



**"ANGEL KANCHEV" UNIVERSITY OF RUSE
UNION OF SCIENTISTS - RUSE**

**РУСЕНСКИ УНИВЕРСИТЕТ "АНГЕЛ КЪНЧЕВ"
СЪЮЗ НА УЧЕНИТЕ - РУСЕ**



**61st Annual Science Conference
of Ruse University and Union of Scientists - Ruse
NEW INDUSTRIES, DIGITAL ECONOMY,
SOCIETY - PROJECTIONS OF THE FUTURE V**

**61 - ва годишна научна конференция
на Русенски университет и Съюз на учените – Русе
НОВИ ИНДУСТРИИ, ДИГИТАЛНА ИКОНОМИКА,
ОБЩЕСТВО – ПРОЕКЦИИ НА БЪДЕЩЕТО V**



**SESSIONS SCHEDULE & ABSTRACTS
ПРОГРАМА & РЕЗЮМЕТА**

**Silistra, Ruse, Razgrad
Силистра, Русе, Разград
2022**



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

**РУСЕНСКИ УНИВЕРСИТЕТ “АНГЕЛ КЪНЧЕВ”
СЪЮЗ НА УЧЕНИТЕ – РУСЕ**

Sessions Schedule & Abstracts

Програма & Резюмета

61st Annual Science Conference of Ruse University

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

61^{ва} Годишна конференция на Русенския университет

**НОВИ ИНДУСТРИИ, ДИГИТАЛНА ИКОНОМИКА, ОБЩЕСТВО –
ПРОЕКЦИИ НА БЪДЕЩЕТО V**

2022 – Ruse, Razgrad, Silistra

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- **Maintenance and Reliability**
- **Thermal, Hydro- and Pneumatic Equipment**
- **Ecology and Conservation**
- **Industrial Design**
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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 60st Annual International Scientific Conference, which is co-organized by our two institutions. Scientific and plenary sessions are being held respectively in Silistra, on October 27 in Ruse – on 28 and 29 October, and in Razgrad, on 4 and 5 November, 2022.

Theme of the conference is "New Industries, Digital Economy, Society - Projections of the Future" - V. The Booklet includes the program and the abstracts of 357 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; Intercultural and Political Communication; European studies and International Security; Social Work; Mathematics, Informatics and Physics; Pedagogy and Psychology; History, Ethnology and Folklore; Linguistics, Literature and Art Science; Health Promotion; Medical and Clinical Diagnostic Activities; Health Care; Law; National Security; Quality of Higher Education.

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. Due to the great interest of scientists from home and abroad in the thematic fields under consideration in 2021, the topic "*New Industries, Digital Economy, Society - Projections of the Future - V*" is with a fifth edition this year. The projections of the future are threefold in finding lasting trends in the present.

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 61st ISC of the University of Ruse'22**".

Pending nominations by the Programme Committee, up to two papers from each section (1 for one prominent scientist and 1 for a young scientist in the respective scientific field), which have been submitted and presented in English, will be published in Compiled works „Best Paper'22“, 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 (ERICH+; EBSCO); „Agricultural, Forest and Transport Machinery and Technologies“ and „Pedagogical Innovations.“, 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'23 (Scopus, WoS), Serbian Journal of Management (Scopus, WoS).

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. 61, 2022 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 the 61st edition of the URAK&USR International Conference - live on our campus and online in the hybrid sessions provided with links in the Program!

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

From the co-organizers of the Conference,

▪ **Chair:**

Acad. DTSc. Hristo Beloev, DHC mult., Academician of Bulgarian Academy of Sciences
RECTOR of the URAK and CHAIRPERSON of the USR

▪ **Scientific Secretary:**

Prof. Diana Antonova DSc, Head of a University Scientific Research Complex

PROGRAM OVERVIEW

OCTOBER RESEARCH CONFERENCE IN SILISTRA

Thursday 27 October 2022

12:00 – 13:00 *Registration, (Room 113)*

14:00 – 15.30 *Plenary session, (Room 110)*

Keynote speakers:

THUR-110-1-KS(S)-01: *Prof. Georgy Atanasov, DhS,*
Regional historical museum, Silistra,
Head of Archeology Department
Topic: The Cathedral Church of Patriarch Damian /927-971/ in
Drustar/Silistra

THUR-110-1-KS(S)-02: *Prof. Ivan Stankov, PhD,*
St. Cyril and St. Methodius University,
Veliko Turnovo
Topic: Word for Yovkov

Friday 28 October 2022

10:00 – 12:00 *Parallel scientific events:*

FRI-239-1- PPM(S) **Pedagogy; Psychology and Methodology of training in...; (Room 239)**
Session Chair: Galina Lecheva; Tel.: +359 88 540 0647
Online Moderator: Galina Lecheva; Tel.: +359 88 540 0647
<https://exam1-bbb.uni-ruse.bg/b/2wh-whx-fym-1qy>

FRI-110-1-PP(S) **Philology and Philosophy (Room 110)**
Session Chair: Todorrka Georgieva; Tel.: +359 88 780 0271
Online Moderator: Todorka Georgieva; Tel.: +359 88 780 0271
<https://meet1.uni-ruse.bg/b/gcj-qyh-pge>

FRI-216-1-ITS(S) **IT and Technical Sciences (Room 216)**
Session Chair: Evgenia Goranova; Tel.: +359 88 741 1590
Online Moderator: Evgenia Goranova; Tel.: +359 88 741 1590
<https://meet1.uni-ruse.bg/b/k3d-zpe-fcn>

12:00 – 12:45 *Coffee-break*

12.45 – 16:30 *Parallel scientific events:*

FRI-229-2-PPM(S) **Pedagogy; Psychology and Methodology of training in...;**
Session Chair: Galina Lecheva; Tel.: +359 88 540 0647
Online Moderator: Galina Lecheva; Tel.: +359 88 540 0647
<https://exam1-bbb.uni-ruse.bg/b/2wh-whx-fym-1qy>

FRI-110-2-PP(S) **Philology and Philosophy;**
Session Chair: Todorrka Georgieva; Tel.: +359 88 780 0271
Online Moderator: Todorrka Georgieva; Tel.: +359 88 780 0271
<https://meet1.uni-ruse.bg/b/gcj-qyh-pge>

FRI-216-2-ITS(S) **IT and Technical Sciences;**
Session Chair: Evgenia Goranova; Tel.: +359 88 741 1590
Online Moderator: Evgenia Goranova; Tel.: +359 88 741 1590
<https://meet1.uni-ruse.bg/b/k3d-zpe-fcn>

OCTOBER RESEARCH CONFERENCE IN RUSE

Friday 28 October 2022

10:00 – 11:00

Registration - room 1.322

11:30 – 13:30

Plenary Session - Hall „Werner von Siemens“ 2G.204

Session Chair: Prof. Diana Antonova DSc,

<https://us02web.zoom.us/j/82375072596?pwd=M2hYZFVsMUFEbG1Zd01TOUNkcnN4QT09> Meeting ID: 823 7507 2596 Passcode: 770563

Greetings from Acad. DTSc Hristo Beloev, DHC mult., Academician of Bulgarian Academy of Sciences, Rector of URAK, Chairperson of US - Ruse

Key Speakers:

FRI-2G.204FS-01:

Dilyan Ferdinandov, MD, MPH, PhD, FEBNS, Neurosurgeon, Assoc. Prof.

*Clinic of Neurosurgery, St. Ivan Rilski University Hospital, Sofia, Bulgaria
Department of Neurosurgery, Faculty of Medicine, Medical University of Sofia,*

Vertebra Medical Center, Sofia, Bulgaria

Topic: Technical Advances and Trends in Neurosurgery for Better Quality of Life

FRI-2G.204FS-02

D-r rer. nat. Dirk Wagener,

Corporate & Personal Health Consulting, Hamburg, Germany

Topic: The innovative ZELLKRAFT program of the Rotherbaum Center for Prevention and Health Management - Noticeably more energy in every cell of the human body.

FRI-2G.204FS-03

Academician Chavdar Rumenin, Institute of Robotics, BAS

Director of the National Competence Center "Quantum communication, intelligent security systems and risk management" QUAZAR

Topic: Innovation in Technology - from the Invisible and Impossible to the Future Today

13:30 – 14:00

Coffee Break: Lobby in front of Hall „Werner von Siemens“ 2G.204

14:00 – 18:00

Parallel Scientific Sessions:

FRI-8.303b-1-AMT&ASVM

Agricultural Machinery and Technologies, Agrarian Science and Veterinary Medicine (Room 8.303b)

Session Chair: Atanas Atanasov; Tel.: 0885 497 406

Online Moderator: Atanas Atanasov; Tel.: 0885 497 406

<https://meet.uni-ruse.bg/b/jkz-y22-3jf>

FRI-1.202-1-MR

Maintenance and Reliability (Room 1.202)

Session Chair: Mitko Nikolov; Tel.: 082 888 458

Online Moderator: Mitko Nikolov; Tel.: 082 888 458

<http://bbb.uni-ruse.bg/b/nwu-mx7-rrh>

FRI-9.2-1-THPE

Thermal, Hydro- and Pneumatic Equipment (Room 9.2)

Session Chair: Gencho Popov

Online Moderator: Gencho Popov; Tel.: 082 888 441

<https://meet1.uni-ruse.bg/b/v49-x2n-6vf>

FRI-19.206-1-EC

Ecology and Conservation

Session Chair: Plamen Manev; Tel.: 082 888 485

Online Moderator: Plamen Manev; Tel.: 082 888 485

<https://meet1.uni-ruse.bg/b/v49-x2n-6vf>

FRI-16.203-1-ID

Industrial Design (Room 16.203)

Session Chair: Yordan Doychinov; Tel: 088 727 3040

Online Moderator: Yordan Doychinov; Tel.: 088 727 3040

<https://meet1.uni-ruse.bg/b/cj3-qnb-cs8-4qw>

FRI-1.317-1-MEMBT	Mechanical Engineering and Machine-Building Technologies (Room 1.317) <i>Session Chair: Ivelin Ivanov, Tel. 088 774 5811</i>
FRI-10.326-1-EEEE	Electrical Engineering, Electronics and Automation (Room 10.326) <i>Session Chair: Nadezhda Evstatieva</i> <i>Online Moderator: Dimitar Trifonov</i> https://meet.uni-ruse.bg/b/6yq-rtu-r5l-d7s
FRI-10.326-2-EEEE	Electrical Engineering, Electronics and Automation (Room 10.326) <i>Session Chair: Nadezhda Evstatieva</i> <i>Online Moderator: Dimitar Trifonov</i> https://meet.uni-ruse.bg/b/6yq-rtu-r5l-d7s
FRI-2G.303-1-CCT1	Communication and Computer Technologies (Room 2G.303) <i>Session Chair: Tsvetozar Georgiev</i>
FRI-2G.302-1-CCT2	Communication and Computer Technologies (Room 2G.302) <i>Session Chair: Georgi Hristov</i>
FRI-2G.302-2-CCT2	Communication and Computer Technologies (Room 2G.302) <i>Session Chair: Georgi Hristov</i>
FRI-2.206-1-TMS	Transport and Machine Science (Room 2.206) <i>Session Chair: Rosen Ivanov</i>
FRI-2.206-2-TMS	Transport and Machine Science (Room 2.206) <i>Session Chair: Rosen Ivanov</i>
FRI-20.25-1-SITSTL	Sustainable and Intelligent Transport Systems, Technologies and Logistics (Room 20.25) <i>Chair: Ivan Beloev;</i> <i>Online Moderator: Mihail Milchev; Tel.: 0882 390 080</i> https://meet1.uni-ruse.bg/b/an2-dwd-anz
FRI-20.25-2-SITSTL	Sustainable and Intelligent Transport Systems, Technologies and Logistics (Room 20.25) <i>Chair: Dimitar Grozev;</i> <i>Online Moderator: Mihail Milchev; Tel.: 0882 390 080</i> https://meet1.uni-ruse.bg/b/an2-dwd-anz
FRI-2B.412-1-EM1	Economics and Management 1 (Room 2B.412) <i>Session Chair: Anton Nedyalkov</i> <i>Online Moderator: Igor Sheludko</i> https://meet.uni-ruse.bg/b/une-kze-fwa
FRI-2G.404-1-EM2	Economics and Management 2, (Room 2B.404) <i>Session Chair: Svilen Kunev</i> <i>Online Moderator: Aleksandar Kosuliev</i> https://exam-bbb.uni-ruse.bg/b/vme-m6r-mjt
FRI-2G.510-1-ESIS1	European Studies and International Security (Room 2G.510) <i>Session Chair: Vladimir Chukov</i> <i>Online Moderator: Krasimir Koev</i> https://exam-bbb.uni-ruse.bg/b/q26-qu6-x92
FRI-2G.510-1-ESIS2	European Studies and International Security (Room 2G.510) <i>Session Chair: Mimi Kornazheva</i> <i>Online Moderator: Eva Parvanova</i> https://exam-bbb.uni-ruse.bg/b/q26-qu6-x92
FRI-1.322-1-SW	Social Work (Room 1.322) <i>Session Chair: Ana Popova</i> <i>Online Moderator: Irina Kostadinova</i> https://us02web.zoom.us/j/82375072596?pwd=M2hYZFVsMUFEbG1Zd01TOUpkcFN4QT09 / Meeting ID: 823 7507 2596 Passcode: 770563
FRI-1.414-MIP	Mathematics, Informatics and Physics (Room 1.414) <i>Session Chair: Tsvetomir Vasilev</i> <i>Online Moderator: Tsvetomir Vasilev; Tel.: 0888 270 326</i> https://exam-bbb.uni-ruse.bg/b/tzv-vc-rae

- FRI-2.116-ERI** **Education - Research and Innovations (Room 2.116)**
Session Chair: Emilia Velikova
Online Moderator: Emilia Velikova; Tel: 0885 635 847
<https://exam1-bbb.uni-ruse.bg/b/x96-79u-vvw-esd>
- FRI-2G.405-PP** **Pedagogy and Psychology (Room 2G.405)**
Session Chair: Bagryana Ilieva
Online Moderator: Lora M. Radoslavova; Tel.: 0889 699 115
<https://exam-bbb.uni-ruse.bg/b/96a-unh-gaj>
- FRI-2G.403-LL** **Linguistics and Literature (Room 2G.403)**
Session Chair: Velislava Doneva
Online Moderator: Niya Peneva; Tel: 0886 214 639
<https://us05web.zoom.us/j/5052780605?pwd=MUxzTFJoek14Qit5QTIXYUlzZVdMdz09>
- FRI-2G.307-AS** **Art Studies (Room 2G.307)**
Session Chair: Petya Stefanova
Online Moderator: Petya Stefanova; Tel.: 0896 820 470
<https://us04web.zoom.us/j/2038807908?pwd=Y3NMVW9hOWFMcU9ldlphblZuWHpyZz09>
- FRI-2K.201-1-HP** **Health Promotion (Room 2K.201)**
Session Chair: Stefka Mindova
Online Moderator: Stefka Mindova
<https://meet.uni-ruse.bg/b/awn-2yw-vdm>
- FRI-2G.309-1-MCDA** **Medical and Clinical Diagnostic Activities (Room 2G.309)**
Session Chair: Denitsa Trancheva
Online Moderator: Denitsa Trancheva
<https://meet.uni-ruse.bg/b/rca-mfr-uah>
- FRI-2G.104-1-HC** **Health Care (Room 2G.104)**
Session Chair: Tsveta Hristova
Online Moderator: Tsveta Hristova
<https://meet1.uni-ruse.bg/b/wc2-juu-j7m>
- FRI-2B.313-1-L** **Law (Room2B.313)**
Session Chair: Elitsa Kumanova
Online Moderator: Elitsa Kumanova; Tel: 082888434
<https://meet1.uni-ruse.bg/b/juc-2fn-nar>
- FRI-2B.313-2-L** **Law (Room2B.313)**
Session Chair: Elitsa Kumanova
Online Moderator: Elitsa Kumanova; Tel: 082888434
<https://meet1.uni-ruse.bg/b/juc-2fn-nar>
- FRI-2B.312-1-NS** **National Security (Room 2B.312)**
Session Chair: Milen Ivanov
Online Moderator: Milen Ivanov; Tel: 082888736
<https://exam-bbb.uni-ruse.bg/b/kre-ztf-vc2>
- FRI-K1-1-QHE** **Quality of Higher Education (Room Kaneff Hall 1)**
Session Chair: Ivanichka Serbezova

Friday 28 October 2022

19:30 – 23:00

*Parallel Scientific Sessions:
Ball of the Scientists - Grand Hotel Riga - White Salon*

NOVEMBER RESEARCH CONFERENCE IN RAZGRAD

Friday 04 November 2022

11:00 – 12:30

Opening, Plenary Session: Large Conference Room
Session Chair: Assoc. Prof. Tsvetan Dimitrov, PhD
Online Moderator: Assoc. Prof. Tsvetan Dimitrov, PhD;
Tel. +359887631645
<https://meet.uni-ruse.bg/b/fht-4en-rjy>

FRI-LCR-KS(R)-01:

Prof. Irena Markovska, PhD
Assen Zlatarov University, Burgas, Bulgaria
Direct synthesis of graphene by using combined electrolysis and ultrasonic methods

FRI-LCR-KS(R)-02:

Assoc. Prof. Daniel Pavlov, PhD
University of Ruse “Angel Kanchev”
The intergenerational family businesses as an instrument for development of the food industry

13:30 – 15:30

Parallel scientific events: Large Conference Room

FRI-LCR-1-CT(R)

Chemical Technologies
Session Chair: Temenuzhka Haralanova
Online Moderator: Temenuzhka Haralanova
Tel. +359878557143
<https://meet.uni-ruse.bg/b/fht-4en-rjy>

FRI-LCR-1-BFT(R)

Biotechnologies and Food Technologies
Session Chair: Iliana Kostova
Online Moderator: Iliana Kostova;
Tel. +359886430204
<https://meet.uni-ruse.bg/b/fht-4en-rjy>

15:30 – 18:00

Parallel Poster Sessions: Large Conference Room

FRI-LCR-P-2-CT(R)

Chemical Technologies
Session Chair: Tsvetan Dimitrov
Online Moderator: Tsvetan Dimitrov;
Tel. +359887631645
<https://meet.uni-ruse.bg/b/fht-4en-rjy>

FRI-LCR-P-2-BFT(R)

Biotechnologies and Food Technologies
Session Chair: Stanka Damyanova
Online Moderator: Stanka Damyanova; Tel. +359882669689
<https://meet.uni-ruse.bg/b/fht-4en-rjy>

19:30 – 23:00

Parallel Scientific Sessions:
Ball of the Scientists - Restaurant Les

SESSION SCHEDULE

OCTOBER RESEARCH CONFERENCE IN SILISTRA

Thursday 27 October 2022

12:00 – 13:00 *Registration, (Room 113)*

14:00 – 15.30 *Plenary session,(Room 110)*

Keynote speakers:

THUR-110-1-KS(S)-01:

*Prof. Georgy Atanasov, DhS,
Regional historical museum, Silistra,
Head of Archeology Department
Topic: The Cathedral Church of Patriarch Damian /927-971/ in
Drustar/Silistra*

THUR-110-1-KS(S)-02:

*Prof. Ivan Stankov, PhD,
St. Cyril and St. Methodius University,
Veliko Turnovo
Topic: Word for Yovkov*

Friday 28 October 2022

10:00 – 12:00 *Parallel Sessions Online, Room 239*

FRI-239-1- PPM(S)

Pedagogy; Psychology and Methodology of training in ...
Session Chair: Galina Lecheva; Tel.: +359 88 540 0647
Online Moderator: Galina Lecheva; Tel.: +359 88 540 0647
<https://exam1-bbb.uni-ruse.bg/b/2wh-whx-fym-1qy>

FRI-239-1-PPM(S)-01:

Psychological Aspects of the Professional-Personal Purpose of the Future
Tour-Guide in the Tourist Guide Industry
Zahariy Dechev

FRI-239-1-PPM(S)-02:

Towards an Analytical Overview of the Pedagogical Reflection as Self-
Branding
Diana Zhelezova

FRI-239-1-PPM(S)-03:

The Golden Ratio and Literature Lesson Design
Galina Lecheva

FRI-239-1-PPM(S)-04:

Psychological Distinctiveness of the Professional-Personal Shaping,
Development and Perfection of the Tour-Guide
Zahariy Dechev

FRI-239-2- PPM(S)-05:

