based on the evaluation of these parameters, we continue the paper with the selection of the main electric components of the vehicle, namely the electric motors, the fuel cell, the drivers for the motors and others and we also discuss the design of the drivetrain – the system that delivers the power to the driving wheels. The selection of the right components is an important step in the construction process, as the prototype of the vehicle is expected to maintain an average speed of 35 km/h in order to achieve optimal results and to successfully participate in the urban-concept category of the 2018 Shell Eco-marathon event in Europe.*

Keywords: *Alternative fuel sources, Electric vehicles, Hydrogen fuel cell, Vehicle prototype*

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OVERVIEW OF THE BLOCKCHAIN TECHNOLOGIES AND THEIR USE IN THE TELECOMMUNICATION SYSTEMS AND PROCESSES

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Abstract: *The blockchain technology is not a new paradigm, but with the global adoption of the cryptocurrencies, this almost three decades old technology has been reborn and is now again on the rise. Initially considered as a technology for decentralised control and security, the blockchain is now being used also for electronic voting systems, auctions, bank transaction and most widely for untraceable and secure Internet payments. What is little known to the public is the fact that the blockchain technology originated as an alternative to the widely known and used at the time cryptographic solutions for protection of the data, which was transmitted over the telecommunication networks. The paper introduces some of the most widely known application areas for the blockchain technology. A special focus is set on the implementation of this technology in the telecommunication systems and networks. The paper also investigates the ways the blockchain technology is currently being used for educational purposes and for research initiatives.*

Keywords: *blockchain, cryptocurrencies, telecommunication networks, AES, bitcoin*

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BIG DATA LIFECYCLE IN MODERN WEB SYSTEMS

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Abstract: *The paper is reviewing proposed or existing life cycles of Big Data, and analyses their universality and versatility when applied in modern web-based systems. Every single web application or service is generating on its own the actual life cycle of the data that it is processing. Those cycles have in common a lot of stages, that are in turn organised in groups, in order to form the web system's software architecture. With the technological advancement of web software and hardware, new points of view are emerging regarding the connection between web systems' architecture and Big Data life cycles. The number of web systems, which automatically process data and communicate with other systems similar to them, is growing significantly, which demands reviewing the approach used when handling Big Data.*

Keywords: *Big Data, Lifecycle, Web Systems, Review, Data Processing*

JEL Codes: *L10, L11*

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OPPORTUNITIES FOR WORK AND DISTRIBUTION OF TECHNICAL DOCUMENTATION IN SMALL MACHINE-BUILDING COMPANIES

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Abstract: *The paper reviews existing methods of working with technical and design documentation in machine-building firms. The advantages and disadvantages of the different methods in line with the conditions in the small and medium-sized enterprises are examined. The report presents a solution for work and dissemination of technical documentation developed by a team by the author of the report and representatives of a small private machine building company. A comparative analysis of the advantages and disadvantages of the proposed solution has been made, which has been developed specifically for small and medium-sized enterprises. The developed system is registered in the Patent Office of the Republic of Bulgaria with a Utility model.*

Keywords: *drawing, CAD systems, engineers, training, technical documentation*

JEL Codes: *L10, L11*

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METHODS FOR CALCULATING POWER LOSSES IN WORM GEAR DRIVES

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Abstract: *The paper reviews existing methods of calculating power losses in worm gear drives. It analyses the differences between the methods taken into consideration. Special attention is given to calculation procedure for estimation friction coefficients of worm gear meshing. The purpose of this procedure was to determine the coefficients based upon boundary and hydrodynamic lubrication. A short summary of the existing information about values of power losses for worm gear drives in standards and catalogues is made. Based on the theoretical research made, conclusions are derived about further work and investigations in the area of research of power losses and possible efficiency increasing of worm gearboxes.*

Keywords: *Power losses, Worm gear drives, Efficiency, Calculation methods.*

JEL Codes: *Q49*

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METHODS FOR EXPERIMENTAL RESEARCH OF WORM GEAR DRIVES [2]

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Abstract: *The paper reviews existing methods of experimental research of worm gear drives. It analyses the differences between the methods taken into consideration. Special attention is given to possible procedures for elaboration of new test machines for experimental investigation of power losses in worm gear meshing. The purpose of this procedure is to lead to possible determination of the friction. Based on the theoretical research made, conclusions are derived about further work and investigations in the area of experimental research of power losses and possible efficiency increasing of worm gearboxes.*

Keywords: *Power losses, Worm gear drives, Efficiency, Experimental research.*

JEL Codes: *Q49*

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DIFFERENCES IN CALCULATIONS OF INVOLUTE GEAR TRAINS IN THREE MAIN STANDARDS

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Abstract: *Mechanical gear trains are important driving components in different mechanisms and machines. Their wide application is imposed by different design reasons: motion transmission under a certain angle, splitting and summation of movements, necessity of ensuring a certain value of a gear ratio, etc. Mechanical gear trains transmit rotational movement between shafts changing the rotational frequency and the torque value transmitted. The strength calculations are very important concerning the functions of these gear trains. Due to the forces acting in the spur and helical gear trains, bending and contact stresses occur. The strength calculations of spur and helical involute gear trains in Bulgaria are to be implemented according to the state standard BSS 17108 – 89 (Bulgarian State Standard). Because of the national economic circumstances during some decades in the past, a great number of Bulgarian enterprises and companies still use the Russian standard for cylindrical spur and helical involute gear trains GOST 21354-87. The changes in Bulgarian industry markets impose the application of the International standard ISO 6336, which is also valid for the strength calculation of cylindrical spur and helical involute gear trains.*

Keywords: *Gear trains, Design considerations, Strength calculations, Main differences in standards*

JEL Codes: *Q49*

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STUDY THE FATIGUE STRENGTH OF WELDED SUSPENSION FOR A ELECTROMOBILE PROTOTYPE

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Abstract: *The paper presents a finite element model and investigation of fatigue strength of welded suspension for a electromobile prototype. The Submodell and R1MS technics are used. The influence of the size of the welded seam is investigated. The fatigue life of the suspension is predicted for specific geometry and material properties.*

Keywords: *Welded Vehicle Suspencion, Finite Element Analysis, Fatigue Strength, R1MS*

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DESIGN AND STUDY OF ELECTROMOBILE PROTOTYPE DTT-3 BY CATIA V5

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Abstract: *The paper reviews the opportunities for developing and researching of an electromobile prototype by CAD product CATIA V5. It provides wide range of possibilities for data visualisation. The purpose of this particular paper is to present the whole process of design of a prototype DTT-3 and examine element of suspension under specify features, before it can be produced. The main goals of this project are being optimized size, weight, aerodynamic characteristics, rolling resistance, ergonomics, reliability and reduce the cost of production. The suspension element is a subject of a stress test to determine its strength qualities during its exploitation. Thus, its size, weight and way of designing. Based on obtained results, element with better constructive characteristics has been designed and produced.*

Keywords: *Design, Study, Prototype, Part, Suspension, Catia, FEM, Analysis*

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SHELL ECO-MARATHON, 2019 OFFICIAL RULES, CHAPTER I

FRI-2.203-1-TMS-07

EQUIPMENT OF A DIESEL ENGINE WORKING WITH GAS FUEL ADDITIVES

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Abstract: *The article shows the possibility of adding gaseous fuel and its impact on the diesel engine operation as well as the impact on engine performance. Exhaust emissions will be assessed using a gas fuel additive. Gas fueling systems in a diesel engine have seen a reduction in fuel costs and improvements in some of the engine's environmental performance. In systems with external mixture formation and mechanical control, the low adaptability of the system limits use. This disadvantage is eliminated in electronic management systems. It should be noted that the major drawback of external mixture formation systems is the need for a relatively high proportion of diesel fuel. Of the internal mixture formation systems, the two-fuel combined nozzle system is most applicable. Through it, diesel fuel is lowered, the system is relatively easy to install and has all the other positive aspects of external mixture formation systems.*

Keywords: *Bi-fuel systems, methane, Diesel, Internal Combustion Engines, Ecology, environmental characteristics*

JEL Codes: *Q35, Q42, Q56*

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FRI-2.203-1-TMS-08

SYSTEM FOR REGULATING THE COMPOSITION OF BIOGAS USED AS FUEL FOR INTERNAL COMBUSTION ENGINES

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Abstract: *The article shows a study focusing on the use and potential of biogas, as an alternative fuel from Renewable Energy Sources for using in gas-generators. Studies show that the content of particular matters and NO_x is significantly reduced due to the mixing scheme used. Given the methane burning - one of the components of biogas, CO_2 emissions are lower in the atmosphere. The aim is to study the impact of different biofuel concentrations on the environmental performance of automotive engines, to determine the optimum and permissible biofuel blend concentrations and their impact on engine performance. By modifying the composition of the fuel, it is intended to model a working process by influencing some of its basic parameters such as: maximum cycle temperature, combustion duration, rate of increase of pressure, etc.*

Keywords: *Biogas, Internal Combustion Engines, Ecology, environmental characteristics*

JEL Codes: *Q35, Q42, Q56*

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FRI-2.203-1-TMS-09

PERFORMANCE OF 100% ELECTRIC CAR RENAULT ZOE IN OF REAL DRIVING CONDITION OPERATION.

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Abstract: *During the conducted experiment, we have come to the real mileage of 100% electric car Renault ZOE in exploitation out of meaning of New European Driving Cycle (NEDC), which determines the level of toxic components in exhaust gas. This standard, despite the critics for being unreal and revealing car characteristics in lab conditions, is almost always used for showing the mileage of electric cars. In real driving conditions, having in mind the weather and road conditions, stress and dynamic of driving, battery status, the proclaimed high mileage of electric car comes unreal. In this experiment is used a new electrical car with total mileage 6000km in a perfect weather condition of 25 ^{0}C and 1000 hPa barometric pressure. Despite the widely advertised mileage of 300km in real driving conditions, the battery was down at 168km.*

Keywords*: Electric car; Battery level; Range in full charge; mileage of NEDC;*

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FRI-2.203-1-TMS-10

EXPERIMENTAL STUDY OF THE INFLUENCE OF THE ELECTROHYDRAULIC INJECTOR CONTROL VALVE'S STROKE OVER THE PERFORMANCE CHARACTERISTICS OF A DIESEL ENGINE

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Abstract: *The article presents an experimental research of a common rail injector control valve's stroke influence over the combustion process of a diesel engine. Indicator diagrams of the working process were taken with an efficient and a faulty one, with an increased control valve stroke of the electrohydraulic injector with electronic management. Research was performed at idle speed and at 2 and 3.6 kgm torque load at speed 1500 min-1. Data was recorded of the influence over power and ecologic engine indicators at three levels the of the injector control valve's stroke. In addition, a noise characteristic by frequency bands was taken.*

The conducted research showed significant changes in the indicator pressure in the regimes accompanied by preinjection. Changes in power and environmental performance were reported. There were also changes in the noise levels by frequency bands.

Keywords: *Combustion process, Indicator diagrams, Control valve stroke, Common rail injector, Frequency bands*

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FRI-2.203-1-TMS-11

APPLICATION OF THE "GROWTH FACTOR" MODEL FOR PROJECTING PASSENGERS IN A CITY ROUTE LINE

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Abstract: *The reducing of traffic in cities and the attracting of passengers to urban transport require the travel time to be reduced. It is used developed methodology for optimizing the timing of vehicles on partially overlapping routes with an aim to reduce waiting times at the stops of the DPS. It is based on the demand for such timetables on the public transport lines for a given a section with the same routes, which minimizes the amount of passenger time spent waiting for a vehicle.*

There are three steps in the implementation of the methodology: determination of the passenger flow traveling on the lines inside the section; determining the average waiting time by a given schedule option and determining the option with at least hourly waiting times for a vehicle. The research looks for decision with forecasting of the size of the passenger flow from a stop to a stop, ie obtaining the O-D matrices along a bus route using the "Average Growth Factor Model."

Keywords: *urban transport, O-D matric forecast, average waiting time, vehicle timetable*

JEL Codes: L10, L11

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FRI-2.203-1-TMS-12

ASSESSMENT AND ANALYSIS OF THE ORGANIZATION OF THE TROLLEYBUS MOVEMENT

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Abstract: *A priority for the urban transport in Rousse is the trolleybus, its organization and the quality of the transport service are an important condition for the sustainable development of the city. One of the main indicators of the quality of the transport service in passenger transport is the regularity of the movement of vehicles. In addition to the planned traffic intervals, some key factors related to the conditions of public transport (composition and intensity of traffic flow, passenger flow structure, traffic lights, etc.) are also essential. .). The work analyzes and assesses the regularity of the traffic of lines 2, 9, 13 of the trolleybus transport in the conditions of the city of Ruse, Bulgaria, by probing the estimation of the arrival intervals of the means of transport at the stops on a given route.*

Keywords: *public transport, trolleybus, traffic intervals, regularity*

JEL Codes: *L91*

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FRI-2.203-1-TMS-13

TERRITORIAL PECULIARITIES ON ROAD TRAFFIC ACCIDENTS IN THE REPUBLIC BULGARIA

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Abstract: *The work reviews analysis of road traffic accidents in the regions of the country. On the base on methods on spatial statistics are shown essential features in the distribution and frequency on consequences from road transport accidents in the region. Review of the number of crashed & injured in the country, review of the country's Safety Strategy, MES and regional. Indication of the Ordinance on the identification of dangerous, indication of Traffic Law. A brief overview of how in other countries the assessment of crashes measures to reduce the killed and wounded per 1 million inhabitants. Determination of road accidents by type for the country and for city of Rousse. Determination of the cause for most accidents? Determination of the number of accidents killed, injured per 1 million inhabitants per city district, and the same number of vehicle counts.*

JEL Codes: *L10, L11*

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FRI-2.203-1-TMS-14

STUDY OF THE ORGANIZATION OF REGULAR GROUPAGES AS PART OF INTEGRATED SUPLY IN THE CONDITIONS OF 3PL OPERATOR

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Abstract: *In the work was done study and analysis of the organization of a regular groupage line on the route Sofia-Paris-Sofia. The carriage is made by trucks with a load capacity of over 18t. Annual transport costs are analyzed which include the seasonal unevenity of the carriage costs and the choice of own and hired rolling stock. The transport service is considered as part of the integrated delivery under the conditions of a 3PL operator. The results of the survey show the most appropriate option for carrying out regular groupage transport, taking into account the seasonal imbalance.*

Keywords: *3PL, groupage, transportation, seasonal imbalance*

JEL Codes: *L91*

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FRI-2.203-1-TMS-15

MAIN ISSUES AND PERSPECTIVES FOR THE DEVELOPMENT OF URBAN TRANSPORT

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Abstract: *Based on statistical analysis and existing transport practice, the dynamics of the development of urban transport in Bulgaria and the main problems are presented. In line with the review of the main strategic documents related to the European transport policy, innovation in the technological, social and organizational environment, as well as the good European practices in the field of mobility, the prospects for the development of urban transport.*

Keywords: road transport, city transport scheme, urban transport, European practices

JEL Codes: *L91*

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Министерство на транспорта, информационните технологии и съобщенията. Доклад анализ относно възможностите за икономическото и ефективно увеличение на участието на тролейбусния транспорт във вътрешноградските пътнически превози в България. София, България. 2012.

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FRI-2.203-2-TMS-1

COLLISION SPEED ESTIMATION USING A DIFFERENT MATHEMATICAL MODELS

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Abstract: *Various methods and dependencies are used in the expert practice to determine the speed in vehicle accident reconstruction. Each of the methods has advantages and disadvantages compared to others in a specific accident investigation. Accident investigators need to know their specific features and apply the most appropriate one for each particular case. This paper presents the collision speed estimation using a different mathematical models. Presented are various mathematical models to determine the vehicles speeds for frontal collisions. A comparison of the results was made using real cases of judicial practice in Bulgaria. Analyzes and recommendations have been made on the applicability of the various mathematical models for specific accidents. The results of this work can be used in expert practice and training.*

Keywords: *Vehicle Accident Reconstruction, Collision Speed, Delta V Energy Method.*

JEL Codes: *L91*

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COMPARATIVE ANALYSIS OF THE METHODS FOR DETERMINING OF THE VALUES OF DAMAGES TO VEHICLES IN ROAD TRAFFIC ACCIDENTS

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Abstract: *This paper provides a comparative analysis of the methods for determining of the values of damages to vehicles in road traffic accidents. The comparison is made for the methodologies used in Bulgaria and Russia. The purpose was to analyze the methodologies and to determine the positive and negative factors*.

Keywords: *values of damages, vehicles, road traffic accidents.*

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IMPROVING THE SAFETY OF VULNERABLE ROAD USERS

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Abstract: *At present, about 80% of Europe's population lives in urban environments and shares the same ransport infrastructure. In this work is presented statistics for injured vulnerable road users for Ruse region. Various opportunities for reducing incidents involving vulnerable road users are presented as they are an important part of the road system in urban areas. An analysis of the legal framework regulating the obligations of these participants is made. Discusses some innovative systems used to improve traffic safety. Some problems related to the pedestrian traffic in Ruse are discussed.*

Keywords: *traffic safety, pedestrians, detection, road crossing.*

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A STUDY OF THE DRIVING LICENSE EXAMS IN RUSE DISTRICT TO IMPROVE ROAD TRAFFIC SAFETY

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Abstract: *This report presents information from a conducted study on the success of the exams for drivers and the mistakes made during the practical exams of the applicants for drivers in the Ruse district. Data from the Regional Directorate "Automobile Administration" Ruse was used. The most common mistakes of the applicants for drivers are identified. Suggested are ways to reduce the number of errors of practical examinations of applicants for drivers.*

Keywords: *Traffic safety, exams for drivers, driving license.*

JEL Codes: *L10, L11*

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FRI-2.203-2-TMS-05

ANALYSIS AND ASSESSMENT OF THE CONDITIONS FOR TRANSPORTATION OF DANGEROUS GOODS ALONG THE DANUBE AS PART OF A MULTIMODAL SCHEME

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Abstract: *Much of the dangerous goods in Classes 2 and 3 are transported under the multimodal water and land transport scheme. The report analyzes the transport of dangerous goods in Class 2 and 3, taking into account the specificities of transport and storage. Because of the serious risks of transporting large quantities of dangerous goods, they are also transported along the Danube River by ships to the river ports, from where they are distributed to the gas stations in the country by trucks.*

Keywords: *dangerous goods, multimodal transport, Danube River, risk assessment*

JEL Codes: *L91*

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FRI-2.203-2-TMS-06

OPTIMIZING TIME TO TRANSPORT TRANSIT LOADS IN A MULTIMODAL SCHEME BETWEEN THE SEA AND RIVER PORTS WITH AUTOMOBILE TRANSPORT

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Abstract: *The report presents a model for synchronizing port handling with the operation of the fleet for the transit of large cargo between two port terminals - sea and river as part of a multimodal supply chain. This option optimizes vehicle downtime when there is insufficient number of trucks on the market.*

Keywords: *freight transport, multimodal transport, road transport, port-to-port transit, synchronised truck scheduling, synchronised terminal cargo handling, methodology, mathematical model*

JEL Codes: *L91*

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FRI-2.203-2-TMS-07

INFLUENCE OF RISKY DRIVING A VEHICLE ON DRIVER'S CONDITION

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Abstract: *The purpose of the study is to analyze the impact of risky driving on the emotional load of drivers. The experiment used a specialized vehicle equipped with the necessary equipment. The reported data is processed using mathematical models. World statistics on traffic accidents show that most drivers are guilty. In our country, the proportion of such incidents is approximately 85% of the total. Drivers' behavior is one of the main and at the same time one of the most significant drivers of road accidents.*

Keywords: *Electrocardiographic signal, Electronic system, Transport, Risky driving, Mathematical models.*

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FRI-2.203-2-TMS-08

STUDY AND ANALYSIS OF NEW UNIVERSAL LEARNING TRAINING MODELS IN THE EUROPEAN UNION

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Abstract: *The work has been done to study and analyze training models for candidates for category B drivers. The applied models from the surveyed countries that are mainly from Europe are 5 in number. They are more in-person, allowing drivers to prepare and obtain a driving license and, to a certain extent, influence the reduction in the number of crashes with new drivers. Overall, in Europe and the world, there is no uniform training system for driver applicants from category B.*

Keywords: *training models, driving license category B, new drivers,*

JEL Codes: *L91*

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FRI-2.203-2-TMS-09

A STUDY OF MOTORCYCLE ACCELERATION IN REAL TRAFFIC FLOW

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Abstract: *This paper presents the results of a study of acceleration of motorcycles in a real traffic flow. Presented is a way of determining the acceleration by measuring the time to travel a certain distance. The study was conducted in Sofia city. Different categories of motorcycles have been studied. The acceleration is determined by measuring the time the motorcycles travel a certain distance when starting from intersections.*

Keywords: *Motorcycle Acceleration; Accident Reconstruction.*

JEL Codes: *L91*

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FRI-2.203-2-TMS-10

A STUDY OF BICYCLE TRAVEL SPEED

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Abstract: *The bicycle is a practical and mobile transport. A study of the characteristics of the bicycle travel speed is necessary when investigating accidents with bicycle. The purpose of this work is to present results of a survey of the speed of cyclists for the city of Ruse. The study was conducted for different ages and sex. The speed is determined by measuring the time it takes cyclists travel a certain distance.*

Keywords: *Bicycle Speed, Accident Reconstruction.*

JEL Codes: *L91*

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FRI-2.203-2-TMS-11

THE ORGANIZATION OF THE WORK OF TAXI CARS, WORKING WITH MOBILE APPLICATION IN "HAPPY" COMPANY IN RUSE

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Abstract: *This article explores the taxi transport market in Rousse. It consists of an analysis of the work done by the carriers in a taxi company operating under the conditions of Rousse. As a result, an analysis of the time of technological operations has been done during various years of research.*

Keywords: *mobile application, taxi cars, efficiency, custom requirements*

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INVESTIGATION AND MODELING OF ROAD TRAFFIC IN THE AREA OF INTERSECTIONS IN RUSE

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Abstract: *The paper shows the results of an application of system VISSIM to the microscopic simulation of traffic flow for a fragment of a real urban road network. First, the problem of traffic flow modelling and simulation was described, and the selected system is introduced. A crossroad on one of the main boulevards in the city of Ruse was chosen to be explored through a simulation model. The model examine the impact of traffic light cycle on the queue, the transport delay and the number of vehicles that have passed.*

Keywords: *traffic flow, urban, simulation, microscopic, VISSIM*

JEL Codes: L10, L11

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FRI-2.203-2-TMS-13

RESEARCH ON THE ORGANIZATION OF URBAN PASSENGER TRANSPORT IN RUSE

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Abstract: *The routing scheme of the passager transport, the distribution of the routes and their traffic are examined. Qualitative and quantitative route metrics are defined. Different suggestions are made to optimize the route network.*

Keywords: *Passager transport, Route network, Qualitative route metrics, Quantitative route metrics*
JEL Codes: *L10, L11*

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THE IMPACT OF URBAN PASSAGER TRANSPORT TO THE ENVIRONMENT IS ASSESSED

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Abstract: *An analysis on the impact of the transport in Ruse has been developed. Considered are system of factors that determine the quality of the environment. Different solutions are proposed to reduce the negative impact of transportation to the environment.*

Keywords: *Transport, The quality of the environment, Solutions, Impact to the environment.*

JEL Codes: *L10, L11*

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FRI-2.203-2-TMS-15

ANALYSIS OF THE TRANSPORT WORK IN THE COMPANY " ACT LOGISTICS"

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Abstract: *This report considers competition as an objective instrument for regulating the market for transport goods and services, which is the reason for the bankruptcy of many companies in the transport industry. The goal is to evaluate correctly the competition factors that directly affect the development of Act Logistics. The method of analytical decision making is applied in the study. The current situation in the market and the activity of the surveyed company is analyzed. Proposals for the development of Act Logistics have been made.*

Keywords: *Logistics Company, Factors, Transport Market, Effectiveness, Spedition, Warehousing.*

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ANALYSES OF THE INNOVATION ACTIVITY AND PROTECTION OF THE INNOVATIVE PRODUCTS THROUGH INTELLECTUAL PROPERTY RIGHTS AT THE SMALL BULGARIAN BUSINESSES

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Abstract: *The Intellectual property rights* (*IPR*) *have increasing influence on the innovation activity of the Bulgarian small businesses. Therefore the focus on this report is on the linkages between the innovation activity and the Intellectual property rights as a precondition for the successful growth management.*

Keywords: *Intellectual property rights* (*IPR*), *innovation, growth management*

JEL Codes: *M10, O34,*

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FOREIGN DIRECT INVESTMENT – IMPORTANCE MAIN CHANGES AND TRENDS

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Abstract: *One of the main trends in society today is the increase of rates and scales of the interconnection between economies, the internationalization of financial markets and the transnationalization of production. The international movement of capital, and more specifically of foreign investments, lies at the base of these processes. Foreign direct investment* (*FDI*) *contribute to the development of local economies and to the gaining of competitive advantages over the other participants on the international market. Through FDI are established cross-border commercial relationships, which lead to intensified development, technological innovations and modernization of national economies. This report analyses the importance of FDI for development and improvement of the competitiveness of Bulgarian economy. In addition, the movement of FDI, together with the main changes and trends having taken place during the different periods, has been reviewed.*

Kay words: *Investment, Foreign direct investment, Transnational corporations, Competitiveness, Innovations*

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MODELS FOR THE DEVELOPMENT OF AGRICULTURAL COOPERATION IN BULGARIA

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Abstract: *The paper reviews existing models for the development of agricultural cooperatives in Bulgaria. The conducted research proves that for the survival and development of the functioning agricultural cooperatives in Bulgaria internal restructuring is needed –market orientation of the business, closure of unprofitable activities, choice of organizational cooperative form depending on the optimal utilization of the available production factors. Such internal-organizational restructuring takes place in a large part of the agricultural cooperatives, which have administrative, production and financial capacity.*

Разработката изследва възможните модели за развитие на земеделските кооперации в България. Осъщественото изследване доказва, че за оцеляването и развитието на функциониращите земеделски кооперации в България е необходимо вътрешно преструктуриране – пазарна ориентация на бизнеса, закриване на нерентабилните дейности, избор на организационна кооперативна форма в зависимост от оптималното оползотворяване на разполагаемите производствени фактори. Такова вътрешно-организационно преструктуриране се осъществява в немалка част от земеделските кооперации, които разполагат с административен, производствен и финансов капацитет.