The Formation of Geographical Competence – An Important Structural
Element of Modern Student Education
Valentin Atanasov

FRI-239-2-PPM(S)-06:

Studies on Artistic Style in Bulgarian Methodical Literature
Tanya Encheva

12:45 – 16:30

Parallel Sessions Online, Room 239

FRI-239-2-PPM(S)

Pedagogy; Psychology and Methodology of training in ...
Session Chair: Galina Lecheva; Tel.: +359 88 540 0647
Online Moderator: Galina Lecheva; Tel.: +359 88 540 0647
<https://exam1-bbb.uni-ruse.bg/b/2wh-whx-fym-1qy>

FRI-239-2- PPM(S)-01:

The Steam Approach in Non-Formal Learning for Overcoming the Gender
Gap
Diana Bebenova-Nikolova, Diana Zhelezova-Mindizova

FRI-239-2- PPM(S)-02:

Psychological Rules, Affecting the Tour-Guide's Personality and
Professional Growth
Zahariy Dechev

- FRI-239-2- PPM(S)-03: Literary Phenomena and Literary Education in the Context of Digital Creativity
Galina Lecheva
- FRI-239-2- PPM(S)-04: Modern Approaches and Models of Improving the Educational Process in Economic Accounting Analysis in a University
Marko Timchev
- FRI-239-2- PPM(S)-05: The Formation of Geographical Competence – An Important Structural Element of Modern Student Education
Valentin Atanasov
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10:00 – 14:00

Parallel Sessions Online, Room 110

FRI-110-1-PP(S)

Philology and Philosophy

Session Chair: Todorka Georgieva; Tel.: +359 88 780 0271

Online Moderator: Rumiana Lebedova; Tel.: +359 88 780 0271

<https://meet1.uni-ruse.bg/b/gcj-qyh-pge>

- FRI-110-1-PP(S)-01: The Bulgarian European - Cultural Memory and Symbolic Messages of Understanding and Knowledge
Mila Galabova-Marinova
- FRI-110-1-PP(S)-02: The Costumes of the Grebentsi in Silistra Region According to Photos, Publications and Notes from 1785-1923
Snezhanka Gencheva
- FRI-110-1-PP(S)-03: To the Question of Three Bulgarian Ethnic Names: Rup, Shop, and Hurtsoi Bulgarians
Ivan Iliev, Larry Koroloff,
- FRI-110-1-PP(S)-04: The Ancient Language Features in a Folk Song from Silistra Region
Todorka Georgieva
- FRI-110-1-PP(S)-05: Colonel Nikola Botev – Commander and Godfather of the 3rd Infantry Silistra Regiment in World War II
Natalia Mincheva
- FRI-110-1-PP(S)-06: Balkan Rhetoric
Costea Alina
- FRI-110-1-PP(S)-07: Frazeologisme Balcanice Având La Bază Părți Ale Corpului. Unități Frazeologice Formate De La Substantivul „Cap”
Cristina-Valentina Dafinoiu
- FRI-110-1-PP(S)-08: Syntactic Parallelisms in the Bulgarian and Romanian Languages
Silvia Angelova
- FRI-110-1-PP(S)-09: The Problem of the Identity Crisis in the Novel "Haika za Woltsi" by Ivaylo Petrov
Rumyana Lebedova
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10:00 – 14:00

Parallel Sessions Online, Room 110

FRI-110-2-PP(S)

Philology and Philosophy

Session Chair: Todorka Georgieva; Tel.: +359 88 780 0271

Online Moderator: Rumiana Lebedova; Tel.: +359 88 780 0271

<https://meet1.uni-ruse.bg/b/gcj-qyh-pge>

- FRI-110-2-PP(S)-01: Functional Uses of TH' 1` 1ZXE Subordinate Conjunctions "QUE" and "ЧЕ" in the Oral Practice of French and Bulgarian
Veska Kirilova
- FRI-110-2-PP(S)-02: Lexical Asymmetry between the Bulgarian Nouns Бряг and Ръб and the French Noun Bord
Nevena Stoyanova
- FRI-110-2-PP(S)-03: On an Interesting Use of Simple Sentences with Discursive Semantics in Yordan Yovkov's Stories
Donka Ilieva
-

- FRI-110-2-PP(S)-04: The Soteriological Logos in Beatrice and Albena
Vladi Vladev
- FRI-110-2-PP(S)-05: Studies on Artistic Style in Bulgarian Methodical Literature
Tanya Encheva
- FRI-110-2-PP(S)-06: Stylistics of Sanctity in the Story "The Reaper" by Yordan Yovkov
Ivelin Iliev
- FRI-110-2-PP(S)-07: Studies on the Artistic Style in the Bulgarian Methodological Literature
Tanya Encheva
- FRI-110-2-PP(S)-08: Style of Holiness in Yordan Jovkov's Story "The Harvest"
Ivelin Iliev
- FRI-110-2-PP(S)-09: On an Interesting Use of Simple Sentences with Discursive Semantics in Yordan Yovkov's Stories
Donka Ilieva

10:00 – 11:00

Parallel Sessions Online, Room 216

FRI-216-1-ITS(S)

IT and Technical Sciences

Session Chair: Evgenia Goranova; Tel.: +359 88 741 1590

Online Moderator: Evgenia Goranova; Tel.: +359 88 741 1590

<https://meet1.uni-ruse.bg/b/k3d-zpe-fcn>

- FRI-216-1-ITS(S)-01: Digital Creativity in Creating E-Lessons
Evgenia Goranova
- FRI-216-1-ITS(S)-02: An Investigation of the Electric Voltage Quality of Power Supply of an Industrial Induction Furnace
Svetlozar Grigorov, Konstantin Koev
- FRI-216-1-ITS(S)-03: Synthesis and Application of Phosphorus Containing Composites as Electrocatalytic Materials
Ivelina Tsacheva, Mariela Dimitrova, Adriana Gigova, Ognyan Dimitrov, Dzhamal Uzun
- FRI-216-1-ITS(S)-04: State of the Car Fleet in Europe
Milen Sapundzhiev, Valentin Manev
- FRI-216-1-ITS(S)-05: Smart Control of Parameters in Autonomous Hen House
Ivan Ivanov, Nikolay Valov, Vladimir Canknov
- FRI-216-1-ITS(S)-06: Investigation of the Influence of the Size of the Air Gap between the Solenoid and the Unloader Valve Armature on Hydraulic Characteristics of Electromagnetic Injectors CRI 1
Valentin Manev, Milen Sapundzhiev
- FRI-216-1-ITS(S)-07: Interactive Methods and Innovative Technology for e-Learning through Youtube Channel
Ventzislava Angelova

OCTOBER RESEARCH CONFERENCE IN RUSE

Friday 28 October 2022

10:00 – 11:00

Registration - room 1.322

11:30 – 13:30

Plenary Session - Hall „Werner von Siemens“ 2G.204

Session Chair: Prof. Diana Antonova DSc,

<https://us02web.zoom.us/j/82375072596?pwd=M2hYZFVsMUFEbG1Zd01TOUkpcFN4QT09> Meeting ID: 823 7507 2596 Passcode: 770563

Greetings from Acad. DTSc Hristo Beloev, DHC mult., Academician of Bulgarian Academy of Sciences, Rector of URAK, Chairperson of US - Ruse

Key Speakers:

FRI-2G.204FS-01:

Dilyan Ferdinandov, MD, MPH, PhD, FEBNS, Neurosurgeon, Assoc. Prof. Clinic of Neurosurgery, St. Ivan Rilski University Hospital, Sofia, Bulgaria
Department of Neurosurgery, Faculty of Medicine, Medical University of Sofia,

Vertebra Medical Center, Sofia, Bulgaria

Topic: Technical Advances and Trends in Neurosurgery for Better Quality of Life

FRI-2G.204FS-02:

D-r rer. nat. Dirk Wagener,

Corporate & Personal Health Consulting, Hamburg, Germany

Topic: The innovative ZELLKRAFT program of the Rotherbaum Center for Prevention and Health Management - Noticeably more energy in every cell of the human body.

FRI-2G.204FS-03:

Academician Chavdar Rumenin, Institute of Robotics, BAS

Director of the National Competence Center "Quantum communication, intelligent security systems and risk management" QUAZAR

Topic: Innovation in Technology - from the Invisible and Impossible to the Future Today

13:30 – 14:00

Coffee Break: Lobby in front of Hall „Werner von Siemens“ 2G.204

14:00 – 18:00

Parallel Sessions Online, Room 8.303b

FRI-8.303b-1-AMT&ASVM

Agricultural Machinery and Technologies, Agrarian Science and Veterinary Medicine

Session Chair: Atanas Atanasov; Tel.: 0885 497 406

Online Moderator: Atanas Atanasov; Tel.: 0885 497 406

<https://meet.uni-ruse.bg/b/jkz-y22-3jf>

FRI-8.303b-1-AMT&ASVM-01:

Analysis of the Leguminous Crops Production in Bulgaria

Bozhidar Kolev, Miroslav Mihaylov

FRI-8.303b-1-AMT&ASVM-02:

Determination of Operating and Economic Indicators of a Planter with Different Transmission Systems

Iliyan Bojkov, Dimitar Kehayov, Ivan Zahariev

FRI-8.303b-1-AMT&ASVM-03:

Mechatronic Control System for Gutter Sowing Devices

Dimitar Kehayov, Ivan Zahariev, Petya Genkova

FRI-8.303b-1-AMT&ASVM-04:

Productive Potential and Breeding Suitability of Hybrid Maize Crosses with RL61/31 Paternal Line

Lyubomir Ivanov, Evgeniya Zhekova

FRI-8.303b-1-AMT&ASVM-05:

Productive Potential and Breeding Suitability of Hybrid Maize Crosses with RM619 Paternal Line

Lyubomir Ivanov, Evgeniya Zhekova

FRI-8.303b-1-AMT&ASVM-06:

Study of Moisture in the Grain and Period of Emergency-Germination in Five Early Hybrids of Corn (ZEA MAYS L.)

Lyubomir Ivanov, Galina Dyakova

FRI-8.303b-1-AMT&ASVM-07:

A New-Generation Patented Thresher Device

Lyubomir Petrov

14:00 – 18:00	<i>Parallel Sessions Online, Room 1.202</i>
FRI-1.202-1-MR	Maintenance and Reliability <i>Session Chair: Mitko Nikolov; Tel.: 082 888 458</i> <i>Online Moderator: Mitko Nikolov; Tel.: 082 888 458</i> http://bbb.uni-ruse.bg/b/nwu-mx7-rrh
FRI-1.202-1-MR-01:	Investigation of the Microhardness of Sliding Surfaces from Restorative Coatings for Bearings and Shafts from Agricultural Machinery Mitko Nikolov, Plamen Kangalov
FRI-1.202-1-MR-02:	The Role of Friction in Machines Mitko Nikolov
FRI-1.202-1-MR-03:	Research on the Intensity of Incoming and Outgoing Requests for Maintenance Service of Mobile Machinery Kaloyan Nikolaev, Danel Leekassa Bekana
FRI-1.202-1-MR-04:	Research on Rail Defects on the Railway in Northern Bulgaria Borislav Valchev
FRI-1.202-1-MR-05:	Research on the Trend of Intensity of Renewal of Agricultural Machinery in Bulgaria Ivan Ivanov, Todor Delikostov
FRI-1.202-1-MR-06:	Possibility of Limiting the Load Capacity of Electric Hoists Toni Uzunov
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14:00 – 18:00	<i>Parallel Sessions Online, Room 9.2</i>
FRI-9.3-1-THPE	Thermal, Hydro- and Pneumatic Equipment <i>Session Chair: Gencho Popov</i> <i>Online Moderator: Gencho Popov; Tel.: 082 888 441</i> https://meet1.uni-ruse.bg/b/v49-x2n-6vf
FRI-9.2-1-THPE-01:	Operation of a Special Saddle 3/3 Distributor Blain Ev100 with Electromagnetic Control Ivailo Nikolaev
FRI-9.2-1-THPE-02:	Determining the Values of a Centrifugal Pumps Operating Parameters when Trimming their Impellers Desislava Nikolova
FRI-9.2-1-THPE-03:	Types of Steam Turbines and their Characteristics Ivan Petrov, Plamen Mushakov
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14:00 – 18:00	<i>Parallel Sessions Online, Room 19.206</i>
FRI-19.206-1-EC	Ecology and Conservation <i>Session Chair: Plamen Manev; Tel.: 082 888 485</i> <i>Online Moderator: Plamen Manev; Tel.: 082 888 485</i> https://meet1.uni-ruse.bg/b/v49-x2n-6vf
FRI-19.206-1-EC-01:	Fabrication of a Silicone Matrix for the Study of Wood and Rubber Particle Composites Orlin Antonov, Emil Yankov, Margaritka Filipova, Ivanka Zheleva
FRI-19.206-1-EC-02:	Good Pedagogical Practice for Application of Statistics in Environment Mariana Nikolova, Irina Minkova, Margaritka Filipova
FRI-19.206-1-EC-03:	Standards of Maximum Permissible Concentrations of Pollutants in the Atmospheric Air Irina Minkova, Mariana Nikolova
FRI-19.206-1-EC-04:	Noise Assessment of Server Operating in Educational Environment Nikolaj Kovachev
FRI-19.206-1-EC-05:	Training Opportunities for the Prevention and Management of Forest Fire Using a Geographic Information System Plamen Manev

14:00 – 18:00	Parallel Sessions Online, Room 16.203
FRI-16.203-1-ID	Industrial Design Session Chair: Yordan Doychinov, PhD, Tel: 088 727 3040 Online Moderator: Yordan Doychinov, PhD; Tel.: 088 727 3040 https://meet1.uni-ruse.bg/b/cj3-qnb-cs8-4qw
FRI-16.203-1-ID-01:	Negative Aspects of the Textile and Fashion Industry and Some Ideas to Deal with Them Sofia Anguelova, Boryana Georgieva
FRI-16.203-1-ID-02:	Research on the Qualities of Knitwear for the Purpose of an Innovative Wearable Device Boryana Georgieva, Sofia Anguelova
FRI-16.203-1-ID-03:	Perceptual Aspects of the Design Process Yordan Doychinov, Silvia Tcheparova
FRI-16.203-1-ID-04:	Comparative Analysis of the Most Popular Types of Carbonisation in Tobacco Smoking Pipes Desislav Gechev Ivanov
FRI-16.203-1-ID-05:	Speaking and Communication in Public Life. Socio-Linguistic Analysis of Communication – Part 2 Milen Minchev
FRI-16.203-1-ID-06:	Communication as a Basic Tool in Design Processes Silvia Tcheparova, Yordan Doychinov
FRI-16.203-1-ID-07:	The Future of Higher Education through a University for “One Person” Kamen Uzunov, Yordan Doychinov
FRI-16.203-1-ID-08:	Evolution of the Automotive Lighting Sculpture Concept Teodor Kyuchukov
FRI-16.203-1-ID-09:	Ergonomics and Design for Occupational Therapi Practice Cvetomir Konov

14:00 – 18:00	Parallel Sessions Room 1.317
FRI-1.317-1-MEMBT	Mechanical Engineering and Machine-Building Technologies Session Chair: Ivelin Ivanov
FRI-1.317-1-MEMBT-01:	Research on Leak Rate of Expanded PTFE Flat Gasket with Locally Increased Density Evlogi Mladenov, Danail Gospodinov, Rossen Radev
FRI-1.317-1-MEMBT-02:	Influence of Heat Transfer Coefficient on End-Quench Test Simulation Iliyan Danev, Danail Gospodinov, Rossen Radev
FRI-1.317-1-MEMBT-03:	Construction of Orthodontic Appliances Using Layering Technologies Veselina Dukova, Roussi Minev, Emil Yankov
FRI-1.317-1-MEMBT-04:	Effect of Laser Marking on the Microstructure and Corrosion Characteristics of Stainless Steel Veselin Hristov, Mariana Ilieva, Emil Yankov, Lybomir Lazov, Roussi Minev
FRI-1.317-1-MEMBT-05:	Influence of the Process Parameters on the Mechanical Properties of Friction Stir Welded Joints of AA 5754 Danail Gospodinov, Nikolay Ferdinandov, Mariana Ilieva, Rossen Radev
FRI-1.317-1-MEMBT-06:	Development of a Tool for Friction Stir Welding of Polymeric Materials Danail Gospodinov, Nikolay Ferdinandov
FRI-1.317-1-MEMBT-07:	Vibration Measurement and Analysis of a Friction Stir Welding Process Svetlin Stoyanov, Ivo Draganov
FRI-1.317-1-MEMBT-08:	Explicit Coupled Eulerian-Lagrangian Simulation of Friction Stir Welding Vyacheslav Burlaenko, Ivelin Ivanov, Svetlana Dimitrova
FRI-1.317-1-MEMBT-09:	Possibility to Implement FSW Processes on CNC Machining Centers Dimitar Dimitrov

FRI-1.317-1-MEMBT-10: Technological Assurance of Accuracy in the Turning of Details on CNC Machines
Svetlana Koleva, Kristian Velev

14:00 – 15:30

Parallel Sessions Online, Room 10.326

FRI-10.326-1-EEEE

Electrical Engineering, Electronics and Automation

Session Chair: Nadezhda Evstatieva

Online Moderator: Dimitar Trifonov

<https://meet.uni-ruse.bg/b/6yq-rtu-r5l-d7s>

FRI-10.326-1-EEEE-01:

An Investigation of Some Characteristics of the Power Quality of Power Supply of an Industrial Induction Furnace

Konstantin Koev, Svetlozar Grigorov

FRI-10.326-1-EEEE-02:

A Model for Simulation of Separately Excited DC Motors in Virtual Environments

Boris Evstatiev, Katerina Gabrovska-Evstatieva

FRI-10.326-1-EEEE-03:

Substantiation of Solar Intensity Levels and Biological Needs for Lighting During Greenhouse Rotating Fruit and Vegetable Products in Almaty Region

B. N. Bekaidarova, A. K. Atyhanov

FRI-10.326-1-EEEE-04:

A Comparative Analysis of Optical Instruments Properties for the Prediction of Main Characteristics of Engine Oils

A. Ivanova-Vasileva, Zlatin Zlatev, Tsvetelina Georgieva, Plamen Daskalov

FRI-10.326-1-EEEE-05:

Design and Development of a Test Bench for Squirrel Cage Induction Motor

Dimitar Trifonov

FRI-10.326-1-EEEE-06:

Possibilities for the Implementation of Intelligent Lighting Systems with the Application of Bms

Cvetomir Lukanov, Orlin Petrov

FRI-10.326-1-EEEE-07:

Application of the Radiance Software in Training Lighting Engineering Students

Metin Ibryamov, Orlin Petrov

FRI-10.326-1-EEEE-08:

Evaluation of Statistical Parameters of Optical Soil Monitoring Devices

Antonina Mihaylova, Tsvetelina Georgieva, Plamen Daskalov, Miroslav Mihaylov

15:45 – 18:00

Parallel Sessions Online, Room 10.326

FRI-10.326-2-EEEE

Electrical Engineering, Electronics and Automation

Session Chair: Nadezhda Evstatieva

Online Moderator: Dimitar Trifonov

<https://meet.uni-ruse.bg/b/6yq-rtu-r5l-d7s>

FRI-10.326-2-EEEE-01:

Modeling the Operation of a Sequentially Excitation DC Engine in Matlab/Simulink

Vyara Ruseva, Anka Krasteva

FRI-10.326-2-EEEE-02:

Analysis of the Factors Affecting Household Electricity Consumption

Vyara Ruseva, Anka Krasteva

FRI-10.326-2-EEEE-03:

Linear Quadratic Control of a Servo System

Donka Ivanova, Martin Dejanov

FRI-10.326-2-EEEE-04:

Assessment of the Quality of Measurement of Parameters in Animal Farm

Belma Gaazi, Tsvetelina Georgieva, Plamen Daskalov

FRI-10.326-2-EEEE-05:

Application of the E-Health and Prevention System in Physiotherapeutic Procedures

Aneliya Manukova, Aleksander Andreev

FRI-10.326-2-EEEE-06:

Analysis of Electronic Systems for Control of Smart Greenhouses

Amjed Kraiem, Sime Saka, Seher Kadirova

FRI-10.326-2-EEEE-07:

Analisis and Investigation of Dielectric Polarization: a Review

FRI-10.326-2-EEEE-08: **Negrea Andrei-Alexandru, Pauna George-Viorel, Doaga Florin-Adrian, Nicolay Mihailov, Seher Kadirova, Marius Cucu**
Current Status and Future Directions of Renewable Energy Sources in Spain
Claudia Herrera Quintero, Nicolay Mihailov

14:00 – 18:00

Parallel Sessions Room 2G.303

FRI-2G.303-1-CCT1

Communication and Computer Technologies 1

Session Chair: Tsvetozar Georgiev

FRI-2G.303-1-CCT1-01:

The Hobby Time Training Approach

Milen Loukantchevsky

FRI-2G.303-1-CCT1-02:

Parking Guidance Cases Adaptation

Neyko Neykov, Svetlana Stefanova

FRI-2G.303-1-CCT1-03:

Speech Recognition in Android Serious Game

Ivan Ralev, Georgi Krastev

FRI-2G.303-1-CCT1-04:

Research and Analysis of Practical Training after COVID-19 with Students of Specialty "Computer Systems and Technologies"

Lachezar Yordanov

FRI-2G.303-1-CCT1-05:

Digitization of Business Processes in the Warehouse

Tsvetelina Mladenova, Irena Valova

FRI-2G.303-1-CCT1-06:

Teaching Cryptography and Data Security: Simplified MD4 Hash Function

Emilia Golemanova, Tzanko Golemanov

FRI-2G.303-1-CCT1-07:

Teaching Operating Systems: Memory Management

Tzanko Golemanov, Emilia Golemanova

FRI-2G.303-1-CCT1-08:

Analysis of Trends in Data Gathered by a Personalized Learning Path Tracking System for Doctoral Students

Pavel Zlatarov, Galina Ivanova

FRI-2G.303-1-CCT1-09:

Educational Computer Platforms that Improve Logical Thinking with Programming: an Overview

Elitsa Ibryamova

FRI-2G.303-1-CCT1-10:

Restore an Operating System from Random Backup Disk Image

Vladislav Hinkov

FRI-2G.303-1-CCT1-11:

A Web-Based Learning Environment with Interactive Timeline to Support Self-Study in History

Aneliya Ivanova, Radostin Kostadinov

FRI-2G.303-1-CCT1-12:

Learning VHDL Using the Concept of Visual Programming

Aneliya Ivanova, Venelin Mandov, Nikolay Kostadinov

14:00 – 15:30

Parallel Sessions Room 2G.302

FRI-2G.302-1-CCT2

Communication and Computer Technologies

Session Chair: Georgi Hristov

FRI-2G.302-1-CCT2-01:

Internet Traffic Analysis by Anfis, K-Nearest Neighbors and Decision Tree Approach

Ivelina Balabanova, Teodora Zhorova, Georgi Georgiev

FRI-2G.302-1-CCT2-02:

Wireless Microwave Transport Solutions Accommodate Different Characteristics and Requirements to Suit Possible 5G Scenarios

Teodor Iliev, Ivelin Penkov

FRI-2G.302-1-CCT2-03:

Improving Electronics Education through Project-Based Learning

Ventsislav Keseev

FRI-2G.302-1-CCT2-04:

Theoretical and Simulation Study of Digital Differentiators and Integrators

Adriana Borodzhieva

FRI-2G.302-1-CCT2-05:

Approach for Optimizing 3D Content for Visualization in Web Environments

Georgi Hristov, Georgi Georgiev, Diyana Kinaneva

FRI-2G.302-1-CCT2-06:

Exploring the Potential of Development Robotic Platform in Handling Different Types of Tasks

	Georgi Georgiev, Georgi Hristov, Plamen Zahariev
FRI-2G.302-1-CCT2-07:	3D Content Creation through the Use of Computer Modeling Methods Georgi Hristov, Plamen Zahariev, Georgi Georgiev, Diyana Kinaneva
FRI-2G.302-1-CCT2-08:	Designing and Developing an Internet of Things Smart Agriculture Solution Georgi Hristov, Georgi Georgiev, Plamen Zahariev
FRI-2G.302-1-CCT2-09:	Comparison of Software for UAV Photogrammetry Nina Bencheva, Monika Bedzheva
FRI-2G.302-1-CCT2-10:	Evaluation of the Suitability of UAV Orthophoto for Cadastre Monika Bedzheva

15:45 – 18:00

Parallel Sessions Room 2G.302

FRI-2G.302-2-CCT2

Communication and Computer Technologies

Session Chair: Georgi Hristov

FRI-2G.302-2-CCT2-01:	An Approach for Building Secure Communication by the Means of Complementary Signals Dimitar Marinov, Miroslav Nedelchev, Dobri Stoyanov, Stanimir Parvanov
FRI-2G.302-2-CCT2-02:	Contemporary Approaches for Effective Radio Spectrum Utilization Teodora Ignatova, Miroslav Nedelchev, Monika Bedzheva
FRI-2G.302-2-CCT2-03:	A Heuristic Approach for Synthesis of Quasi Complementary Signals Mihail Iliev, Nikolay Nikolov, Monika Bedzheva
FRI-2G.302-2-CCT2-04:	Building a Centralised Smart City System for Urban Mobility Management and Solving Problems Related to Parking Areas, Public Transport and Eco-Transport - Types of Communication and Data Exchange Protocols between Devices in the Exterior Part of the Smart City System Ivan Kolev, Georgi Hristov, Plamen Zahariev
FRI-2G.302-2-CCT2-05:	Building a Centralised Smart City System for Urban Mobility Management and Solving Problems Related to Parking Areas, Public Transport and Eco-Transport - Offline Validation of Transport Documents from the Smart City System Ivan Kolev, Georgi Hristov, Plamen Zahariev
FRI-2G.302-2-CCT2-06:	Building a Centralised Smart City System for Urban Mobility Management and Solving Problems Related to Parking Areas, Public Transport and Eco-Transport - Smart Parking System Network Architecture and Optimization Ivan Kolev, Georgi Hristov, Plamen Zahariev
FRI-2G.302-2-CCT2-07:	Cloud Computing- Implementation Methods, Advantages and Disadvantages Miroslav Martinov
FRI-2G.302-2-CCT2-08:	Analysis of IPv6 Scanning and Exploitation Attacks Petar Stoilov, Georgi Hristov, Plamen Zahariev
FRI-2G.302-2-CCT2-09:	Discovery and Analysis of Exif Data in Images, Petar Stoilov
FRI-2G.302-2-CCT2-10:	Techniques to Protect Key Objects from Unmanned Aerial Vehicles Georgi Georgiev, Stanimir Parvanov

14:00 – 15:30

Parallel Sessions Online, Room 20.25

FRI-20.25-1-SITSTL

Sustainable and Intelligent Transport Systems, Technologies and Logistics

Chair: Ivan Beloiev;

Online Moderator: Mihail Milchev; Tel.: 0882 390 080

<https://meet1.uni-ruse.bg/b/an2-dwd-anz>

FRI-25.25-1-SITSTL-01:	Public Transport and Noise Aspects – Crucial Problems in Developing of Urban Passenger Systems Aleksandar Georgiev
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- FRI-25.25-1-SITSTL-02: Opportunities for Improving Passenger Transport by Rail Transport in the Republic of Bulgaria
Pavel Stoyanov
- FRI-25.25-1-SITSTL-03: Assessment of the Possibilities for Improving the Passage of Transport Flows through a Busy Section of the Street Network of the City of Sofia
Dimityr Stefanin, Georgi Mladenov
- FRI-25.25-1-SITSTL-04: Assessment of Parking in the Studentski Grad Quarter in the City of Sofia
Sandrina Babcheva, Durhan Saliev, Iliyan Damyanov, Georgi Mladenov
- FRI-25.25-1-SITSTL-05: Research of the Movement Speeds of Cyclists by Section of Bicycle Infrastructure
Toncho Balbuzanov
- FRI-25.25-1-SITSTL-06: Challenges in Planning Hydrogen Charging Infrastructure for Fuel Cell Electric Vehicles (Case Study from the City of Ruse)
Velizara Pencheva, Asen Asenov, Aleksandar Georgiev
- FRI-25.25-1-SITSTL-07: Comparative Analysis of Education in Transport Specialty at the University of Ruse and the University Politehnica of Bucharest
Asen Asenov, Oana Dinu
- FRI-25.25-1-SITSTL-08: Electronic Application for Processing and Public Sharing of Information Related to Road Traffic Accidents
Milena Savova-Mratsenkova, Liubomira Aleksova
-

15:45 – 18:00

Parallel Sessions Online, Room 20.25

FRI-20.25-2-SITSTL

Sustainable and Intelligent Transport Systems, Technologies and Logistics

Chair: Dimitar Grozev;

Online Moderator: Mihail Milchev; Tel.: 0882 390 080

<https://meet1.uni-ruse.bg/b/an2-dwd-anz>

- FRI-25.25-2-SITSTL-01: The Low Speed of Movement of the Freight Trains as a Factor for Derailment on Horizontal Railway Curves
Svetoslav Martinov
- FRI-25.25-2-SITSTL-02: A Study of Ground Handling Safety at Sofia Airport
Petya Tabakova, Daniel Lyubenov
- FRI-25.25-2-SITSTL-03: Methodical Aspects of Decreasing Transport Injuries in Bulgaria
Kalcho Petkov
- FRI-25.25-2-SITSTL-04: Traffic Accident Analysis in Space and Time (In the Example of Municipality of Ruse)
Stanimir Penev
- FRI-25.25-2-SITSTL-05: Modern Technologies of Handling Processes in River Ports
Dimitar Grozev
- FRI-25.25-2-SITSTL-06: Study of Operating Modes of Hydrogen Fuel Cell G-HFCS-3kW
Dimitar Grozev, Ivan Beloev
- FRI-25.25-2-SITSTL-07: Reserach of Digital Solutions for Managing International Road Transportation Company
Radoslav Kolev
- FRI-25.25-2-SITSTL-08: Research Influence of Autonomous Emergency Braking of Car on Traffic Safety
Teodor Gatev
- FRI-25.25-2-SITSTL-09: Researching Innovative Methods of Delivery of Parcels through Automatic Post Offices
Dimitar Eskidarov, Valeri Gamozov
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14:00 – 15:30

Parallel Sessions Room 2.206

FRI-2.206-1-TMS

Transport and Machine Science

Session Chair: Rosen Ivanov

FRI-2.206-1-TMS-01:	Personal Effectiveness and Scientific Productivity of Doctoral Students Vyarka Ronkova, Antoaneta Dobрева
FRI-2.206-1-TMS-02:	Integration of CAD Systems in the Digitalization Process in the Conditions of Remote Work and Industry 4.0 Yuliyen Dimitrov
FRI-2.206-1-TMS-03:	Comparative Analysis of Specific Capabilities of Cad Systems for Design Yordanka Dimitrova, Yuliyen Dimitrov
FRI-2.206-1-TMS-04:	Application of 2D CAD Systems in Distance Learning in Engineering Graphics Krasimir Kamenov
FRI-2.206-1-TMS-05:	Students in Engineering Bachelor Courses and their Preliminary General Technical Background Diana Nikolaeva, Vyarka Ronkova
FRI-2.206-1-TMS-06:	Students in Engineering Bachelor Courses and their Preliminary General Technical Background Tsvetomir Gechev, Plamen Punov, Dalibor Barta
FRI-2.206-1-TMS-07:	Used on Refrigerant Pressure in Automotive Air Conditioning Systems as a Diagnostic Parameter Georgi Kadikyanov, Rosen Ivanov, Gergana Staneva, Iliyana Minkovska
FRI-2.206-1-TMS-08:	Live Cycle Assesment of Vehicle Lithium-Ion Batteries Angel Dyndikov, Ivan Evtimov, Rosen Ivanova
FRI-2.206-1-TMS-09:	Comparative Study of Energy Consumption and Ecological Impact of Main Types of Cars Krasimir Kirilov, Ivan Evtimov, Rosen Ivanov

15:30 – 18:00

Parallel Sessions Room 2.206

FRI-2.206-2-TMS

Transport and Machine Science
Session Chair: Rosen Ivanov

FRI-2.206-2-TMS-01:	Study of Energy Consumption of a Central Drive Electric Bicycle on a Route Nikolay Dimitrov, Rosen Ivanov, Ivan Evtimov,
FRI-2.206-2-TMS-02:	Comparative Study of Energy Consumption of Two Types Electric Bicycle on a Route Nikolay Dimitrov, Rosen Ivanov, Ivan Evtimov
FRI-2.206-2-TMS-03:	Main Problems with the Recycling of Railway Sleepers Types Ivan Omayski, Rosen Ivanov
FRI-2.206-2-TMS-04:	Motor Properties of Isopropanol, as a Fuel for Internal Combustion Engines Kiril Hadjiev
FRI-2.206-2-TMS-05:	Improvement of the Parameters of Internal Combustion Engines when Working with Biodiesel Fuel Atanas Iliev
FRI-2.206-2-TMS-06:	"GREEN" Hydrogen as an Alternative to Fossil Fuels for Internal Combustion Atanas Iliev
FRI-2.206-2-TMS-07:	Engine Development in Virtual Environment Ivaylo Borisov, Simeon Iliev
FRI-2.206-2-TMS-08:	Dimethyl Ether Applications in Compression Ignition Engines Dimitar Obretenov, Simeon Iliev
FRI-2.206-2-TMS-09:	Ethanol as an Alternative Fuel for Diesel Engines Emil Mitev, Simeon Iliev

14:00 – 18:00	Parallel Sessions Online, Room 2B.412
FRI-2B.412-1-EM1	Economics and Management 1 <i>Session Chair: Anton Nedyalkov</i> <i>Online Moderator: Igor Sheludko</i> https://meet.uni-ruse.bg/b/une-kze-fwa
FRI-2B.412-1-EM1-01:	Sustainable Development of Life Insurance Related to Investment Funds and the Life Cycle Model Galina Stoyanova
FRI-2B.412-1-EM1-02:	Research and Analysis of the Factors for Successful Implementation of Lean Production in Bulgarian Micro, Small and Medium-Sized Manufacturing Enterprises Zina Hristova, Ognyan Andreev, Gabriela Peneva
FRI-2B.412-1-EM1-03:	Contemporary Supply Challenges for Bulgarian Furniture Producers Igor Sheludko
FRI-2B.412-1-EM1-04:	Role of Business Intelligence Systems in the Operational Management of Production Georgi V. Georgiev
FRI-2B.412-1-EM1-05:	Management Information Systems in Business and in Future Managers Education Miroslava Boneva
FRI-2B.412-1-EM1-06:	The Marketing Channels in the Digital World Daniela Ilieva
FRI-2B.412-1-EM1-07:	International Trade in the Context of Agrarian Policies Lyubomir Lyubenov
FRI-2B.412-1-EM1-08:	An Approach to Develop a Methodology for Self-Assessment of an Environmental Management System through a Maturity Model in Organizations from the Mineral and Raw Materials Industry Neli Babekova
FRI-2B.412-1-EM1-09:	E-Services in Municipality Pavel Vitliemov, Rumen Rusev, Daniela Yordanova, Tsvetanka Dutsova
FRI-2B.412-1-EM1-10:	An Empirical Study of the Awareness of Bulgarian SMEs Regarding the Nature and Characteristics of Lean Manufacturing Zina Hristova
FRI-2B.412-1-EM1-11:	Political Business Cycle Kamelia Assenova, Nikolay Rusev

14:00 – 18:00	Parallel Sessions Online, Room 2G.404
FRI-2G.404-1-EM2	Economics and Management 2 <i>Session Chair: Svilen Kunev</i> <i>Online Moderator: Aleksandar Kosuliev</i> https://exam-bbb.uni-ruse.bg/b/vme-m6r-mjt
FRI-2G.404-1-EM2-01:	Learning in an Online Environment - a Prerequisite for Burnout in Students Svilena Ruskova, Svilen Kunev
FRI-2G.404-1-EM2-02:	Investigating Consumer Motivation in the Adoption of a New Product under the Conditions of Uncertainty Svilena Ruskova, Svilen Kunev
FRI-2G.404-1-EM2-03:	Staff Management During the Pandemic and Changes in Legislation Bozhana Stoycheva
FRI-2G.404-1-EM2-04:	Specifics of the Successful Intrapreneur Denitsa Fileva, Daniel Pavlov
FRI-2G.404-1-EM2-05:	The State of Being Agile – a Case Study Petar Penchev

- FRI-2G.404-1-EM2-06: Product Development – Agile Approaches for the Enterprise
Petar Penchev
- FRI-2G.404-1-EM2-07: Construction Permits and the Business Cycle. the Case of Bulgaria
Aleksandar Kosuliev
- FRI-2G.404-1-EM2-08: Conceptual Framework for the Economic Evaluation of Fully-Subsidised Public Transport in the Municipality of Ruse, Bulgaria
Aleksandar Kosuliev, Elizar Stanev
- FRI-2G.404-1-EM2-09: Knowing, Understanding, and Conversing. Three Geocommunication Case Studies from Asia. Applied Perspective.
Maria Neikova, Ivelyna Vatova
- FRI-2G.404-1-EM2-10: Cross-Cultural Marketing Research as a Tool in Studying Consumer Psychology Across Borders
Hristina Sokolova
- FRI-2G.404-1-EM2-11: Man + Machine – Prospects and Reading Capacity in Finance
Kamelia Assenova, Nikolay Petrov
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14:00 – 18:00

Parallel Sessions Online, Room 2G.510

FRI-2G.510-1-ESIS1

European Studies and International Security

Session Chair: Vladimir Chukov

Online Moderator: Krasimir Koev

<https://exam-bbb.uni-ruse.bg/b/q26-qu6-x92>

FRI-2G.510-1-ESIS1-01:

Judeo-Christianity and Christian Zionism

Vladimir Chukov

FRI-2G.510-1-ESIS1-02:

European (in)Security

Mimi Kornazheva

FRI-2G.510-1-ESIS1-03:

The Hybrid Threats of the 21st Century – Definition and Meanings

Krasimir Koev

FRI-2G.510-1-ESIS1-04:

Challenges Related to Admission of International Students in Bulgaria: a Case Study from BRIE

Eva Parvanova

14:00 – 18:00

Parallel Sessions Online, Room 2G.510

FRI-2G.510-1-ESIS2

European Studies and International Security

Session Chair: Mimi Kornazheva

Online Moderator: Eva Parvanova

<https://exam-bbb.uni-ruse.bg/b/q26-qu6-x92>

FRI-2G.510-1-ESIS2-01:

Founding and Development of International Elias Canetti Society

Viktor Kirilov

FRI-2G.510-1-ESIS2-02:

Claims of (Non-)Discrimination by the Turkish Lingocultural Community in Bulgaria

Esin Veysalova-Miteva

FRI-2G.510-1-ESIS2-03:

Potential of EU Multi-Level Governance for Strengthening the Protection of Cultural Diversity in Bulgaria

Esin Veysalova-Miteva

FRI-2G.510-1-ESIS2-04:

European Territorial Cooperation and Territorial Capital

Svetla Andonova

FRI-2G.510-1-ESIS2-05:

Reading Practices in the Digital Era. Downloading and Copying of Books in the Context of the Dilemma Intellectual Rights - Access to Culture

Vanya Georgieva

FRI-2G.510-1-ESIS2-06:

2022 Elections in Italy: How the Far-Right Used Populist Narrative to Win the Election?

Marin Nikolov

14:00 – 18:00	Parallel Sessions Online, Room 1.322
FRI-1.322-1-SW	Social Work <i>Session Chair: Ana Popova</i> <i>Online Moderator: Irina Kostadinova</i> https://us02web.zoom.us/j/82375072596?pwd=M2hYZFVsMUFEBG1Zd01TOUpkcFN4QT09 / Meeting ID: 823 7507 2596 Passcode: 770563
FRI-1.322-1-SW-01:	Tendencies of the Regulatory and Legal Basis of the Social Responsibility of Business and Social Investment Diana Antonova
FRI-1.322-1-SW-02:	Impact of Controlled Anxiety as a Way of Dealing with Stress in High School Students Silviya Beloeva
FRI-1.322-1-SW-03:	Methodology for Training Students as Part of the Discipline: Basics Social Work (History and Theory) Silviya Beloeva
FRI-1.322-1-SW-04:	Efficiency and Effectiveness of Application of Special Seismic Protection Methods Evgeniya Bratoeva
FRI-1.322-1-SW-05:	Geocommunication. the New Communication. Theoretic Perspective (Part One) Ivelyna Vatova
FRI-1.322-1-SW-06:	A Framework for Establishing an Observatory for Social Innovations and Interactions: the Crossroad of the Divergent and Convergent Approach in Reconsidering Community Ecosystems Nataliya Venelinova
FRI-1.322-1-SW-07:	Methodology for Evaluation of Social Activities' Awareness in Hospitals Emilia Dimitrova, Daniela Yordanova
FRI-1.322-1-SW-08:	Teaching and Learning for Sustainable Development Goals (SDGS) through Study Cases Irina Kostadinova
FRI-1.322-1-SW-09:	A Model for Inclusive Education of Students with Special Needs at University of Ruse, Bulgaria Ana Popova
FRI-1.322-1-SW-10:	Managing the Categorization and Social Significance of Species Diversity in the University Botanical Garden Petya Angelova