Keywords: *Kooperative, Solvency, Indebtedness, Profitability, Functional Model*

JEL Codes: *Q12, Q13, L11, L23*

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BULGARIAN MARKETS FOR HIGH NATURE VALUE PRODUCTS

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Abstract: *The markets for high nature value products, such as truffles, herbs and snails, are generators for factor market development, job creation, income diversification, and revenue for the national budget. The aim of the study is to identify the state and development potential of these markets in Bulgaria. They primarily operate as a non-organized wholesale market for high nature value raw materials, which mainly benefit foreign buyers who export them. The high consumer value and uniqueness of these products provides a solid basis and opportunities for auctioning, etc. organized markets in Bulgaria. The truffle market is about 200 million leva per year. The herb market is over 70 million leva per year. The snail market is over BGN 6 million / yr. These markets have a significant potential that can be realized with growing global demand. The development of the slug mucus market will provide additional opportunities.*

Kay words: *Bulgarian, markets, truffles, herbs, snails.*

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LEASING MARKET OF AGRICULTURAL ENGINEERING IN BULGARIA

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Abstract: *The present paper reviews the leasing market and its significance for the development of modern agriculture. It outlines the fundamental stages in the formation of a leasing market in Bulgaria. The article reviews the structure of financial leasing loans as well as the trends in the utilization of fixed capital and its structure in agribusiness revealing the significance of leasing for the technological upgrading in agribusiness.*

Keywords: *leasing, market, agribusiness, fixed capital*

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PRACTICAL ASPECTS OF INNOVATIVE LEASING IN AGROBUSINESS

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Abstract: *This paper's goal is to argue that innovative leasing is one of the approaches for effectively solving investment challenges in the innovative development in agribusiness. The significance of leasing transactions at present is related to dynamic structural changes in a number of business areas and the outdated equipment and technology as well on the one hand; there are strict long-term loan requirements on a national and international scale on the other.*

Keywords: *leasing, innovations, agribusiness, finance*

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PUBLIC SPENDING AND ITS IMPACT ON GROSS DOMESTIC PRODUCT (GDP)

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Abstract: *The global recession after the crisis during 2008 reduces the Gross domestic product* (*GDP*) *and increases quickly unemployment in all over the world. As it known, to be overcame the recession, it is possible to put in the practice monetary and fiscal instruments. First of them influence on expected inflation, with second of them it looks for to be increased aggregate demand in the economy and as a result - GDP. The last recession requires more aggressive actions comparing with previous.*

It is created original model for testing of the impact of total public spending, capital, public spending for salary and social insurance and public spending for maintenance by consolidated state budget on value of GDP. The period of research is 2005 – 2013 in the case of Bulgaria.

In conclusion, the coefficient of determination shows strong correlation between GDP and public spending by the consolidated state budget. The calculated coefficients of correlation between aggregate supply and capital spending, and such for salary and social insurance maintain the stimulating of economic activity in the country significantly depends on public spending.

Keywords: *Public spending, GDP Growth, regression model*

JEL Codes: H50, E62, C13

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THEORETICAL ASPECTS OF THE IMPACT OF CONFLICTS ON EMPLOYEE MOTIVATION

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Abstract: *In this paper are discussed the nature of conflicts and their influences of employee motivation. The article presents two functions of the conflicts - positive and negative. They will have a positive impact when they are effectively managed. In the other case, if we avoid them the problems will be unauthorized and the conflicts will have a negative effect on employee motivation.*

Keywords: *conflicts, influences, positive, negative, motivation, motivated staff*

JEL Codes: *D21, D22*

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METHODOLOGY FOR INITIATING A PUBLIC-PRIVATE PARTNERSHIP WITH A HIGHER EDUCATION INSTITUTION

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Abstract: *Public Private Partnership is a tool that can help universities to attract an additional flow of resources to modernize and increase their impact on innovation. In the scientific literature there is no detailed information on the phase of initiating PPPs. The aim of this paper is to present a methodology for initiating a public-private partnership with a higher education institution.*

Keywords: *PPP, initiate, methodology, university*

JEL Codes: *M10, I20*

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MANAGEMENT DECISIONS RELATED TO THE DEPRECIATION OF BUDGET ORGANIATIONS

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Abstract: *The need for accrual of depreciation of non-financial assets in the state cultural institutes operating in the performing arts sector in Bulgaria has been introduced since the beginning of 2017. In this connection, the accounting policy of the Ministry of Culture has been changed as well.*

The requirements for the secondary budget spenders in the system of the Ministry of Culture were related to the need to develop and validate the depreciation policy and a summary plan at the level of the accounts of Section 2 - tangible and intangible assets. As a result, each cultural institute needed to make management decisions regarding its own non-financial fixed assets.

The report aims to present these managerial decisions and to synthesise a plan for accruing depreciation in cultural institutes operating in the performing arts sector..

Keywords: *management decisions, depreciation, non-financial assets performing arts, cultural institutes*
JEL Codes: *L31, M41*

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FRI-2G.404-1-EM-11

METHODOLOGICAL APPROACH FOR INTERNAL ASSESSMENT OF INFLUENTIAL FACTORS ON THE INNOVATION ACTIVITY OF AN INDUSTRIAL ENTERPRISE

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Abstract: *This report aims to present a methodological approach to study the impact of influencing factors on the innovation activity of an industrial enterprise by building a system of consecutive activities for internal impact assessment, conducted by analytical and managerial specialists of middle and top management level in the organization. The approach includes: systematizing a set of factors in two directions - internal-external and beneficial-deterrent; preparation of evaluation tools* (*questionnaire*)*; selecting appropriate respondents; contacting respondents, interviewing and completing the forms; processing* (*averages, graphs*)*, data analysis and recommendations. Based on the results obtained, we proceed to formulate recommendations for better reporting of factor influence. The applicability of the approach is to broaden the scope of the business unit for adequate measures to improve its innovation activity. The benefits of the practical adaptation of the methodological approach focus on enhancing the adequacy of management policies in the enterprise with regard to the definition and implementation of measures to reduce the impact of deterrent factors, on the one hand, as well as to improve the condition and the influence of the beneficial factors, on the other.*

Keywords: *Innovation activity, enterprise management, organization of production*

JEL Codes: *L230, O310, M100*

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FRI-2G.404-1-EM-12

DECREASED MOTIVATION IN THE HEALTH SECTOR - REASONS, EFFECTS AND POSSIBLE SOLUTIONS

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Abstract: *The report considers some of the main reasons for lowering the motivation of human resources in the healthcare sector. These include: system financing, system organization, technology and personnel security, regulatory failure and in others. They in turn lead to the emergence of many negative influences, which have an impact on the effective functioning of the healthcare system in Bulgaria. As a result, the quality of healthcare provided by patients in Bulgaria is hampered. With regard to the formulated problems related to the HR motivation in health care in the final part of this report are proposed some possible aspects of their solution.*

Keywords: *Motivation, Management of human resources, Healthcare professionals, Health system*

JEL Codes: *M1, M12*

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TRENDS AND THE MAIN ISSUES OF THE BULGARIAN TEXTILE INDUSTRY: THE ROLE OF INTERNAL BRANDING TO INCREASE THE ENGAGEMENT AND MOTIVATION OF THE HUMAN RESOUSES

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Abstract: *The textile industry has a long history and traditions in Bulgaria. This branch of the light industry is one of the pillars of the Bulgarian economy. In 2017, it numbers about 100,000 people. In recent years, there has been an upward trend in foreign investments and increasing exports in this sector.*

However, the main challenge for the industry is the lack of staff, both at the contractor level and at the middle and the top management levels. Insufficient staff is a serious flaw that directly affects the productivity of the sector.

This report provides an overview of the textile industry from 2003 to 2018. The impact of Bulgaria's accession to the EU and the opportunities open to the sector are analyzed. In the material are presented the biggest investors in the branch, both foreign and Bulgarian producers. The advantages of textile production in Bulgaria are outlined compared to other countries as well as the barriers it faces.

A solution to the problem is therefore proposed. Internal Market Impact Tools are used to overcome the low commitment of the HR to the vision, goals and general strategy of the textile company. The concepts of branding, internal branding and their benefits for the behavior of the staff, as well as the overall performance of the organization, are considered.

Keywords: *textile industry, human resource, internal branding, employee engagement*

JEL Codes: M12, M31

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ANALYSIS OF RESULTS FROM SURVEY REPORT ON SOCIAL RESPONSIBILITY'S LEARNING NEEDS

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Abstract: *The social responsibility of compnies has become a hot topic during the last decade in Europe and Bulgaria as well. As a result, the need for specific education for students in that regard has become immenent and many Higher education institutaions have started their own researches in that field. The conducted study in the University of Ruse "Angel Kanchev" aimed to fill the void in that regard too.*

The main goal of the presented study was to analyze students' attitudes and perceptions, and to collect relevant learning needs with respect to Social Responsibility and to Responsible Educational Management (REM). The answers of the students have been treated confidentially with utmost importance. Participants in the study were students from Bulgaria. This report regards only the results received from 40-ty Bulgarian students.

The survey have been conducted in two phases, the first results were collected during March, the second during April 2017.

The questionnaires, which have been completed and submitted on-line by the participants during March and April, are totally 40-ty. The report aims to present students perception of their learning needs in regard of social education as wel as the new perspectives in front of REM.

Keywords: *Social Responsibility, Responsible Educational Management, undergraduate sustainability education*

JEL Codes: *M14, M10, A2*

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A CONCEPT FOR QUADRA-HELIX COLLABORATION FOR STIMULATING TRANSREGIONAL DEVELOPMENT

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Abstract: *The paper represents the core characteritics of a concept for international cooperation, based on the interaction of stakeholders from different socio-economic fields – public institutions, business entities, non-government organisations, and specific groups from the society. The thematic scope is focused on stimulating the transregional develpment by elaboration of a plan for establishement of International center for education and development Bulgaria-Kuwait. It addresses the problem with the demographic situation in Bulgaria and EU– decrease in young population, shortage of well-qualified people, migration. This concept is possible to be implemented through a joint venture between the University of Ruse "Angel Kanchev" and Embassy of Kuwait in Bulgaria, with the support of the State of Kuwait, which is interested in investing abroad, eg. in EU countries. It could be perceived like an example of social entrepreneurship, because it can generate both profit and non-profit results. For example, the University and the Embassy may get some financial income from courses and consulting, but the major benefits are for the local people and the region – improved options for international operations, international internships, attracting of EU citizens to come to study and work in Ruse, incl. also Bulgarian citizens previously migrated abroad to come back in the home country. At the end, the broad impact is expected to be the positive influence on socio-economic development of the region.*

Keywords: *Economic Development, Human Resources, Regional Development*

JEL Codes: *F630, O150, O180*

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BIBLICAL IDIOMS IN CONTEMPORARY DISCOURSE

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Abstract: *This paper examines the relation between appraisal instantiations realized through Biblical idioms in the Biblical text itself and their potential for expressing an attitude in their lexicalized meanings. It reports on some of the findings of a larger study on 375 Biblical idioms in English in which appraisal analysis is applied.Three types of findings are discussed related to three types of intertextual connections: between Biblical idioms and the source text, between the idioms and proverbs and between idioms and other works of art including literary works, works of visual arts and popular culture. The analysis shows that most of the idioms keep the potential of realizing appraisal derived from the Biblical context. Only a small number have undergone a change in meaning which is also associated with a change in their potential of realizing appraisal. In addition not all intertextual connections that have been examined strengthen the tie to the Biblical text. In a number of cases a particular usage of an idiom contributes different connotations to the lexicalized meaning which gain wide popularity. It is argued that awareness of the origin of Biblical idioms and the intertextual connections to later works of art play a major role but are not crucial for a felicitous speech act.*

Keywords: *Biblical idioms, appraisal analysis, intertextuality.*

JEL Codes: *I20*

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DIMENSIONS OF CULTURAL VARIABILITY AMONG LOCAL COMMUNITOES IN THE TOWN OF RUSE (1878-1920 YEARS)

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Abstract: *The aim of this paper is to explore culture as a dynamic system affected by various factors. It looks at the political and environmental factors that influence the development of the town of Ruse at the beginning of the 20 the century. It also seeks to find out how the dynamics of the political situation in the Balkans and the extreme influence of the river Danube acted on the town and its population. The analysis is based on the exploration of cultural variability according to the views of Kluckhohn and Strodbeck, Edward Hall and Geert Hofstede and states the extent to which the ethnic groups living on the territory of the town of Ruse in the reviewed period illustrate them. Theoretical clarification of cultural variability and practical research of how it is addressed in the material and spiritual context has been made. The findings from this analysis illustrate that the ethnic communities in Ruse during that period combine the contemporary concepts of multiculturalism and the variance of values traced in a diachronic aspect. The research results also reveal that the local community of Ruse and its contacts with other cultural communities are based on established attitudes of tolerance and sustainability and continuity of values that can be given as a good example in a time of growing multiculturalism and globalization, both in Europe and worldwide. It can initiate a further discussion concerning notions as multiculturalism and cultural variability on the territory of the Danube region in the period of transition and democracy.*

Keywords: *culture; cultural variability; cultural diffusion, multiculturalism.*

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NETWORK RISKS IN MARKOV DECISION PROCESSES

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Abstract*: A class of Markov Decision Making Processes (MDP) is proposed in this work, considering the network risks. Risk is considered as a product of two measures one of which is the probability for an adverse event at the process' passing through a given state. It is proved that in case of the same values of these probabilities a network flow of risks is received which has one-to-one mapping to the MDP. Relations between these two controllable processes are obtained.*

A case is investigated when the probabilities of adverse events are different for the different states and a method is proposed through which in this case the optimal solutions for the MDP with risks can be found. The results received are confirmed by appropriate numerical examples.

The possible areas of application of the MDP with risks being proposed are pointed out.

Keywords: *Markov decision processes; risk; network flows; optimization.*

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EXTREMAL PROBLEMS FOR THE CIRCLES INSCRIBED IN A GIVEN SEMICIRCLE OR IN A GIVEN SEGMENT

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Abstract:

Let the circles $K_1(O_1;r_1), K_2(O_2;r_2), \ldots, K_n(O_n;r_n)$ *are inscribed consequently in a given circle* K.

In present paper we find $\max \sum_{k=1}^{n} r_k$, $\max \sum_{k=1}^{n} r_k^2$ *for* $n=3$ *and* $\max \sum_{k=1}^{n} r_k$, $\max \prod_{k=1}^{n} r_k$ *for* $n=4$.

We prove and analogical problems for the circles inscribed in a given segment. More exactly we find:

$\max \sum_{k=1}^{n} r_k$, $\max \sum_{k=1}^{n} r_k^2$, $\max \prod_{k=1}^{n} r_k$ *for* $n=2$ *and* $\max \sum_{k=1}^{n} r_k$, $\max \prod_{k=1}^{n} r_k$ *for* $n=3$.

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STUDENTS AND DIGITAL MATHEMATICS TEACHING

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Abstract: *Mathematics plays one of the most important roles in developments of our modern and technology-centered society. Additionally, it lays the basis for technical studies, but is also needed e.g. in economics and life science. In fact, good mathematical skills are crucial for science and economy. Unfortunately, various studies have shown that mathematical competence in Europe has weakened in recent decades. The lack of mathematical proficiency is already causing problems in engineering mathematics' and other courses in European HEIs. In fact, this seems to be a global problem, and e.g. the learning outcomes of Eastern European countries have been weaker than expected, especially in mathematics, after they moved to the Western European model of education* (*e.g. SEFI 2002*)*. Compounding the issues, the resources allocated to teaching have been decreased so that there are fewer resources for teaching and the development of teaching.*

Additionally, in recent years the study groups have been increasing and becoming even more heterogeneous. This naturally causes problems for organization of mathematics' teaching as for example the entry level of competence in mathematics (*RulesMath project study this problem*) *varies greatly depending on the background studies. Under these circumstances, taking into account individual needs or organizing dynamic and creative activities becomes almost impossible during the classroom sessions. As a sum of many factors, it has been reported that the drop-out rates are high in the field of technology.*

In this paper, we will present the learning resources developed within the FutureMath project and how materials developed within this project are used by students in our universities and their positive influence in the process of teaching and learning mathematics.

Keywords: *Innovative Pedagogical Methods, Digitalization, Engineering Mathematics Education.*

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ABOUT THE STEM EDUCATION

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Abstract: *The STEM acronym was introduced in 2001 by scientific administrators at the U.S. National Science Foundation. STEM is an interdisciplinary and applied approach that integrates science, technology, engineering, and mathematics into a cohesive learning paradigm based on real-world applications. STEM education refers to teaching and learning in the fields of these four subjects. It typically includes educational activities across all grade levels—from pre-school to post-doctorate—in both formal* (*e.g., classrooms*) *and informal* (*e.g.,afterschool programs*) *settings.*

The paper presents theoretical background about STEM: variations, definitions, characteristics and examples. Special attention is paid to the STEM-lessons and STEM-skills. Research about how some countries used STEM in education is included. Comparative analysis about students' results is presented and visualized.

Keywords: *STEM-Education, STEM-skills, hands-on activities.*

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PROBLEM SOLVING MODEL IN MATHEMATICS

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Abstract: *This paper is a theoretical review on the notion of problem and the main groups of mathematical problems' functions. Classifications of learning tasks and mathematical problems are outlined. An important condition for forming and developing problem solving skills is to be familiar with the problem solving activity, which requires three types of mental processes. This activity has two components: algorithmic and heuristic. The Polya's problem solving model has been extended and optimized. The theoretical summaries are made.*

Keywords: *mathematical problem, problem solving, problem solving activity, problem solving model*

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CREATIVE OUT-OF-CLASS WORK IN A TEAM - COMPLETE LEARNING: OPEN, ADAPTIVE, MOBILE

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Abstract: *The focus of this research is built on out-of-class group creative work with students gathering its particularity in the shapes it works. It is about an informal educational activity that builds up the lecture hours of Verbal Art - a compulsory discipline from the curriculum of Pre-school and Primary School Pedagogy with a foreign language. The highlights are the effectiveness of teamwork, the principles of work with art texts, the techniques for activating out-of-class activities, requirements to teachers and the students. In the end the real results are shown after the achieved goals and realized tasks - proof of openness, flexibility and adaptability of active complete learning/*

Keywords: *out –of-class group, creative work, students, verbal art, team work*

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APPRENTICESHIP CLUSTER IN MECHANICAL ENGINEERING AND MECHATRONICS

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Abstract: *The paper views the relationship between industry and higher engineering education, in particular within the region of Gabrovo, which shows a certain mismatch between the skills of engineers demanded by enterprises and the skills of young engineering graduates supplied by technical universities. To respond to that challenge, an alternative educational path at tertiary level is proposed by an international team of university lecturers, business people, local authorities, employers' organizations and social partner in the area of Mechanical Engineering and Mechatronics. A completely new form of higher education, known in most European countries as dual/cooperative studies, is considered – work-based learning with focus on apprenticeship. Actually the present paper presents in details one of its tools – an apprenticeship cluster in Mechanical Engineering and Mechatronics, which is intended to bridge the gap between the worlds of business and education so as to boost economic growth at regional level. .*

Keywords: *apprenticeship cluster, work-based learning, apprenticeship, skills mismatch, engineering graduates, academic and company mentors*

JEL Codes: *I25*

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USING OF THE MATHEMATICAL SOFTWARE GEOGEBRA FOR SOLVING THE STEREOMERICAL TASKS IN EDUCATION OF MATHEMATICS

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Abstract: *The paper discusses some didactic ideas about solving mathematical problems on topic "Stereometry". A concrete problem on the figure pyramid from the school course of geometry is chosen. Its solution is given and analised. For better understanding and visualising the mathematical software GeoGebra is used. The problem is presented as it might be solved and assimilated in teaching secondary school mathematics. Considering the educational purposes we propose applying mathematical software for introduction and assimilation stereometric knowledge and problem solving in order to draw students' attention and keep them interested and impressed.*

Keywords: *GeoGebra, mathematical software, stereometry, spatial figures, mathematical problem*

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FRI-2G.305-1-ERI-07

ON THE SYNTHESIS IN THE COGNITION AND BUILDING OF INTERDISCIPLINARY IN THE TRAINING PROCESS

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Abstract: *The article discusses different aspects of synthesis as a tool for achieving cognition. The relationship between synthesis is sought as a method of formal logic as a method of theoretical cognition, and also as a component in the concept of synthetic a priori of Kant. The possibility of synthesis of the scientific fields based on the object of study and the construction of the common scientific methods of knowledge are under consideration. An idea is suggested to develop knowledge as a form, content and meaning, which also features the cognitive operations characteristic of each of these orientations. In this aspect, the idea of interdisciplinarity is also sought, its application in the process of training.*

Keywords: *synthesis of knowledge, common knowledge methods, cognitive operations, concept as form, content and meaning. interdisciplinary relations.*

JEL Codes: *I20, I21*

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PRACTICAL ACTIVITIES IN THE VTH GRADE MATHEMATICS EDUCATION

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Abstract: *The paper presents comparative analysis between the old and the new version of mathematics curriculum and textbooks for 5th grade. The new version included some practical activities, which help to form and develop mathematical and digital competences of students. The purpose was to research the differences and to underline the advantages of the practical activities, included in the new curriculum. Some mathematical problems for 5th grades students, are presented.*

Keywords: *Mathematics Education, Practical activities, Competence.*

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ON THE SUBJECT OF EDUCATIONAL PSYCHOLOGY

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Abstract: *The purpose of this report is to analyze the subject of educational psychology as an independent science. This objective is relevant in defining its subject matter because due to its integral nature there are different theoretical approaches and factual uncertainties. Additionally these all lead to contradictory views on the matter. Out of these it is often difficult to define what is the subject of educational psychology, what are its main problems and tasks, what are the stages it is going through, what are the theoretical approaches to learning and teaching, what scientists and from which country contribute the most to the formation of psychological-pedagogical theory and practice. This statement is supported by my analysis of relevant paragraphs from pedagogical teaching materials printed in Bulgarian in the last quarter of a century.*

Keywords: *Subject, Science, Educational psychology.*

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FRI-2G.405-1-PP-02

INDIVIDUAL PSYCHOLOGICAL CHARACTERISTICS AND THE CINEMA PREFERENCES OF THE MODERN VIEWER

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Abstract: *There is an opinion that media influence the formation of human preferences and define the behavior of the person. The call to one or another cinema genre may trigger regulatory factors such as striving to get rid of bad mood, or testing strong negative emotions.*

In the course of the research, we used the methodologies: original "Cinema-preference" methodology and R. Ketel's eight-factor model of personality traits. The selection of movies is based on their basic characteristics, which form the typology of visual preferences for the young audience. A factor structure of cinema preferences has been developed in order to demonstrate a certain attractiveness of the respondents for the selection of films.

In order to determine the relationship between the cinema-viewer's preferences and their personality traits, a Pirson's coefficient was calculated and a correlation analysis of the significance of the genre factors was made.

In conclusion, a structural scheme of cinema-preference is made according to the personality traits of modern youth.

Keywords: *Factor structure of cinema genres; eight-factor analysis of the personality*

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FRI-2G.405-1-PP-03

NATURE AND SPECIFICITIES OF CHILD DEVELOPMENT IN THE CONTEXT OF PEDOLOGY

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Abstract: *The paper aims at presenting the nature and specificities of child development in the context of pedology. It is achieved via the presentation of problems from specific cases in the author's practice. They are analyzed in a complex way based on the pedological approach. Certain issues are discussed, as related to: 1. Driving forces of development. 2 Methods, activities and principles of organizing them in support of child development. 3. The interrelation between the children's mental development and their schooling, education and counseling. Specific recommendations are made on the basis of the outcomes.*

Keywords: *Child development, Pedology, Developmental psychology, Educational psychology.*

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FRI-2G.405-1-PP-04

LOGOPEDICAL PREVENTION AND DIAGNOSTICS OF COMMUNICABLE DISORDERS IN CHILDREN IN PRE-SCHOOL AND PRIMARY SCHOOL EDUCATION

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Abstract: *Specific language disorders are one of the most widespread childhood disorders. They correlate with the development of basic psychic processes, communicative skills, with subsequent learning and learning problems, with the features of emotional and behavioral functioning. Their early diagnosis and intervention are extremely important for the later personality and social functioning of adolescence and maturity.*

The paper reviews existing methods of special work of the speech therapist for the prevention and correction of speech pathologies in children. The purpose was to research the efficiency of best practices and algorithms for prevention and removal of speech disorders of different types. Special attention was paid to the presentation of effective logopedic approach and the legal basis on which it is implemented.