14:00 – 18:00	Parallel Sessions Room 1.414
FRI-1.414-MIP	Mathematics, Informatics and Physics <i>Session Chair: Prof. Tsvetomir Vasilev, PhD</i>
FRI-1.414-MIP-01:	An Application of Time Series for Forecasting the Prices of Financial Instruments Aleksandra Klimenko, Vesela Mihova
FRI-1.414-MIP-02:	The Beta Coefficient as a Volatility Indicator in the Portfolio Management Theory Virginia Centeno
FRI-1.414-MIP-03:	Methodology for Training Teachers in Informatics and Information Technologies for Implementing Stem Education in School Veselina Ancheva, Valentina Voinohovska
FRI-1.414-MIP-04:	Observation and Assessment of the Quality of Learners' Knowledge Using Mind Maps Steliana Marinova, Svetlozar Tsankov
FRI-1.414-MIP-05:	Comparative Analysis of Test Control in the Discipline of Computer Modeling and Information Technology

Steliana Marinova, Svetlozar Tsankov

FRI-1.414-MIP-06: Improving the Student Assignment Grading Software System at the University of Ruse
Vasil Kozov

14:00 – 18:00

Parallel Sessions Room 2.116

FRI-2.116-ERI

Education - Research and Innovations

Session Chair: Emilia Velikova

FRI-2.116-ERI-01:

Stem: Science, Technology, Engineering and Mathematics

Ion Mierlus-Mazilu, Emiliya Velikova

FRI-2.116-ERI-02:

Quality Research of the Motivational Program on Empowering Senior's Volunteerism

Emiliya Velikova, Edita Žaromskienė, Ralitsa Vasileva-Ivanova

FRI-2.116-ERI-03:

Integrating Interactive Tools in Mathematics Education

Silviya Petkova Toteva, Ralitsa Vasileva-Ivanova

FRI-2.116-ERI-04:

Teaching System Equations by Using Geogebra

Teodora Lachezarova Georgieva, Ralitsa Vasileva-Ivanova

FRI-2.116-ERI-05:

A Model of Stem - Lesson

Maria Spasova Ivanova-Todorova, Ralitsa Vasileva-Ivanova

FRI-2.116-ERI-06:

Entertaining Problems from Graph Theory

Desislava Georgieva

FRI-2.116-ERI-07:

Applications of Graph Theory and Its Role in Teaching Mathematics

Desislava Georgieva

FRI-2.116-ERI-08:

Inclusion of Early Language Learning as Compulsory in Preschool

Ilina Ivanova, Mariyka Petrova

FRI-2.116-ERI-09:

Faces of Plane Shapes in Ms Excel by Using a Certain Integral

Mariyka Petrova, Ilina Ivanova

FRI-2.116-ERI-10:

Use of Cloud Technologies for Training in Mathematics of Talented Students and Admission after Fourth Grade in High Schools of Mathematics

Stefka Karakoleva, Aneliya Tosheva

FRI-2.116-ERI-11:

Application of the Five-Level Model of Teaching Mathematics on the Topic of Geometric Progression and its Properties

Iliyana Georgieva, Anna Lecheva, Veselina Evtimova

FRI-2.116-ERI-12:

The Topic of Geometric Probability in Plane and Space in School Mathematics

Lidiya Petrova, Anna Lecheva, Veselina Evtimova

FRI-2.116-ERI-13:

The Topic of Probability of the Sum of Compatible Events in the 9th Grade Mathematics Curriculum

Lidiya Petrova, Anna Lecheva, Veselina Evtimova

FRI-2.116-ERI-14:

Creating E-Tests in Mathematics in 8th Grade for Distance Learning in an Electronic Environment

Evelina Cankova, Antoaneta Mihova

FRI-2.116-ERI-15:

Application of the "Geogebra" Platform in the Teaching of Solids in 5th and 6th Grades

Jorjeta Krалеva, Antoaneta Mihova

FRI-2.116-ERI-16:

Basic Methods of Solving Trigonometric Equations Studied in School

Todorka Ivanova, Antoaneta Mihova

FRI-2.116-ERI-17:

Extremal Problems in Geometry or How Significant is the Choice of the Parameters

Dimitar Rosenov Chaparov, Julia Chaparova

14:00 – 18:00	<i>Parallel Sessions Room 2G.405</i>
FRI-2G.405-PP	Pedagogy and Psychology <i>Session Chair: Bagryana Ilieva</i>
FRI-2G.405-PP-01:	Prospects Before Full Functioning of Autodidactic Game in Kindergarten Asya Veleva
FRI-2G.405-PP-02:	Knowledge of Children's Rights through the Eyes of Student Teachers Bagryana Ilieva
FRI-2G.405-PP-03:	Principles and Methods of Distance Education of Adult Learners Valentina Vasileva
FRI-2G.405-PP-04:	Training and Professional Support for Social Assistants Providing Care at Home Dima Spasova
FRI-2G.405-PP-05:	Principles for Constructing and Applying Micro-Learning Technology in the Distance Type of Educational Interaction Desislava Vasileva Stoyanova
FRI-2G.405-PP-06:	Pedagogical Interactions for Sensory Development in Preschool Children Julia Doncheva, Fatima Rahim Abdul Hussein, Liqaa Habeb Al-Obaydi
FRI-2G.405-PP-07:	Extracurricular Activities in Bulgaria - a Condition for the Formation of Stem Skills and Competencies in the Pupils Ekaterina Ivanova
FRI-2G.405-PP-08:	Functions and Principles of Didactic Animation in the Education of Primary School Students Zhivka Ilieva
FRI-2G.405-PP-09:	Digital Platforms and Mobile Applications for Physical and Sports Activity Iskra Ilieva
FRI-2G.405-PP-10:	Energy is Eternal, Energy is Everywhere, Energy is Endless Evelina Kopcheva, Dragomir Mitev
FRI-2G.405-PP-11:	Theories of the Professional and Career Development Lora Radoslavova
FRI-2G.405-PP-12:	Origin of the Concepts of Social Gender Identity in Bulgaria and Worldwide Lora Radoslavova
FRI-2G.405-PP-13:	Professional Gender Asymmetry in the Educational System Lora Radoslavova
FRI-2G.405-PP-14:	Trends and Innovative Approaches in Professional and Career Guidance Lora Radoslavova

14:00 – 18:00	<i>Parallel Sessions Room 2G.403</i>
FRI-2G.403-LL	Linguistics and Literature <i>Session Chair: Velislava Doneva</i>
FRI-2G.403-LL-01:	Bulgarians' Sense of Humor Expressed by Ironic and Jokey Phraseologisms Emilia Nedkova
FRI-2G.403-LL-02:	Subject Layer of the Literary Concept Faith, Objectivized in the Bulgarian Dramas of the Beginning of the Twentieth Century Maria Stefanova
FRI-2G.403-LL-03:	On Some Aspects of the Cultural Models of the Festive Traditions, Rites and Rituals of Bulgarians and Poles Niya Peneva
FRI-2G.403-LL-04:	Ivan Shishmanov – the Reformer and the Bulgarian Education Velislava Doneva
FRI-2G.403-LL-05:	The Image of Woman in “Women’s Portraits” by Emanuil Popdimitrov Petya Abrasheva

FRI-2G.403-LL-06: Bulgarianness According to Songs Dedicated to the National Football Team
Kamen Rikev

14:00 – 18:00 *Parallel Sessions Room 2G.307*

FRI-2G.307-AS **Art Studies**
Session Chair: Petya Stefanova

FRI-2G.307-AS-01: Musical Environments in Reality Talent Shows
Nikolay Yordanov

FRI-2G.307-AS-02: Some Features of the Human Auditory System
Prof. Pavel Stefanov

FRI-2G.307-AS-03: To Sense the Space and Sound
Elena Trencheva, Valeria Krachunova-Popova

FRI-2G.307-AS-04: Guido Adler's Ideas of “Musical Chiaroscuro” and “Acoustic Perspective”
in the Context of His Concept of Style as Well as their Reception in
Contemporary Music Theory
Zornitsa Dimitrova

FRI-2G.307-AS-05: Mumblecore: Feature Films in the Documentary Aesthetic
Dimiter ‘Martin’ Genovski

FRI-2G.307-AS-06: Developing Musical Literacy in Children through Classical Game
Approaches, Original Music Games and Digital Educational Resources
Petya Stefanova

14:00 – 18:00 *Parallel Sessions Online, Room 2K.201*

FRI-2K.201-1-HP **Health Promotion**
Session Chair: Stefka Mindova
Online Moderator: Stefka Mindova
<https://meet.uni-ruse.bg/b/awn-2yw-vdm>

FRI-2K.201-1-HP-01: Menopause: Physical Therapy in Help to Ease "The Change"
Irina Karaganova, Stefka Mindova

FRI-2K.201-1-HP-02: Kinesitherapy for Weakness Pelvic Floor Muscle in Women
Ivelina Stefanova

FRI-2K.201-1-HP-03: Distal Femoral Fractures – Our Treatment Protocol
Yordan Andonov, Nikolay Angelov

FRI-2K.201-1-HP-04: Hemisoleus Muscle Flap for Treatment of a Grade III Open Tibial Fracture
Yordan Andonov, Ahmed Ahmedov, Boian Valentinov

FRI-2K.201-1-HP-05: Social Aspects of Stress Urinary Incontinence
Denitsa Vasileva

FRI-2K.201-1-HP-06: Scoliosis Reduction with B.A.E. Method on a 21 Years Old Female with
Check up after a Year and a Half
Tiziano Pacini, Loredana Granata, Elisabetta De Juliis

FRI-2K.201-1-HP-07: Occupational Therapy Assessment and Intervention to Improve Play
Participation of Children with Disabilities
Petya Mincheva

FRI-2K.201-1-HP-08: Physiotherapeutic Guidelines for the Treatment of Urinary Incontinence in
Women
Yuliana Pashkunova

FRI-2K.201-1-HP-09: The Role of Cupping Therapy in Shoulder Pathologies
Yoan Petrov, Ana Ivanova, Tsveta Bulatova, Valentin Velchev

FRI-2K.201-1-HP-10: The Role of the Physicaltherapy after Traumatic Dislocation of the Shoulder
by Athletes
Viktor Stoyanov, Tsvetomira Ivanova, Altsek Naydenov, Vladimir Krastev

FRI-2K.201-1-HP-11: ALS – Need for Long-Term Kinesitherapeutic Care
Denislav Stoicov, Siyana Marinova, Nefize Ilyazova, Miglena Mileva

- FRI-2K.201-1-HP-12: Importance of Occupational Therapy for the Speech Development of Children with Developmental Problems
Margarita Asparuhova-Kandilarova
- FRI-2K.201-1-HP-13: Modern Approaches of Physiotherapeutic Treatment of Urinary Incontinence
Petya Parashkevova, Radoslava Deleva
-

10:00 – 12:00

Parallel Sessions Online, Room: 2G.309

FRI-2G.309-1-MCDA

Medical and Clinical Diagnostic Activities

Session Chair: Denitsa Trancheva

Online Moderator: Denitsa Trancheva

<https://meet.uni-ruse.bg/b/rca-mfr-uah>

FRI-2G.309-1-MCDA-01:

Dynamics of Errors in Clinical Laboratory Practice During the Period of the COVID 19 Pandemic

Denitsa Trancheva

FRI-2G.309-1-MCDA-02:

Building the Professional Image of the Healthcare Specialist through the Methodology of Training

Kristina Zaharieva, Elena Zheleva

FRI-2G.309-1-MCDA-03:

Immunization Coverage in Ruse Region in 2021 in the Conditions of the Pandemic

Preslava Zhekova, Prof. Nikola Sabev

FRI-2G.309-1-MCDA-04:

Nutrition and Physical Activity in Breast Cancer Patients

Teodora Nedeva

FRI-2G.309-1-MCDA-05:

SGLT 2 - Inhibition - a New Hope for Patients with Heart Failure

Ognyan Sherbanov

FRI-2G.309-1-MCDA-06:

The Role of the Medical Assistant in Patients with Acute Renal Colic

Milena Stoyanova

FRI-2G.309-1-MCDA-07:

Obstructive Sleep Apnea in Childhood

Tatyana Atanasova

FRI-2G.309-1-MCDA-08:

Modifying Role of the FAM167A-BLK RS2736340 Polymorphism in the Development of Systemic Lupus Erythematosus

Zornitsa Kamenarska, Maria Hristova, Joana Pozharashka, Anton Vinkov, Radosveta Bozhilova, Radka Kaneva, Luybomir Dourmishev

FRI-2G.309-1-MCDA-09:

Patient Health Literacy and the Nursing Process

Pepa Dzhedzheva

12:15 – 14:00

Parallel Sessions Online, Room: 2G.309

FRI-2G.309-2-MCDA

Medical and Clinical Diagnostic Activities

Session Chair: Denitsa Trancheva

Online Moderator: Denitsa Trancheva

<https://meet.uni-ruse.bg/b/rca-mfr-uah>

FRI-2G.309-2-MCDA-01:

Giant Aneurysm of Right Common Femoral Artery

Atanas Stavrov, Hristo Georgiev, Kiril Panayotov

FRI-2G.309-2-MCDA-02:

Giant Cystic Teratoma of the Mesorectum in a Male Patient. Case Report

Tsanko Yotsov, Ivelin Yotsov, Kiril Panayotov

FRI-2G.309-2-MCDA-03:

Challenges in Diagnosing Idiopathic Pulmonary Fibrosis

Dora Marinova

FRI-2G.309-2-MCDA-04:

Newborn Umbilical Cord Care

Tatyana Itova

FRI-2G.309-2-MCDA-05:

Intracoronary Electrocardiogram-Guided Strategy for the Treatment of Coronary Bifurcation Lesions – Effect on Mortality

Niya Mileva, Panayot Panayotov, Dobrin Vassilev

FRI-2G.309-2-MCDA-06:

Composite Graft in Subtotal Traumatic Avulsion of the Auricle - Case Report

Petar Bonev, Kiril Panayotov

- FRI-2G.309-2-MCDA-07: Food Additives- Alternative Approach in Monotherapy and Adjuvant Treatment of Socially Significant Diseases
Rositsa Krasteva
- FRI-2G.309-2-MCDA-08: Contemporary Aspects in the Approach to the Treatment of Non-Healing Wounds
Vanya Dacheva
-

14:00 – 18:00

Parallel Sessions Online, Room 2G.104

FRI-2G.104-1-HC

Health care

Session Chair: Tsveta Hristova

Online Moderator: Tsveta Hristova

<https://meet1.uni-ruse.bg/b/wc2-juu-j7m>

- FRI-2G.104-1-HC-01: Evidence-Based Nursing Practice in the Context of Healthcare Quality and Patient Safety
Despina Georgieva
- FRI-2G.104-1-HC-02: Midwifery Documentation – Challenges and New Horizons before Autonomous Midwifery Practice in Bulgaria
Ivanichka Serbezova, Daniela Lyutakova
- FRI-2G.104-1-HC-03: Conflict Management Methods in Health Care
Tsveta Hristova, Yoana Lukanova
- FRI-2G.104-1-HC-04: Hospital Anxiety in Invasive Cardiology
Irinka Hristova, Greta Koleva
- FRI-2G.104-1-HC-05: Pandemic and Mental Health
Daniela Konstantinova
- FRI-2G.104-1-HC-06: The Need for Nutritional Supplements during Pregnancy
Kina Velcheva
- FRI-2G.104-1-HC-07: The Birth Plan as a Tool of Informed Choice for the Woman Giving Birth
Veselka Mihaylova
- FRI-2G.104-1-HC-08: Role of the Nurse in Mental Health Management
Stela Boneva
- FRI-2G.104-1-HC-09: Diabetes Nutrition. Principles in Preparing a Food Regime
Yuliyana Georgieva
-

14:00 – 15:30

Parallel Sessions Online, Room 2B.313

FRI-2B.313-1-L

Law

Session Chair: Elitsa Kumanova

Online Moderator: Elitsa Kumanova; Tel: 082888434

<https://meet1.uni-ruse.bg/b/juc-2fn-nar>

- FRI-2B.313-1-L-01: The Remuneration of the People's Representatives in the Principality/Kingdom of Bulgaria (1879 – 1944)
Nikolay Prodanov
- FRI-2B.313-1-L-02: The Right of Labour in the Context of Economic Rights
Elitsa Kumanova, Galena Stefanova
- FRI-2B.313-1-L-03: The Measure of Law as the Focus of Legal Values
Svetla Marinova
- FRI-2B.313-1-L-04: About the Difference in the Notions – “Fact from Reality”, “Normative Fact” and “Legal Fact”
Doroteya M. Dimova-Severinova, Ganka Ivanova
- FRI-2B.313-1-L-05: Studies on the Legitimation of the State
Ivelin Velchev
- FRI-2B.313-1-L-06: The Disciplinary Responsibility of Civil Servants in the Principality of Bulgaria
Miroslava Bodurova – Eneva
-

- FRI-2B.313-1-L-07: On the Privilege of the First Ranked Candidates in the Lists for Parliamentary Elections
Zornitsa Yordanova
- FRI-2B.313-1-L-08: Schengen Law and the Area of Freedom, Security and Justice in the European Union
Emanuil Kolarov
- FRI-2B.313-1-L-09: The Agreement in Administrative Sanction Procedure
Dilyana Kalinova
- FRI-2B.313-1-L-10: Precluding Effect of the Force of Res Judicata, Arising from the Court Decision on Challenging Against an Administrative Act
Valeri Radanov
- FRI-2B.313-1-L-11: Tax Sovereignty and Globalization
Elina Marinova
- FRI-2B.313-1-L-12: The Concepts of Tax Sovereignty and Tax Jurisdiction in International Tax Law
Elina Marinova
- FRI-2B.313-1-L-13: Competence of the Municipal Administration Officers Regarding the Assessment, Securing and Collection of Local Taxes
Vanya Panteleeva
- FRI-2B.313-1-L-14: Similarities and Differences between the Civil Pledge Under the Obligations and Contracts Act and the Commercial Pledge Under the Commerce Act
Georgi Stefanov, Kiril Veselinov
- FRI-2B.313-1-L-15: Enterprises of Social and Solidar Economics - Legal System and Nature
Anastas Georgiev
- FRI-2B.313-1-L-16: Arrest of Ships in the River Ports of the Republic of Bulgaria
Petar Bonchovski

15:45 – 18:00

Parallel Sessions Online, Room 2B.313

FRI-2B.313-2-L

Law

Session Chair: Elitsa Kumanova

Online Moderator: Elitsa Kumanova; Tel: 082888434

<https://meet1.uni-ruse.bg/b/juc-2fn-nar>

- FRI-2B.313-2-L-01: About the Entry of the Authorised Officer in the Commercial Register
Anna Nikolova
- FRI-2B.313-2-L-02: Impossibility of the Holder Your Own Yes All Defend with a Claim Under Art. 75 from the Law for Property
Sergey Kalinkov
- FRI-2B.313-2-L-03: Efficiency and Effectiveness of Application of Special Seismic Protection Methods
Yoana Kaneva
- FRI-2B.313-2-L-04: The Special Kind of Division
Bilyana Ivanova
- FRI-2B.313-2-L-05: Ability to Challenge Paternity Under the Amendment of the Bulgairan Family Code of 2020 - Occasions and Ratio Legis for the Change and Comparison with the Legal Regime in Other Eu Members
Hristo Angelov
- FRI-2B.313-2-L-06: Invalid, Annuled and Destroyable Marriage
Milena Dimova
- FRI-2B.313-2-L-07: Restriction of Parental Rights as a Consequence of the Implementation of Educational Measures Under Art. 13, Para. 1, Item 11 and Item 13 of the Zbppmn
Denitsa Petrova
- FRI-2B.313-2-L-08: Correlation between General and Special Subrogation Clauses Under the Bulgarian Obligations and Contracts Act
Ognyan Maladzhikov