Theoretical research and the development of tools for the early discovery of linguistic and speech pathologies are the subject of a project INTERACTIVE TOOLS FOR TEACHERS AND CHILDREN AT INITIAL EDUCATION. This project (*2017-1-BG01-Ka201-036295*) *has been funded with support from the European Commission* (*Erasmus+ Programme*).

Keywords: *Speech pathologies, Early diagnosis and intervention , Efficiency .*

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FRI-2G.405-1-PP-05

INTERDISCIPLINARITY IN THE STUDY OF THE *AIR* CONCEPT IN THE CONTEXT OF THE UNITED COGNITION

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Abstract: *In the context of the united cognition, the studied concept is dealt with on three levels such as form, content and meaning. It turns out that the different levels of clarification of the concept refer to knowledge from different scientific fields. The notion as form is studied by some natural sciences; content - from life sciences and other applied sciences, but as meaning - mostly from humanities. The offered approach is applied to rationalize and structure the content of study revealing the concept of "air" in various subjects. Thus, the paper outlines the possibilities for building up interdisciplinary relations of the topic. The approach helps build mental relations, it discloses associations, and helps understand analogies among knowledge elements from different fields, and binds the diverse knowledge of learners in united cognition.*

Keywords: *united cognition, interdisciplinary relations, secondary school, concept as form, content and meaning.*

JEL Codes:

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TEACHER VIEWS ABOUT ESTABLISHMENT AND FUNCTIONALITY OF THE SYSTEM OF PROFESSIONAL DEVELOPMENT OF TEACHERS IN REPUBLIC OF MACEDONIA

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Abstract: *The skills and knowledge that teachers acquire during their initial education are the only basis for enabling them to enter the world of the teaching profession. They must be constantly expanded, deepened and innovated according to the changes and needs imposed by the intensive technical, technological, and scientific development, as well as the expressed tendencies for democratization and humanization of school education. In order to achieve this goal, it is necessary for teachers to possess competences for quality educational work and to have the opportunity to continuously professionalize and advance during their careers. The paper is part of the project "Professional Development of Teachers in the Republic of Macedonia - Situations and Challenges"* (*2016-2018*). *The survey covers 398 teachers* (*primary school teachers from I till V grade and subject teachers*) *from 28 primary and secondary schools in the Republic of Macedonia. The survey's purpose is to study the attitudes and opinions of teachers about the position and functionality of the system of professional development of teachers in the Republic of Macedonia, in order to improve it. In this context, we tried to answer the following questions: who should determine the aims and contents of the teachers' professional development; who should perform the organized trainings, and what are the factors that can contribute to the promotion of the professional development of teachers. The obtained results point to the need for changes in the pedagogical-organizational setup of the system for professional development of teachers in the Republic of Macedonia.*

Keywords: teachers, professional development, Republic of Macedonia

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REQUIREMENTS FOR TEACHER EDUCATION IN VOCATIONAL EDUCATION AND TRAINING

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Abstract: *One of the goals of education today is to prepare young people with knowledge, skills and competences that will be required tomorrow and will enable them to be concurrent at the labor market. In recent years, special emphasis is placed on vocational education and training. One of the keys for successful vocational education and training is highly qualified teachers. However, when it comes to vocational education, this issue has its own specifics, because teachers beside basic pedagogical competences should also fulfill and other conditions aligned with the specific area of work. There are different practices between countries regarding the requirements that teachers in vocational educations should fulfill. In most of the countries, main condition is a degree in specific area and pedagogical training, while in some countries relevant experience in the field is required. In this regard, this paper analyses the issue related with requirements that teacher should fulfill, in a meaning of initial education and other conditions in order to work as teachers in vocational education and training. The emphasis is given on analyses of specific requirement related with the type and level of pedagogical training and education needed for specific area; working experience in specific aria of work, as well as specific requirements needed to become a teacher in Vocational education. A comparative analysis has been made at a sample of universities in the Balkan region and other European countries. Analysis shows that there are different approaches in the system of vocational education, as well as criteria for being vocational education teacher.*

Keywords: *Initial teacher education, pedagogical competences, vocational education and training*.

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LEVELS OF MOTIVATIONAL WILLINGNESS OF THE STUDENTS SECOND YEAR OF MAJORING PHYSICAL EDUCATION AND SPORTS AT SOFIA UNIVERSITY ST. KLIMENT OHRIDSKI

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Abstract: *During the teaching process motivation has always been a problem of the present day. This is from fundamental matter for the future teachers. This article presents the results from conducted research at the end of 2016/2017 which includes 26 students from second year Physical Education and Sports at Sofia University Sv. Kliment Ohridski who received the following qualification Teacher in Physical Education and Sports. For evaluation of the academic level motivation a questionnaire is used as an instrument which describes the general motivational status caused by and connected with education of particular speciality in the university.*

Keywords: *academic motivation, higher education, student in speciality „Physical educational and sport“*

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SWOT ANALYSIS IN PHYSICAL EDUCATION FOR PROMOTION OF MOVEMENT ACTIVITY OF STUDENTS

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Abstract: *The paper reviews the existing SWOT analysis theories and reveals its application to promote movement activity of students. The analysis aims to: (1) develop the idea of enhancing the efficiency of motor culture, physical education and movement activity in everyday life and student environment, and (2) assessing effectiveness in terms of significant benefits for physical, mental and emotional health . Special attention is paid to the resources and effectiveness of SWOT analysis.*

SWOT analysis is a method not only for analysis but also for planning. The SWOT matrix has C-Stretching, B-Veacneses, O-Opportunities, T- Threats. We analyze these components about physical culture, motor culture and movement activity of students.

Keywords: *Analysis Student Movement Activity Approach; SVOT analysis; creative innovation techniques for motor culture analysis, physical education and movement activity; the importance of body posture; self-assessment.*

JEL Codes: I 12, I 21, I 23

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MANAGEMENT STRUCTURES IN UNIVERSITY SPORT

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Abstract: *University does not have only academic role in giving knowledge to students. Moreover, they have an important role in creating completely developed persons, ready to answer to the challenges of future and accept responsibilities of life. In this regard, sport has important place in the university life. Organization of sport is not an easy thing to do and sport management as a discipline is a responsible for this task. This paper analyzes the issue of sport management but from the aspect of management of sport at universities. The purpose of this paper is to determine the management structure of universities bodies responsible for sport at universities. The sample comprised of representatives – persons involved in the management of university sport centres or departments from 13 universities from Macedonia, Bulgaria, Croatia, Serbia and Slovenia. Specially designed questionnaire was applied. Descriptive and comparative method were used as method of research. Based on analyses, three forms of management of universities were determined: existence of special centre /department for sport at universities; University sports alliance and Person appointed as coordinator of sport activities at university level. Advantages and disadvantages of each management type were analyzed and presented in the paper.*

Keywords: *universities, sport, management, structure.*

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STUDY OF STUDENTS WEIGHTLIFTERS' ATTITUDES TOWARDS "LANGUAGE THROUGH SPORT" METHOD OF TEACHING

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Abstract: *The modern sport's achievements and sports pedagogical science' evolution require constant qualification and continuous improvement of knowledge and professional competencies of future coaches. The paper is aimed at analysis of weightlifting students' attitudes and needs towards new "Language through sport" method of teaching and sports terminology learning in sports education setting. The survey was conducted with 40 respondents, students at the National Sports Academy, aged 24 years. The analysis of the results showed a lack of learning experiences in the use of this method in sports training. Weightlifting students have markedly positive attitude towards sports terminology teaching in sports training. The main advantages of using this new method of teaching are among others better illustrated basic terms of the sport, easy access to video resources, learning effectiveness, attractiveness and innovation in sports training. Weightlifting specialists realize positive influence of the "Language through sport" method of teaching sports terminology. They believe it will help them acquiring specific knowledge necessary for their future professional career of coaches and judges at international level.*

Keywords: *sports terminology, English language, new method, students, weightlifting.*

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APPLICATION OF THE VARIABLE INTENSITY IN BOXING

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Abstract: *In the present article we offer our trial from using the method of the variable intensity as a part of the one the main methods in the preparation of female boxing competitors.*

Keywords: *boxing, national team, preparation intensity.*

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SOME SOCIOLOGICAL ASPECTS OF KUNG FU

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Abstract: *Bourdieu deals with a particular way of understanding within the "Sociology of Sport" program, which he thinks is often forgotten in the theories of understanding - the one that consists in understanding your body. In the direct practice of sport, violence is eliminated by the Fair Play imperative. He defines Fair play as a dominant meaning in the opposition to violence. Students at kung fu attend an adequate socialization, experience and education in terms of positive and empathetic social and interpersonal relationships, conflict resolution skills, and effective social control.*

The purpose of the empirical sociological study is to identify the content and peculiarities of the violence committed on pupils 5 and 8 and the influence of kung fu.

Methodology of the study: study of literary sources, observation, talk. A specially developed questionnaire was used to reveal the peculiarities of the phenomenon of violence and its prevention.

Keywords: *pupils, sport, kung fu, violence, prevention*

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INCREASING SELF-HUMANITY, ACTIVITY, SETTLEMENT AND PSYCHIC STABILITY OF PUPILS RESULTING FROM KUNG FU TRAINING

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Abstract: *The extreme nature of school and training sports activities puts the personality of the students to the test. These requirements are becoming more and more intense during an exam and a race where mental and physical endurance are at the heart of success.*

The present study is aimed at testing the effectiveness of kung fu training as a factor in increasing self-esteem, activity, mood and mental performance in students practicing this type of sport.

The aim of the study is to establish the positive impact of practicing kung fu on self-esteem, activity, mood and mental capacity. In order to solve the basic tasks, achieve the goal and prove the hypothesis, a methodology of literary sources study, observation, talk was applied. Measurement of self-esteem, activity, mood and mental performance has been applied to the SAN test.

Keywords: *pupils, sport, kung fu, self-esteem, activity, mood, mental capacity*

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FRI-2G.405-1-PP-15

GENDER SPECIFIC IN THE AGGRESSIVE BEHAVIOR OF WOMEN

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Abstract: *The paper reviews existing theories and methods for examinations of aggressive behaviour of women and men. There were conducted many studies about direct and indirect forms of aggression that correlates with gender differences. Evolutionary and genetically gender differences in aggressiveness, even the indirect forms, could be detect early in childhood. Since 80-es of XX century there were conducted many studies for typically mascular and feminine agression*

Keywords: *aggression, direct physical aggression, indirect, relational agression*

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THE TEMPORARY RUSSIAN GOVERNMENT IN THE MEMORIES OF EVGENIYE UTIN

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Abstract: *The article presents an analysis of the opinion of Russian military correspondent E. Utin about the initial work of the Temporary Russian Government. The report takes into account its position as regards the Russian foreign and domestic policy as well as the element of the subjective memory. Emphasis was put on the opinion of E. Utin who opposed the introduction of civilian rule during the war. His critical position on the Russian administration's staff policy is related to attracting unprepared civil cases. The reasons for the initially poorly coordinated actions of civilian administration are stated. There is a place of E. Utin's position on the Russian attitude towards the Bulgarian population and the use of force methods against him in the establishment of public order.*

Keywords: *goverment, administration, civil rule.*

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THE POSITION OF THE RUSE CHAMBER OF COMMERCE AND INDUSTRY FOR THE CONCLUSION OF A TRADE CONTRACT WITH AUSTRIA-HUNGARY

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Abstract: *In the beginning of the XX century the trends in international trade were determined by some new tendencies. Branch and professional specializations are undergoing further development. It can be seen as continuous qualitative differentiation of goods, as modernization of technology of commercial transactions and appropriate institutions, as well as raising competitiveness. The Chambers of Commerce and Industry* (*CCI*) *established in Bulgaria during 1895 function not only as regional coordinators in the country. Their activity is based on the most important issues connected to the development of external trade. The nature and the tasks of such Chambers are to support and promote the state policy in this field, to actively cooperate in the emergence of Bulgarian private companies in the world markets. The activity of the CCI is based on singing of trade contracts, customs policies, consular assistance and transport which ensures the connection with major trade centers.*

Keywords: *Ruse Chamber of Commerce and Industry, Austria-Hungary, trade contract, common customs tariff, national production, protectionism.*

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KINDERGARTENS IN RUSE BETWEEN THE TWO WORLD WARS

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Abstract: *Kindergartens in Ruse between the two world wars. The report presents information for the founding of kindergartens in Rousse after First World War. It follows the education process and the development of the preschools and boarding schools from 1919 until 1939. Children's schools are the first level of primary education, but they are not mandatory. Kindergarten is a preschool educational approach based on playing, singing, practical activities such as drawing, and social interaction as part of the transition from home to school. Children from 4 to 7 years of age study in kindergarten.*

Keywords: *preschool education, kindergarten, kindergarten teacher, boarding school*

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THE LANGUAGE USE IN TWO LITERARY TEXTS BY STOYAN ROBOVSKY

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Abstract: *The report exploits the language use in two literary texts by the Bulgarian Revival writer and teacher Stoyan Robovsky – "Labyrinth" and "Announcement". "Labyrinth" is published in Ruse in 1874 and the content of the text is restricted to a single page. The "Announcement" is a script and spans two pages. The report exposes the graphic, spelling, phonetic and grammatical peculiarities of the two texts. The characteristic features of the language in both texts are compared to the set of linguistic norms and rules defined by Ivan Momchilov's "Grammar of The New Bulgarian Language"* (*Ruse, 1868*) *which is the primary codification document of the Tarnovo Literary language school. This proves that Stoyan Robovski is one of the main representatives of the Tarnovo Literary language school.*

Keywords: *history of the contemporary Bulgarian literary language; slavic literary language; Ivan N. Momchilov; Stoyan Robovsky; graphic, spelling, phonetic and morphological peculiarities; language-spelling model; dialect; literary tradition.*

JEL Codes:

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"THE BULGARIAN IN PRISON" – A FORGOTTEN POLISH POEM FROM 1877

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Abstract: *The paper presents the original text and a Bulgarian translation of the poem „The Bulgarian in Prison"* (*„Bulgar w więzieniu"*)*, published in the popular Warsaw newspaper „Kłosy"* (*no 604 / 1877*) *by an unidentified author under the pseudonym of Lech-Wanda. The lyric work consists of nine eight-line stanzas and attracts scholarly interest due to its themes and imagery. It is a persuasive example of Polish sympathies towards the Bulgarian liberation cause, which in the same time reveals symbols and cultural concepts that are unusual for the Bulgarian literary context of the period. The paper comments on the most significant similarities and differences between this forgotten poem and Bulgarian pre-liberation poetry.*

Keywords: *poetry, Polish literature, Bulgarian themes, national struggles, national martyrdom, 19th century.*

JEL Codes:

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THE MEANING OF THE LABYRINTH IN ONE TEXT BY STOYAN ROBOVSKY

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Abstract: *The report presents "Labyrinth" of the Bulgarian Revival teacher and writer Stoyan Robovsky. The text of the author, published in 1874 in Ruse was considered an interesting creative experiment. It has established an intertwining relationship between language and the meaning it conveys. This concept affected the culture of the Bulgarian Revival. Stoyan Robovsky experimented with the ethical paradigms known to the traditional recipient in order to make sense of them through the symbolism of the labyrinth, which was also used in Bulgarian and Slavic contexts.*

Keywords: *Stoyan Robovsky, text, meaning, ethics, labyrinth, symbol, slavic literature, literary tradition.*

JEL Codes:

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POETTE AND OTHERS

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Abstract: *In the poem „Struggle“ („Borba“) – the first published poem written by Ivan Vazov, a different from the widely accepted concept of an author is built, as well as a new interpretation of literary works and creative personality stands out. The poet is not the kind of individual bound to the community, whose voice speaks of the public fate and promotes community values – a concept firmly established in the tradition of the Revival. The poet himself is a personality unique and unequalled, possessing exceptional sensitivity. The moral values he strives for are beauty and love, harmony; what he craves for are the worlds of perfection and nobility. In the poem "Struggle', the Poet is the creator of new cultural values rather than a follower of and one who carries the tradition. These particular personality characteristics of the Poet predetermine the conflict between Himself and the rest, as well as between the creative personality and the society.*

Keywords: *Ivan Vazov, poet, creator, „Borba“, Renaissance, collective values, individual values, cultural values*

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THE PERSONALITY OF ACADEMICIAN MIKHAIL ARNAUDOV IN THE CONTEXT OF THE TEN ARNAUDOV READINGS

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Abstract: *The article studies the personality of Academician Mikhail Arnaudov from the standpoints of the texts, published in the ten Arnaudov collections. When constructing the image of Michael Arnaudov's personality, we observe the main requirement to seek the truth about his life, and thus we protect ourselves from subjectivism and manipulation, from an apology for the apology's sake or from ignoring facts. The present study clarifies the motives of Acad. Arnaudov to engage in political activity, as well as the specifics of the dossier, written in two different political systems. For the writing of Akad. Arnaudov's biography there are also irrevocable essentials of the research, in which the information about his life in Ruse is presented. The families, belonging to the Veliko Tarnovo clan of the Simidovs and to the clan of the Arnaudovs, were reconstructed, as well as his student's years in Rousse and the participation of Mikhail Arnaudov in the educational initiatives of the Dorostol and Cherven bishoprics in the 30s of the 20th century. The study ends with the emphasis that the great teachers and spiritual masters of Mihail Arnaudov, whose humanist ideals and visions of the world, man and people, he follows steadily, are Prof. Ivan Shishmanov and Johann Wolfgang von Goethe.*

Keywords: *Academician Mikhail Arnaudov, personality, Arnaudov collections.*

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INTRODUCTION TO MUSIC THEORY – A SYSTEM FOR BASIC MUSIC KNOWLEDGE

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Abstract: *The author of this article introduces his own system of teaching the discipline* ***Introduction to Music Theory*** *at the National Academy of Music "Prof. Pancho Vladigerov" – Sofia, developed as a course in theory and history of harmony. The course has two sections: I. The hierarchic levels of pitch organization of music and II. The structural role of harmony in musical form. The author derives four hierarchic levels of pitch organization which cover all the main harmonic categories: 1. Musical material* (*sound, interval, generic interval systems, mode*), *2. Texture of the musical material* (*horizontal vertical and inter-dimensional*), *3. Sonic qualities of the musical material* (*harmonic sonance – consonance and dissonance*) *and 4. Functional organization of the musical material* (*harmonic system, harmonic functionality*). *The forming factors of harmony are considered at two structural levels: 1. In simple musical forms* (*harmony and meter, cadences*) *and 2. In complex musical forms* (*harmony and thematism, modulation*). *All topics of the Introduction to Music Theory course are studied in a historical-stylistic way, always taking into account the evolution of musical thought over the ages.*

Keywords: *music theory, harmony, musical form, theory and history of harmony, pitch organization of music, structural role of harmony in musical form*

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ENRICHMENT OF CHILDREN'S CREATIVE POTENCIAL THROUGH MUSIC GAMES

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Abstract: *The process of mastering children's music games in themselves creates the conditions for learning skills and knowledge that stimulate non-standard thinking and creative expression of children from an early age. The interest in the game, suitably selected musical games, the teacher's ability to select pre-training methods, prompt the child's imagination to unexpected relations and reactions that can gradually turn into artistic and creative inventive arts. This report looks at different aspects of creativity through children's music games by offering working methods and specific creative tasks related to each stage of the pedagogical process.*

Keywords: *music education, music games, methods of music education, pedagogical process.*

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A MUSICAL EXPERIMENT – WRITING A FIVE-VOICED TRIPLE COMPOUND FUGUE WITH RETROGRADE COUNTERPOINT

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Abstract: *This study is a part of series of articles devoted to compositional and polyphonic experiments with one main focus – a compound* (*multi-thematic*) *fugue. Compound fugue is a fugue with more than one theme. Fugues written by me on this subject include three-voiced, double, asymmetrically inverted; four-voiced, symmetrically-inverted-choral; six-voiced, quadruple polymetric; and the piece this article is devoted to – five-voiced and triple with a simultaneous exposition and retrograde counterpoint. In this study, various compositional and polyphonic observations related to this project are stated, with a score of the piece enclosed.*

Keywords: *compound* (*multi-theme*) *fugue, mirror* (*inverted*) *fugue, choral fugue and fughetta, polymetrics, retrograde* (*crab*) *counterpoint*

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FRI-2.205-1-AS-04

SOUND ABSORPTION

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Abstract: *Sound absorption is one of the most important phenomena in spatial acoustics. It has many dependencies and therefore functions differently according to the specific conditions. Absorption of sound is an important factor in shaping the acoustic qualities of any enclosed space intended for some kind of sound events. This article explores some of the main patterns in the process of sound absorption in enclosed spatial volumes.*

Keywords: *Absorption, Sound Wave, Enclosed Space, Absorption Coefficient, Absrption Materials*

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FRI-K.201-1-HP-01

A SERIOUS TRAUMA ON A WOMAN AT THE AGE OF 21. SHE IS ACTUALLY 47 NOW WITH BIG WALKING DIFFICULTY EVEN USING CODIVILLA SPRINGS. SHE HAS BEEN TREATED WITH B.A.E. METHOD FOR TEN AND A HALF MONTHS

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Abstract: *A serious trauma due to a car accident 26 years before the B.A.E. treatment: the L4 and L5 vertebras were fractured. The person walks in shaky way and has pain in the whole body. Method: person with results of surgery for Lumbar fracture fixation and a residual scoliosis and postural inconvenience on the entire body; treated with Biomechanical Anthropometric Ergonomic Method.*

Keywords*: Posture, Biomechanical Anthropometric Ergonomic Method, Traumas, Post-surgery Pain in the Back, Walking Difficulty.*

JEL Codes: I 10, I 20

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FRI-K.201-1-HP-02

A CASE OF SCOLIOSIS IN A 20 YEAR- OLD WOMAN PERSON REPORTS HEADACHE, PANIC CRISIS AND SOME RARE BACK PAIN. PERSON WORE AN ORTHOPEDIC CORSET AT THE AGE OF 10 FOR A YEAR. TREATED WITH B.A.E. METHOD: CONTROLLED AFTER EIGHT MONTHS

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Abstract: *Scoliosis in a 20 year-old woman. She wore an orthopedic corset at the age of 10 for a year. Treated and checked with Biomechanic Anthropometric Ergonomic Method. She reports headache, panic crisis and some rare back pain. Method: person with negative results on classic rehabilitation for scoliosis treated with orthopedic corset with armpit supports for a year; she has been treated with Biomechanic Anthropometric Ergonomic Method for 8 months.*

Keywords*: Posture, Biomechanical Anthropometric Ergonomic Method, Scoliosis, Headache, Panic Crisis, Back Pain.*

JEL Codes: I 10, I 20

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BIOGENIC AMINES IN MEAT PRODUCTS - HEALTH AND LEGISLATION

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Abstract: *The biogenic amines are a heterogeneous group of biologically active substances. The exogenous amines are directly absorbed from food in the intestine. The aim of the study is to perform a systematic review of the impact of biogenic amines on human health* (*mainly from the group of polyamines*) *in meat products and the state of legislation to limit them in Bulgaria. Materials and methods: literary search was made in PubMed, Web of Science, EFSA, FAO, WHO and Bulgarian legislation databases for the period 1996-2018. Results: the paper reviews cadaverine, putrescine, spermine, spermidine and histamine, their formation in meat products, their health effect and the no-observed-adverse-effect level* (*NOAEL*)*. Conclusion: High levels of biogenic amines in meat products can be toxic to consumers. Their presences are indicative of poor quality of meat products. There is no legislation in Bulgaria about regulating the concentrations of biogenic amines in meat products at this stage.*

Keywords: *Biogenic amines, Cadaverine, Putrescine, Spermine, Spermidine, Histamine, Foods, Meat products, Health effects, Control.*

JEL Codes: I 10, I 12

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PARENTS' AWARENESS OF THE IMPACT OF THE TRAFFIC-RELATED URBAN AIR POLLUTION ON CHILDREN'S HEALTH

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Abstract: *We aimed to analyze the level of public awareness on the harmful health effects from the traffic-related air pollution in Plovdiv. An anonymous questionnaire survey has conducted among the parents of 659 children. Air pollution data has obtained from the national and regional monitoring system of air quality. Average of annual concentrations of dust* (*PM10 and PM2.5*) *exceeded the Bulgarian`s regulated levels in the studied period. Most polluted was found to be the Central suburb, while the West suburb was less polluted. 64.8% of respondents have suffering from the traffic noise and 19.3% of respondents have feelling the car`s exhaust gases in their home. 59.4% of respondents have thought to know about the negative health effects of traffic-related air pollution. More informed parents about harmful health effects of traffic pollution among their children, take action to home protection* (*window isolation, soundproofing, renovation of buildings, etc.*)*–precondition for decrease of morbidity of their children.*

Keywords: *Traffic-Related Urban Air Pollution, Health Effects, Plovdiv, Children Illness*

JEL Codes: I 10, I 12

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CONTEMPORARY ASPECTS OF KINESITHERAPY IN PARKINSON'S DISEASE

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Abstract: *The Parcinson´s disease can be well-influenced by physiotherapy. When directly applied and as a co-treatment, the progressive path can be delayed and patients' functional performance may be improved. This requires a good knowledge of the clinical pictures in different forms and the application of an adequate set of methods. This article reveals various contemporary aspects of the kinesitherapy in the treatment of Parkinson's disease.*

Keywords*: Parkinson's Disease, Physiotherapy*

JEL Codes: *I12*

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MASSAGE APPLIED IN BELL'S PALSY

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Abstract: *In the complex treatment of neurologically ill patients, massage plays an important role. It aims at regulating the excitement-sustaining processes, trophics improvement, acceleration of regeneration, analgesia, restoration of function, etc. It is especially necessary for diseases of the peripheral nervous system. In neuritis of the facial nerve* (*Bell's palsy*)*, the massage aims to affect the reflexogenic areas of the head, neck and to tone up the mimic muscles of the affected side.*

Keywords: *Massage, Neuritis, Facial Nerve, Paralysis.*

JEL Codes*: I 12*

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FRI-K.201-1-HP-07

ASSESSMENT TOOLS OF THE ACTIVITIES OF DAILY LIVING IN PEDIATRIC OCCUPATIONAL THERAPY

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Abstract: *Activities of Daily Living* (*ADL*) *are among the first achievements in childhood, and provide a sense of independence and social approval for the child. Within the past, professionals in the fields of rehabilitation and occupational therapy have developed universal assessments to measure the outcomes of the ADLs. In the occupational therapy, there are few functional outcome measures appropriate for use with children. When a measure is selected, it is important to know what exactly the therapist would like to assess, and whether the instrument assesses the client's needs. Identifying the purpose of an assessment is important because a measure that is suitable for one purpose may not necessarily be suitable for others. Several measures related to ADL skills are used in Bulgaria, and possible choices will be described. The paper will also address the need to introduce new assessment tools focusing on the child's activities and occupational performance.*

Keywords: *Pediatric Occupational Therapy, Assessment Tools, Activities of Daily Living, Occupational Performance*

JEL Codes: I 12, I 20

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FRI-K.201-1-HP-08

ASPECTS OF OCCUPATIONAL THERAPY ASSESSMENT IN NEUROREHABILITATION

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Abstract: *The paper reviews aspects and characteristics of occupational therapy assessment in neurorehabilitation. In the process of primary evaluation, occupational therapist is interested of the impact of neurological conditons on client's occupational performance. The focus of the assessment is on quality of life, participation in meaningful occupations and functional problems in performing self-care, leasure and productive activities. Some assessment instruments obtain information about general health and level of independence, while others are specific in assessing performance of tasks or abilities. In this article, we give some examples of the information from different assessment tools used by occupational therapists for people with neurological impairments. The information is a solid base for planning and implementaion of occupational therapy interventions.*

Keywords: *Neurorehabilitation, Occupational Therapy, Assessment Tools*

JEL Codes: *I 12, I 20*

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ASSESSING REHABILITATION AFTER STROKE

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Abstract: *The purpose of this report is to present an overview of physical therapy tests used in stroke rehabilitation. Stroke rehabilitation involves a process where the physical therapists, the rehabilitation team and the patient have to discuss goals and what future directions might be considered in view of the stroke event and its consequences. This process often means change, a change from the life one lead before the stroke incidence to a life with a reduced function; this reduction can be varying in degree. The rehabilitation process also involves an evaluation of the clinical condition, planning of a treatment and evaluating the result of treatment.*

Keywords: *Outcomes, Assessment, Stroke.*

JEL Codes: *I 12, I 20*

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NEURODYNAMIC TESTS FOR FUNCTIONAL EXAMINATION OF THE SCIATIC NERVE

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Abstract: *The mobilization of the nervous system is a conservative physiotherapeutic method for the diagnosis and treatment of pain. The term "neurodynamics" combines in one mechanism mechanical and physiological characteristics. Neurodynamics tests are nervous tension tests that lead to mechanical and physiological responses. The techniques for mobilization of the sciatic nerve improve its mobility, reduce the mechanical sensitivity of the nervous system and relieve the pain in the waist. Essential to the differential diagnosis, besides the appearance of typical nerve tissue stretching symptoms, is also the positive sensitizing* (*provocative*) *test. The purpose of this study was to determine the most appropriate sensitizing movement for locating and differentiation of lumbar pain.*

The results obtained show that a functional assessment of the sciatic nerve requires a comprehensive approach involving the examination of all sensitizing movements as well as other specific tests for the musculoskeletal system.

Keywords: *Neurodynamic Tets, Functional Examination, Sciatic Nerve, Low Back Pain*

JEL Codes: *I 12*

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TELEMEDICINE IN THE CONTEXT OF LOW-BUDGET HEALTHCARE

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Abstract: *The concept of telemedicine is introduced by R. Mark in 1974. It regards a series of telecommunication and information technique, that can be applied in health care.*

A telemedicine bridge is effective when three basic criteria are met:

- *The information should be objective, exact and on time;*
- *The price of the information transfer should not exceed the overall budget of the therapy;*
- *The existing legislation should be followed, especially the regulations, regarding personal data protection.*

Otorhinolaryngology is very suitable for the application of telemedicine bridges, because of the wide use of endoscopic and microscopic examinations, and other tests which present the results digitally and graphically.

ORL Clinic MMA Sofia and ORL Department MBAT MMA Varna are developing a system for the exchange of medical information. The main tasks are direct consultation during the diagnostics and treatment, as well as preliminary planning and preparation of patients, who need to be treated in both units. This kind of planning allows for the optimization of the time and financial resources for travel, examinations and treatment.

Keywords: *Telemedicine Otolaryngology, Low-Cost Health Care*

JEL Codes: *I 10, I 20*

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FRI-K.201-1-HP-12

DR. STOYKO YORDANOV AND THE FIRST ATTEMPT TO ESTABLISH A BULGARIAN MEDICAL ORGANIZATION

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Abstract: *Dr. Stoyko Yordanov Gaev was born on August 15, 1841, in the town of Kotel. He studied medicine at the Military Medical School in Bucharest from 1863 to 1867. In 1876 he defended his thesis: Quelques reflexions et observations sur l’engine diphterique, Paris, 1876. Dr. Stoyko Yuddanov participated in the establishment of the Romanian Red Cross. A medical brigade led by him took part in the Serbian-Turkish war in 1876. Dr. Stoyko Yordanov, as a regimental and brigaded physician in the Romanian army, took an active part in the Russo-Turkish from 1877-1878. On March 12, 1878, Turno Severin prepared a letter to Dr. Ivan Slavkov, a physician from Tarnovo, calling for the establishment of a national medical company. Dr. Stoiko Yordanov enumerates 18 of his associates doctors. In the newspaper " Slavyanin", published in Rousse, he publishes a draft statute of the company called " Bŭlgarska meditsinska druzhba".*

Keywords: *History of Medicine, Rousse, Medical Organization*

JEL Codes: *I 10*

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QUALITY OF SOCIAL SERVICES-THEORETICAL APPROACHES AND PRACTICAL CHALLENGES

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Abstract: *. This theoretical article describes and discusses the concept of quality in relation to the evaluation of social-work practice. This article begins with presenting some basic perspectives on quality as well as the transference of the concept of quality in social-work practice. The quality in social-work practice is a very multifaceted phenomenon and the concept can be approached from different perspectives and with different foci. Owing to the complex character of the practice, interventions cannot be fully standardized and the effects of the interventions in peoples' lives are not always evident. We hope that this article can be useful for those who initiate, conduct, and utilize evaluations of social work. Furthermore, we hope that it can contribute to an increased consciousness about the importance of studying quality of socail services.*

Keywords*: quality, social services, standards*

JEL Codes: *I38*

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FRI-2.114-1-SW-02

UNLAWFUL BEHAVIOUR OF ADOLESCENTS – SOCIAL AND PSYCHOLOGICAL ASPECTS

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Abstract: *The paper presents the problem of deviant behavior of adolescents in modern society where violence is becoming a common way of resolving conflicts, and aggression – a means of imposing respect. The criminogenic factors influencing the formation of the juvenile personality are analyzed: macrosocial – the value crisis in society as a whole, as well as the economic conditions, the media environment, etc., and microsocial factors – family, school, reference environment, etc. Statistical data on the dynamics of juvenile delinquency in the country and in Gabrovo region are presented. Guidelines for prevention of violence among adolescents through programs at national and international level are outlined.*

Keywords: *aggression, violence, unlawful behaviour, criminogenic factors, children pedagogical rooms, prevention*

JEL Codes: *I3, J71, J78*

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EFFICIENCY AND EFFECTIVENESS OF APPLICATION OF SPECIAL SEISMIC PROTECTION METHODS

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Abstract: *In 2016, with the updated Action Plan for the National Strategy "Vision for Deinstitutionalization of Children in the Republic of Bulgaria", measures were put in place, part of which aimed at the sustainable development of the social infrastructure for children and youth and the gradual closure of the medical institutions - social care for children. Other measures are aimed at expanding coverage and access to accompanying social, healthcare or educational services for residential-type residential customers - Family Type Placement Centers. The focus of the priorities is complex care for disabled children and young people by providing integrated health and social services, increasing the efficiency of the system and completing the necessary social infrastructure for services for children and young people.*

Keywords: *Social care, Children, Young people, Social services, Family Type Placement Centers.*

JEL Codes: *L10, L11*

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FRI-2.114-1-SW-04

STUDY OF SOCIAL RELATIONSHIPS AS A COMPONENT OF QUALITY OF LIFE IN CLIENTS WITH ONCOLOGICAL DISEASES OF WORKING AGE

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Abstract: *Despite significant advances and the modernization of medical science over the last decades, oncological diseases continue to show an increase in growth. In recent years there has been a tendency to reduce the age of newly registered persons. The purpose of this report is to present the results of a survey of clients with oncological diseases about how the disease affects one of the components of quality of life - social relations. The report presents results from long-term personal observations and a four-month study after individuals in the age group 35-60 years.*

Keywords: *social work, quality of life, oncological disease*

Jel code: *I14, I31*

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FRI-2.114-1-SW-05

EXTRACURRICULAR CLUB FORMS OF ACTIVITY OF SOCIAL WORK STUDENTS AND FORMATION OF POSITIVE ATTITUDES TOWARDS PEOPLE OF DIFFERENT ETHNIC BACKGROUND

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Abstract: *The article presents the conceptual, content and functional aspects of club forms of extracurricular club forms activity of social work students, representing innovative, scientifically justified, empirically validated and characterized by the formation of sensitivity to differences in an interactive educational and informational environment. Through a conducted research their contribution for the formation of positive and non-discriminatory attitudes of social work students towards people of different ethnic background in the context of interactions in different formal and informal interpersonal systems and with a focus on promoting their development in educational, professional and social aspects is revealed.*

Keywords: *Extracurricular Club Forms of Activity, Positive Attitudes towards People of Different Ethnic Background, Ethnic Climate, Educational and Information Environment, Interaction in Interpersonal Systems*
JEL Codes: *I21, I23, I24*

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FRI-2G.104-1-HC-01

ANALYSIS AND RISK ASSESSMENT OF "KNOWLEDGE DEFICIT" AND FACTORS ASSOCIATED WITH THE SELF-APPLICATION OF LOW-MOLECULAR FRAXIPARIN AT THE PATIENTS IN THE POSTOPERATIVE PERIOD

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Abstract: *The article focuses on the nursingdiagnosis "Risk of ..." and the role of the deficiency of knowledge about the life and health of the patient. The study is guided by the theories of D. Orem and J. Watson and their application in the work of contemporary nurse. We studied 71 patients with various surgical interventions in need of long-term administration of low molecular weight Fraxiparine. Data on mean values and interdependencies among the different variables are presented. We have established the influence of some factors on alone to Fraxiparine in postoperative period.*

Keywords: *risk of…, knowledge deficiency, self-service, nursing interventions*

JEL Codes: *L10, L11*

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CONFLICTS IN STUDENTS' GROUPS AND THEIR MANAGEMNT

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Abstract: *This scientific report examines the problem of conflicts in student groups, within the education of student midwives and student nurses. The conditions which raise conflict situations are discussed. Different variations of conflicts are described. The dynamics of a conflict situation in the student group are analyzed and the author offers a pattern for characterizing the group in order to prevent conflicts. A survey is conducted among students, educated in Ruse University "Angel Kanchev" majoring in the regulated Bachelor Programs Nurse and Midwife. Conslusionshave been drawn, pointing to the necessity of a targeted conflict management. Striving to influence matters in the direction of minimizing causes, leading to conflicts is needed. It would be useful for conflict participants to be allowed to express their personal view for the genesis of a conflict situation and to share their recommendetaions for solving it. Actions of students, taking part in the conflict have to be guided, so that they are able to preserve and restore positive relations while working on their differences and taking into consideration their own different interests. It is advised students actively participate in the search of a solution which would suit each of them. Compromising in this situation is inevitable and is grounded on mutual concessions, on a choice of a solution which satisfies each side and allows for no one to feel like the losing side. Confrontation while managing conflicts has to be avoided. Taking into consideration that the solution of a conflict has to address the causes leading to it, the autor concludes only a cooperative style of managemnt can lead to the realization of a given task. With selecting a concessional strategy in managing conflicts, their solution is possible.*

Keywords: *student groups, conflicts in the student group, nurses, midwives, group dynamics, conflict managemnt*

JEL Codes: *L10, L11*

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CHESS THERAPY OR ... LIFE AS A GAME OF CHESS

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Abstract: *With its various features* (*movement of figures and their layout*)*, the game reflected the composition and qualities of the Indian army, formed by four parts: elephants, battle towers, horses and infantry. That is why it is believed that the chess game was designed to train the Indian military chiefs.Through the chess games the contact with the unconscious and with the cause of the internal conflict is also mediated.The goal of the therapy is to achieve personal growth and well-being, to develop skills to cope with difficult life situations, and to reveal the creative potential of the personality, as this happens in the course of the analysis of the game.*

Keywords: *Chess Therapy, Human Relationships.*

JEL Codes: *I11*

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NEONATAL PAIN

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Abstract: *In the past decades there has been many advances regarding the knowledge on neonatal pain measurement and intervention. Unfortunately healthcare providers are still facing numerous challenges as most of the Neonatal intensive care units* (*NICUs*) *do not have specific pain management protocols. This article stresses on the importance of not only treating pain in infants but also trying to prevent it as much as possible.*

Keywords: *neonatal pain, neonatal intensive care unit, pain prevention*

JEL Codes: *J00, J01*

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FRI-2G.104-1-HC-05

TRADITIONS AND NEWS IN INHALATORY CORTICOSTEROIDS

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Abstract: *From the far past to the treatment of all diseases, people have experimented using different substances to achieve or reject healing. Some glucocorticoids are important for the medicine from the past to the present day. They are a class of steroid hormones. Corticosteroids are the basis for the treatment of pseudorup, croup and asthma due to: - vasoconstrictor and anti-inflammatory properties, - reduction of airway inflammation, vascular permeability and mucosal edema. In the first years after the onset of glucocorticoid use, it is considered to be a panacea that will eradicate all diseases, but nowadays there is an exact and specific application for treatment and we must not forget that a therapeutic effect can be achieved at the correct dosage, long-term treatment, individual, patient and clinical data of the patient, contraindications, instructions to caregivers and other factors influencing the action.*

Keywords: *glucocorticoids, pharmacokinetics, treatment, anti-inflammatory drugs*

JEL Codes:*J13, I12, I1*

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FRI-2G.104-1-HC-06

STUDY OF STUDENTS' PHYSIOMETRIC INDICATORS

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Abstract: *Reliable data on physical fitness and determination of the functional state of the body reflect the level of physical capabilities and the level of development of motor skills. Objective: Determination of individual physiometric indicators in students. Contingent: 64 students of Thracian University. The average value of the vital indicator in the studied students is 62.94. With left and right hand dynamometer, mean right hand values of 30.95 kg were found, and left - 34.0 kg. Force strength is set at 120.38 kg. Conclusion: The relative share of students with low values of the vital indicator is high, the values for dynamometry force are also low; there is a disproportion between good physical development due to acceleration factors and recorded retention or deterioration of physical capacity.*

Keywords: *physical development, students, dynamometry, vital capacity*

JEL Codes: I11

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FREE TIME FITNESS - MOTIVATION FOR FEEDING AND USE OF FOOD ADDITIVES AND ANABOLIC STEROIDS

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Abstract: *The aim of the study was to explore the motivation for leisure activities and the use of nutritional supplements and anabolic steroids. An exploratory survey was conducted as an express method for assessing the motivation of gym attendants for exercising and taking supplements and anabolic steroids. It has been found that the number of up to 40 years old people training in the gym predominates. After that age, the percentage of gym attendants drops significantly. A large percentage of trainees do not realize the benefits of physical exercise and visit the gym just because of others or because it is fashionable. The majority of respondents visit the gym more than four times a week, and their activities last up to two hours. The main goal for most men is to increase muscle mass,while for the women - to lose weight. A very large proportion of the respondents use dietary supplements, obtaining information predominantly from a fitness instructor. More than half of the respondents have taken anabolic steroids by receiving information about them primarily from the Internet. Based on the results obtained, the following recommendations are offered: continuous improvement of the knowledge of professional fitness instructors on the composition, use and impact on human of various nutritional supplements and training programs; explaining by professional fitness instructors to those who want to take anabolic steroids the risks of potential damage to their health.*

Keywords: *fitness gyms, health, recovery*

JEL Codes: I11

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THE PREGNANT WOMAN AS A SUBJECT OF THE DIDACTIC CONCEPT

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Abstract: *Didactics as a science of teaching and education has an integrative character, formed by the development of the society and responding to the necessity for acquiring knowledge, skills, lifestyle habits and happiness. Education is a dynamic occurrence as a pedagocial and social phenomenon, strongly connected to the socio-historical development of the specific needs of a certain society, associated with essential industries as Economics, Politics, Healthcare, etc. The issue of the connection between education and development is one of the basics of the pedagogical concept, not only providing for "building competence, skills and habits" resources,but also contributing for a wholesome personal, social, spiritual and cultural, health enrichment and development.*

Theclassical binary activity of education - "teacher-student", which are functionally connected in anunity, is accepted as a distinctive characteristic of the pedagogical interaction.

In higher medical school, both the person that teaches (*professor*) *and the one thatis taught* (*student*) *can be looked upon as subjects of education, together with the patient, serving as a specific* (*third*) *subject.*

Pregnancy is a normal physiological state of the woman and, on the basis of this understanding, she is considered a person that is actively, voluntarily and consciously participating in the process of didactic interaction, positively motivated for acquiring knowledge, skills, and habits, essential to pregnancy, birth and raising the future generation. As a subject of the pedagogical process, the pregnant woman is looked upon as a subject that has characteristics providing for the potential of making independent decisions and having self-control and self-assessment.

The pregnant woman as a part of the health-pedagogical process will influence the health status of the population and the prosperity of the society as a whole.

An original researchis presented, conducted within a group of pregnant women in the area of Ruse town, aiming to identify the necessity of the pregnant woman for receiving teaching and education during the prenatal period – competences and skills for pregnancy, birth and caring for the newborn.

The analysis of the sociological research shows that women need to have established varied forms of education, intended for the period of pregnancy and also manifests their preferences for means and methods for education, necessity for health-pedagogocal knowledge service providers.

A conclusion is drawn that health education is a fundament of positive reproduction and a good health status of the country's population.

The author shares the view that the key place of the future mother as a subject of the didactic concept is historically and socially justified – health education is a declared priority of WHO and the health policies of the EU.

Keywords: *didactics, pregnant woman, education necessity, good health*

JEL Codes: *I 12, I 21*

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KINESITHERAPY DURING PREGNANCY

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Abstract: *Pregnancy is a process that sets new, higher demands on the body of a woman by changing the activity of many important organs and systems. The development of the fetus requires changes in the maternal organism to occur in a short time, which affects the physical and nerve-psychological state of the woman.The female reproductive system provides for the perfect fertilization, development, wear and successful birth of a baby.Pregnancy, in turn, is a process that puts higher demands on the body of a woman while changing a number of vital systems and organs. It is of utmost importance throughout the pregnancy that the woman feels good, without tension, without pain and unpleasant sensation, and prepares for a light birth and quick recovery.Birth is definitely a serious exercise and it is therefore extremely important to maintain good shape during pregnancy. Physical activity and appropriate exercises contribute to lighter birth, faster recovery and return of pre-pregnancy form.*

Keywords:*pregnancy, kinesitherapy, midwives, exercises, gymnastics, physiotherapy*

JEL Codes: *I11*

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THE BASIC HYGIENIC HEALTH CARE AS A FACTOR FOR THE RISE OF INFECTIONS DUE TO MEDICAL SERVICE (IDMS)

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Abstract: *The professional activities of the clinical nurse are an important risk factor for the rise of infections due to medical service* (*IDMS*), *since a great part of them are due to direct contact with the patients – research of somatic indexes, anthropometric measuring, activities covering full and partial body hygiene, bathing, bandages, injections and many other manipulations. The basic hygienic care is part of the risky activities for the rise of infections, if it does not correspond to the standards of quality and safety. The analysis of the state of clinical hygienic care for patients, dependent from compensatory care here in Bulgaria, implores serious challenge for their optimization via changing the existing material and technical means and methods for manipulations, as well as regulating those manipulations. The introduced alternative methods of hygiene for the severely ill in European hospitals, waterless bathing or dry bathing, significantly reduce the risk of infections, saves time, make the activity more attractive and increase the patients' safety, comfort and satisfaction.*

Keywords: *Infections due to medical service, Nurse, Waterless bathing, Dry bathing, Patients, Dependent from compensatory care.*

JEL Codes:*I1,I18*

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ALTERNATIVE METHODS AND MEANS FOR THE REALIZATION OF QUALITY AND SAFE COMPENSATORY HYGIENIC CARE

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Abstract: *For the last 25 years in Bulgaria we observe development in medical science, and also a significant falling behind from some fields of health care, more specifically in giving hygienic care to patients who need compensatory hygienic care. A change in the methods and means of applying it, is needed. In the European hospitals and the US, the method of waterless bathing or dry bathing is successfully applied, and it consists of using sponges, gloves, towels and disposable hats. The goal of the current scientific statement, is to show a summarized introduction of researches that prove the effectiveness and advantages of the method, as well as the products required for its application.*

Keywords: *hygiene of severely ill people, traditional hygienic care, alternative hygienic care, means of realization of waterless bathing, dry bathing*

JEL Codes: *I1, I18*

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CURRENT STATE OF THE HYGIENE HEALTH CARE IN THE CONTEXT OF QUALITY AND PATIENTS' SAFETY

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Abstract: *An analysis of the current state of the hygiene health care in the University hospital "Kanev" in Ruse, is performed in the current scientific statement, which is in the context of the contemporary methods and standards for accomplishing them. The motivation and mindsets of the nurses for applying the methods in four clinical directions, are being analyzed: in surgical, therapeutic, wards of vascular neurology, and intensive care. The nurses express their attitude for changing the methods and means of applying hygiene care. The absence of engagement, identified in a great part of the enquired nurses concerning the hygiene care, has to do with the current problems in health care: a lack of sufficient nurse personnel, and a great number of patients completely dependent of compensatory care. The introduction of the method "waterless bathing"/dry bathing is perceived as possible, but the hospital administration, have no intention to invest money for improving the health care state. Waterless bathing is a widely used and time-tested method for hygiene care worldwide, and is preferred by the nurses. Its effectiveness for reducing infections of medical service, is proven.*

Keywords: *hygiene of the severely ill, traditional hygiene care, quality of hygiene care, waterless bathing method, dry bathing*

JEL Codes:*I1, I18*

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TRAINING OF RELATIVES AND ATTENDANTS OF HEMODIALYSIS PATIENTS

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Abstract: *Kidney failure is one of the leading chronic diseases that cause disability or a lasting and significant decrease in quality of life. Hemodialysis is a method of treatment that is life-saving in irreversibly failing renal function. In order to maintain a good overall quality of life for hemodialysis patients it is necessary to carry out joint activities with them, their relatives and the nurses. The training of patients on hemodialysis and their relatives and companions should be a continuous process. Rarely common is organized training in the form of courses of relatives of sick people with chronic diseases. Exploring escorts with hemodialysis regimen and lifestyle contributes to helping patients change their daily lives in accordance with conducting dialysis procedures, adherence to the necessary diet in order to preserve their overall quality of life. The main motivation in conducting the training is that the attendants acquire the necessary knowledge about life with chronic kidney disease and hemodialysis treatment, to be able to respond adequately to the needs of their relatives. The training of the attendants of hemodialysis patients gives calmness and confidence that they have the necessary skills to care for their relatives. The availability of knowledge leads to overcoming the fear of uncertainty and uncertainty about the future.*

Keywords: *training, relatives and attendants, hemodialysis patients*

JEL Codes: *I11*

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CHRONOLOGY OF MEDICAL SYMBOLS AND EMERGENCY HELP

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Abstract: *Different characters and signs have been accompanying humanity since the beginning of his story. Each of the medical symbols has its unique origin and meaning. Historical information on emergency medical aid dates back to ancient times. In every tribal community, there have always been healers in every part of the world who have provided the necessary emergency assistance. The contribution of ancient Greek medical schools to the handling of emergency situations is evidenced by many texts, including the papers of the Father of medicine - Hippocrates(460-377 BC), as well as graphic and embossed images. Emergency assistance is inextricably linked to the use of appropriate vehicles that have been constantly refining over the years in various directions: propulsion, design, equipment. The earliest document of the existence of an emergency transport system is from the late 18th century, known as "Flying Ambulance". It was for transportation of victims during the Napoleonic wars. An important place in emergency relief is the organization formed by women during the Crimean War. Sanitary trains for wounded and sick transport help triage and emergency relief during the Civil War in the United States, the Russian-Turkish war and the First World War.*

Keywords: *emergency aid, "flying ambulance", medical symbols, sanitary trains*

JEL Codes: I1-I19

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THE PLACE OF WOMEN'S COUNSELING IN THE PRESENT

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Abstract: *In today's society, it is increasingly clear that health professionals are poorly prepared to act independently during a female counseling or so-called. female patronage. On the other hand, the patient is dissatisfied with the fact that he is not effectively and competently served in this direction. Modern societal development, as well as the achievements of medical science* (*especially in the field of early prenatal resuscitation and care, molecular research, stem cell, in vitro and in situ fertilization, transplantation*) *challenge the medical community to resolve preventive and prophylactic dilemmas, in compliance with mandatory legal and moral-ethical regulations.*

Keywords: *women's counseling, obstetrics, pregnancy, prevention and prevention of pregnancy*

JEL Codes:*J19, I12*

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STRATEGIES FOR IMPLEMENTING LONG-TERM CARE OF MENTAL HEALTH IN THE COMMUNITY

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Abstract: *Long-term care is defined differently in EU Member States. It reflects the differences in the duration of care, the covered users of services, and the often difficult to define boundary between the offered medical* (*health*) *and non-medical* (*social*) *services. At present, there is noseparate definition of long-term care and long-term care services in the Bulgarian legislation or an official classification of the person sentitled to them.*

At the present level of development of psychiatry, in the context of deinstitutionalization of mental health services and increased opportunities for control of the symptoms of mental disorders, the problem of socialization of patients becomes more and more relevant. The Assertive community treatment approach is one of the most widely studied approaches in psychiatric rehabilitation.