- FRI-2B.313-2-L-09: Control Powers of the Supervisory Board in the Two-Tier Management System of a Joint-Stock Company
Ruja Andreeva
- FRI-2B.313-2-L-10: The Structure and Qualification of Employees as a Standard for the Quality of Social Service
Maria Radeva
- FRI-2B.313-2-L-11: Application of Public Order Considerations in International Family Relations
Sergey Kalinkov
- FRI-2B.313-2-L-12: Globalization, Marriage and International Law
Milena Dimova
- FRI-2B.313-2-L-13: Basic Criminological Characteristics of the Offender Assessment System
Svetlin Antonov
- FRI-2B.313-2-L-14: Criminology of Social Reaction
Ognyan Velev
- FRI-2B.313-2-L-15: Comparative Law Review of the Criminal Sanction
Ognyan Velev

14:00 – 18:00

Parallel Sessions Online, Room 2B.312

FRI-2B.312-1-NS

National Security

Session Chair: Milen Ivanov

Online Moderator: Milen Ivanov; Tel: 082888736

<https://exam-bbb.uni-ruse.bg/b/kre-ztf-vc2>

FRI-2B.312-1-NS-01:

Political Corruption - a Threat to the State

Milen Ivanov

FRI-2B.312-1-NS-02:

Mechanisms for Decision-Making in State Management

Milen Ivanov

FRI-2B.312-1-NS-03:

Security Studies in Contemporary Political Science and Theory of International Relations

Kremena Rayanova

FRI-2B.312-1-NS-04:

Legal Essence of the Decisions of the Republic of Bulgaria National Assembly (Acts on Declaration of Martial Law or Emergency State)

Elitsa Kumanova, Stela Daskalova

FRI-2B.312-1-NS-05:

Meaning and Essence of the Term "Special Knowledge" when Appointing Forensic Expertise in the Criminal Process

Nevena Ruseva

FRI-2B.312-1-NS-06:

Operative Hearing on the Bulgarian Criminal Procedure Code - Essence and Some Problems

Lyuboslav Lyubenov

FRI-2B.312-1-NS-07:

Historical Development of the Firearms Licensing Regime

Plamen Parvanov

FRI-2B.312-1-NS-08:

Specificity of the Forensic Psychological Examination of Minor Subjects, Victims of Sexual Crimes

Silvia Krushkova

14:00 – 18:00

Parallel Sessions Online, Room Kaneff Hall 1

FRI-K1-1-QHE

Quality of Higher Education

Session Chair: Ivanichka Serbezova

Integration of the Gender Dimension into Research and Teaching Content. *Presentation of normative documents of the University of Ruse, adopted by the Academic Council, which have a direct impact on the affirmation of the equality of women and men in scientific research (ATHENA PROJECT - HORIZON 2020)*

Tanya Grozeva

- FRI-K1-1-QHE-01: The Role of Innovation Partnerships in the Creation of Intellectual Property
Tzvetelin Gueorguiev
- FRI-K1-1-QHE-02: New Post-Covid Realities in the Higher Schools in Bulgaria
Tanya Grozeva
- FRI-K1-1-QHE-03: Legal Frame of Training in Specialties from the Regulated Professions in the Field of Health Care
Elitsa Kumanova, Kiril Panayotov, Nikolina Angelova, Fatme Minkova
- FRI-K1-1-QHE-04: Effectiveness of Online Learning on Health Care in Bulgaria
Galya Georgieva-Tsaneva, Ivanichka Serbezova
- FRI-K1-1-QHE-05: Higher Education Teachers Survey for Establish the Inovative Elements in Instructional Technologies
Tsvetelina Georgieva, Seher Kadirova, Kathryn Cormican, Suzana Cândido de Barros Sampaio, Manon van Leeuwen, Özge Andiç Çakır, Firat Sarsar, Nuno Pombo
- FRI-K1-1-QHE-06: Analysis of Results from Employer Surveys
Kaloyan Stoyanov, Petya Angelova

Friday 28 October 2022

19:30 – 23:00

*Parallel Scientific Sessions:
Ball of the Scientists - Grand Hotel Riga - White Salon*

NOVEMBER RESEARCH CONFERENCE IN RAZGRAD

Friday 04 November 2022

11:00 – 12:30	Opening, Plenary Session: Large Conference Room <i>Session Chair: Assoc. Prof. Tsvetan Dimitrov, PhD</i> <i>Online Moderator: Assoc. Prof. Tsvetan Dimitrov, PhD; Tel. +359887631645</i> https://meet.uni-ruse.bg/b/fht-4en-rjy
FRI-LCR-KS(R)-01:	Prof. Irena Markovska, PhD Assen Zlatarov University, Burgas, Bulgaria Direct Synthesis of Graphene by Using Combined Electrolysis and Ultrasonic Methods
FRI-LCR-KS(R)-02:	Assoc. Prof. Daniel Pavlov, PhD University of Ruse “Angel Kanchev” The Intergenerational Family Businesses as an Instrument for Development of the Food Industry
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13:30 – 14:30	Parallel Scientific Sessions: Large Conference Room
FRI-LCR-1-CT(R)	Chemical Technologies <i>Session Chair: Temenuzhka Haralanova</i> <i>Online Moderator: Temenuzhka Haralanova, Tel. +359878557143</i> https://meet.uni-ruse.bg/b/fht-4en-rjy
FRI-LCR-1-CT(R)-01:	Obtaining Corundum Ceramic Samples Incorporated Graphene Margarita Georgieva, Adriana Georgieva, Fila Yovkova, K. Panayotova
FRI-LCR-1-CT(R)-02:	A New Look on the Titration of Weak Electrolytes: Application of the Least Squares Method Petar Petrov
<hr/>	
14:30 – 15:30	Parallel Scientific Sessions: Large Conference Room
FRI-LCR-1-BFT(R)	Biotechnologies and Food Technologies <i>Session Chair: Iliana Kostova, PhD</i> <i>Moderator: Iliana Kostova, PhD; Tel. +359886430204</i> https://meet.uni-ruse.bg/b/fht-4en-rjy
FRI-LCR-1-BFT(R)-01:	Fermentation Technology of Leaves for Flavored Drinks Halyna Dubova, Iryna Levchuk, Olha Holubets, Vladyslav Miroshnikov
FRI-LCR-1-BFT(R)-02:	Anethole Isolation, Synthesis, Properties: Brief Overview Martina Pencheva, Iliana Nikolova, Stanka Damyanova, Albena Stoyanova
FRI-LCR-1-BFT(R)-03:	Preservatives Used in Food–Antioxidant Activity and Spectra in UV-VIS, Mid-Infrared Region Mariya Georgieva
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15:30 – 18:00	Parallel Poster Sessions: Large Conference Room
FRI-LCR-P-2-CT(R)	Chemical Technologies <i>Session Chair: Tsvetan Dimitrov</i> <i>Moderator: Tsvetan Dimitrov; Tel. +359887631645</i> https://meet.uni-ruse.bg/b/fht-4en-rjy
FRI-LCR-P-2-CT(R)-01:	Possibilities for the Preparation of Ceramic Materials Incorporating Graphene and Carbonate Nanostructures Adriana Georgieva, Fila Yovkova, Krasi Panayotova, Margarita Georgieva, Mariela Minova
FRI-LCR-P-2-CT(R)-02:	Microwave-Assisted Synthesis of Cost-Effective and Environmentally Friendly Electrochemical Materials Ivelina Tsacheva, Mariela Dimitrova, Adriana Gigova, Ognyan Dimitrov, Dzhamal Uzun

- FRI-LCR-P-2-CT(R)-03: Uncertainties in the Design of Supply Chain for Biodiesel Within the Republic of Bulgaria
Evgeniy Ganev, Yunzile Dzhelil
- FRI-LCR-P-2-CT(R)-04: Influence of the Heat Treatment on the Tendency to Intergranular Corrosion of Austenitic Stainless Steel AISI 321
Mariana Ilieva
- FRI-LCR-P-2-CT(R)-05: Synthesis and Physicochemical Characterization of Novel Zirconium and Hafnium Tellurites
Georgi Rusev, Svetlana Genieva
- FRI-LCR-P-2-CT(R)-06: Application of a Mathematical Model for Making a Smart Decision for Improving Sustainability of Combined Dairy / Biodiesel Supply Chain
Desislava Nikolova, Konstantina Galcheva
- FRI-LCR-P-2-CT(R)-07: Peculiarities of Grinding up Engobe Slips for Decorating Ceramic Bricks
Olena Khomenko, Oleksandr Zaichuk, Tsvetan Dimitrov, Daryna Filonenko
- FRI-LCR-P-2-CT(R)-08: Synthesis and Antimicrobial Activity of 2-[4-Methyl-4-Phenyl-2,5-Bis (Sulfanylidene) Imidazolidin-1-Yl]-1*H*-Benzo[*De*]Isoquinoline-1,3(2*H*)-Dithione and Its Metyl Derivative
Marin Marinov, Iliana Kostova, Iliana Nikolova, Neyko Stoyanov
- FRI-LCR-P-2-CT(R)-09: Mullite Ceramic Pigments Obtained from Biowaste - Rice Husk
Fila Yovkova, Mariela Minova, Tsvetan Dimitrov, Adriana Georgieva
- FRI-LCR-P-2-CT(R)-10: Ceramic Pigments Based on the Mineral Mullite /3Al₂O₃.2SiO₂/
Fila Yovkova, Tsvetan Dimitrov, Adriana Georgieva, Mariela Minova
- FRI-LCR-P-2-CT(R)-11: Acidity Adjustment of the Solutions for Coating Deposition and Further Sealing by Lourier Buffers
Stefania Portolesi, Stephan Kozhukharov, Temenuzhka Haralanova, Christian Girginov
- FRI-LCR-P-2-CT(R)-12: Diopside Ceramic Pigments Obtained by a Sol-Gel Method with the Participation of Different Chromophore Elements
Tsvetan Dimitrov, Rositsa Titorenkova, Ognyan Petrov

15:30 – 17:00

Parallel Poster Sessions: Large Conference Room

FRI-LCR-P-2-BFT(R)

Biotechnologies and Food Technologies

Session Chair: Stanka Damyanova

Moderator: Stanka Damyanova; Tel. +359882669689

<https://meet.uni-ruse.bg/b/fht-4en-rjy>

FRI-LCR-P-2-BFT(R)-01:

Starch – Microstructure, Textural and Thermal Properties

Pavlina Doykina, Aneta Popova, Zhivka Goranova

FRI-LCR-P-2-BFT(R)-02:

Biogas Production in a System of Cascade Anaerobic Digesters

Ivan Angelov, Venko Beschkov

FRI-LCR-P-2-BFT(R)-03:

CO₂ Recycling with Production of Organic Chemicals by Electrolysis

Ivanka Dimova, Venko Beschkov, Ljutskan Ljutskanov

FRI-LCR-P-2-BFT(R)-04:

Possibilities to Improving the Calcium Content in Wheat Bread

Dana Stefanova, Denka Zlateva

FRI-LCR-P-2-BFT(R)-05:

Investigation of Active Paper Packaging Materials with Silver Water

Iliana Kostova, Darina Georgieva, Stanka Damyanova

FRI-LCR-P-2-BFT(R)-06:

Development of Functional Foods for Type 2 Diabetes

Elena Sergheeva, Mihaela Geicu-Cristea, Florentina Matei, Mona Elena

Popa, Elisabeta Elena Popa, Ecaterina Robu, Cristina Popovici

FRI-LCR-P-2-BFT(R)-07:

Development of Foods with Antioxidant and Anticancer Potential

Ecaterina Robu, Elena Sergheeva, Cristina Popovici

19:30 – 23:00

Parallel Scientific Sessions:

Ball of the Scientists - Restaurant Les

ABSTRACTS

OCTOBER RESEARCH CONFERENCE IN SILISTRA

THUR-110-1-KS(S)

THUR-110-1-KS(S)-01

**THE CATHEDRAL CHURCH OF PATRIARCH DAMIAN /927-971/
IN DRUSTAR/SILISTRA**

Prof. Georgy Atanasov, DSc
Regional historical museum, Silistra,
Head of Archeology Department
Phone: +359 88 763 4118
e-mail: geoatal@abv.bg

Abstract: for a longtime, the 25.20 x 15.55 m church on the bank of the Danube was believed to be the patriarchal cathedral. During the archaeological excavations in 2016, a large cross-domed church was partially uncovered in the center of Drustar's citadel. It was built on the ruins of an earlier church from the middle of the 9th century, which was the episcopal cathedral from the middle of the 9th to the beginning of the 10th century. The new church is a three-nave triapsed cross-domed basilica of the Constantinople type with square construction / the stones were taken from the earlier basilica / on pink mortar. All three apses are pentagonal on semicircular foundations. The side naves are about 3 m wide, and the central one is 7.8 m. The walls, respectively the bases of the outer walls are 1.40 m, and the central nave is wider - 1.50 m. The dome has a diameter of about 7, 8 m. There is a syntron in the central nave. In terms of plan and construction, this temple has analogues in Preslav from the 10th century / the churches in the surroundings of Avradaka, the monastery church of Mostich, etc. /, as well as with churches from the beginning of the 10th century in Constantinople – Mirelayona by Roman Lacapin / arr. 82 / and the church of Constantine Lips / arr. 81 /. The parameters of the cathedral temple in Drustar / about 33x21.60 / suggest that this is so far the largest archeologically documented cross-domed temple of the Constantinople type in the Byzantine cultural circle. The cathedral was built after Bishop Damian of Drustar was recognized as Patriarch from Constantinople in 927. The church on the bank of the Danube was the palace church of the patriarch, and the patriarchal residence was revealed to the west of it.

FRI-239-1-PPM(S)

FRI-239-1-PPM(S)-01

**PSYCHOLOGICAL ASPECTS OF THE PROFESSIONAL-PERSONAL
PURPOSE OF THE FUTURE TOUR-GUIDE
IN THE TOURIST GUIDE INDUSTRY**

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***Abstract:** The psychology of the tour-guide person in tourism is one of those parts of psychological knowledge, which is at the base of the scientific organization of the tour-guiding work and the educational-psychological training of the future tour-guide. This text looks at separate psychological aspects, relating to the professional-personal purpose of the future tour-guide in the tourist guide industry, which already have a significant meaning in the specialized psychological education. Encompassing all psychological aspects of the tour-guide personality is a complex activity, which is why we aim at those problems and issues, relating to the personality of the tour-guide in tourism and in particular as a subject of the tourist guiding activity.*

***Keywords:** psychology, tour-guiding, personality, tour-guide, profession, purpose, self-definition, interests, motivation, reflection, calling.*

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FRI-239-1-PPM(S)-02

TOWARDS AN ANALYTICAL OVERVIEW OF THE PEDAGOGICAL REFLECTION AS SELF-BRANDING

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Abstract: *The report studies the skill for pedagogical reflection as an autonomous strategy for conscious, field-independent and analytical behavior of the professional pedagogical personality. The PerSSS model is described with its constituents: self-observation, self-assessment, self-upgrading, which is described as an important psychological prerequisite and condition for the overall pro-activating development of the reflective pedagogical self-consciousness.*

Keywords: *pedagogical reflection, self-observation, self-assessment, self-upgrading*

JEL Codes: *L10, L11*

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FRI-239-1-PPM(S)-03

THE GOLDEN RATIO AND LITERATURE LESSON DESIGN

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Abstract: *The problem of increasing the QUALITY of education is related to the application of the competence approach. An educational paradigm is oriented towards the formation of personally and socially significant qualities such as self-reliance, independence, ability for self-regulation and reflection, personal responsibility and other types of transversal competences.*

This text offers an experimental model for literature lesson design organized around the golden ratio.

Key words: *the golden ratio, the competence approach, literature lesson design*

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FRI-239-1-PPM(S)-04

**PSYCHOLOGICAL DISTINCTIVENESS
OF THE PROFESSIONAL-PERSONAL SHAPING,
DEVELOPMENT AND PERFECTION OF THE TOUR-GUIDE**

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***Abstract:** This text presents the psychological distinctiveness of the professional-personal shaping, development and perfection of the tour-guide. The systematized essences of the professional shaping, development and perfection of the tour-guide's personality are organically interrelated, but they do not overlap entirely. They stand out as a permanent and universal process, which continues throughout the full length of his or her professional work. their harmonious combination can be explained as complete professional development of the tour-guide's personality, which best reflects his or her main opportunities for professional realization.*

***Keywords:** personality, tour-guide, stages, professional shaping, professional development, professional perfection, professional competence.*

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DEVELOPING SKILLS FOR INDEPENDENT LEARNING THROUGH PROJECT WORK

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***Abstract:** In today's dynamic digital world, modern technologies are extremely active in school. That is why the demand for an effective formula for attractive, high-quality and effective teaching of Bulgarian language and literature continues to grow. In view of this, the article presents the method for developing skills for independent learning through project work.*

The goals that are realized in the application of the model in the classes of Bulgarian language and literature at the level of the curriculum develop and increase the basic key competencies of the students.

***Keywords:** methods, visualization, native language teaching, project*

***JEL Codes:** I2 I23*

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FRI-239-1-PPM(S)-06

EVELOPMENT OF FUNCTIONAL LITERACY OF STUDENTS BY IMPROVING THEIR SKILLS FOR READING

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Abstract: This report examines the concept of 'reading literacy' as a necessary basis for the formation and enhancement of the functional literacy of students. a theoretical model of the "scenario method" is presented as a method for developing students' reading literacy in Bulgarian language classes. There are methodological decisions for how to adequately be used the "scenario method" according to the needs of students and the level of their intellectual development.

Keywords: literacy, functional literacy, reading literacy, reading skills, learning methods in reading.

JEL Codes: I2 I23

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FRI-239-2-PPM(S)-07

THE FORMATION OF GEORGIAN COMPETENCE - AN IMPORTANT STRUCTURAL ELEMENT OF THE MODERN EDUCATION OF STUDENTS

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Abstract: Geographical education is part of the modern educational system, in which a number of changes must be made to make it interesting and in line with new realities. In this direction, it is necessary to form the Georgian competence, which is an important structural element of modern education. The construction of a picture of the world and the socialization of the personality are also important for the modern student.

Keywords: Formation of Georgian competence, modern education, geography

JEL Codes: L10, L11

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**THE STEAM APPROACH IN NON-FORMAL LEARNING FOR
OVERCOMING THE GENDER GAP**

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Abstract: STEAM is emerging both in schools and non-formal education, intending to connect young people to reality and the future by bringing new methodologies, learning environments and technologies. The paper discusses the application of STEAM in organizing girls' mobility within the VIRAGO project, funded by Erasmus+, which aims to include and motivate young females to overcome the gender gap and empower them to bring change in their communities. In the beginning, it analyses two factors that require the application of such a tool: firstly, the recommendations of the European reference framework of crucial competencies; secondly, the need to empower the participants and equip them with tools and self-confidence to act as leaders of change, Virago women. Then it discusses how the educational content was built to introduce Science, Technology, Engineering, Art and Maths topics in non-formal surroundings. Finally, it shares some positive results and provides conclusions on future applications.

Keywords: STEAM, competences, non-formal education, educational content

JEL Codes: I21

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PSYCHOLOGICAL RULES, AFFECTING THE TOUR-GUIDE'S PERSONALITY AND PROFESSIONAL GROWTH

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Abstract: The process of professional shaping, development and perfection of the personality, as separate and interrelated components, are subject to certain psychological rules. This text presents some of the psychological rules, affecting the tour-guide's personality and professional growth. The tour-guide's personality development is unthinkable without knowledge of the moving powers and rules, supporting this process. The main rules in personality shaping are: upbringing, self-education, moral values orientation, work activity, tour-guiding communication, fitness and ability to work, professional skills, social perception, the urge for individual expression, etc.

Keywords: personality, tour-guide, profession, rules, upbringing, self-education, moral values orientation, work, communication, ability to work, fitness to work, skills, expression.