Keywords: *long-term care strategies, mental health in the community.*

JEL Codes: *I11*

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ELOQUENCE AND ARGUMENTATION

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Abstract: *The eloquence is an oratory talent. It is the ability of expression that is convincing and beautiful by using linguistic means in order to succeed in convincing the addressed person. The Rhetoric as a practically applied science explores the laws, the regularities, the principles and the methods of the oratory art. An immediate goal of the rhetorical approaches is to achieve a harmonic and correct speech which will convince, excite and engage the listener. The juridical argumentation is an intellectual, logical activity. It differentiates significantly from the rhetoric and the oratory art by its subject, the purpose and the mechanisms. The juridical argumentation is a process of forming of factual and legal conclusions by a public authority with law enforcing competence. The main place in the process of argumentation is taken by the statement as a logical means.*

The purposes of the present report are three: To point out the distinctive characteristics of the juridical argumentation and to outline its place in the process of law enforcement by the competent authorities; Do differentiate the juridical argumentation from other similar concepts; To analyze the statement as a logical means in the process of legal argumentation.

Keywords: *Argumentation,Rhetoric, Statement, Validity, Logic*
JEL Codes:

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PROTECTION OF PERSONS WITH NON-CHEMICAL DEPENDANCES

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Abstract: *The protection of persons with non-chemical dependences is a new problem for Bulgarian legislation due to the fact that these problems have arisen over the last decade. Behavioral bias is psychological, non-chemical dependence, attachment to a particular action to which a person attributes an overvaluing value, ultimately defining all human behavior. This bias has various forms - workaholism, gambling, computer dependencies. The elaboration of adequate legal mechanisms to support persons with non-chemical dependencies will contribute settlement of the problem.*

Keywords: *non-chemical dependences, behavioral bias, protection of rights*
JEL codes*: K14*

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FRI-2B.313-1-L-03

RELIGION, CULTURE AND LAW AS INCLUSIVE CONDITIONS AND CRITERIA FOR BELONGING TO THE EUROPEAN CIVILIZATION AND THE EUROPEAN UNION

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Abstract: *The history of a national state is not understandable, taken on its own and unrelated to the other. Groups of related communities, known as civilizations, are the distinct spheres of learning. Civilization is the broadest cultural community. It is a characteristic of every civilization to protect and preserve its identity. At the core of each civilization there are characteristics that define it as such, and accordingly distinguish it from others. These are - religion; as a consequence of the way the state-religion relations are regulated; the heritage* (*considered as historical and / or cultural*)*; the role of law in public life* (*sources, principles*).

Religion is a major determinant of civilizations, and great religions are the foundations of great civilizations. Christianity has created the principle of moral unity and has given peoples in Europe spiritual values, moral standards, and the concept of divine law from which all human laws are derived in sanction and validity.

The peoples, divided by ideologies but connected with a common culture, converge. Societies united on an ideological basis or with historical circumstances, but divided on a civilization basis, either disintegrate or have to overcome a tremendous internal tension

Culturally related countries cooperate economically and politically. International organizations based on culturally similar countries are developing much more successfully than organizations that aspire to overcome cultures. Culture in different countries has its own specificity and distinctive features, however the sharing of common cultural values, thus creating a common cultural characteristic of a particular community. The idea of a united Europe must reflect both the common and the private. To be able to combine universal and peculiar.

Keywords: *Civilization, community, religion, culture, belonging, Europe, European Union*

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ROMAN IDEAS FOR THE MODERN CONCEPT OF LEGAL DISCIPLINARY LIABILITY

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Abstract: *The term Roman law nowadays often refers to more than the laws of Roman society. The legal institutions evolved by the Romans had influence on the laws of other peoples in times long after the disappearance of the Roman Empire and in countries that were never subject to Roman rule. In Roman times, there was a division of "the state" on the one hand and "the people" on the other. The modern term legal disciplinary liability is related to the system of legal relationships arising in the case of a violation of the law where the infringer is a public body or its representative*

Keywords: *legal disciplinary liability*
JEL Codes: *K340, K330*

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FROM THE BABYLON TOWER TO HOMO CIBERNETICUS / SHORT SOCIO-THEOLOGICAL ANALYSIS OF TRANSHUMANISM

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Abstract:*In this short research, the parallel development of ideology and scientific theories is followed. In this context, genetic engineering is the tip of the iceberg of a socio-cultural process in which the technology is articulated at the surface of the public forum, but the basis is the process of dominating evolutionism and eugenics ideas later developed further into the ideas of transhumanism as a complete ideology that evolution should continue but be directed and controlled by man through different types of technology, and genetic engineering.*
Keywords: *transhumanism, evolutionism, genetic engineering,*

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HISTORICAL APPROACH TO ADMINISTRATIVE LAW

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Abstract: *The paper aims at defining historical method as an approach in administrative law science, and to apply it to some central institutions of that branch. The author defends the idea that research on state government and administration need to depict the form of the state and the structure of the public administration at the same time. On that basis, conclusions may be drawn that administrative law and some of its institutions are rather old and have been developed together with the stage of development of the polity and society of a state.*

Keywords: *Administrative law, history, legal methodology, public administration*

JEL Codes: *Y20, K39*

FRI-2B.313-1-L-07

RESIGNATION AS A REASON FOR THE EXPIRATION OF THE PREROGATIVES OF A NATIONAL REPRESENTATIVE

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Abstract: *The topic of the paper is one of the constitutional reasons for the expiration of the prerogatives of a member of the National Assembly of the Republic of Bulgaria which is resignation presented before the Assembly. The author analyzes the current constitutional regulation as well as the relevant case-law of the Constitutional court. A comparison is made with the constitutional provisions and cases concerning the resignation of other public officials and some suggestions are made for the improvement of the legal regulation of the matter.*

Keywords: *Resignation, National Assembly, National representative, term of office, Constitution, prerogatives, expiration*

JEL Codes: *D 72, D 73, K16*

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FRI-2B.313-1-L-08

DOUBLE TAXATION AND DOUBLE-NON-TAXATION. AVOIDANCE MEASURES

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Abstract: *This paper focuses on issues that have insufficient consideration in our jurisprudence. It presents the concepts of Double Taxation and Double-Non-Taxation, circumstances giving rise to them and respectively - unilateral, bilateral and multilateral measures of avoidance. The development of different types of agreements on tax matters, their various elements and related problems are also considered. The debate „substance versus form principle" and the prevalence of economic or social reality over the literal wording of tax provisions are outlined.*

Keywords: *double taxation, base erosion, profit shifting, administrative cooperation, agreements*

FRI-2B.313-1-L-09

INCOME FROM THE ACTIVITY OF PROSTITUTION IS NOT ILLEGAL IT MUST BE SUBJECTED TO TAXATION AND THEREFORE MERITFUL OF TAX PROTECTION

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Abstract: *In the current legal scenario, income from prostitution must be worthy of attention and protection by the fiscal system, as tax legislation, by taxing everything that is lawful, cannot treat such income in the same way as the income coming from criminal activity* (*theft, robberies, drugs, etc.*.).

Those who claim that the income from prostitution cannot be taxed because it is not cited in the tax law does not do it justice as it is not an autonomous system in respect to the other branches of law, therefore it is not the only source of regulation of tax companies. Moreover, the legislator, who for revenue needs, for extra fiscal purposes, for the evolution of the tax system, or even through a procedure traced by the case law, subjects a situation to taxation, believes that it must be worthy of protection by the tax system.

Without dwelling on the interweaving between the history of tax and the history of humanity, it is important to highlight how the evolution of the tax system reflects the profound changes in socio-economic structures as well as institutional political ones, also affected by interest, sensitivity, hopes and economic and financial conditioning.

From the reading of the Consolidated Law on Income Taxes, a unitary definition of income is not obtained, however, the forecast of different income categories is shown, whose common denominator is represented by the origin, or from a productive source, thus referring to other branches of law the specificity and regulation of the same. From this it emerges that the activity of prostitution, which in itself lacks profiles of unlawfulness (*unlike the activity of aiding or exploiting it*), *must be recognized as a nature of income, since the civil law recognizes partial protection for the activity of prostitution, including sexual performance for payment in the category of natural obligation, which, if it does not allow right to action, gives the person who carried out the activity of prostitution the right to legitimately consider the sums received in payment of the service.*

The activity of prostitution has been repeatedly examined by the tax jurisprudence of merit and legitimacy, with diametrically opposed rulings. But it is with sentence n. 22413 of 2016 that the Supreme Court puts an end to the differences in the case law, framing the income from prostitution in the category of different incomes regardless of

the fact that the activity is carried out occasionally or habitually, noting the condition of habitability, only for the purpose of 'subjecting the proceeds of the activity of prostitution also for VAT purposes.

It would be appropriate for the legislator to intervene on the matter, given that the prostitution market produces a turnover estimated at around 4 billion a year.

Keywords: *Prostitution, Illegal Activity, Prostitution Tax*

JEL Codes: *ius 12*

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MERIT JURISPRUDENCE

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LEGAL TREATMENT OF INHERITANCE TAX

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Abstract: *The paper reviews the legal treatment of inheritance tax according to the Bulgarian tax law and inheritance tax in other European Union member states. The main focus is on the similarities and differences between the inheritance tax treatment and the way of taxation in Bulgaria and in some EU member states. According to the Bulgarian tax law the inheritance tax is a constitutionally established legal fact* (*art. 17, par.1 of the Constitution of Republic of Bulgaria.*). *It is a local and direct tax and according to Art. 29, par. 1 from the Local Taxes and Fees Act, inheritance tax is levied on the estate of any Bulgarian citizen succeeding located within Bulgaria or abroad property, as well as on the estate located within Bulgaria succeeded by foreign citizens. In most EU member states the inheritance tax and donation tax are direct taxes and are collected from property that is transferred to another person's property. The both taxes are considered separately except some countries where there is one general tax.*

Keywords: *legal treatment, inheritance tax, way of taxation, EU, similarities, differences*
JEL Codes: *K340, K330*

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FRI-2B.313-1-L-11

TAX INCENTIVES FOR VIDEO GAMES DEVELOPMENT. COMPATIBILITY WITH EU LAW

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Abstract: *This article investigates the legal framework that is applied when tax credit is implemented as a financial mechanism for supporting developers and publishers of video games with cultural content. The article also examines the compatibility of this type of financial support with the EU law, mainly with the EU Treaty rules on state aid, and provides an overview of the two investigations undertaken by the European Commission, regarding the notifications made by France and the United Kingdom on tax credit granting for video games creation.*

Keywords: *State aid, tax incentives, tax credit, tax relief, financial support, video games development, cultural content.*

JEL Codes: *Y20, K39*

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FRI-2B.313-1-L-12

PROFESSIONS IN HEALTH CARE SYSTEM – BASIC TERMS AND CRITICAL REVIEW

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Abstract: *The Healt act defines which the medical professions are. The medical profession shall be practiced by persons who hold a diploma for completed higher education in specialities from the occupational sections of Medicine, Dentistry, Pharmacology and Health care. In the field of health care also work specialists from the professional field Public health. Different degree requirements are introduced for particular majors - bachelor, master, etc. Some professions in healthcare are regulated professions. This means that access and exercise are subject to possession of a specific professional qualification. For certain professions in healthcare, the law introduces compulsory membership in a professional organization.*

Keywords: *Medical profession, health care, regulated profession, professional organisation*
JEL Codes: *I20, I18, K31*

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LEGAL-SOCIOLOGICAL PARAMETERS OF NATIONAL ANTI-DISCRIMINATION LEGISLATION RELATED TO THE CHARACTERISTICS "AGE" AND "DISABILITY"

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Abstract: *The problems of discrimination and the establishment of anti-discrimination legislation occupy a special place in the policy of the Republic of Bulgaria as a member of the EU. Significant is the fact that a vast part of the normative acts adopted within the Union aim to ensure a fair and equal treatment of certain features. From the legal and sociological point of view, it is important to form anti-discriminatory justice in the context of the ever-globalizing modern world and to expand the possibilities for multicultural communication and development by preserving the value of traditions and specifics of each community.*

Keywords*:anti-discrimination legislation, discrimination, the legal and sociological point*
JEL codes*: K32*

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FRI-2B.313-1-L-14

THE MOVABLE AND IMMOVABLE PROPERTY AND THE RIGHT OF SOCIAL ASSISTANCE IN THE CONTEXT OF THE SOCIAL ASSISTANCE ACT

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Abstract: *The right to receive social assistance shall be granted to Bulgarian citizens, families and cohabitants whom, due to their health, age, social or other reasons beyond their control, cannot themselves meet their basic vital needs through labor or through income realized from property owned or with the help of the responsible persons to provide them with aid according to art. 140 Family code. The report analyses the right to receive social assistance in the context of their ownership of movable and immovable property.*

Keywords: *social aid, movable and immovable property; social assistance*.

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FRI-2B.313-1-L-15

STATUS AND POSITION OF BULGARIAN NATIONAL AUDIT OFFICE AMONG THE BODIES OF STATE GOVERNANCE

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Abstract: *Constitutional and ordinary legislative provisions on the status of the National Audit Office of Republic of Bulgaria is rather brief. This makes necessary to get into more details and deeply analyzing its role and position among the other bodies of state governance. The paper is concentrated on different types of audit institutions around Europe and the rest of the world, and compare them to the model and structure of Bulgarian National Audit Office. Research is oriented on national legislation concerning the functions and competence of state authorities within the three state powers and the links of interaction between them and the national audit institution. The structure of management of the National Audit Office is under analyze regarding its current model* (*the 'Auditor General' model*), *and the independence of audit institutions principle as laid down in international audit standards by the Professional Standards Committee of the International Organization of Supreme Audit Institutions* (*INTOSAI*). *Conclusions and results of this research may be used as basis for further analysis of problems and challenges the audit institutions face as regards conduct of its competent activities and guarantees for its independence.*

Keywords: Bulgarian National Audit Office, Links of interaction, Status, Legislation, Structure of management, INTOSAI

JEL Codes: *L10, L11*

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ABOUT MEASURE OF LAW

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Abstract: *The measure of law in one way or another is part of legal evolution. The measure is an intrinsic feature of law. Prior to regulation law distributes, sets the measure of the goods. Therefore, through the measure of justice, it reflects the qualitative and qualitative dimension of law addressed to the subjects. Through the measure of law, it transposes fundamental legal thinking to a qualitative-quantitative point of view.*

Keywords: *measure of law, regulation, dimension of law.*

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PROTECTION AND CARE FOR REFUGEE CHILDREN IN THE REPUBLIC OF BULGARIA

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Abstract: *This report aims to investigate the existing legal framework and practice on acceptance and social protection of unaccompanied minors seeking and receiving international protection in the Republic of Bulgaria, identifying existing problems and difficulties, offering analysis and recommendations for improving the effectiveness of the system of protection and care of the target group. The report examines and analyzes the situation of unaccompanied minors who have sought protection in Bulgaria so far. Data has been gathered on the care they receive both during and after the granting of international protection, or after receiving status refusals. Various aspects of the overall package of care in the context of international protection are being tracked as: access to territory, registration, initial reception, legal and social protection, housing; access to education; access to healthcare; appointment of guardians and guardians, family reunification and integration of unaccompanied children. A guiding principle within the entire study is the best interest of the child.*

Keywords: *protection, integration, refugee children, vulnerable groups.*

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FRI-2B.311-1-L-01

ANALYSIS AND COMMENT OF PARAGRAPH 2 OF INTERPRETATIVE DECISION № 8/2012 OF SUPREME COURT IN A RELATION TO THE SUBJECTIVE PROPERTY RIGHTS DEFENSE

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Abstract: *The Bulgarian legal system regulates the legal protection of property rights via petitor protection, concerning a category of claims, each of which is characterized by certain protection frameworks depending on whether the right is being challenged or it is already impaired. The purpose of this article, based on the analysis of the property rights defense, is to make a brief comment on paragraph 2 of Interpretative Decision No. 8/2012 of the Supreme Court, according to which "the plaintiff can challenge a property right action even when there stands the opportunity to challenge a convictive action for property. " The Supreme Court's position raises a number of issues that will be the subject of this study.*

Keywords: *property rights defense, claim, affection, legal interest*

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COMPARISON BETWEEN THE INHERITANCE AND THE OTHER MEANS FOR SUBSTITUTION OF THE DEBTOR

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Abstract: *The article examines the similarities and the differences between the inheritance of the debt ant the other means for substitution of the debtor. The thesis of the author is that only the inheritance is a means for substitution of the debtor mortis causa unlike the all other means, which are inter vivos. The universal succession appeared only in the inheritance; the other means have a private succession as a consequence. There are a few similarities between the inheritance and some of the other means, for example that the debt transfers to the successor in unchanged status.*

Keywords: *inheritance of the debt; substitution in debt; purchase of inheritance; debt transfer*

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SPECIFICS OF THE PROCEDURE OF STABILIZATION

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Abstract: *In the report are researched the specifics of the procedure of stabilization as a judicial, separate, voluntary and two-phase procedure, with domination of ex officio principle and of principle of speed. The procedure of stabilization is described as a priority security procedure, which is different from the classical security procedure, settled in Civil Procedure Code. The specifics of the procedure of stabilization are researched connected with the Recommendation of the European Commission about new approach towards the insolvency from 2014 and The Proposal for Direct of European Parliament and of the European Council about frames for preventively restructuring from 2016.*

Keywords: *procedure of stabilization; stabilization plan; rescue plan; out-of-court settlement; creditors; insolvency*

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LEGAL NATURE ON THE PLAN FOR STABILIZATION

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Abstract: *The legal nature of the stabilization plan as a specific contract is reviewed in the report in opposition to other points of view stated in the doctrine. The explanation of the stated legal nature is accomplished by juxtaposing*

the stabilization plan to the protective formal agreement /concordat/ in force in the past, the agreement /contractual and judicial/ and the recovery plan and amicable settlement executed in insolvency public legal proceedings

Keywords: *stabilization production, stabilization plan, trade, creditor, rehabilitation plan, agreement, outlawed.*

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THE AGREEMENT RESULTING FROM MEDIATION ON INDIVIDUAL LABOR DISPUTES

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Abstract: *The paper reviews the concept of labor disputes, individual labor disputes and non-legal labor disputes as all of them could be subject to mediation. The analysis focuses on the legal force of the mediation settlement adreement and the possibilities whereby it is not legally binding in some cases, as well. Also examines the opportunities of the enforceability of a written legally binding agreement resulting from mediation.*

Keywords: *Mediation Settlement Adreement, Individual Labor Disputes, Non-legal Labor Disputes, Enforcement.*

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THE APPLICATION OF MEDIATION ON COLLECTIVE LABOR DISPUTES

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Abstract: *The paper reviews legal and non-legal collective labor disputes and the diffrerent oppinions in the Bulgarian legal theory considering the use of mediation. According to some authers mediation is applicable for the individual labor disputes only. Other authors assume that mediation is admissible for collective labor disputes, as well. The research argues that the application of mediation on collective labor disputes is not excluded either by the Settlement of Collective Labour Disputes Act or by the Mediation Act.*

Keywords: *Mediation Settlement Adreement, Collective Labor Disputes, Disputes Settlement.*

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UNFAIR COMMERCIAL PRACTICES IN DISTANCE CONTRACTS UNDER THE CONSUMER PROTECTION ACT

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Abstract: *Distance contracts quickly spread in the civil market and more consumers are using modern communication tools such as e-mail, Internet, fax, telephone to conclude contracts. It is even possible to conclude a distant contract trough conduct, but under the condition that it is confirmed in writing. However, complaints against unfair commercial practices also increase in number. In order to attract new customers and increase sales, traders use unscrupulous methods that are detrimental to consumers. This report addresses unfair commercial practices that are used in distance contracts under the Consumer Protection Act as well as the legal means to protect consumers' rights when such practices are applied.*

Keywords: *contracts, distance, consumers, protection, unfair, practices*

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INSOLVENCY PROCEEDINGS OF MEMBERS OF A GROUP OF COMPANIES

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Abstract: *Since the enactment of Regulation 1346/2000 one of the most controversial topics has been the cross-border insolvency proceedings of members of a group of companies. With the new Regulation 2015/848 the European legislator has introduced explicit rules regarding such proceedings. The aim of this article is to analyse these new rules. More specificly – how such proceedings can be initiated, what is the role of the courts of the Member States and the insolvency practitioners and what are the tasks of the coordinator. In addition, a general evaluation of the new rules and whether they contribute to the effectiveness of the proceedings, will be given.*

Keywords: *Regulation 2015/848, cross-border insolvency, group of companies, coordinator*
JEL Codes: *L10, L11*

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ESSENCE OF THE CONCEPT OF NATIONALSECURITY

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Abstract: *Scientific approach of any phenomenonrequires first of all its conceptual apparatus. To study a phenomenon means forit to be expressed in the concepts' logic. This requirement for methodologicalself-discipline is applied to concepts like "national security" and "nationalsecurity strategy".It's set in the strategy of national security an officially accepted system of strategic priorities, goals and measures in both domestic and foreign policy, which defines the stateof national security and sustainable development of the country in long-term plan.*

Keywords: *national security, strategy, foreign policy, domestic policy*

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THE PERSONAL SECURITY SURVEY

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Abstract: *The manager may delegate activities and functions, but responsibility can not be delegated. One of the most important functions of security structures is to assist the manager in creating and maintaining security. The Personal Security Survey* (*IPS*) *is one of the methods used to achieve this warranty. The survey refers to persons occupying sensitive positions and employees of the respective structure, or to persons who will be assigned to positions that require access to classified/sensitive information or materials. When these procedures are legally binding, this activity must be regulated as a type of operative activity.*

Keywords: *Operational inquiry activity, Operative activity Security, Reliability, Investigation, Personnel Management, Classified Information, Sensitive Information, Management.*

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CAN MEDIATION BE AN ALTERNATIVE TO THE PUNISHMENT OF IMPRISONMENT

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Abstract: *The analised question is part of the problem of searching and finding alternatives to the punishment of imprisonment in Bulgaria. The publication examines in critical aspect the not uncommon cases in which mediation is cited as an alternative to imprisonment. The concepts of punishment and mediation are briefly explained, and a comparison between them is drawn. The paper analyses the steps taken in recent years in Bulgaria to implement mediation. Under analisys is also the proposed for public discussion draft law for the application of mediation in criminal cases and based on this analysis several propositions are made for the improvement of the draft law.*

Keywords: *mediation, penalty, criminal liability, imprisonment, criminal policy*

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INTERROGATION AS A METHOD FOR GATHERING NON-MATERIAL EVIDENCE OF A CRIME

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Abstract: *The present exposition aims to present and explain the substance and role of interrogation as a means of proving in the criminal process, with an emphasis on criminally significant aspects of this "verbal" method of gathering evidence. The specificities of the planning, preparation and tactics of investigative action, as well as the individual characteristics which the investigative bodies should have in view of achieving the optimal results of the interrogation, have been considered.*

Keywords: *interrogation, witness, criminal proceedings , methodology, crime*

JEL Codes: *...*

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ANONIMOUS SIGNALS AS A COUNTER-CORRUPTION MEASURE AT THE MINISTRY OF INTERIOR

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Abstract: *Recently, corruption is a very modern subject. The Ministry of Interior is the main unit in the investigation of corruption acts, including those carried out by system employees. One of the methods of counteracting corruption, which it handles, is the receipt and processing of anonymous signals on the specially created telephone line, as well as at a designated Internet address. The analysis of the results shows that although the high level of activity of the users and the large number of signals received over the years, the percentage of the confirmed ones, which led to disciplinary sanctions or criminal proceedings against the established perpetrators, is significantly low. In this regard, it is necessary to make appropriate changes to the existing regulation for dealing with alerts, in so far as it concerns the initial processing, evaluation and sending thereof, in cases where the senders have wished to keep the identity confidential.*

Keywords: *Corruption, telephone line, signals of corruption, counteraction to corruption, disciplinary sanctions, criminal proceedings.*

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MODERN TECHNOLOGIES FOR IMPROVING THE LEVEL OF SECURITY OF THE ELDERLY PEOPLE

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Abstract: *This article explores various solutions in the field of modern technologies for improving and guaranteeing the level of security of the elderly people, which are applied in the country and globally. Special attention is paid to lonely residents and particularly to those living in remote and small settlements. The topic has been selected in view of the growing share of the aging population in the country and the necessity to search for effective solutions for preventing, intercepting and deterring violent crime actions against elderly and potentially endangered people. The aim is to explore the need, the possibility and the readiness for applying modern technologies in the life of the viewed category of people. The results of an experimental sociological study on the subject are being exhibited and commented. Various possible solutions and applications of panic buttons and mobile applications in the everyday life of the so - called "Third age people" are offered, based on a statistical analysis of the criminogenic situation in the country and the international experience in this field. A forecast has been made on the use of the suggested solutions in the country in the medium term.*

Keywords: *Elderly, Security, Prevention, Technology, Criminal offenses, Mobile applications, Panic buttons.*

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PUNISHMENTS IMPOSED FOR HOOLIGANISM IN THE REPUBLIC OF BULGARIA

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Abstract: *The present work is an ambitious task to investigate the punishments imposed for hooliganism in Bulgaria. The study, however, is not limited to the punishments imposed for a hooligan crime, but also traces and analyses the punishments to be imposed on the per petrators of administrative offenses and anti-social acts that have committed hooliganism in accordance with the Decree on the Combating of Small Hooliganism and the Law for Protection of Public order in conducting sports events.*

Keywords: *punishments, hooliganism, crime, administrative violation, anti-social act.*

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FRI-2B.308-1-L-08

TO THE QUESTION IS THE TRANSFORMATIVE NATURE OF THE RIGHT TO PERSONAL PROTECTION IN THE CRIMINAL PROCESS?

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Abstract: *The present report is a modest attempt to answer the question whether the right of personal protection as a complex criminal procedure law has a transformative nature? It is essential to give this answer because, on one hand, it complements, though not entirely, an existing gap in the penal procedural doctrine and, on the other hand, the referencing of the right of personal protection according to the need of undertaking a counterpart behavior for its transposition into legal reality makes the perception of the personal protection of accusations of committing a crime from the point of view of its origin, volume and exercise in criminal proceedings comprehensible and complete. To this end, using the comparative method of scientific dissemination, and by prudently handling the general theories of law and civil law in the area of subjective rights, the report examines whether the right to personal protection has the basic constitutive features of the transforming subjective rights.*

Keywords: *Criminal process, right of personal defence, accused, defendant, transformative right, civil law.*
JEL Codes: *K410, K420*

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PHYSIOLOGICAL AFFECT- MEDICAL, LEGAL AND APPLIED ASPECTS

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Abstract: *The paper reviews the affect as a psychological and legal category, focusing on the different treatments of the concept in medical and legal aspects. The emotional state of the person is not a legal concept, but it becomes key relevance in the qualification of the crimes under Art. 118 of the Criminal Code of Republic of Bulgaria. At the same time, the physiological affect is externally visible state due to physical and mental changes in the behavior of the person and is a subject of proof. The burden of the physiological affect is irrelevant to the qualification of the act under Art. 118 et seq. of Criminal Code of Republic of Bulgaria.*

Keywords: *Physiological affect, crime, physical and mental changes*

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A COMPARATIVE ANALYSIS OF CRIMINAL OFFENSES AGAINST TAX SYSTEM

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Abstract: *Crimes against tax system have long been of an international nature and the criminal compositions could be found in the criminal legislations of a large number of countries. The outbreak of these offenses is important in order to identify the object of the harmful conduct, and according to the social relations concerned, the individual countries build up their criminal defense. The present work aims to analyze the general moments in the tax offenses composition in different countries of Europe, Asia and America. In this way, optimal solutions can be found for Bulgaria based on good practices abroad.*

Keywords: *crime, tax system, taxes, offence, object of the crime, defence*

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FRI-2B.308-1-L-11

ABOUT THE OPERATIVE HEARING IN CRIMINAL PROCEEDINGS

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Abstract: *With the amendments to the Crininal Code from 2017 the institute of the "operative hearing" is introduced in criminal cases. The purpose of the amendments is to clarify the issues of material and defective violations of procedural rules that might violate the rights of the parties, as well as the assessment of the court panel, whether the case is to be scheduled at a court hearing or the court proceedings be discontinued and the case returned to the prosecutor for the removal of the violations found. This so-called "Ordinary session" represents the initial stage of the hearing before the first instance. The proper resolution of this issue at this stage of the case is extremely important because if the party does not respond to such objections at this meeting, the further objections in the further stages of the case are precluded..*

Keywords: *criminal proceedings, operative hearing.*

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FRI-K1-1-QHE-01

THE INTERNALIZATION IN THE NATIONAL QUALITY SYSTEM OF HIGHER EDUCATION

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Abstract: *The national higher education system is an element of the European and global area of higher education. The National Evaluation and Accreditation Agency* (*NEAA*) *is legitimised in the European Higher Education Area through membership of the European Quality Assurance in Higher Education* (*ENQA*) *and incorporation into the European Quality Assurance Register* (*EQAR*).

The internationalization of Bulgarian higher education is realized primarily through the accreditation model - through the implementation of the Standards of quality assurance in the European Higher Education Area (*ESG*).

The work specifies key approaches to internationalization in the context of higher education quality: policy awareness, innovation and good educational practices in the European and global higher education area; unity of: education - research - innovation; information coherence of education systems and documents; foreign language competencies; mobility of lecturers, students, administrators; joint educational programs; participation in university education and research networks; opening branches and delivering learning from Bulgarian universities abroad; developing the national publishing system with referenced and indexed editions; membership of authoritative scientific and professional organizations, participation in the development of international scientific projects; other activities.

Keywords: *Internationalization , Higher Education, Evaluation, Accreditation, Quality, Assurance, Register, Standard, Guideline, ENQA, EQAR, NEAA.*
JEL Codes: *I23*

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FRI-K1-1-QHE-02

THE ACADEMIC VALUES IN THE CHANGING WORLD (THE UNIVERSITY OF RUSE, BULGARIA AS A SIGNATORY OF MAGNA CHARTA UNIVERSITATUM)

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Abstract: *The paper presents the contribution of Magna Charta Universitatum as a leading document in the area of academic authonomy to the interpretation of academic values nowadays. The grounds for some changes in the dominating academic values within the frames of globalization are clarified as well as the attitudes towards these changes of the higher education institutions in Europe are presented. The mission and the guiding principles of the University of Ruse are interpreted on the basis of Magna Charta Universitatum.*

Keywords: *academic values, Magna Charta Universitatum.*
JEL Codes: *I23*

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FRI-K1-1-QHE-03

REGIONAL DIMENSIONS OF THE UNIVERSITY LEADERSHIP (THE CASE WITH THE UNIVERSITY OF RUSE, BULGARIA)

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Abstract: *The paper presents and analyzes the development and the varied contribution of the University of Ruse, Bulgaria to its regional innovation ecosystem. Four sub-paragraphs are outlined in the paper, divided according to four categories of regional impact: Regional orientation, strategic development and knowledge infrastructure; Education and human capital development; Research, technological development and knowledge transfer; Development of enterprises and entrepreneurship. The vision for the development of the university is defined in accordance with its regional significance and the change of the environment.*

Keywords: *Regional Innovation Ecosystem, Regional Impact, Regional Leadership.*
JEL Codes: *030*

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FRI-K1-1-QHE-04

INTEGRATION OF HIGHER AND SECONDARY EDUCATION IN BULGARIA

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Abstract: *The training of staff with a high level of knowledge, skills and competences and their application in different parts of Europe is one of the main policies of the European Union. This will help and meet the needs of the labor market. Looking through the prism of the educational system, this sets a number of objectives and tasks. Regardless of the economical, political and demographic environment in Bulgaria, the academic values and norms should prevail in the sphere of education. Integration between secondary and higher education is an indisputable prerequisite for achieving the goals set for Bulgarian education.*

Keywords: *Integration, Higher Education, Secondary Education, Training, Quality*
JEL Codes: *I20, I23*

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FRI-K1-1-QHE-05

THE UNIVERSITY QUALITY SYSTEM OF EDUCATION AND ITS FUNCTIONING IN THE BRANCHES OF RUSE UNIVERSITY

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Abstract: *The quality system of Rousse University and its functioning in its branches in Razgrad, Silistra and Vidin is presented. The organization, management and control of the quality education system is considered. In each of the branches there is and works a quality committee, and at the level of department there are quality managers. The branches have a representation in the Quality Council and the University Quality Commission of Education and Accreditation.*

A part of the quality system are the common university audits and surveys conducted in the branches. The quality system for managing and monitoring of the education process is successfully implemented.

Keywords: *Quality system, Audits, Surveys, System for managing and monitoring, Branches.*
JEL Codes: I23

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FRI-K1-1-QHE-06

LEARNING SYSTEM FOR EXPERTS FOR INTERNAL AND EXTERNAL EVALUATION OF THE QUALITY OF HIGHER EDUCATION

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Abstract: *The National System for Quality Assessment of Higher Education is implemented by the National Evaluation and Accreditation Agency* (*NEAA*). *Criteria based on Standards and Guidelines for Quality Assurance in the European Higher Education Area* (*ESG*).

The system of internal self-evaluation in the procedures for institutional and program accreditation and for project evaluation is realized by expert working groups of the higher schools. Their learning (*initial and periodic*) *creates prerequisites for objective self-assessment of the activities and systems of the higher school. The learning covers the following topics: planning and organizing procedures; forming the composition of the working groups; forming a learning team; pre-service learning* (*including audits, polls, an awareness campaign*). *The learning is based on an example program that is in line with the specifics of the higher school.*

Independent external evaluation of institutional and program accreditation procedures and ofthe procedures for project evaluation are carried out by experts from expert groups of NEAA. It is advisable to certify these experts on the basis of specialized certification program training. The training covers the following sample activities: pre-selection of candidates; formation of a learning team (*members of the Accreditation Council and Standing committees of NEAA*)*; foreign experts; members of the NEAA Quality Assurance Committee; national experts in the field of higher education* (*including the Ministry of Education and Science*)*; nationally recognized experts on accreditation procedures. An exemplary certification program for training of NEAA experts is proposed. The program contains a general part and a special part according to the areas of higher education.*

Keywords: *Higher Education , Evaluation , Accreditation , Standard , Guideline, ESG, Expert .*
JEL Codes: *I20, I23*

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ANALYSIS OF THE RESULTS OF LECTURERS QUALIFICATION ENHANCING THROUGH PARTICIPATION IN SPECIALIZED COURSES

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Abstract: *Analysis of the results of lecturer's qualification enhancing through participation in specialized courses is presented in the paper. The specialized courses aims to increase lecturer's qualification from different faculties and academic rank at University of Ruse. The results of the questionnaire survey of over 140 lecturers in the target group of the project for eight specialized courses are analysed. The results show that over 70% of the trained are convinced that the courses are useful; subjects and teaching hours are very well chosen, presented and balanced and must keep the main content, structure and organization of the courses.*

Keywords: *Human resources development, Career development of teachers, Lecturer's qualification enhancing*

JEL Codes: *I23*

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FRI-K1-1-QHE-08

INNOVENTER – AN INTERNATIONAL WAY TO SUPPORT THE SOCIAL ENTREPRENEURSHIP EDUCATION

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Abstract: *The aim of this report is to present the basic features of the international project INNOVENTER related to the support of the social entrepreneurship training in South –East Europe and especially the University of Ruse "Angel Kanchev". The tasks of this report are: 1/ to present the main idea behind the project; 2/ to discuss the main outcomes about the elaboration of the training materials and 3/ presentation of previous related experience.*

The project consortium activity is funded under the Transnational Cooperation Programme Interreg V-B Balkan-Mediterranean and is co-funded by the European Union and National Funds of the participating countries.

Keywords: *Social entrepreneurship, training materials, South East Europe, European Qualification Framework.*

JEL Codes: *L31, I20*

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FRI-K1-1-QHE-09

WEB BASED APPLICATION FOR IMPROVING THE QUALITY OF THE FINANCIAL SERVICE OF STUDENTS IN THE UNIVERSITY OF RUSE

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Abstract: *The paper reviews existing software applications used for the automation of payment processing in the University of Ruse. After a short analysis of the applications, the most necessary functional requirements for the creation of an application for electronic payments in the University of Ruse are identified. A workflow for the application is created. The integration of the application with the already existing software architecture of the university is described. A short analysis of the benefits of such an integration is made. The different methods for making a payment using the system are described - cash desk, bank branch, non-cash - using a POS terminal, and through an external university financial unit. An application for reporting purposes is integrated through services for payment reports, which gives information about the current state of the student payment flow. Conclusions and suggestions for future improvement and further integration of the software product are presented.*

Keywords: *Improving Student Experiences, Electronic Payment, Software.*

Jel codes: *I22, L8*

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FRI-K1-1-QHE-10

METHODOLOGY FOR IDENTIFICATION OF TRAINING COURSES EXPENDITURE BY STRUCTURAL DEPARTMENTS

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Abstract:
The cost of the structural units from the department level to their unification at the faculty level is analyzed. Classification signs for the cost breakdown by groups of direct and indirect ones are justified, including their respective components: labor and non-labor relationships, campus, heat and power maintenance, material maintenance (*materials and services*) *and missions; related costs and those allocated in proportion to their staff. Conceptual contents of rows of table Exell and its columns corresponding to the structural units are defined. Instances of introducing initial information and formulas to determine the values of each cell in the table are presented.*

Keywords: Education costs, Clasification of the costs
JEL Codes: *L10, L11*

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FRI-K1-1-QHE-11

THE MAIN FACTORS IN ENSURING ACCESS TO HIGHER EDUCATION FOR YOUNG PEOPLE WITH DISABILITIES

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Abstract: *One of the current problems in addressing disability is the educational and social inclusion of young people with disabilities in higher education, which is important in many ways. This article provides theoretical and practical information on various aspects of social and educational inclusion of students with disabilities in higher education institutions of the Republic of Moldova.*

Keywords: *discrimination, accesibility, disability, vocational training, equalization of rights, employment*
JEL Codes: *I21, I24, I29*

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FRI-K1-1-QHE-12

RESTRAINING PROBLEMS OF YOUNG PEOPLE WITH DISABILITIES IN THEIR IMPLEMENTATION FOR LEARNING IN UNIVERSITIES

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Abstract: *In every society, there are people and groups who for a reason are put at a disadvantage compared to the rest of society. Nonetheless, they are an integral part of it, and they should accept them as equal persons, recognizing their right to be different. This inclusion can be to varying degrees, in a different aspect, depending on the individual characteristics of each one.*

This report discusses the state and attitudes as well as the problems faced by young people with disabilities. On their way to realizing motivation and their interest in adapting to the learning environment and learning. Problems that they or their families pose themselves, problems that the environment or society puts them. Moreover, all this plus their problem with the type of disability they have to overcome, fight achieve success. Do we help them enough?

Let us ask ourselves - how much do we do, do we work to make inclusive education beneficial to children and people with special educational needs? Their efforts are many times more than ours to achieve satisfying results, their fight is daily. They also have the right to happiness that we can all contribute to, is not it?

Keywords: *Effectiveness, Protection Methods, Model, Inclusive education, Yong people with disability*
JEL Codes: *I21, I24, I29*

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FRI-K1-1-QHE-13

INCREASING THE MOTIVATION FOR LEARNING OF THE STUDENTS FROM THE PROFESSIONAL FIELD MECHANICAL ENGINEERING AT THE UNIVERSITY OF RUSE

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Abstract: *The University of Ruse has a rich human and material resources for the implementation of quality education and good practical training for engineers. The accumulated experience at the university in the Bachelor's and Master's educational level from the Professional field Mechanical Engineering provides an opportunity to apply new approaches to the motivation of both future and current students. Recognizing motivation for learning as an extremely important factor aims at improving the students' success in acquiring knowledge to be applied to improve and further develop machine-building in our country.*

Keywords: *motivation for learning, Professional field Mechanical Engineering*
JEL Codes: *I 20*

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FRI-K1-1-QHE-14

WHY TO USE AND HOW TO CHOOSE AN INTERACTIVE BOARD

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Abstract: *At the beginning of this paper, the authors promote the idea that adapting the educational system to the digital generation should begin with the total replacement of ordinary boards with interactive, as they allow the lessons and lectures presentations to be interactive and multimedia - something that "digital" students are used to and expect to see at school and university. A classification of interactive boards has been made according to the technology used. It has been shown that the optimal option in terms of functionalities and price is an interactive presentation system consisting of a laptop, an ultra-short throw interactive projector and a plain white board. The authors call this option 5 in 1. It is emphasized that for the effective delivery of the learning material using an interactive board it is necessary to follow certain rules. In conclusion, the authors point out that interactive boards and ICT as a whole are only a tool by which lessons and lectures can be made more informative and more attractive, but that teachers and lecturers will retain their leading role.*

Keywords: *digital generation, interactive board, ultra-short throw interactive projector*

JEL Codes: *I20*

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QUALITY OF DISTANCE LEARINING IN ENGINEERING

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Abstract: *The paper reviews existing methods of distance learning which are applied in modern higher education and are supported by international standards for quality. Dirferent forms of disctance learning are presented and compared against each other. The advantages and disadvantages of e-learning, m-learning, and online tutorials are discussed. The ideas of the authors are supported by several examples of distance learning. Recommentadions for the application of distance learning methods in engineering laboratory courses are made.*

Keywords: *Distance Learning, E-Learning, M-Learning, Online Tutorials.*
JEL Codes: *I23, L15*

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CULTURE OF QUALITY OF THE EDUCATION. BORDERS OF LIGHTING DESIGN. BEYOND BORDERS

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Abstract: *Lighting design is a multi-factorial and interdisciplinary area that includes a number of well-developed fields. The architectural lighting, the interior lighting, the advertising and information lighting, the street and road lighting and the transport lighting are leading the development of the contemporary lighting. Regardless of the group to which they belong, lighting systems follow a common frame, with varying domination of functionality and aesthetics, according to the light organization levels: light – lighting – lighting environment. These levels follow a logical hierarchical sequence.*

Light is a "herald" of beauty. Lighting design realizes this human striving for beauty. The education process in the field of lighting design is aimed at harmonizing the lighting environment, where light pollution determines the borders of the lighting design. Light pollution management outlines the range of these borders. Creativity allows a closer view to the "beyond borders" aspect searching for useful innovative solutions.

The culture of the quality of education in lighting design is based on a synchronized behavior of lighting systems, where light pollution management signifies for the level of the lighting environment evolution. The methodology of the lighting design education process includes the following aspects: lighting systems as a pollutant; structure of artificial outdoor lighting in the context of light polution; quality assessment of light pollution in Bulgaria; a classification system of measures to reduce light pollution; compensation of large light load; limitations of light pollution as part of the good lighting practices.

Keywords: *Lighting Design, Borders, Beyond borders, Education, Light pollution; Classification system; Creativity, Innovations, Automotive Lighting Metasculpture, Metamob, Methodology.*

JEL Codes: *I20*

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CULTURE OF QUALITY OF THE EDUCATION IN LIGHTING DESIGN. PERSONALIZATION AND INDIVIDUALIZATION

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Abstract: *The culture of quality of the education implies the existence of a synchronization leading to a state of joint work and a subsequent harmonization, which evokes the presence of a synergic interaction. On this basis, the culture of quality of the education in lighting design allows the introduction of two consecutive approaches - personalization and individualisation of the professional development of students studying the specifics of lighting design. Personalization is recognized as a process that forms a set of educational elements designed for a student. Individualization refers to the process of adapting the personal set of elements to the specifics of the particular student. A priority of the professional education standard for good quality education in the field of lighting design is the "Student-centered Learning" (SCL) principle, implemented by the two approaches, in two successive stages. Stages allow for variability. This frame adequately reflects the professional development of the lighting designer as a subject of the contemporary higher education in light-based technical engineering and design.*

The culture of quality of the education in lighting design also involves the evolution of the product lighting solutions designed for their targeted users. An essential element of the good quality lighting design is the personalization and individualisation of the lighting systems, implementing the Human-centered Lighting (HCL) principle. Personalization involves the "modeling" process of a set of light solutions, while the individualisation of the lighting systems allows a "modulation" in the development of a particular solution, incl. light proportioning; light dynamics; positioning of light systems; age preferences, and more. The semantic synergic bridge connecting the functionality to social features, the aesthetics to energy and environmental factors imply the presence of a philosophy that shapes the culture of the quality of the contemporary higher education in lighting design.

Keywords: *Culture of Quality of the Education (CQoE), Synchronization, Harmonization, Education, Personalization, via Modelling, Individualization, via Modulation, Lighting Design, Semantic Synergy Bridge (SSB), Functionality, Aesthetics, Energy efficiency, Ecology, Creativity, Innovations, Automotive Lighting Metasculpture, Metamob.*

JEL Codes: *I20*

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TRAINING AND MOBILITY CONDITIONS OF STUDENTS OF THE EXAMPLE OF THE UNIVERSITY OF RUSE AND THE UNIVERSITY OF ULUDAG

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Abstract: *An analysis of the training at two universities in two neighboring countries was carried out. These are the University of Ruse from Bulgaria and the University of Uludag, Turkey. The two universities train bachelors, masters and PhD students and have an Erasmus student exchange agreement. The way of learning is similar as they are members of the Bologna group. After finishing their education, students are able to get to the labor market to a greater extent. The tendencies in the number of students at the University of Ruse are to hide while at the University of Uludag is opposite. This is due to the large number of young people in Turkey, while in Bulgaria the opposite.*

Keywords: *University of Ruse, University of Uludag, quality of edication, training, Erasmus*

JEL Codes: *I21*

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CONCEPT OF WEB BASED SOLUTION FOR EVALUATION OF UNIVERSITY GRADUATES EMPLOYMENT

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Abstract: *Evaluation of university graduates employment is vital for selfevaluatiopn of educational quality, adaptability of programmes on the labour market and main prerequisite for successful accreditation at institutional and programme level. New generations require novel approach for motivation to keep in touch with university and to provide recent information if job is changed. The paper presents the contents of web-based solution for study of university graduates professional realization, which reflects the changes in attitudes and habits of young people laying on more recent use of internet and web based applications via smartphones. The solution includes web based database and e-CV, which are developed under a project by Career development center of University of Ruse. The content of main e-CV is presented with references to main webportals providing similar services. Advantages of proposed solution are defined. Proposal for application process are developed.*

Keywords: *Study of professional realisation, web based database, tertiary education, Labour market, youth employment, e-CV*

JEL Codes: *F66, F68, I23, I28*

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SHTAKEHOLDERS REQUIREMENTS IN CORESPONDENCE OF NEAA CRITERIA SYSTEM FOR PROGRAMME ACREDITATION: METHODOLOGY FOR ASSESSMENT

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Abstract: *The paper reviews existing system for assessment of stakeholder's requirements in of NEAA criteria system for programme accreditation, based on the case of University of Ruse. An analisys of last criteria Criteria for program accreditation of a professional field provides systematization of required information, which higher education institutions in Bulgaria shall collect from different stakeholders of educational process according 10 predefined Standards in accordance with European Standards and Guidelines for quality assurance in the European higher education area. Main type of questionnaires by stakeholders are differentiated. An analisys of existing system for quality assurance of University of Ruse is implemented and based on gap analisys some additions to methodology for assesment are proposed.*

Keywords: *Quality of higher education, programme accreditation, cryteria, methodology for assessment, questionnaires*

JEL Codes: *I21, I23*

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NOVEMBER RESEARCH CONFERENCE IN RAZGRAD

FRI-LCR-KS(R)

FRI-LCR-KS(R)-01

GRAPE EPICARP FLOUR MIXES AS FUNCTIONAL INGREDIENT FOR BAKERY INDUSTRY

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Abstract: *Grape skin is considered a valuable wine industry by-product for its antioxidant and antibacterial properties. The grape skin contains useful active compounds, such as polyphenols, flavonols, resveratrol and dietary fiber; it is used in various ways as a nutritional supplement and starts to be considered as new functional ingredient in bakery industry.*

The main aim of this study was to establish the optimum dose of grape skin flour, to be used as a functional ingredient in the bakery product industry, from both chemical and rheological point of view. The experimental study evaluated the functional potential of wheat flour mixed with grape skin flour, in various proportions, by checking the chemical composition and rheological properties of the dough. During experimental research, were determined the content of protein, crude fiber, fat, ash and minerals. Using ^{1}H-NMR spectral technique, the fatty acids composition was determined, especially the concentrations of short-chain saturated fatty acids (C4-C8), di-unsaturated fatty acids, mono-unsaturated fatty acids and long-chain saturated fatty acids (>C8). 1H-NMR spectra were recorded on a Bruker Ascend 400 MHz spectrometer.

The rheological behavior was tested by using the predefined Chopin + protocol on Mixolab equipment. Grape skin flour was mixed with wheat flour at 5, 10 and 15% levels. The study shows that 15% mixing level into the formulation of wheat flour has an acceptable product in terms of rheological parameters, with improved chemical, nutritional and functional properties.