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FRI-239-2-PPM(S)-03

LITERARY PHENOMENA AND LITERARY EDUCATION IN THE CONTEXT OF DIGITAL CREATIVITY

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Abstract: *E-learning, which differs significantly from traditional classroom education, has become a widely acceptable and commonly used means for education nowadays (in any types of educational organizations). This paper will focus on e-literature as it is used in and for the e-learning process; e-literature is not exclusively used in e-learning process as it is also used to complement traditional literature (e.g., hard copy book) in the traditional education process. a great proportion of literature on e-literature mainly deals with issues about its preparation, content, and dissemination. However, an often-neglected view is the readiness of e-learning participants to use e-literature. As such, the current paper seeks to provide an insight into the issues related to participants' readiness to use e-literature in e-learning process. to this end, the main objective of this paper is to specify and provide and insight into participant's readiness to use e-literature in e-learning process.*

Keywords: *E-Learning, IT technologies, literature, Education*

JEL Codes: *I2 123*

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FRI-239-2-PPM(S)-04

**MODERN APPROACHES AND MODELS OF IMPROVING THE
EDUCATIONAL PROCESS IN ECONOMIC ACCOUNTING ANALYSIS IN
A UNIVERSITY**

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***Abstract:** The report offers approaches, models and methods for improving the scientific-teaching work and the educational process in business accounting analysis of the enterprise in higher education institutions. The need to improve the educational content and teaching methods is brought out. Possibilities for using a distance form of education, active and interactive methods in conditions of digital transformation and digitization of the educational process are explored.*

***Keywords:** business accounting analysis, training, interactive methods, digitalization, business games, digitalization*

FRI-239-2-PPM(S)-05

THE FORMATION OF GEORGIAN COMPETENCE - AN IMPORTANT STRUCTURAL ELEMENT OF THE MODERN EDUCATION OF STUDENTS

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***Abstract:** Geographical education is part of the modern educational system, in which a number of changes must be made to make it interesting and in line with new realities. In this direction, it is necessary to form the Georgian competence, which is an important structural element of modern education. The construction of a picture of the world and the socialization of the personality are also important for the modern student.*

***Keywords:** Formation of Georgian competence, modern education, geography*

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

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STUDIES ON ARTISTIC STYLE IN BULGARIAN METHODOLOGICAL LITERATURE

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***Abstract:** Artistic style occupies a special place among the styles of literary language. It is among the most important sources for enriching the literary language, it also serves as the main means of preserving vocabulary. The introduction of new words and meanings, as well as the preservation of long-established names and linguistic forms, is due to the use of fiction. Through literary texts, students have the opportunity to develop their ideas about both the real world and new fictional worlds. The report traces some of the studies on artistic style in the Bulgarian methodological literature.*

***Keywords:** art style, literature, style, teaching*

***JEL Codes:** L29*

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

**THE BULGARIAN EUROPEAN - CULTURAL MEMORY AND
SYMBOLIC MESSAGES OF UNDERSTANDING AND KNOWLEDGE**

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Abstract: *In the new realities of the 21st century are emerging complex transformations in the modern humanitarian and holistic construction of the human personality. The contemporary socio-cultural competencies are built on the lasting stable basis of the Bulgarian national self-consciousness and European civilization affiliation. The psychological and pedagogical process of education, training and development follows symbolic messages of understanding and knowledge, inherent in the Bulgarian European. Verbal information especially is encoded and presented through a system of images that are clearly and permanently fixed in linguistic semantics. For example, the invariable lexical core of words, phrases, and speech constructions, stored in the universal linguistic picture of the world. From the literature derives also the Eurocivilizational concept of meaning, significance, knowledge, cultural heritage, humanitarian values, upbuilding, progress, message for the future.*

Keywords: *Bulgarian identity, European civilizational affiliation, modern sociocultural realities, cultural attitudes, communication skills, mental and receptive benchmarks, transfer of knowledge*

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**THE COSTUMES OF THE GREBENTSI IN SILISTRA REGION
ACCORDING TO PHOTOS, PUBLICATIONS AND NOTES
FROM 1785-1923**

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Abstract: The paper shows the clothing of the old local population in the Silistra region according to publications—photos and descriptions, as well as field notes, from the period 1785-1923.

Keywords: grebentsi, old local population, traditional clothing, crown, comb, Silistra, Almaliy, Galitsa, Garlitsa, Kalipetrovo, Aydemir, Vetren, Srebarna, Popina, Garvan, Malak Preslavets.

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

TO THE QUESTION OF THREE BULGARIAN ETHNIC NAMES: RUP, SHOP, AND HURTSOI BULGARIANS

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Abstract: This article deals with the names of three local Bulgarian groups: rupsi, shopi, and hartsoi. New suggestions regarding the origin of the names are made.

Key words: Bulgarians, rupsi, shopi, hartsoi.

JEL Codes: L29

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THE ANCIENT LANGUAGE FEATURES IN A FOLK SONG FROM SILISTRA REGION

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***Abstract:** The paper examines the ancient peculiarities in the language of one of the Bulgarian folk songs, collected by the folk singer Yordan Nikolov - The Blind, and published in 1898. The focus is on "Song nr. 12", in which mythological and biblical images and motifs are interwoven, seen both through the Bulgarian folklore tradition and the Christian beliefs in the power of miracles.*

***Key words:** ancient language, consonants, grammatical case, adjectives*

***JEL Codes:** L29*

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COLONEL NIKOLA BOTEV – COMMANDER AND GODFATHER OF THE 31ST INFANTRY SILISTRA REGIMENT IN WORLD WAR II

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***Abstract:** The research is dedicated to colonel Nikola Botev – commander of the 31st Infantry Regiment in the final stage of Bulgaria's participation in The Second World War (1944-1945). The goal is to present his military merits as commander of the regiment, as well as little-known facts from his biography that shed light on his personal qualities.*

***Keywords:** World War II, 31 infantry Silistra regiment, Colonel Nikola Botev*

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

BALKAN RHETORIC

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***Abstract:** by tradition, rhetoric represents the art of combining parts of speech supported by theory. Unfortunately, the separate study of rhetoric as a subject taught in schools, sized to exist at the end of the XIXth century, yet it is still crucial for many domains like public debates, politics, teaching, and not in the least, for literature surviving texts that enable us to perceive reality from a historical standpoint because they need to be persuasive.*

The main aim for our research is to analyze the features of the rhetoric in the Balkan Peninsula as employed by Vasile Voiculescu, a Romanian writer from the beginning of the XX th century. The purpose of doing so, sustains the idea that, through literature, one can have access to a certain type of mentality, a particular way of seeing life, such as those practiced in the Balkans for ages. Therefore, by reading Voiculescu's writings, people interested in cultural differences, in habits and customs, in identity issues and traditional communities, overall, can definitely have a great insight into all of the above. So, our paper could be regarded as a journey through centuries, a way of shaping and reshaping ideas, rituals, celebrating cycles of life, a spectacular journey made possible with the help of literature because Voiculescu, as many other Balkan writers, plays the role of a spokesperson for his nation.

Keywords- *rhetoric, Balkan, mentality, identity, features.*

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

FRAZEOLOGISME BALCANICE AVÂND LA BAZĂ PĂRȚI ALE CORPULUI. UNITĂȚI FRAZEOLOGICE FORMATE DE LA SUBSTANTIVUL „CAP”.

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***Abstract:** Phraseology, as a branch of linguistics that deals with the study of word combinations, represents a relatively young field of research that has not yet defined its status very clearly within linguistics; however, it is certainly a vast field, both in terms of existing phraseological units at the level of each individual language, and when we consider the comparison between two or more languages, genealogically or typologically related, as is the case with the Balkan languages .*

In the present article, we aimed to analyze from a synchronic perspective the phraseological units found in the four Balkan languages, Albanian, Bulgarian, Greek and Romanian, which have the term head as their center, as well as the productivity of these phraseological units in the mentioned languages. We will also try to decode, from a grammatical point of view, the formation mechanism of these structures.

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FRI-110-1-PP(S)-08

SYNTACTIC PARALLELISMS IN THE BULGARIAN AND ROMANIAN LANGUAGES

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Abstract: *Parallelism is a stylistic figure by which images (figurative), episodes (plot) or syntactic constructions (syntactic) are juxtaposed. It is a comparison of two phenomena by the method of their parallel description. In linguistics, it is the construction of phrases with the same structure. In a sentence, words take their place according to a certain rule. For a sentence to be correct, the order of the words must be followed, otherwise the meaning may be completely changed. In this linguistic phenomenon, the sentences have the same structure, the same separate parts, the same rhythm, the same word order.*

The word syntax is borrowed from French (syntaxe), a word of Latin and Greek origin (syntaxis = syn - means "together" + taxis - "arrangement", "order"). The object of studying syntax in both Bulgarian and Romanian language is the set of rules for combining words into sentences (simple (proposition) and complex (phrase)) and the syntactic connections in these units.

Although the Romanian language belongs to the Eastern Romance sub-branch of Romance languages, the Romanian cultural and written tradition throughout the Middle Ages was mainly of Old Bulgarian origin, and until the 16th century the official language in Wallachia and Moldova, with influence in Transylvania, was Middle Bulgarian.

The report examines the commonalities in the syntax of the Bulgarian and Romanian languages, providing numerous examples to illustrate these parallels.

Keywords: *syntax, parallelism, simple sentences, phrases, juxtaposition, word order, generalities*

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FRI-110-1-PP(S)-09

THE PROBLEM OF THE IDENTITY CRISIS IN THE NOVEL "HAIKA ZA WOLTSI" BY IVAYLO PETROV

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***Abstract:** The text interprets the theme of the personality crisis in the novel "Haika za woltsi" by Ivaylo Petrov. It traces the ways in which was build the story of the life in the Bulgarian village before and after the land cooperation in the years of socialism. The change of values is presented, which determines the drama of the man who has lost his supports. The psychological mechanisms through which the identity crisis was revealed in the various characters were observed.*

***Keywords:** literature, ideology, identity, drama, crisis*

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FRI-110-2-PP(S)

FRI-110-2-PP(S)-01

**FUNCTIONAL USES OF THE SUBORDINATE CONJUNCTIONS
"QUE" AND "ЧЕ" IN THE ORAL PRACTICE OF FRENCH AND
BULGARIAN**

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***Abstract:** The article examines cases of non-normative use of the subordinate conjunctions "que" and "че" in the oral practice of the French and of the Bulgarian languages. They introduce hypotactic relations of complementarity within the complex sentence and they also serve to establish causal relations, relations of consequence, of concession, of purpose, and in French also of temporality and of condition. The formal-semantic restructuring of the conjunctions, reduced to subordinate conjunction "que" and "че", introducing the considered types of hypotactic relations, is the result of three linguistic processes: substitution (complete or partial), ellipsis and truncation. The study finds a tendency in the oral practice of both languages to unify most of the subordinate conjunctions in the form of simple que / че conjunctions.*

***Keywords:** subordinate conjunction, que, че, hypotactic relations, oral practice, French, Bulgarian*

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FRI-110-2-PP(S)-02

**LEXICAL ASYMMETRY BETWEEN THE BULGARIAN NOUNS *БРЯГ*
AND *РЪБ* AND THE FRENCH NOUN *BORD***

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Abstract: The results presented in this study are obtained from a comparison of translations between the two languages, organized around the idea of a border and its lexicalization in French and in Bulgarian. They are complemented by an account of the history, lexical combination and word-formation capacity of words and provide further information on the process of colexification, whereby the same word ('bord' for French and 'бряг', for Bulgarian) expresses two or more concepts conveyed by different words in other languages.

Keywords: cross-language lexical asymmetry, cross-linguistic polysemy

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FRI-110-2-PP(S)-03

ON AN INTERESTING USE OF SIMPLE SENTENCES WITH RELATIVE SEMANTICS IN YOVKOV'S STORIES

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***Abstract:** Yovkov's style is characterized by rich imagery; he uses an abundance of epithets, metaphors, attributive phrases, etc. The writer avoids brevity, he uses it much less often, therefore there are not many simple sentences with relative semantics in his stories. The report places an emphasis precisely on the laconic expressions in Yovkov's stories, and also: to discover the different Yovkov, by making sense of simple sentences with relative semantics. In the excerpted material presented, I have selected just such sentences: laconic, concrete and - at the same time - figurative.*

***Keywords:** simple sentences with relative semantics, syntax, concessions*

***JEL Codes:** L29*

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FRI-110-2-PP(S)-04

THE SOTERIOLOGICAL LOGOS IN BEATRICE AND ALBENA

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Abstract: *The article compares the images of Albena from the story of the same name by the Bulgarian writer Yordan Yovkov and Beatrice from Dante's book Vita Nova in order to discover their common Christological and soteriological structure. First, the logos of beauty of Dante's beloved is analysed, bringing out three elements for comparison: beauty as a spiritual dimension, woman as a bearer of wonder and the effects of the magical power of beauty on others. After that these elements are traced and found in the image of Albena in the episode of taking of the beautiful sinner in front of the eyes of the village community, which gives reason to make a new, soteriological, reading of this emblematic text of Bulgarian literature.*

Keywords: : Yovkov, Albena, Dante, Beatrice, Vita Nova, soteriology.

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FRI-110-2-PP(S)-05

STUDIES ON ARTISTIC STYLE IN BULGARIAN METHODOLOGICAL LITERATURE

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***Abstract:** Artistic style occupies a special place among the styles of literary language. It is among the most important sources for enriching the literary language, it also serves as the main means of preserving vocabulary. The introduction of new words and meanings, as well as the preservation of long-established names and linguistic forms, is due to the use of fiction. Through literary texts, students have the opportunity to develop their ideas about both the real world and new fictional worlds. The report traces some of the studies on artistic style in the Bulgarian methodological literature.*

***Keywords:** art style, literature, style, teaching*

***JEL Codes:** L29*

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FRI-110-2-PP(S)-06

STYLISTICS OF SANCTITY IN THE STORY "THE REAPER" BY YORDAN YOVKOV

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***Abstract:** Without losing its philosophical depth and invitation to reflection, Yordan Yovkov's style is ethereal and dotted with countless intellectual challenges. Like a sculptor, he separates the excess from the marble and gives grace to the figures in the language. His unusual linguistic solutions create a sense of stylistic comfort in the reader. He transforms the common man's understanding of holiness and conveys it in detail.*

***Keywords:** icon, iconography, art, Christianity*

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FRI-110-1-ITS(S)

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

DIGITAL CREATIVITY IN CREATING E-LESSONS

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***Abstract:** The purpose of the report is to consider the transformation of the acquired digital competence into digital creativity in the creation of electronic lessons by the students - future teachers of physics and informatics. It examines those areas of the European Framework for Digital Competence of Educators that students have mastered in their studies and can transform into digital creativity through the lens of the digital taxonomy.*

***.Keywords:** Digital competence, Digital creativity, E_lessons, Digital taxonomy*

***JEL Codes:** I20, I21*

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

AN INVESTIGATION OF THE ELECTRIC VOLTAGE QUALITY OF POWER SUPPLY OF AN INDUSTRIAL INDUCTION FURNACE

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Abstract: The paper analyses some changes of electric voltage of power supply of a metal melting electric inductance furnace. The measurements of some of electric quantities have been made in the second of the furnace transformer and outside of the power electronic converter. The measurements were realized and results were recorded by three-phase power quality analyser MI 2885 Master Q4. The results are presented graphically and the electric voltage quality is analysed. The conclusions of experimental results can be used for development of technical solutions to improve the power quality of the power supply of the investigated induction furnace.

Keywords: metals melting electric inductance furnace, electric voltage quality.

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

SYNTHESIS AND APPLICATION OF PHOSPHORUS CONTAINING COMPOSITES AS ELECTROCATALYTIC MATERIALS

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Abstract: *The newly synthesized composites based on natural zeolite modified with Cellulose phosphate by microwave-assisted synthesis are reported here. Microwave irradiation conditions, such as irradiation power and time, required to optimize the synthesis of zeolite electrochemical materials were studied.*

The growing interest in the use of zeolite-modified electrodes results from the specific framework structure, containing the three-dimensional system of cages, and channels with various shapes, sizes, and topologies (Chen, C.Y., et al). their molecular sieve properties and ability to undergo the ion-exchange process with transition metals result in their catalytic property (Guzmán-Vargas, A., et al; Porada, R., et al). Cellulose-based materials also show interesting electrochemical properties and will be interesting to study their application of it for hydrogen production (Marzouki, R., et al).

The electrolytic model solution content of 1 M KOH and 18 g.l⁻¹ NaCl. The electrocatalysts were characterized by SEM, XRD, and BET. The electrodes are studied electrochemically by means of cyclic voltammetry, galvanostatic measurements, and Tafel slopes. The electrodes are designed and optimized in terms of the amount of composites.

Keywords: *microwave assisted synthesis, cellulose phosphate, natural zeolite, seawater, electrocatalysts*

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FRI-110-3-ITS(S)-04

STATE OF THE CAR FLEET IN EUROPE

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***Abstract:** The report provides an overview of the state of the vehicle fleet in Europe for the last 5 years. The analysis was made by car types for individual countries.*

***Keywords:** transport, vehicles*

JEL Codes:

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FRI-110-3-ITS(S)-05

SMART CONTROL OF PARAMETERS IN AUTONOMOUS HEN HOUSE

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Abstract: This paper describes the technical and program solution to a specific problem in the rearing of birds in a small chicken coop. In the realization of the system, modules were selected to implement the set of the functionalities. The main ones are: microcontroller WeMOS D1 Mini, sensors - ANT10, MQ135, LDR and step motor - 28BYJ-48. The developed application is WEB-based and allows remote monitoring and management of the system via the Internet. a control system for the entrance door of the chicken coop can be a successful competitor to the devices of this type offered on the market with its good functionality and low cost. Its autonomous power supply makes the device independent of the power grid and can be used in isolated livestock farms, as the low value of the operating voltage of the power supply unit (5V) makes the device safe for the user and the birds in the room.

Keywords: Arduino, ESP8266, sensors, actuators, automatic chicken door.

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FRI-216-1-ITS(S)-06

**INVESTIGATION OF THE INFLUENCE OF THE SIZE OF THE AIR GAP
BETWEEN THE SOLENOID AND THE UNLOADER VALVE ARMATURE
ON HYDRAULIC CHARACTERISTICS OF ELECTROMAGNETIC
INJECTORS CRI 1**

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***Abstract:** The report describes an experiment investigating of the influence of the size of the air gap between the solenoid and the unloader valve armature on the hydraulic characteristics of electromagnetic injectors Common Rail. The first generation electromagnetic injectors - BOSCH CRI1 was selected as the study object. The tests were made on a universal test bench for CMX6000X diesel fuel systems.*

***Keywords:** Common Rail, hydraulic characteristics, electromagnetic injectors*

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FRI-216-1-ITS(S)-07

INTERACTIVE METHODS AND INNOVATIVE TECHNOLOGY FOR E-LEARNING THROUGH "YOUTUBE" CHANNEL

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Abstract: *Proper use of modern educational technology enhances the effectiveness of teaching and learning. However, this requires the use of new pedagogical approaches that allow for collaboration, communication and mobility. Such learning technologies include virtual worlds, interactive multimedia technologies, wireless technologies and the use of mobile devices. The research interest focuses on the topical issue of using computer-based educational and multimedia and digital technologies in the learning process in different disciplines and how the use of these particular technologies affects motivation to learn. It is becoming more and more clear that the attempts for structural, organisational and institutionally imposed changes will not lead to the desired result if opportunities are not found to improve the quality of the learning process 'from the inside' by rethinking the focus and characteristics of pedagogical impact and interaction. To achieve good results Bulgarian schools need innovators in the classroom who can intuitively feel the new trends, ask the right questions, formulate the tasks to get them solved and thereby be in line with the relevance of what is happening in society and the need for timely changes in education. The application of interactive methods enhances the effectiveness of learning, which depends on the degree of acquisition of knowledge and skills in the learning process, which forms relation to the field of study, i.e. technological learning. The effectiveness of learning is not only expressed in the formation and consolidation of knowledge and skills, but also in their transfer from one area to another and their application in different situations, which leads to the activation of students' cognitive activity in technology education classes. Cognitive activity is associated with positive motivation and sustained interest in the studied area. All this in aggregate is achieved by an appropriate combination of methods and means of learning through activity, and the most appropriate are innovative methods. I looked for an approach in which learners are engaged in active actions in gaining basic knowledge and enriching their knowledge. What is new about this approach is that the material is presented in the traditional way of teaching.*

As a teacher of vocational subjects, I feel satisfied when I apply different interactive and innovative technologies- I use innovative technology of teaching through the "Youtube" channel in the classes of Teaching Practice - Technology and Technique of Food Production and Teaching Practice - Food Quality Control. Interesting results are obtained from its application. Students become more and more experienced, knowledgeable, skillful and competent in working on the subjects of vocational training. The use of the "YouTube" channel frees the teacher from the need to repeat well-learned lessons and allows for more active participation of students in the conduct of lessons.

Keywords: *Modern education, Youtube, Teaching, New practice, Technology*

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OCTOBER RESEARCH CONFERENCE IN RUSE

FRI-2G.204FS

FRI-2G.204FS-01

**TECHNICAL ADVANCES AND TRENDS IN NEUROSURGERY FOR
BETTER QUALITY OF LIFE**

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***Abstract:** Latest technologies in the field of neurosurgery maximize patient safety and improve treatment outcomes. These advances are integrated into all aspects of clinical care - from diagnosis through surgery, postoperative care and rehabilitation. The current review will outline recent neurosurgical advances in the management of brain tumors, movement disorders, spinal degenerative disease, neurologic injury, and the expanding area of brain-machine interface. It is a complex and multidisciplinary knowledge related to the nervous system with overlapping aspects which are closely interconnected to elementary professional subjects such as science, technology, engineering, and mathematics. For example, minimally invasive surgical techniques are a part of the daily practice of many spine surgeons. They aim less tissue damage, predictable clinical outcomes, shorter hospital stays and faster postoperative rehabilitation, clinical efficacy, and reasonable cost. Based on the facts that our specialty relies on meticulous motor skills to carefully manipulate vulnerable structure, work through narrow areas, and prolonged procedures with surgeon fatigue, it is a good candidate for robotic surgery. To support all the additive manufacturing regarding 3D printing, the related 3D scanning and work in extended reality environment is described as a feature of the third industrial revolution. We will broadly use anatomic haptic models for preoperative planning, surgical guides for the operative procedure, and patient-specific individual implants for tissue reconstruction.*

***Keywords:** minimally invasive surgery, robotic surgery, additive manufacturing, 3D technologies.*

FRI-2G.204FS-02

**THE INNOVATIVE ZELLKRAFT PROGRAM OF THE ROTHERBAUM
CENTER FOR PREVENTION AND HEALTH MANAGEMENT -
NOTICEABLY MORE ENERGY IN EVERY CELL OF THE HUMAN
BODY**

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***Abstract:** ZELLKRAFT is scientifically validated health training for targeted improvement of cellular metabolism. It functions exactly where a person's energy is created: in the powerhouses of the cell, the so-called mitochondria.*

***THIS MEANS:** Improved performance, reduced recovery time, better memory, better sleep, better appearance through tighter skin and reduction of excess body weight. It is due to the release of various "good mood hormones" in the brain (neurotransmitters) that maintain mental balance.*

***THE METHOD:** Targeted regeneration is at the heart of the ZELLKRAFT method. Energy production in the cells is enhanced by using high purity mountain air. This noticeably strengthens and revitalizes the entire body with all its organs and bodily functions. Through targeted additional measures in the field of fitness, nutrition and relaxation, the metabolism and cellular energy level are activated and restored in the long term.*

FRI-2G.204FS-03

INNOVATION IN TECHNOLOGY - FROM THE INVISIBLE AND IMPOSSIBLE TO THE FUTURE TODAY

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***Abstract:** Fate is not always kind to seekers. The secrets of knowledge have never been hidden somewhere. But do we have the eyes to see them, the heart to feel them, and the mind to understand them, when the need to veer off the beaten and comfortable path overwhelms us. There are no ultimate truths, no fully described suffering or happiness, hope and disappointment will never cease to accompany us. That mystery of contemplating the starry sky and finding concrete earthly truths and technical solutions in infinity is a gift from God. We all know about the great discoveries, about the turning points in the development of civilization, science and technology. Aristotle, St. St. Cyril and Methodius, Galileo, Newton and Watt, Foucault and Lavoisier, Lobachevsky and Mendeleev, Poincaré, Gauss and Planck, Marconi and Tesla, Einstein and Freud, Nietzsche and Schopenhauer, Academician Pencho Slaveykov and Teodor Trayanov, Ivan Milev and Vladimir Dimitrov - Maistora, Yesenin and Acad. Sakharov, Acad. Bogdan Filov, John Atanasov, Acad. Balevsky and Acad. Sendov, etc., listing the names of these awakeners of the spirit and knowledge can be continued ad infinitum. For each one of them, we know how he reached and turned the invisible into the visible, the impossible into the possible, and gave us pieces of the future. And surely Leonardo da Vinci was right that in science the opinion of one is much more valuable than the convictions of thousands. Almost everything in engineering is borrowed from nature. However, there is one thing that is truly the pinnacle of human imagination and creative genius. This is the digital information - with only zeros and ones we control everything, really, absolutely everything! And without this "human" discovery, we will never create our best assistant - artificial intelligence. There is another miracle, but it is Bulgarian. This is our first and unsurpassed invention - the Bulgarian, our A a, B b, C c The sacred symbols of the holy brothers Cyril and Methodius have given meaning to the power and culture of our great empire in the past, and now the progress that coming up.*

It is not an exaggeration to say that what makes our lives more comfortable and meaningful is subject to invention. Technological solutions drive industry, finance, medicine, and all that we call the prosperity of individual countries. The more common word for the purpose is innovation or creativity. The simplest, but perhaps most accurate, definition of innovation is the transformation of the intellectual products contained in inventions into money, goods, and industrial development. This path is thorny for us. Not that bankers elsewhere give money easily for the transfer of patented technologies, but they are probably more risk-averse there.

My meeting with you is a kind of balance sheet - to present to the intellectual elite of Ruse the scientific and applied results that we managed to have today as particles or more precisely as dust particles from the future. The responsibility is huge, both to you and to the Taxpayer. Almost everything I'm about to tell you about is an invention. It was initially an idea, then it was theoretically researched and experimented to finally become a patent. We will talk about our innovations in sensors, robotics and metrology, airspace control, converting the energy of sea waves into electricity, earthquake prediction, smart agriculture and crop production, cyber-physical systems for national security, underwater devices for recreational tourism, etc.

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FRI-303.b-1-AMT&ASVM-01

**ANALYSIS OF THE LEGUMINOUS CROPS PRODUCTION IN
BULGARIA**

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***Abstract:** In this paper the production of leguminous crops in Bulgaria is analysed. These crops occupy a proper place in the agricultural crop rotation. The areas occupied by them, the production obtained, the influence of external factors on the latter, as well as the satisfaction of the domestic market with the main pulses - ripe beans and lentils, which are the main component food in the menu of Bulgarians - have been analysed. The presented data are for the period from 2012 to 2021. Conclusions are formulated for the future development of the production of leguminous crops in the country.*

***Key words:** leguminous crops, occupied areas, production, yields, consumption*

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DETERMINATION OF OPERATING AND ECONOMIC INDICATORS OF A PLANTER WITH DIFFERENT TRANSMISSION SYSTEMS

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Abstract: *In practice, there are seeders for cereal crops with a different way of driving the seedapparatus. In the older row drills, there is a mechanical drive of the seedapparatus with chain and toothed gears or with variators. In newer sowing machines, the drive is most often mechatronic. The aim of the present study is to determine to what extent the type of drive of the seedapparatus will have an impact on the operating and economic indicators of the seeder. a seeder with a working width of 3 m was used, with the drive of the sowing devices with a gear reducer, a variator and a mechatronic system. It was established that regardless of the observed variant, the productivity remains constant, respectively – and the seasonal load. There is a clear difference in the cost price, which is due to the different deductions for depreciation, major and current repairs. These differences are the result of the different price of the selected system for driving the seeders, with the same remaining economic indicators such as costs for the tractor, for fuel, for the payment of the operator, etc.*

Keywords: *seeding, operational-economic indicators, drive of seedapparatus, mechanical and mechatronic systems.*

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FRI-303.b-1-AMT&ASVM-03

MECHATRONIC CONTROL SYSTEM FOR GUTTER SOWING DEVICES

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Abstract: In the new row drills, the drive of the sowing devices is very often mechatronic. The aim of the present study is to determine the elements of a mechatronic drive for precise setting and maintenance of the sowing rate. To achieve this goal, the transmission ratio of the drive system and the amount seeds sown in one revolution of the sowing device at different densities of the sown cereal seeds were determined. Based on these indicators, an exemplary scheme for the construction of a mechatronic system for controlling the sowing rate is proposed.

Keywords: mechatronic system, seeding rate control, sowing device.

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PRODUCTIVE POTENTIAL AND BREEDING SUITABILITY OF HYBRID MAIZE CROSSES WITH RL61/31 PATERNAL LINE

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Abstract: Grain yield in maize occupies a decisive importance in practice. Hybrids with higher yield and shorter vegetation period are preferred by the grain producers, which makes the question of study and search of such genotypes always topical.

The objective of the study was to determine the breeding suitability of 20 experimental hybrid crosses with paternal component RL61/31 line, in terms of yield and “emergence – silk formation” period.

The study was conducted during the period 2016-2018, under conditions without irrigation, in the experimental field of IASS “Obraztsov chiflik” - Ruse. A study of 20 maize testcrosses was performed. Breeding characteristics of the crosses were made in order to improve the breeding work with them.

The summarized results showed differences in the productivity, both as by year also and between the crosses studied. The yield in the experiment ranged from 569 to 963 kg da⁻¹ (average for the period of study).

The crosses with the highest average annual yield for the period of study were: (LRL104 x RL61/31) 963 kg da⁻¹; (AA156 x RL61/31) 959 kg da⁻¹; (LRL100 x RL61/31) 917 kg da⁻¹; (RH301 x RL61/31) 911 kg da⁻¹ and (LRL101 x RL61/31) 908 kg da⁻¹. The same crosses were with high genetic potential and were of interest from a breeding point in yield increasing.

The hybrids: (AB120 x RL61/31) and (AM21 x RL61/31) showed the shortest average length of “emergence–silk formation” period 58 days each, and (AM20 x RL61/31) hybrid - 56 days, and were suitable to be included in a breeding program for its reduction.

Keywords: Maize, Hybrids, Grain Yield, Emergence-Silk Formation

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PRODUCTIVE POTENTIAL AND BREEDING SUITABILITY OF HYBRID MAIZE CROSSES WITH RM619 PATERNAL LINE

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Abstract: Grain yield in maize occupies a decisive importance in practice. Hybrids with higher yield and shorter vegetation period are preferred by the grain producers, which makes the question of study and search of such genotypes always topical. The objective of the study was to determine the breeding suitability of 20 experimental hybrid crosses with component RM619 paternal line, in terms of the yield and the period “emergence – silk formation”.

The study was conducted during the period 2016-2018, under conditions without irrigation, in the experimental field of IASS “Obraztsov Chiflik” - Ruse. A study of 20 maize testcrosses was performed. Breeding characteristics of the crosses were made in order to improve the breeding work with them.

The summarized results showed differences in the productivity, both - by year and between the crosses studied. The yield of the experiment ranged from 589 to 886 kg da⁻¹ (average for the period of study).

The crosses with the highest average annual yield for the period of study were: (AM111 x RM619) 886 kg da⁻¹; (AA156 x RM619) 883 kg da⁻¹; (AM21 x RM619) 875 kg da⁻¹; (RH301 x RM619) 869 kg da⁻¹; (LRL-2-14 x RM619) 844 kg da⁻¹ and (AB120 x RM619) 837 kg da⁻¹. The same were with high genetic potential and were of breeding interest in increasing yield.

The hybrids: (LRL100 x RM619); (AM30 x RM619) and (AB212 x RM619) showed the shortest average length of the period “emergence–silk formation” - 60 days each, and were suitable to be included in a breeding program for its reducing.

Keywords: Maize, Hybrids, Grain yield, Emergence–Silk Formation

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FRI-303.b-1-AMT&ASVM-06

STUDY OF MOISTURE IN THE GRAIN AND PERIOD OF EMERGENCY-GERMINATION IN FIVE EARLY HYBRIDS OF CORN (ZEA MAYS L.).

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Abstract: The low grain moisture in maize is of a significant importance due to the lowering the costs of harvesting and storage of grain production. Hybrids with reduced moisture content and short vegetation are increasingly preferred, which makes the research issue of such genotypes particularly topical. In this regard it is necessary to assess the behavior of new genotypes via obtaining information about them.

The objective of the study was grain moisture in harvesting and emerging-silking period to be determined in five maize hybrids.

During the period 2010 – 2012 at the experimental fields of IASS “Obraztsov Chiflik” - Ruse a study was conducted of five maize hybrids from the group of early ripening hybrids - FAO 300-399.

The study included the hybrids: (BG1 x 139 96B), (LRL2 x 139 96B), (LRL3 x 26A), (LRL4 x 26A), and (BG2 x 26A). The traits: grain moisture in harvesting and emerging-silking period, were examined. The variation coefficients (VC) were determined for both traits per year and average.

(BG1 x 139 96B) hybrid showed the lowest grain moisture - 14,8%, and (BG2 x 26A) – the highest one, 17,4%. The first hybrid is suitable to be included in crosses to reduce grain moisture. Hybrids: (BG1 x 139 96B), (LRL3 x 26A), (LRL4 x 26A), and (BG2 x 26A) showed the same average length of emerging-silking period - 56 days, and are suitable for inclusion in breeding program to reduce it. The variation of the trait emerging-silking period in studied hybrids was slight and it is suitable to be used as a trait for purposeful breeding work. Hybrids: (BG1 x 139 96B), (LRL3 x 26A), (LRL4 x 26A) showed slight variation of the trait grain moisture in harvesting and can be used in breeding of stable hybrids and lines according that trait.

Keywords: Maize, Coefficient of Variation (CV), Moisture

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A NEW-GENERATION PATENTED THRESHER DEVICE

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***Abstract:** a thresher device of a combine harvester operating on the principle of the friction of one rigid, continuous belt, constructed of slats mounted on toothed chains via articulated joints, against another belt of the same type. The back-and-forth friction motion is provided by eccentrics, on which sprocket wheels of the chains are mounted and are positioned at 180 degrees of one belt relative to the eccentrics of the other belt. The belt pressing force is applied by tensioners. This threshing device is positioned in the place of the feeder house in conventional-design combines. The feeder house beater, drum and concave are removed, with the device performing simultaneously transportation and threshing of the grain mass from the header to the straw walker. The higher the speed of the thresher device is, the higher performance of the combine harvester will be obtained.*

***Keywords:** thresher device device, combine harvester operating, principle of the friction.*

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**INVESTIGATION OF THE MICROHARDNESS OF SLIDING SURFACES
FROM RESTORATIVE COATINGS FOR BEARINGS AND SHAFTS FROM
AGRICULTURAL MACHINERY**

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***Abstract:** The article presents the change of microhardness of vibro-welded and electrochemical coatings for bearings and shafts under liquid friction. The change in the microhardness of the roller from the restored couples with anti-friction alloys BO-30 and EO-92 have the same character, and after a short softening of the surface of the vibration arc welded roller with DUR-500, a continuous strengthening is observed until the end of the test, which is higher with EO-92. This character of change in the microhardness of the welded roll can be explained by the greater number and higher content of alloying elements, their diffusion to the surface layers and the formation of new physicochemical structures within the boundaries of individual microscopic volumes at the surfaces subjected to friction and wear. The dynamics of the processes of strengthening and weakening of the rubbing surface of the BO-30 and EO-92 antifriction alloys have a cyclical nature, and these processes are more clearly expressed at the entrance of the sectors. This process is characteristic of pairs operating under oxidative wear, the main type of wear for parts operating under fluid friction.*

***Keywords:** micro hardness, agricultural machinery, bearings, shafts*

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THE ROLE OF FRICTION IN MACHINES

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Abstract: *The article presents the role of friction in machinery. The advantages and disadvantages of friction for the durability of friction pairs in machines. The types of friction in the machines, the conditions for their realization in the various mechanisms of the machines are considered. Means of reducing frictional wear in machinery are presented. Friction is necessary in our life as well as in machines. The problem of friction, wear and lubrication of machines and equipment, besides being purely technical, is also an economic problem on a national scale.*

Keywords: *friction, wear and tear,*

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RESEARCH ON THE INTENSITY OF INCOMING AND OUTGOING REQUESTS FOR MAINTENANCE SERVICE OF MOBILE MACHINERY

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***Abstract:** Maintenance management system has a significant impact on the organization of machinery maintenance for providing and rational use of personnel, means for performing operations and maintenance of machines, formed on the basis of rational structure of the maintenance service shops, which is a special issue and requires separate research..*

An important issue in organization of maintenance is determining the optimal size of the service shops, the degree of concentration and its specialization. In this regard, the results of these study are used as input data for determining the parameters of the studied service firms for maintenance of given enterprises for the research period in order to scientifically substantiate their optimal size.

***Keywords:** maintenance, repair-servicing system, agricultural machinery, intensity of incoming flow of orders, intensity of out-going flow of orders, service parameters, service workshop, maintenance model, maintenance optimisation.*

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RESARCH ON RAIL DEFECTS ON THE RAILWAY IN NORTHERN BULGARIA

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***Abstract:** this article examines the intensity of renewal of agricultural machinery over time. a comparative analysis was made for the renewal of the machines. Every year, how many new machines are brought into operation are examined.*

The trends of increase in number and age are considered. An analysis and summary of the research was made.

***Keywords:** intensity of renewal, agricultural machinery, maintenance, machinery sesource*

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RESEARCH ON THE TREND OF INTENSITY OF RENEWAL OF AGRICULTURAL MACHINERY IN BULGARIA

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The trends of increase in number and age are considered. An analysis and summary of the research was made.

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POSSIBILITY OF LIMITING THE LOAD CAPACITY OF ELECTRIC HOISTS

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Abstract: *The present work shows the structure and the work principle of lifting capacity restrictor. The restrictor is build in a reducer of an electric hoist's lifting mechanism and consist parallel working friction safety clutch and unidirectional roller clutch with blocking mechanism. That construction turn out when the load is bigger than the admissible, it does not decrease the real safety factor of break stopping and does not admit uncontrollable lowering of load when the load is lifted and outweigh the admissible load.*

Keywords: *electric hoist, lifting capacity restrictor*

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**OPERATION OF A SPECIAL SADDLE 3/3 DISTRIBUTOR BLAIN EV100
WITH ELECTROMAGNETIC CONTROL**

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***Abstract:** This work is a continuation of the work entitled "Concerning the Design and Control of the Hydraulic Drive of Elevators". The operation and principle of operation of the special Blain EV100 electromagnetic saddle 3/3 distributor, used in elevator technology, are described in detail.*

***Keywords:** Seat valve, hydraulic distributor, hydraulic lift*

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DETERMINING THE VALUES OF A CENTRIFUGAL PUMPS OPERATING PARAMETERS WHEN TRIMMING THEIR IMPELLERS

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Abstract: In order to change the flow rate and head of the centrifugal pump, the reduction of the outer diameter D_2 of the impeller (also called "trimming the impeller") is often used. By trimming the impeller, the geometric similarity of the pump is violated, since only the outer diameter of the impeller is reduced while the width of the channel impeller and the other dimensions are preserved. The dimensions of the inlet and outlet elements of the pump are also preserved. Therefore, the scientific laws used in trimming the impeller of the centrifugal pumps do not correspond with the laws for similar applications of turbo machines. In this case, in order to find a mathematical solution to the process that's being reviewed, in particular the movement of liquid in pumps, dimensional analysis can be used. It makes it possible to model physical phenomena without detailed consideration of physical equations. As a result of using the dimensional analysis, equations for calculating the flow rate, head and power of the pump in trimming the impeller, were obtained.

Keywords: centrifugal pump, cutting of the impeller, dimensional analysis

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TYPES OF STEAM TURBINES AND THEIR CHARACTERISTICS

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***Abstract:** This work examines the types of steam turbines used in modern thermal power plants. Some of their characteristics are examined and analyzed in relation to ensuring maximum energy efficiency.*

Technological, system and operational shortcomings are identified, the elimination of which in the initial stage of implementation contributes to improving the technical and economic indicators and improving the operational characteristics of the equipment.

***Keywords:** steam turbines, energy efficiency*

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**FABRICATION OF A SILICONE MATRIX FOR THE STUDY OF WOOD
AND RUBBER PARTICLE COMPOSITES**

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***Abstract:** According to the requirements of the European Commission, regarding the recycling of widely distributed wood waste, it is necessary that they reach 25% by 2025 and 30% by 2030. for end-of-life car tires, there is a requirement that the recycled or regenerated quantities exceed 50% of the annual quantities of tires used in Bulgaria. (DIRECTIVE (EU) 2018/851, 2018).*

One possible solution to achieve these goals is to combine the beneficial properties of wood particles and rubber mills to produce composites to be used in floor and insulation coverings (tiles).