Keywords: *bakery, crude fiber, functional ingredient, grape skin, dough, rheological properties;*

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FRI-LCR-KS(R)-02

PHARMACEUTICAL BIOTECHNOLOGY TODAY – PRINCIPLES, ACIEVMENTS, FUTTURE

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Abstract: *In the early years of pharmaceutical biotechnology, the main achievement was to produce natural therapeutic molecules in big amount, compared to the original way. The conventional pharmaceutical formulations are relatively simple molecules manufactured mainly through trial and error technique for treating the symptoms of a disease or illness. When the two disciplines - pharmaceuticals and biotechnology come together, they result in many advantages for humankind in terms of healthcare. On the other hand, biopharmaceuticals are complex biological molecules, commonly known as proteins that usually aim at eliminating the underlying mechanisms for treating diseases. Pharmaceutical biotechnology, essentially, is used to make complex larger molecules with the help of living cells. Biotechnological processes and industry contribute to improvement of the human health, for development of precise industrial processes, for production of bio-enzymes destructing the chemical waste as well as in the agriculture for improvement productivity or hardiness of plants and animals. Biotechnology has opened the door to the discovery and development of new types of human therapeutics. Advancements in both cellular and molecular biology have allowed scientists to identify and develop a host of new products. These cutting-edge medicines provide significant clinical benefits, and in many cases, address therapeutic categories where no effective treatment previously existed.*

Keywords: *pharmaceutical biotechnology, biopharmaceuticals, human health, improvement productivity and hardiness of plants and animals.*

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PURIFICATION OF BURGAS LAKE THROUGH ZEOLIT TYPE CLINOPTILITY

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Abstract: *This study investigates possibilities of natural zeolite as effective adsorbent of different pollutions in Burgas lake. Mathematical models to calculate the required amount of zeolite are applied. The following indicators were determined: A - calculation of the approximate water volume of Burgas lake, B – determination of total water amount contaminated by discharge sources, C – pollution of the water body, D – calculations for the required amount of zeolite as adsorbent per year.*

It was theoretically determined that water volume of Burgas lake is approximately 46 800 000 m^3. The total amount of polluted water of 46 345 813 m^3/year was calculated. Therefore, the whole water volume is replaced annually. The chemical characterization and qualities of Burgas lake depends of discharging of different industrial pollutants. The total theoretically amount of water pollutions is 7000 t/year. Required quantity of natural zeolite type clinoptilolite to maximum adsorption of available contaminants in Burgas lake of 35000 t/year was determined.

Keywords: *Zeolite, Water purification, Burgas lake..*

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FRI- LCR -1-CT(R)-02

SYNTHESIS AND STUDY OF NI-DOPED WILLEMITE CERAMIC PIGMENTS

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Abstract: *In this study willemite ceramic pigments, doped with Ni were synthesized. The optimal parameters of the synthesis process have been determined. The willemite is a mineral (zinc silicate) with formula Zn_2SiO_4. For the production of willemite ceramic pigments in the system NiO–ZnO–SiO_2 we have used the following main materials: ZnO, NiO and $SiO_2.nH_2O$.*

The willemite ceramic pigments and rice husk ash were studied by X-ray analysis, FT-IR, and scanning electron microscopy . The color of the pigments was determined using a Lovibond Tintometer RT 100 Color.

It has been found that the synthesized pigments are suitable and can be successfully applied in glaze tiles and sanitary ceramics.

Keywords: *pigments, colour, ceramic, willemite, CIELab*

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FRI-LCR-1-CT(R)-03

FROM FORMAMIDE TO NUCLEIC ACID MONOMERS AND AMINO ACIDS BY USING VARIOUS ENERGY SOURCES

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Abstract: *Determining the conditions allowing an efficient one-pot synthesis of the largest possible panel of prebiotic compounds may shed light on the plausible scenario in which the processes that started life might have occurred. We report experiments describing the syntheses taking place from formamide. The warming of formamide at 170^{0}C and 180^{0}C in vacuo yielded large panels of different compounds: purine and nucleobases* (*adenine, cytosine and uracil*), *amino acids* (*glycine, alanine*), *hypoxanthine, pterine, urea and urocanic acid. After that to model the Solar Wind radiation, these probes were irradiated at 25^{0}C with 170 MeV protons generated by the Phasotron facility of the Joint International Nuclear Institute* (*Dubna, Russia*) *as the absorbed dose was 6 Gy. New panel of compounds: timine, 2-methylpurine, 6-methylpurine, 4-methylcytosine and one nucleoside, 6-carboxamido-9-β-D-ribofuranosylpurine, were detected. The mechanisms of the reactions of nucleobases, urea and amino acids formation from formamide were simulated at SCS-MP2 ab initio level.*

Acknowledgements: *Funding of this work by the* National *Science Fund, under Grant DN09/7/2016 is gratefully acknowledged.*

Keywords: *Formamide, Prebiotic compounds*

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FRI–LCR-1-BFT(R)

FRI–LCR-1- BFT(R)-01

PHYTOCHEMICAL EVALUATION AND ANTIBACTERIAL EFFECT OF THE SUCCULENT GRAPTOPETALUM PARAGUAYENSE E.WALTHER

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Abstract: *Due to the increase of antibiotics resistance, there is an urgent need to develop new and innovative antimicrobial agents. Plants have long been investigated among the potential sources of new agents. They contain many bioactive compounds that can be of interest in therapy. Because of their low toxicity, there is a long practice of using dietary plants in the treatment of infectious disease in the world's traditional medicine. It is known that some members of the Crassulaceae family exhibit antiseptic and antibacterial properties. There is information about several health benefits of the succulent plant Graptopetalum paraguayense E. Walther* (*GP*)*, a species of the same plant family: pancreatic damage and diabetes, ovalbumin-induced asthma, hypertension, alleviation of hepatic disorders, anti-colon cancer activity etc. However, there is no information in the literature on the anti-conjunctivitis, antiviral and antibacterial activity of Graptopetalum paraguayense E. Walther.*

The proposed research is pioneering and is part of project focused on the development of unified theoretical and experimental approaches for active components isolation and antimicrobial activity evaluation of Graptopetalum paraguayense E. Walther. The aim of our study is to evaluate in vitro antibacterial effect and cytotoxicity of Graptopetalum paraguayense E. Walther (*Crassulaceae*) *extracts.*

To study the components of Graptopetalum paraguayense the GC-MS analyzes were performed on the extracts obtained from lyofilizated GP leaves. The three main groups of organic compounds were identified by GC-MS analysis in the plant: lipids A (*fatty acids, sterols and terpenoids*)*, polar metabolites B* (*aminoacids, hydroxycarboxylic acids, sugars, and sugar alcohols*) *and phenolic acids C.*

The cell lines Lep, RD64 and green monkey kidney cell line (*Vero*) *were used for cytotoxicity assay* (*MTT-test*) *of the whole aqueous extract and the three main fractions. Minimal inhibitory concentrations* (*MICs*) *were determined on six bacterial strains according to ISO 20776/1-2006. The biofilm inhibitory effect was evaluated using the protocol of Stepanovic* (*2000*)*. The cell redox activity of treated bacterial cells was measured after reduction of a terazolium salt.*

The aqueous extract of Graptopetalum paraguayense E. Walther as well as fractions C and A have not cytotoxic effect on RD64, Lep cells and Vero cell line. The MIC values ranged between 0.63 and 2.5 mg/ml. The ethylacetate fraction C was characterized by the highest antibacterial effect and strongest reduction of the bacterial metabolic

activity. It also suppressed fully Methicillin-resistant Staphylococcus aureus (*MRSA*) *biofilm formation at a concentration of 1.25 mg/ml and showed a dose-dependent antibiofilm inhibitory effect at lower concentrations.The ethylacetate fraction C showed a promising activity against Staphylococcus aureus strains and MRSA biofilm formations that justifies future investigations of this extract for topical application on wound infections.*

Keywords: *Antibacterial activity, Graptopetalum paraguayense E. Walther, cytotoxicity, MTT assay, MRSA, GC/MS.*

Acknowledgements

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FRI–LCR-1- BFT(R)-02

ASSESSMENT METHOD FOR HYGIENIC DESIGN IN FOOD INDUSTRY. WATER DRAINAGE AND WATER SAVING STUDY CASE

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Abstract: *The new trends in consumer asking — staring from minimally processed and reduced additive/preservative foods, to pre-prepared ready-to-eat/ready-to-cook food—are placing enormous pressures on all food producers, not only to innovate but to remain on top of food safety challenges. Food producers must be sure that their products are protected throughout production by restricting access and controlling conditions for survival of microorganisms, foreign bodies, pests, and chemical contaminants such as lubricants or biocides.*

This paper presents the assessment method used by EHEDG (*European Hygienic Engineering and Design Group*) *and some results obtained, as study case for Water drainage and water saving study case. By using hygienic designed equipment and hygienic facility design into the operation at the same level of importance as Good Manufacturing Practices* (*GMPs*) *and Hazard Analysis and Critical Control Point* (*HACCP*) *programs, food manufacturers not only significantly reduce potential food safety hazards but can obtain energy, water, and cost-savings.*

Hygienic processing is a sine qua non requirement for the food industry. Because of this, food producers devote a lot of time and resources to reach the required cleaning and disinfection level, among other preventive measures.

Keywords: *assessment method in food safety, hygienic design.*

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FRI–LCR-1- BFT(R)-03

SENSORY EVALUATION AND RHEOLOGICAL BEHAVOIR OF YOGURTS PREPARED FROM GOAT MILK

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Abstract: *Goat milk production is a dynamic and growing industry that is fundamental to the wellbeing of hundreds of millions of people worldwide and is an important part of the economy in many countries. The aim of the present paper is scientific development of new technologies for goat milk yogurt with improved sensory and rheological properties. Set-yoghurts produced from goat and cow milk were examined fresh and after cold storage for sensory quality and rheological properties, in accordance with the ISO* (*Official Methods of Analysis of AOAC International*)*. Rheological investigations consisted of the determination of apparent viscosity and drawings of flow curves. In comparison to cow milk yoghurt, goat milk yoghurt had a better consistency, and was more acceptable sensorialy. The apparent viscosity of goat milk yoghurt was more and its flow curve was characterized by a smaller hysteresis loop area than these of yoghurts from cow milk. The reported results on sensory evaluation and rheological behavoir of goat milk yoghurt could guide industry to develop new goat dairy products with improved quality.*

Keywords: *sensory attributes, rheology, goat milk, youghurt, health benefits.*

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SAT–LB-P-1-CT(R)

SAT–LB-P-1-CT(R)-01

ESTIMATION OF ADSORPTION ABILITY OF RICE HUSKS BASED BIO-CHAR FOR NICKEL IONS REMOVAL FROM AQUEOUS SOLUTIONS

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Abstract: *Bio-char prepared from rice husks* (*B-RH*), *an agricultural waste by-product, has been used for the adsorption of Ni*(*II*) *from aqueous solution.A six kinetic models including pseudo-first order kinetic model, pseudo-second order kinetic model, Ritchie's-second order kinetic model, Weber-Morris intra-particle diffusion model, Elovich kinetic model and diffusion-chemisorption kinetic model were applied to determine the kinetic data and reveal adsorption mechanism. The calculated kinetic parameters of the investigated models were used for plotting the corresponding non-linear curves showing the goodness of the fit of kinetic models to obtained experimental data. The best fit were exhibited by the the pseudo-second order, Ritchie's-second-order and Weber-Morris kinetic models.*

Keywords: *Adsorption, rice husks based activated carbon, Ni* (*II*) *removal, kinetic parameters.*

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SAT–LB-P-1-CT(R)-02

SYNTHESIS OF 1-AMINO AND 1-NITROSO DERIVATIVES OF 2',3'-DIHYDRO-2H,5H-SPIRO[IMIDAZOLIDINE-4,1'-INDENE]-2,5 DIONE

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Abstract: *This article describes the synthesis of 1-amino-2',3'-dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione and 1-nitroso-2',3'-dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione. These compounds were prepared by the interaction of 2',3'-Dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione with hydrazine hydrate and sodium nitrite. The products obtained were characterized by physicochemical parameters, elemental analysis, IR and NMR spectral data.*

Keywords: *Synthesis, 2',3'-Dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione, 1-Amino-2',3'-dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione, 1-Nitroso-2',3'-dihydro-2H,5H-spiro[imidazolidine-4,1'-indene]-2,5-dione*

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SAT–LB-P-1-CT(R)-03

COMPOSITE COATINGS BASED ON CHROME WITH VARIOUS CARBON MODIFICATIONS

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Abstract: *The mechanical properties of composite coatings with chromium matrix obtained from a standard plating solution in the presence of dispersed phase of graphite* (*GK-3, C-1, spectrally pure graphite* (*SPG*)) *and nanosized carbon additives* (*ultradispersed diamonds* (*DNA*), *nanotubes of "Taunit-M" series*) *have been studied. The results of coating parameters investigation are presented: roughness* (*Ra*), *fracture toughness* (K_{Ic}) *and friction coefficient* (*f*).

Keywords: *composite electrochemical coating; chrome-graphite; cromium-carbone; roughness; friction coefficient; fracture toughness.*

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SAT–LB-P-1-CT(R)-04

INTERACTIVE TRAINING FOR STUDENTS IN TECHNICAL SAFETY AND DISASTER PROTECTION FOR DETERMINING A CHEMICAL OUTBREAK OF INFECTION

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Abstract: *The course "Technical Safety and Disaster Protection" enables students to acquire knowledge about the nature and technogenic disasters, created by natural or technological sources, technological failures and risk situations on a different scale. For keeping it interesting for students and easy for understanding, it is necessary to continuously incorporate new teaching / learning methods in the way it is presented, such as the interactive methods. In this way, learners are able to acquire the necessary competences and information and to use it in decision-making and implement it in practice.*

The paper presents the introducing of the interactive training for students from the Technical faculty of University "Prof. d-r Asen Zlatarov" Burgas, in their education in "Technical Safety and Disaster Protection" for determining of a chemical outbreak of infection of hydrogen sulphide. The experiment we describe includes comparison between the paper and computerbased method for determination of the infected by the chemical zone, development of a strategy for evacuation of the people and palnning of desactivation event.

Keywords: *Interactive learning, Chemical Outbreak, Technological safety*

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SAT–LB-P-1-CT(R)-05

INVESTIGATION OF INFLUENCE OF ZEOLITE BASED SPENT CATALYST ON DEPOSITED IN THE COMPOSITION OF CHAMOTTE REFRACTORY MASS

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Abstract: *A processed amount of zeolite based catalyst in the amount of 20 and 40 mass % of chamotte refractory mass is imported. It is established that diffractograms doesn't register an amorphous phase due to the increase in the content of mullite and crystobalite, while the quantity of quartz remains almost constant.*

It is found that the waste catalyst in the composition of the refractory mass doesn't improve the contact between the particles, the porosity is increased, micropores are formed, which explains the decrease of the apparent density.

Keywords: *Spent catalyst, Refractory, Chamotte, Mullite, Crystobalite*

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A STRATEGY, BASED ON A COMBINATION OF DIRECT AND INDIRECT METHODS FOR IMMOBILIZATION OF NATURAL COMPOUNDS ON BIOPOLYMERS

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Abstract: *Many substances* (*e.g. antibacterial and aromatic*) *are used in the modern textile industry in order to prevent the development of pathogenic microorganisms on the textile fabric and the human body, as well as to preserve the aroma for a long time. In order to provide greater resistance of the substances to the fibrilar biopolymers forming the textile, the immobilization process is used. Different strategic decisions are possible to implement the immobilization process – by direct immobilization; by previously microencapsulation of the substance or a combination of both methods to supplement efficacy. Unfortunately, in direct immobilization, especially when it is purely physical, much of the material is lost over time. To preserve the action of the substance for an even longer time, the microencapsulation process is used. However, microencapsulation does not retain the substance for too long on the textile, because of the inefficiency of the microencapsulation process itself due to loss of core material, to the capsule in some cases, and also if the capsule is integrated into the fiber on a purely physical basis. For this reason, the author chooses a combination of direct and indirect immobilization of the substance onto the biopolymer filament fiber using a chemical method via a linker, hoping thus to increase the retention time of the incorporated substance on the fabric textile. This paper represents the original strategy, based on combining a direct and indirect method for immobilization of natural compounds on biopolymers.*

Keywords: *Biopolymers, Textiles, Fragrances, Microencapsulation, Immobilization, Natural Compounds, Oils.*

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SAT–LB-P-1-CT(R)-07

MICROENCAPSULATION OF NATURAL COMPOUNDS. A LITERATURE REVIEW

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Abstract: *Microencapsulation of natural compounds plays an important role in the contemporary cosmetic, pharmaceutical and textile industry. The process increases the compound resistance towards the unfavorable conditions and consists in coating of a core matherial with a shell material to produce microcapsules. This paper reviews existing methods of microencapsulation of natural compounds, classified into three general groups: chemical, physic and physico-chemical. On the basis of the literature review the author chose a strategy of physico-chemical microencapsulation, based particularly on a coacervation* (*and eventually sol-gel*) *method, due to its easy performance, unexpensive equipment and environmental cleanliness. The prepared microcapsules with natural substances and in particular the microencapsulated perfumes increase the stability of components, impregnated on a fibrilar biopolimer applied in textile industry.*

Keywords: *Microencapsulation, Immobilization, Biopolymers, Natural Compounds, Fragrances, Oils, Textiles.*

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SAT–LB-P-1-CT(R)-08

STRUCTURAL FEATURES OF CHALCONES AS ANTIPARASITIC AGENTS

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Abstract: *The proposed research is important in the era of increasing drug resistance of parasites such as Plasmodium, Leishmania, Giardia etc, which are, a substantial cause of mortality and morbidity in the world, especially in poor and developing countries. A series of 24 selected chalcones were initially synthesized and submitted to in vitro screening for their activities against the following protozoas: Plasmodium falciparum* (*causing malaria*)*, Giardia lamblia* (*causing giardiasis*) *and Trichomonas vaginalis* (*causing trichomoniasis*)*. The cytotoxicity profile of HeLa cell line was evaluated through MTT viability assay and the selectivity index* (*SI*) *was calculated. The compounds sintesized are in four different groups depends of the substituents in two molecule moieties A and B* (*A-CH=CH-CO-B*)*. The results revealed that all the chalcons displayed antiparasitic activity against P. falciparum, G. lamblia and T. vaginalis. The most active compound against P. falciparum is chalcon with 3',4',5'-Trimethoxy- and 3,4-Dimethoxyphenyl-substituents in A and B, respectively. This chalcon was found to be a lead compound with the highest potency* (IC_{50} *= 0.11 μg/ml*)*, as compared to licochalcone* (IC_{50} *=1.43 μg/ml*) *and with high selectivity index of 83.93. The* IC_{50} *values of all compounds were in the range 0.10-0.40 μg/ml for MRC-2* (*chloroquine sensitive*) *and 0.14-0.55 μg/ml for RKL-9* (*chloroquine resistant*) *strains of P. falciparum. Chalcon with 2',5'-Dimethoxy- and 4-*CF_3*- substituents in A and B, respectively was found to be most active against T. vaginalis* (IC_{50} *= 7.7 μg/ml*) *while the indolyl chalcon with 4'-Iodo-substituent in A is the most active compound against G. lamblia* (IC_{50} *= 4.8 μg/ml*)*.*

Quantum-chemical calculations at B3LYP/MIDI level were used to study the molecular geometry and electronic structure of the selected derivatives. The energy gap between the highest occupied molecular orbital (*HOMO*) *and lowest unoccupied molecular orbital* (*LUMO*)*, HOMO−LUMO gap* (*ΔHOMO−LUMO*)*, total dipole moment and number of electrons have been calculated using the theoretical computations to reflect the chemical reactivity and kinetic stability of compounds.*

Keywords: *Chalcones, in vitro, DFT, antiparasitic activity.*

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SAT–LB-P-1-CT(R)-09

KINETIC STUDTY OF THE THERMAL DECOMPOSITION OF CHITOSAN-ZEOLITE NANOCOMPOSITE

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Abstract: *A decomposition thermal analysis of of chitosan-zeolite nanocomposite synthesized by the authors was conducted was carried out. A TG comparison between the product and the raw was made. The destruction processes of a complex solid-phase were researched.* The correlation dependencies for approximate solution of Arrhenius integral were applied to the study of kinetics of destruction. *It was used a genetic algorithm and complex criterion to assess the quality of the decomposition.. The results led us to assume that the real adequacy were achieved by decomposition of five subprocessess. The results of identification were analyzed.*

Keywords: *Non-isothermal kinetic study, Chitosan-zeolite nanocomposite, Complex processes, Genetic algorithm Complex method, Decompositio nto the single sub-model.*

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SAT–LB-P-1-CT(R)-10

STRATEGIC DESIGN OF INTEGRATED SUPPLY CHAINS FOR PRODUCTION AND DISTRIBUTION OF BIOETHANOL

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Abstract: *Today, energy consumption is steadily rising, but global energy sources are in limited reserves of oil, gas and coal. Their extraction and exploitation is often associated with a number of negative environmental impacts by obtaining the conventional fuels needed for the heat and transport systems. Continuous alternative sources of energy, constantly renewable sources, low prices and ecologically clean are sought. Biofuels are alternative sources of petroleum fuels. The article presents a method for optimal design of resource-supply chains for production and distribution of bioethanol. The problem of optimal design and management of ROV is formulated as a task of mixed linear programming under the criterion of minimum capital and operating costs. The optimal scheme of the resource - insurance chain for the territory of the Republic of Bulgaria is presented*

Keywords: *Bioethanol, fermentation, Supply chain,*

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SAT–LB-P-1-CT(R)-11

KINETICS OF MAGNESIUM ALUMINIUM SPINEL SYNTHESIS IN THE COMPOSITION OF WASTE ALUMINIUM SLAG - MGO

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Abstract: *The kinetics of magnesium aluminium spinel synthesis at the composition of waste aluminium slag and 25 mass % MgO in the form of magnesia alba is studied.*

Experimental data on the degree of time and temperature conversion of the heat treatment satisfies the Avrami-Erofeev equation which achieves best linearity at n = 4 (n-grade in the Avrami-Erofeev equation). The calculated average value of the apparent activation energy is 54 kJ / mol.

Keywords:*Magnesium aluminium spinel, waste aluminium slag, kinetic, Avrami-Erofeev equation*

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SAT–LB-P-1-CT(R)-12

INHIBITOR ACTIVITY OF MALEIMIDE AND ITS DERIVATIVES IN MILD STEEL CORROSION IN 1M H_2SO_4

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Abstract: *This investigation presents results for the corrosion of mild steel in a 1M H_2SO_4 solution with the addition of maleimide and four of its derivatives. The inhibitory effect of these organic compounds is estimated using a gravimetric method. The calculated values for the corrosion rate, the inhibitor efficiency and inhibitor activity coefficient at the maximum concentration of the organic additive are compared. These studies make it possible to assess the inhibitory properties of these compounds depending on their different functional groups. The obtained results do not represent the studied compounds as good corrosion inhibitors of mild steel in this acidic medium. In view of their practical application, it is necessary to look for opportunities to increase their concentration* (*over 10^{-3} mol dm^{-3}*).

Keywords: *mild steel, inhibitors, derivatives of the 1H-pyrrole-2,5-dione, corrosion rate*

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SAT–LB-P-1-CT(R)-13

FROM FORMAMIDE TO GLYCINE AND UREA: AN AB INITIO STUDY

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Abstract: *An investigation of prebiotic formation of nucleobases and amino acids from various organic compounds is of keen interest. The condensation of formamide has been shown to be a robust chemical pathway affording molecules necessary for the origin of life. It has been experimentally shown that condensation reactions of formamide, catalyzed by minerals and meteorites, leads to purine, nucleobases, amino acids, sugars and other biomolecules. Investigation of pathways of such reactions could indirectly represent potential pre-life chemical reactions. Quantum chemical computations represent a suitable tool to reveal details about intermediates and transition states along the reaction pathways. Information about transition states could not be extracted directly from experiments. Prebiotic experiments always involve complex mixtures, making the interpretation of outcomes difficult. Thus, quantum chemical studies allow evaluating routes among various possible reaction pathways. The current study presents the formamide-based reaction pathways to the amino acid glycine and to urea. The mechanisms for the formation of glycine and urea were studied by quantum chemical computations at MP2 and SCS-MP2 levels of theory using cc-pVDZ basis set.*

Acknowledgements: *Funding of this work by the National Science Fund, under Grant DN09/7/2016 is gratefully acknowledged.*

Keywords: *Formamide, Prebiotic compounds, Glycine, Urea, Ab initio*

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SAT–LB-P-1-CT(R)-14

REACTION OF ANILYNE WITH 2-NITROSTYRENE AND 2-BROMO2-NITROSTYRENE

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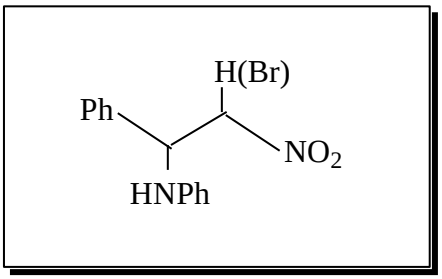
Abstract: *Heterocojugated alkenes containing electro-withdrawing groups are higly reactive compounds. The nucleophilic addition of aniline with 2-nitro- and 2-bromo-2-nitrostyrene and their derivatives have been studied.*

The general formula of the compounds obtained was follows



Nitroamines are synthesized as results of the interaction of equimolar amounts of the corresponding reagents in ethanol at room temperature for 12 h. The yields obtained varied within the range 95-98%.

The composition and structure of the componds were confirmed by elemental microanalysis and different spectral methods.

Keywords: *nitroamines, heteroconjugated alkenes, nucleophilic addition*

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SAT–LB-P-1-CT(R)-15

PREPARATION AND CHARACTERIZATION OF CHITOSAN-ZEOLITE NANOCOMPOSITE FILMS FOR WOUND HEALING APPLICATION

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Abstract: *A series of novel chitosan-zeolite nanocomposite (CZN) films were prepared by using solvent casting method for wound healing application. The physicochemical properties namely thickness, folding endurance, water absorption capacity, and water vapour transmission rate (WVTR) of the films were studied. Fourier transform infrared spectroscopy (FTIR) was employed to ascertain the interaction between negatively charged zeolite and positively charged chitosan. The surface morphology of the prepared composite films was also studied by scanning electron microscopy (SEM). Due to strong hydrophilic nature of zeolite, it great lyenhances the water absorption capacities of the prepared nanocomposite films. In addition, the presence of zeolite in the said films also increases the mechanical strength. Moreover, the antibacterial activity of the films was investigated against gram positive and gram negative.The above analysis suggested that the CZN films could be used as potential candidates for wound healing application.*

Keywords: *Chitosan-zeolite nanocomposite, Fourier transform infrared spectroscopy, Water absorption capacity, Water vapour transmission rate*

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SAT–LB-P-1-CT(R)-16

DIRECT MICROENCAPSULATION OF ROSE OIL, USING GELATIN AS SHELL MATERIAL

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Abstract: *In order to maintain the action of the substance for an even longer time, the microencapsulation process is used. This method is used also in textile industry. The paper presents a protocol for direct microencapsulation of rose oil, using gelatin as shell material. The protocol used method of Sukumar Nachiappan and C.B. Lakshmikantha with some modifications, made by us. Due to its environmental cleanliness and the team's striving to focus on green chemistry technology, the strategy that was used in this article is related to physico-chemical microencapsulation methods. The material that builds the microcapsules is entirely from natural sources, which would allow their biodegradability over time. Unlike chemical polymers used in physical and chemical methods and characterized by harmful effects on the environment and the health of organisms, the natural substances forming the capsule shell are environmentally acceptable. A model reaction, using sunflower oil as core material and gelatin as shell material, was previously demonstrated. In this way capsules made of gelatin and filled with rose oil as a core material are used in the textile industry.*

Keywords: *Biopolymers, Textiles, Fragrances, Microencapsulation, Gelatin, Immobilization, Natural Compounds, Rose Oil, Sunflower Oil..*

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SAT–LB-P-1-CT(R)-17

SYNTHESIS OF GLYCEROL CARBONATE, TRIMETHYLOL PROPANE CARBONATE AND TRIS CARBONATE AS PRECURSORS FOR THE PREPARATION OF BIODEGRADABLE ENGINE OIL ADDITIVES

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Abstract: *Over the past 10-15 years, the interest in the production of biodegradable, eco-friendly compounds has grown enormously. This is due to the growing need for better products on the one hand, and on the other hand, the ever-increasing need to protect the environment, animal and human health. Many of the metal parts, components, and finished machines obtained from industrial production contain metal surfaces, which must be protected against corrosion, especially when used. To increase the working capacity of the equipment and to extend its life, one of the ways is the use of oils with good performance. However, many oils are characterized by disadvantages such as temperature instability, insufficient tribological properties, unacceptable viscosity, fatigue and wear resistance, oxidative instability and corrosivity. For this reason, it is necessary to apply additives that improve their properties. Unfortunately, many of the additives, on the one hand, slightly improve the properties of the oils, on the other hand they deteriorate, and the third appear to be ecologically unacceptable. For this reason, demand for new, biodegradable, environmentally friendly additives is an urgent need. In this aspect compounds based on fatty carboxylic acid esters and polyvalent alcohols/aminoalcohols find application both as a basis for the production of renewable biodegradable raw materials, lubricants and for the production of additives. In this regard, combining the valuable properties of esters and amines, our efforts are directed to the production of complex esters of polyvalent alcohols and aminoalcohols, striving on the one hand to act as antioxidants, antiperspirants and alkaline reserves, on the other hand they are well soluble in the respective oils, and from a third party - to be biodegradable and environmentally compromising. In this article we describe the synthesis of glycerol carbonate, trimetholol propane carbonate and TRIS carbonate as precursors for the synthesis of complex polyvalent alcohol and aminoalcohol esters.*

Keywords: *Tribology, Biodegradable Additives, Glycerol Carbonate, Trimethylolpropane Carbonate, TRIS Carbonate, Precursor, Aminoalcohols*

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SAT–LB-P-1-BFT(R)

SAT–LB-P-1-BFT(R)-01

INFLUENCE OF SPIRULINA AND KELP ALGAE ON THE DEGREE OF INCREASE IN DOUGH VOLUME

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Abstract: *Bread is a product of high consumption in Bulgaria. Various additives are used to improve bread quality, and in recent years addition of seaweed is a common practice. Most authors pay attention to the nutritional value of algae-enriched bread. There are not many studies revealing algae influence on the properties of semi-finished products* (*and in particular, the yeast dough*).

The purpose of the present study is to investigate the influence of 4% Spirulina platensis and Kelp algae added to bread recipe on the degree of increase in yeast dough volume during the fermentation.

It was found that both the duration of the fermentation and sample composition influence the dough volume. After 3 hours of fermentation, an increase in the volume was observed in the control sample - 3.0 times, in the Kelp-enriched dough - 3.4 times. Tthe most significant being the increase in the Spirulina plantesis-enriched sample - 3.6 times. At 4 hours duration of the fermentation, in all the samples tested volumes decreased, the most pronounced in Spirulina plantesis enriched sample - 0.7 times, and the least significant in the sample with Kelp - 0.2 times. However, the volume of the enriched samples remains higher than that of the control sample.

Keywords: *Kelp, Spirulina platensis, algae, bread, dough volume*

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SAT–LB-P-1-BFT(R)-02

ENVIRONMENTAL IMPACT ASSESSMENTS OF CO_2 EMISSIONS OF POLLUTANTS PRODUCED USING DIFFERENT TRANSPORTATION FLEETS FOR "GREEN" DAIRY SUPPLY CHAIN DESING

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Abstract: *This study represents a continuation of the optimization approach for designing "green" products portfolio of three-echelon "green" supply chain* (*GSC*) *for optimal short-term design of the activities in the production complex from the dairy industry. The approach takes into consideration three main subjects - products manufacturing, SC management and environmental impact. The latter involves environmental impact assessments of wastes produced along the chain and released in air and water. They are evaluated in terms of costs such as the best trade-off between the environmental and economic performance of the designed green products portfolio to be achieved. The approach is extended by including additional environmental impact assessments for the CO_2 emissions produced during transportation of raw material and products when fleets with different payload capacity and fuel engines are used. The latter aims to show how this factor influences designing the optimal environmental dairy products portfolio as well as can be used in the decision-making process.*

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Keywords: *GSC management, Products' portfolio design, Environmental impact assessments, CO_2 emissions, Transportation fleets, Optimization*

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SAT–LB-P-1-BFT(R)-03

DETERMINATION OF RHEOLOGICAL PROPERTIES WITH FARINOGRAF AND EXTENSIGRAF OF BIO-FORTIFIED FLOUR

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Abstract: *Rheological properties of dough are very important indices for product development in terms of product quality and process efficiency. There are several ways to evaluate the rheological behaviors of the dough, one of them is using farinographc and extensographic.The aim of this research was to examine the impact of agronomic bio-fortification on the rheological properties of flour obtained from wheat variety Radika. In this research are included 7 samples obtained by adding high quality chelate fertilizers at different stages of wheat growth: Fe soil (1), Fe soil + foliar (2), Fe foliar (3), Control (4), Zn soil (5) , Zn soil + foliar (6) and Zn foliar (7). From farinograph data for water absorption it is concluded that all variants have approximate values with minimal differences compared with variant 4. According to the data obtained for the level of softness, it is concluded that the dough for all variants are with medium quality. According to the qualitative number, all variants fall into the quality level B2, with exception of variant 5 which belongs to quality level C1. The results obtained from the extensigraf have shown that variant 1,2 and 7 has higher value of extensibility of the dough compared to variant 4, while variant 5,6 and 3 have lower values.The greatest resistance is measured in variant 2, and the lowest value for variant 5. Higher values were found in variants 1, 6 and 7, but variant 3 has a lower energy value compared to variant 4. Highest value the ratio (eesistance / exstensibility) was measured in variant 1 and 3, and the lowest in variant 5. Higher values were found in variants 6 and 7 compared to variant 4. From the farinographc analysis it can be concluded that the application of iron and zinc chelating fertilizers did not have a significant effect on the technological quality of the flour. From extensographic analysis is ascertained influence from application of iron soil, iron soil + foliar and zinc foliar wherein for variants 1,2 and 7 are obtained flour with higher extensibility, resistance and energy.*

Keywords: *bio-fortification, rheological, farinograph and extensigraf*

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SAT–LB-P-1-BFT(R)-04

PREPARATION OF HYDROPHOBINS FROM THE FRUIT BODY OF PLEUROTUS OSTREATUS BY EXTRACTION WITH FORMIC ACID

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Abstract: *Hydrophobins are a family of low molecular weight proteins that have high surface activity. These proteins are produced exclusively by filamentous fungi. The article presents the possibility of obtaining hydrophobin-like proteins, applicable in the food industry from the fruit bodies of pleurotus ostreatus. P. ostreatus produces class I hydrophobins. Class 1 hydrophobins are soluble in concentrated solutions of TFA or formic acid. Formic acid, unlike TFU, can be used in the food industry. Hydrophobins were obtained by extraction with formic acid from biomass P. ostreatus. To destroy the hydrophobin agglomerates, the obtained extract was treated with performic acid. The material balance was compiled at different stages of the preparation of hydrophobin-like proteins. As a result, the extract was obtained with high surface activity.*

Keywords: *Hydrophobin, Foam Stabilize, Pleurotus ostreatus, Surface active proteins*

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SAT–LB-P-1-BFT(R)-05

SYNTESIS OF MECHATRONIC FUNCTION MODULES DRIVES OF FLOW TECHNOLOGICAL LINES IN FOOD PRODUCTION

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Abstract: *The tasks were considered, which are related to the working bodies for the artificial food products movement according to the specified movement law and their positioning in the intermediate positions of the kinematic cycle. The actuators dynamics characteristics and control system of power part of positional electro-pneumatic actuators were researched. The methods of mathematical and computer modeling, and methods of solving ordinary differential equations and partial differential equations and method of correlation analysis were used. In the obtained results of modeling the kinematic load and the pressure of the working position pneumatic actuator, clearly observed that the inertial component increases in 4 stages* (*braking*)*, during the narrowing the exhaust section of the working cylinder of the positional pneumatic actuator. The results of mathematical modeling for positional pneumatic actuators with the condition of changing the section of the exhaust hole allowed to track all the kinematic characteristics of the actuator. The obtained results allow to assign to the working body the law of motion, approximated to the optimal on the speed of action, not exceeding at the same time the maximum permissible dynamic influences for a moving artificial product.*

Keywords: *functional, module, packing, electro-pneumatic actuator, accuracy*.

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SAT–LB-P-1-BFT(R)-06

QUALITY CHARACTERISTICS OF HONEY: A REVIEW

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Abstract: *Honey is a sweet natural product, which is produced by bees generally from the nectar of flowers and sweet deposits from plants. It is a complex mixture that contains nutrients and bioactive compounds such as carbohydrates* (*primarily fructose and glucose*)*, enzymes, proteins, amino acids, organic acids, minerals, vitamins, aromatic substances, polyphenols, pigments, beeswax, and pollen that contribute to its color, smell and flavor. The composition and quality of honey is variable and it depends mainly on the botanical source of nectar from which it is obtained, but also depend on the geographic location, seasonal and climatic conditions, processing type and storage. Due to its special composition, honey is a functional food, which is consumed for its effects on human health, with antibacterial, antioxidant, anti-inflammatory and antimicrobial properties, as well as wound and sunburn healing effects. Honey is used in pure form after little or minimal processing as liquid, crystals or other types. The uses of honey as food include flavourant and sweetener in honey cookies, dairy products and fruit juices, as well as industrial production of beverages by mixing with alcohol. In this review, the physical properties and nutritive chemical composition thoroughly reviewed to underscore the quality of honey.*

Keywords: *Honey, Quality, Nutritive chemical composition, Physical properties.*

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SAT–LB-P-1-BFT(R)-07

BASIC PHYSICO-CHEMICAL STUDIES OF ORANGE-COLORED SNOW (RAZGRAD, BULGARIA)

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Abstract: *Snow can be found in other colors besides white. In this paper orange-colored snow sample collected from Razgrad, Bulgaria was evaluated. The specific purposes of the present study are to characterize the physical and chemical composition of the melted snow-water sample. Snow was analyzed for acidity (pH), total solids, total suspended solids, total dissolved solids, basic anions: chloride (Cl^-), nitrites (NO_2^-), nitrates (NO_3^-), sulfides and hydrogen sulphide. These parameters indicated high concentrations of total solids and total suspended solids in the snow-water. The acidity (pH) was 5,1. According to the above analyses, the possible sources of the particles in the snowfall should be soil and ground dust and co al-burning.*

Keywords: *Orange-colored snow, Physical and chemical characterisations, Physical indicators, Chemical indicators.*

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SAT–LB-P-1-BFT(R)-08

COMPARISON OF ALEXA 488, DR110 AND FITC CONJUGATED TO ANTIBODY FOR MICROSCOPIC ASSAYS

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Abstract: *The fluorescent dyes DR110 and Alexa 488 were obtained. Synthetic fluorescent dyes that are conjugated to antibodies are useful tools in microscopic imaging. Alexa 488, DR110 and fluorescein 5(6)-isothiocyanate (FITC) were compared in applications using various conjugates with anti-sheep IgG antibody. Antibody-fluorescent dye conjugates with variety degree of labelling were obtained. Their fluorescence characteristics were observed by fluorescence spectrophotometer and fluorescence microscope. Brightness, photobleaching and background of the fluorescent conjugates were examined. Alexa 488 labeled antibody has brighter fluorescence and negligible photobleaching and background in microscopic assays, then DR110 and last FITC dye.*

Keywords: *Alexa 488, DR110, FITC, anti-sheep IgG antibody, fluorescent conjugates, microscopy.*

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SAT–LB-P-1-BFT(R)-09

USE OF ESSENTIAL OILS IN DAIRY PRODUCTS 4. ESSENTIAL OIL OF OREGANO (ORIGANUM VULGARE L.)

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Abstract: *Food is important to maintain and protect human health. A lot of traditional products* (*milk, fruits, vegetables, etc.*) *contain components with potential health benefits. New ones based on these food are being developed and they increase or join their useful components because of their benefits or desirable physiological effects. Today functional food based on milk takes up two-thirds of the total volume of the functional foods on the market as dairy foods are foods with naturally balanced composition of the essential nutrients such as protein, fats, carbohydrates, minerals, and enzymes.*

There are dairy products that were developed with an enriched composition through the addition of limseeds, sesameseeds, oat flakes, honey, and essential oil of oregano (*Origanum vulgare L.*).

The effect of the additives on the process of the acidifying, syneresis, and the development of lactic acid bacteria was researched. It was found that they are good for the lactic acid process. The prepared products have very good organoleptic properties and can be successfully used for the purposes of functional food.

Keywords: *dairy products, titratable acidity, syneresis, lactic acid bacteria*

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SAT–LB-P-1-BFT(R)-10

THE INFLUENCE OF INDUSTRIAL AND FACIAL WATER ON THE FIFTH CHANNEL SITUATION IN THE CITY OF BITOLA

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Abstract: *The concept of sustainability in urban waste water management is more commonly used and has a primary focus on ways to the environmental protection, public health and water resources* (*Ibrahimali A., 2014*).

The fifth channel is located in the City of Bitola and is filled with mountain water - Siva Voda. Half of the fecal wastewater from the City of Bitola and the village of Kravari and the industrial wastewater from the factory for yeast and alcohol, the beer factory, the factory for production of paper and cardboard packaging, the „Kiro Dandaro" printing plant and the Sugar Factory flow in it.The measuring points are along the fifth channel: Measuring point 1 - fifth channel at the exit from Bitola, Measuring point 2 - fifth channel at the village of Kravari, Measuring point 3 - fifth channel before it enters the Crna River. For determining the condition of the water, the following physical chemical parameters were examined in the fifth channel: the water temperature determined by a digital thermometer, turbidity (*opacity*) *was determined by turbidimeters, suspended solids, dissolved oxygen, biological oxygen consumption* (*BOD*), *chemical oxygen consumption* (*COD*) *and together organic carbon* (*TOC*) *was determined with UV PASTEL - tool for directly reading of the values. All examinatios are conducted in March and September. By summarizing the results obtained, it can be concluded that the largest pollution is in the Measuring point 2, which is more pronounced in September. The value of BOD is 370mg / L, TOC is 72,0 mg / L in the same measuring place and the same month. This situation is due to the increased concentration with organic pollution in the Measuring point 2. Therefore, it is preferable to temporarily clean the channels and purify the wastewater in order to protect the environment.*

Keywords: *Fifth channel, waste water, environmental pollution*

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PAINTING WITH YEASTS ON CHROMOGENIC DIFFERENTIAL CULTURE MEDIA

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Abstract: *Arts-related science activities provide unique opportunities to engage students' strengths. Microbial art, or agar art, is artwork created by culturing microorganisms in certain patterns. Agar plates are used as a canvas, while pigmented bacteria and yeasts represent the paint. Chromogenic media are frequently used in direct and rapid identification of yeasts because different species produce unique colors on these media. This study was thus undertaken to investigate the ability* (*or inability*) *of some Candida, Rhodotorula, Saccharomyces, Saccharomycodes, Endomyces and Kluyveromyces species to grow on chromogenic yeast culture medium - HiCrome™ Candida Differential Agar. Living works of art on agar plates were created by "painting" with yeasts that express various colors in chromogenic medium. The intensity of growth and the characteristic pigmentation of each of the studied yeasts were determined.*

Keywords: *Microbial art, Agar art, Yeasts, Chromogenic differential media.*

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SAT–LB-P-1-BFT(R)-12

DETERMINATION OF FATTY ACIDS PROFILE OF SUNFLOWER OIL SAMPLES BY NMR ^{1}H SPECTROSCOPY

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Abstract: *Sunflower oil with a high content of oleic acid* (*Omega-9*) *and a sufficiently low content of polyunsaturated linoleic acid* (*Omega-6*) *is characterized by a lower nutritional value but greater chemical stability at high temperatures and in the presence of oxidizing agents, therefore, it has several advantages for the food and chemical industries, and also as a raw material for the production of biofuels. Therefore, chemical and physical properties of sunflower oil as well as its area of application depend on its fatty acids profile. The determination of the TAG composition of oil is a very important task, because due to selection there are a large number of sunflower varieties. The spectra of oil samples extracted from seeds of various sunflower varieties were investigated by NMR ^{1}H spectroscopy to determine fatty acids composition. This method based on estimation and comparison the proton integral intensities of allylic and bis-allylic CH_2 groups with intensity of glycerol protons that allows determining the amounts of each of these unsaturated fatty acids. It was shown each oil sample obtained has its individual TAG profile determining its physicochemical properties and nutritional value. Method ^{1}H-NMR spectroscopy compared with alternative analytical methods is rapid and non-destructive, so it is perspective to be used for determination of fatty acid composition of sunflower oil.*

Keywords: *sunflower oil, fatty acid, oleic acid, linoleic acid, NMR spectroscopy, fatty acids profile.*

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SAT–LB-P-1-BFT(R)-13

STUDYING THE BORROWING STRUCTURE OF BAKERY PRODUCTS

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Abstract: *Bakery products after mixing by working elements of various configurations are estimated by physical and chemical indicators, one of the important consumer qualities of bread is its freshness and porosity.*

Among the most important organoleptic characteristics of porosity the uniformity of the arrangement of pores and their size were determined. After mixing, the yeast dough should increase in volume, acquire a capillary-porous structure, in which pores will form gaseous fermentation products. Studies have been carried out on the influence of costs of specific work during mixing on the formation of the number of pores in the cereal product.

Porosity characterizes the important qualitative property of bread. Low porosity is usually characterized by bread from poorly-battered yeast dough. By means of enhanced mechanical processing of the dough, the specific work required for the batch increases and the qualitative parameters of the porosity of the finished product increase accordingly. The porosity and structure of the porosity of finished products were investigated, preliminary kneading the yeast dough with the working elemets of different configurations.

Keywords: *Mixing, Yeast Dough, Porosity, Structure, Distribution.*

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SAT–LB-P-1-BFT(R)-14

INFLUENCE OF ELECTROPHYSICAL WATER TREATMENT ON THE PROCESS OF BEVERAGES SATURATION

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Abstract: *The content of carbon dioxide, which is actively used by producers of carbonated beverages as a preservative, acidity regulator and antioxidant, significantly affects the quality of finished products.*

The possibility of changing the ph value, which affects the balance between carbon dioxide, bicarbonate and carbonate during saturation, by electrophysical treatment of water was considered. Industry produces various variants of electrolysers, but they are not suitable for saturation of drinks. Therefore, the development of an appropriate design is an urgent task.

It is expedient to carry out the process of saturation simultaneously with the electrophysical treatment of pre-prepared (*cooled and deaerated*) *water. The parameters that influence the efficiency of electrophysical treatment and the quality of finished products are the voltage, the voltage-ampere characteristic, the mutual placement of the electrodes, the duration of activation, the degree of mineralization of the solution. The influence of material of equipment, including electrodes, on the content of metals in the carbonated beverages is also taken into account. Electrodes in the process of operation should not experience electrochemical destruction. It is expedient to make an anode from a titanium, a cathode - from a corrosion resistant steel AISI 321.*

Keywords: *Saturation, Beverage, Electrophysical treatment, ph value.*

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SAT–LB-P-1-BFT(R)-15

RESIDUES OF ORGANOPHOSPHORUS PESTICIDES IN APPLES

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Abstract: *Apples have a significant positive impact on human health. In the market, the apple supply lasts all year round and this is made possible by cultivating different types of apples. In the Republic of Macedonia, apples are mostly cultivated in the Prespa Region. During the process of cultivation there are used pesticides which belong to different chemical groups, such as organophosphate, organochlorine, pyrethroids, carbamates, dithiocarbamates etc. The purpose of this research was to determine the residue analysis of organophosphorus insecticides in apples: chlorpyrifos, dimethoate and omethoat. There were taken samples of apples from two different locations, Drmeni and Jankovec from Prespa Refion. The processes of extraction/separation and purification were done using acetonitrile and dispersive SPE-QuEChERS method and for their analysis were applied UPLC-TQ/MS. The concentration of residues of insecticides in apples from Jankovec was in the range of 0.02-0.05 mg / kg while in apples from Drmeni the value was between 0.02 - 0.06 mg / kg. The results show that parts of the analyzed apples containin insecticides with a higher concentration than the maximum residue limit (MRL), therefore the apples are not safe for consumption. Contamination of fruits with pesticides residues in general is one of the most important aspects of the food quality assurance. In order to provide consumers with food that does not contain residues of pesticides above the MRL, it is necessary to reduce the use of pesticides and to increase the application of integrated protection of crops, as well as to monitor and control products from authorized institutions.*

Keywords: *insecticides, apples, QuEChERS, UPLC-TQ/MS*

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INVESTIGATION OF THE UNIFORMITY OF DISTRIBUTION OF DIFFERENT TEST COMPONENTS AFTER FOLLOWING DISCHARGE

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Abstract: *One of the indicators for assessing the effectiveness of mixing the yeast dough is the homogeneity of the resulting mixture. The studies on mixing the yeast dough with the working elements of different configurations and their effect on the homogeneity of the distribution have been carried out. Using a high-precision microscope, homogeneity of distribution of yeast dough was investigated. The conducted studies allowed to obtain a fixed image of the distribution of components of the yeast dough after mixing with the working elements of different configurations. The uniform distribution of components is observed in the cam and finger working elements, in the screw working elements there is no part of mixing and adhesion of the components into large clumps. The research revealed a number of homogeneous particles that formed after mixing the yeast dough. Distribution coefficient after kneading by cam operating elements is 84%, there is even distribution of components in the structure of yeast dough. After mixing by the "finger" kneading elements, the distribution factor is 67%, therefore the uniform distribution of components in the structure of the dough is achieved. During the mixing with auger working elements, the distribution factor reaches 58%, for these values uniform distribution of components in the structure of the test cannot be reached, there contains traces of non-conductivity in the structure. A comparative analysis on the distribution and homogeneity of the yeast dough after mixing was carried out.*

Keywords: *Mixing, Yeast Dough, Working Elements, Distribution, Homogeneity.*

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SAT–LB-P-1-BFT(R)-17

JUSTIFICATION OF THE PRODUCTION LINES ARRANGEMENT BASED ON QUANTITATIVE AND GRAPHIC METHODS FOR ASSESSING THE LEVEL OF EQUIPMENT EXCELLENCE

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Abstract: *On the example of the estimation of technical and economic indicators of machines for the production of burger products, the task of multicriterial choice of equipment for the production lines arrangement by methods of spectral analysis, Pareto and distance to the goal was solved.*

The method of spectral analysis, is based on the apparatus of dead-end tests, involves comparing all the definite combinations of features which describe the object, has advantages over Pareto and motion to the goal methods, because it provides a generalized mathematical evaluation of the specimens which are considered.

After analyzing five indicators (*productivity, capacity, capacity of the feeding bin, weight, overall dimensions*) *of eight samples of equipment for the burger products production from different manufacturers, it has been established that according to the chosen parameters, the preference should be given to the machine Laminerva C/E 653 1ph.*

The correctness of a decision primarily depends on the correct choice of indicators to be compared. In their composition, in the future it is necessary to include indicators of reliability and durability, as well as quality indicators of finished products.

Keywords: *Multicriterial choice, Method of spectral analysis, Pareto front, Eequipment.*

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