The search for more practical solutions in the work and the production of a sufficient number of tiles from composites containing wood and rubber particles for the needs of the conducted experiments require the use of matrix silicone, since the fact that when polyester matrix is used, details with correct geometry, good homogeneity, clear edges and a smooth surface cannot be obtained. The resulting tiles must have precisely defined dimensions according to the requirements of the flooring standards, be easy to work with and the results obtained must be accurate and reproducible..

***Keywords:** composite materials, wood particles, rubber granules, silicone matrix*

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GOOD PEDAGOGICAL PRACTICE FOR APPLICATION OF STATISTICS IN ENVIRONMENT

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***Abstract:** STEM (Science – Technology – Engineering – Mathematics) is a school education that focuses on science, technology, engineering and mathematics. STEM methodology provides an opportunity for students to take part in experiments, share their ideas and understand the connections between the subjects they study in school. Polluted air is known to be closely related to human health. Pollution with gaseous and dust particles is particularly dangerous.*

Interest among the 10th grade students of PPMG "Acad. Nikola Obreshkov" in the city of Razgrad, Bulgaria brought up the topic of the state of the atmospheric air, which was developed in a STEM lesson. Using modern information technologies, the skills of gathering, processing and analyzing information the students performed excellently at the national competition "Young Talents", organized by Bulgarian Ministry of Education and Science. They presented projects in the field of ecology, as well as they coped with the tasks during the STEM lesson. During the lesson, we used modern methods of teaching and communication to connect with the ecology expert from RU "Angel Kanchev", Assoc. Prof Margarita Filipova, PhD who gave a talk to the students. Further we plane to continue joint activities. a good pedagogical practice is presented: realization of the interdisciplinary links ecology - statistics - information technology through the joint work of teachers from PPMG Razgrad and the University of Ruse, who demonstrated the continuity between secondary and higher education.

***Keywords:** STEM, Air pollutants*

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STANDARDS OF MAXIMUM PERMISSIBLE CONCENTRATIONS OF POLLUTANTS IN THE ATMOSPHERIC AIR

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***Abstract:** The paper reviews existing **Standards of maximum permissible concentrations of pollutants in the atmospheric air**, according to Bulgarian and EU legislation.*

Bulgaria, as a part of the European Union, complies with its legislation. In this regard, the requirements of Directive 2008/50/EU / 21 May 2008 [1] on ambient air quality and cleaner air for Europe were introduced into national Legislation by Ordinance No 12 / 15 July 2010 [2] issued by the Ministry of Environment and Water and the Ministry of Health. This Ordinance is about standards of maximum permissible concentrations of pollutants of the atmospheric air such as sulphur dioxide, nitrogen dioxide, fine particulate matter, lead, benzene, carbon monoxide and ozoner. It was published in the State Gazette, issue 58 of 30 July 2010.

Also Ordinance No. 1 / 27.06.2005 [3] issued by the Bulgarian Ministry of the Environment and Water, the Ministry of the Economy, the Ministry of Health and the Ministry of Regional Development and Public Works is for permissible emission standards for the harmful substances (pollutants) released into the atmosphere from objects and activities with stationary sources of emissions.

All maximum permissible concentrations of the different air pollutants are presented and commented in the paper.

Keywords: Standarts, Maximum Permissible Concentrations, Air Pollutants

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Ordinance No 1 of 27.06.2005 <https://eea.government.bg/bg/legislation/air>

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NOISE ASSESSMENT OF SERVER OPERATING IN EDUCATIONAL ENVIRONMENT

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***Abstract:** The paper reviews a measurement of the noise emitted by a server working close to a room, designed for educational purposes. Noise measurements were performed using a weighting curve of the sound level meter and also measurements of the spectral distribution of the sound pressure levels. In order the measurement to be under maximum power conditions, the server was loaded to the maximum through a burn-in test. The server is located near a student study hall. Noise imissions were measured at the most vulnerable workplaces. a conclusion was made that verified the choice of a place to place the server cabinet.*

***Keywords:** noise, server, sound pressure levels, spectral noise, A-weighting, education.*

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TRAINING OPPORTUNITIES FOR THE PREVENTION AND MANAGEMENT OF FOREST FIRE USING A GEOGRAPHIC INFORMATION SYSTEM

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***Abstract:** The paper presents the training opportunities for forest/field fire prevention or the real-time management of already occurring ones with the help of a geographic information system. The functionalities of the individual modules of an innovative software product, enabling coordination and adequate joint actions of the representatives of the responsible authorities and volunteer formations, were studied. The identification, analysis and assessment of the risk of forest fires, mapping of potentially threatened areas and phases (stages) in the development of critical situations were also reviewed.*

***Keywords:** Forest fires, Prevention and management, Geographic information systems.*

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**NEGATIVE ASPECTS OF THE TEXTILE AND FASHION INDUSTRY AND
SOME IDEAS TO DEAL WITH THEM**

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Abstract: *The paper makes a review on the impact of Textile industry on the environment. Data from European Union reports on the negative impact of the fashion and textile industry on the environment, the pollution of the world's oceans and a comparison with other polluting industries are presented. Guidelines are cited to address this negative influence. Attention is drawn to the role of modern textile and fashion design in the transition to a circular economy. The connection of textiles with digitalization is indicated. Examples of good practices in the fashion and textile industry are given in the field of applying the principle of 3 Rs, which is the basis of the circular economy.*

Keywords: *Textile industry, Environment, Pollution, Circle economics, Sustainability, Design.*

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RESEARCH ON THE QUALITIES OF KNITWEAR FOR THE PURPOSE OF AN INNOVATIVE WEARABLE DEVICE

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Abstract: This paper presents experiments with a knitwear prototypes of wearable device and more specifically the analysis of knitwear samples that were produced from yarns with different composition and structure. The analysis was carried out on the basis of a series of tests and surveys. a survey was conducted to assess parameters of the subjective user experience such as comfort, visual-aesthetic and tactile impact related to the type and composition of the material. a survey based on the well-known Likert scale is used to assess the subjective characteristics. a test has been developed for the tactile evaluation of textile knitted structures. The survey was conducted among young people in the 19-21 age group. a survey was also made to a control group of five lecturers from the engineering design specialty at TU-Sofia, who were invited to act as experts.

Keywords: Wearable, Knitwear, Knitwear properties, Subjective Evaluation, User Experience

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PERCEPTUAL ASPECTS OF THE DESIGN PROCESS

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***Abstract:** The paper reviews the perceptual aspects of the design process from the perspective of the two dominant concepts of human perception – cognitive psychology and gestalt psychology. Although at first glance they are opposed to each other, in reality they can be said to describe different stages of the same process. It examines the ways in which knowledge of cognitive and gestalt psychology can be used to optimize the construction of visual or plastic images. Special attention is also paid to the different semantic levels at which non-verbal communication in design takes place.*

***Keywords:** Design, Perception, Gestalt, Cognitive Psychology, Semiotics, Communication*

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COMPARATIVE ANALYSIS OF THE MOST POPULAR TYPES OF CARBONISATION IN TOBACCO SMOKING PIPES

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Abstract: *Currently, in the smoking pipe, there are several basic methods of keeping the wood in the combustion chamber of the pipe from burning. In these methods, mixtures of substances are used, which should protect the wood from burning and at the same time be without toxic effects on the human body. Several main ingredients have been proven over time, the properties of which sometimes cause disputes and controversies among pipe smokers. The most popular non-combustible and relatively few toxic substances are: activated carbon and the ash of old pipes, which in its composition approaches carbon. The two previously mentioned solids need to be attached to the hearth of the pipe by binders that must meet the conditions: temperature resistance and non-toxicity.*

Keywords: *Design, Comparative Analysis, Smoking Pipe*

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FRI-16.203-1-ID-05

**SPEAKING AND COMMUNICATION IN PUBLIC LIFE. SOCIO-
LINGUISTIC ANALYSIS OF COMMUNICATION – PART 2**

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***Abstract:** The paper reviews the second part of the following philosophical realities: the political class - media, prominent intellectuals - media, experts in economics media, “ordinary” people - media. Foreshortenings of the impact of this type of communication on the aesthetic taste and aesthetic education of children, pupils, students and young people in general in Bulgaria.*

***Keywords:** Philosophical Realities, Media, Aesthetic Deucation*

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COMMUNICATION AS A BASIC TOOL IN DESIGN PROCESSES

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***Abstract:** This article provides an overview of the skills, technologies and software knowledge required by modern design processes. It follows their evolution and change over the recent years. The different phases in the design process are covered in great detail, with an emphasis on the communication methods and their importance for the development of successful design practices. The article also explores the need for introducing educational methodologies for design thinking, design leadership, design management and communication methods.*

***Keywords:** Design Processes, Design Thinking, Design Leadership, Design Communication, Design Management, Design Education.*

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THE FUTURE OF HIGHER EDUCATION THROUGH A UNIVERSITY FOR “ONE PERSON”

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Abstract: Transformation (Why and how?) of the University of Ruse into a University for "one person" with a teacher-MENTOR. University for you! Regardless of whether you are a student or a teacher!

1. Transformation is a creative act of profound fundamental and essential change to adapt and survive in a complex, dynamically changing and unpredictable environment of evolution, time, progress and future.

2. Transformation cannot be accomplished only with traditional moves, measures and decisions - without purposeful fundamental changes, continuous changes and innovations.

3. Transformation is not a one-act procedure, but a permanent, multi-stage and multi-step process of mind-boggling changes, taking into account factors such as indeterminacy and unpredictability in dynamic real conditions of non-linearity, disorder, chaos, entropy, fragility and vulnerability - price of survival!

Main entities in the transformation: the University (the present one) of the passing industrial age; the teacher - distanced from his student or mentor; the student - unique, unparalleled subject of Generation Y!

The teacher-MENTOR teaches on behalf of knowledge in the current or coming era and brings with him to the academic scene his predecessors, teacher and colleagues (personally known and unknown), teaching on behalf of all scientists - with the works, theories, hypotheses, achievements and their offerings.

And let us not be afraid: Difficult things become reality after twenty years! "The impossible" - after fifty

Keywords: Efficiency, Effectiveness, GPS, Seismic Protection Methods, Model

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EVOLUTION OF THE AUTOMOTIVE LIGHTING SCULPTURE CONCEPT

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Abstract: Light is herald of beauty and harmony. Contrary to this philosophy and the expectations of the majority, the modern picture turns night into day. Light "improvements" of night vision in urban areas often disrupt the natural rhythm - the starry sky disappears, the 24-hour circadian rhythm is disrupted. The level of intellectual development in the way light is used dictates the course of human civilization.

The Automotive Lighting Sculpture concept introduces the idea of "elegant light-based metacommunication" as an alternative to the interaction between road lighting and automotive lighting. It represents the image of a metamobile (metamob) as a hypothetical successor to present vehicles, with the emergence of intelligent lighting of a new generation - the so-called "engaged light" and respectively "light-based semantic field".

The question that arises today is when the average citizen and lighting industry representatives will define the existence of light pollution and visual glare as a harm rather than a benefit. Visual culture is e by educated by creating an adequate lighting environment. Several international campaigns dedicated to the use of artificial light are essential because they awaken and direct public attention and awareness to the problem of light pollution and its effects. The benefit of these campaigns is not in their demonstrativeness, but in the lack of an adequate energy and environmental culture to match modern high-tech progress. a rethinking of artificial light is needed, the understanding of lighting hygiene, especially when it is overdosed and unsatisfactorily managed.

Keywords: Automotive Lighting Sculpture, Automotive Lighting, Evolution, Exterior Lighting, Metamob, Elegant Light-based Metacommunication, Engaged Light, Light-based Semantic Field.

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ERGONOMICS AND DESIGN FOR OCCUPATIONAL THERAPI PRACTICE

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Abstract: In 2006, at the University of Ruse "Angel Kanchev", for the first time in Bulgaria, training in the specialty "Ergotherapy" began on a regular basis. The need for such training is the increased number of people for whom medical-therapeutic services have to be applied as a final stage of their rehabilitation. It is a form of healthcare for the suffering and a manifestation of humanity in modern society.

The discipline "Ergonomics and design for occupational therapy practice" is included in the compiled curriculum of the specialty, possessing innovative potential and with the necessary foresight. Its content is designed with the opportunity for students to acquire basic knowledge and practical skills in ergonomics, design and capacity for independent synthesis and materialization of simple aids needed in daily occupational therapy practice. An activity inextricably linked to the creation of a favorable and aesthetic work and living environment for people with disabilities, for therapeutic needs, in which the influence of all measurable parameters from the "Human-Machine-Environment" system is taken into account.

Training in the discipline enables students to get closer to the specifics of design work and ways to carry out constructive communication with designers and constructors. to formulate and solve problems by mastering the methods and means of synthesis of ergonomic and design solutions of simple aids for people with disabilities and familiarization with the ways of their materialization within the framework of "Man-Machine-Environment" systems, the saturation of the same with components and their optimization.

Key words: occupational therapy, disabilities and deviations, rehabilitation, creativity, skills, equality, restoration of quality of life and design of adapted devices.

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**RESEARCH ON LEAK RATE OF EXPANDED PTFE FLAT GASKET
WITH LOCALLY INCREASED DENSITY**

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Abstract: Because of the increasingly high requirements for sealing elements, their manufacturers continue to look for new designs and solutions using existing materials. The goal is to cover the current standards for reducing emissions into the atmosphere, losses of raw materials and expanding their application. This article examines expanded polytetrafluoroethylene (ePTFE) flat gaskets used in the industry to seal flange connections that prevent mixing and leakage of fluids into the environment with their advantages and disadvantages. a review of test equipment, which measures the amount of test gas passed through the gasket per unit of time, which is one of the main operating characteristics of the gasket according to regulatory documents. Existing ePTFE seals from various manufacturers and solutions to improve tightness are reviewed. a comparison was made of the required contact stress applied to the seal during installation to achieve the same leakage rates. An annular ePTFE gasket with locally increased density is presented. Comparative tests were conducted to determine the amount of helium gas passed through the seals at a radially changing density from the inner to the outer diameter of the seal. The results of the tests carried out show an improvement in the sealing ability and indicate a reduction in the amount of passed gas with the application of a lower contact stress on the seal while increasing the density in the area of the inner diameter.

Keywords: ePTFE(expanded polytetrafluoroethylene) flat gasket, , Leak test, Leak rate

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INFLUENCE OF HEAT TRANSFER COEFFICIENT ON END-QUENCH TEST SIMULATION

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***Abstract:** The simulation of quenching is one of the modern approaches for researching the materials heat treatment processes. The correct input data for simulation are crucial, in order to obtain reliable results. It is commonly accepted that the heat transfer coefficient (HTC) is most significant factor, impacting simulation results. In the specialized literature, there are quite different values of HTC even at equal cooling conditions and a few data regarding its influence on the simulation results. The aim of this paper is to assess the influence of HTC on results obtained by end-quench test simulation. Both simulations and physical experiment have been made in this research and their results have been compared and analysed.*

***Keywords:** Quenching simulation, end-quench test, heat transfer coefficient, cooling ability*

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CONSTRUCTION OF ORTHODONTIC APPLIANCES USING LAYERING TECHNOLOGIES

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***Abstract:** This study describes a technological method for the construction of orthodontic brackets using digital layering technologies (Стереолитхография) and photopolymer resins. a comparison is made with modern conventional technologies for their production. The resulting properties of these devices have been investigated in terms of their mechanical properties and their optical characteristics, which are important for their functionality and aesthetic appearance.*

***Keywords:** Materials in dentistry, Orthodontics*

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EFFECT OF LASER MARKING ON THE MICROSTRUCTURE AND CORROSION CHARACTERISTICS OF STAINLESS STEEL

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Abstract: *The purpose of the present study is to establish a relationship between laser processing parameters and corrosion resistance on the surface of AISI 304 stainless steel treated with a nanosecond fiber laser. The behaviour of treated specimens during external polarization in a 3% NaCl water solution was analyzed; corrosion rates were calculated. Results are presented for possible interrelationships between material corrosion resistance and laser process parameters.*

Keywords: *Corrosion resistance, Marking, Laser*

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INFLUENCE OF THE PROCESS PARAMETERS ON THE MECHANICAL PROPERTIES OF FRICTION STIR WELDED JOINTS OF AA 5754

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Abstract: Friction Stir Welding is one of the most innovative methods developed in recent years, currently being used in aviation, automotive industry, rail transport, nuclear industry, and many others. The method is carried out in solid state and is primarily used for joining aluminium and aluminium alloys (AA 1050, 1200, 2024, 4047, 5083, 6082, 6061, 7075, 7020), but it is also possible to use it for polymers, dissimilar nonferrous metals, steels, titanium, zinc, lead, magnesium, copper, and composite materials, many of which are considered difficult to weld. The thickness of the welded parts varies from 0.5 to over 100 mm, and it is most often applied to thicknesses from 3 to 40 mm. The mixing of the material during welding and the temperature at which the process takes place are the main factors determining the possibility of obtaining welded joints with certain mechanical properties. While the shape and dimensions of the tool are mainly related to the method of mixing, the temperature depends mostly on the parameters of the mode - welding speed, tool rotation frequency, force of pressing the tool to the welded parts and tilt angle of the tool. When they are inappropriate, the defects typical of this method occur - disruption/interruption of the material flow and the formation of tunnel defects, leaks, non-fusions, melting and others, as well as reduced mechanical characteristics of the resulting compounds. The paper presents results regarding the influence of tool's pin shape and mode parameters on the process temperature and hence on the mechanical properties of friction stir welded joints of AA 5754 aluminium alloy. The influence of the shape of the pin on the appearance of defects in the work process has been established.

Keywords: Friction Stir Welding, Mechanical Properties, Aluminium Alloy AA 5754

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DEVELOPMENT OF A TOOL FOR FRICTION STIR WELDING OF POLYMERIC MATERIALS

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Abstract: The use of polymer materials in the aerospace, automotive and electronic industries has been increasing in recent years due to their high specific strength, corrosion resistance and the ability to obtain parts of different shapes. Currently, more than 50 types of polymers are known, while new ones are being developed. This necessitates the need to develop methods for their processing, one of which is welding. Friction Stir Welding is one of the most innovative methods created in recent years. It is mainly used for aluminum alloys, but due to its advantages it is of serious interest also in terms of its application for welding polymeric materials. Obtaining welded joints from polymer materials with high mechanical properties and good appearance largely depends on the tool used. According to a number of researchers, tools for metallic materials are not suitable for welding polymers. For this reason, there is currently very active work on the creation of new types of tools, the most suitable at this stage being those with a hot fixed arm. The work presents a developed tool with a hot fixed arm for welding thermoplastic polymer materials. The tool makes it possible to measure the temperature in the process of work and to control the force with which it is pressed against the parts. Some results are presented on the mechanical characteristics of the polyethylene welded joints obtained with it.

Keywords: Friction stir welding, Tool with stationary shoe, Polymeric materials

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VIBRATION MEASUREMENT AND ANALYSIS OF A FRICTION STIR WELDING PROCESS

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Abstract: The paper presents a study of the vibration of a friction stir welding process. The acceleration is measured in the time area, and the spectrograms are obtained with the help of the Fast Fourier Transform algorithm. The amplitudes and frequencies of the vibration harmonics are determined. Also, the sources of this harmonics are localized.

Keywords: Friction Stir Welding, Vibration Measurement, Vibration Analysis, Fast Fourier Transform, Time-diagrams, Spectrograms

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EXPLICIT COUPLED EULERIAN-LAGRANGIAN SIMULATION OF FRICTION STIR WELDING

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Abstract: *Since the friction stir welding (FSW) process is a non-linear multi-physical phenomenon involving excessive plastic deformation, microstructural evolution due to material flow, and heat generation from friction and plasticity, the standard finite element method approach faces numerical issues and it consumes too much time and computing resources. This paper proposes a computationally efficient way to achieve robustness of the FSW simulation using a coupled Eulerian-Lagrangian (CEL) formulation in the ABAQUS environment. It is demonstrated that the CEL technique handles productively various aspects associated with the FE model such as contact, material flow, and heat generation and provides high computational efficiency with adequate accuracy. a case study is presented, to have a better understanding of the heat transfer phenomenon during the friction stir welding of dissimilar aluminum alloys.*

Keywords: *Friction Stir Welding, Coupled Eulerian-Lagrangian Technique, Coupled Thermomechanical Problem, ABAQUS/Explicit*

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POSSIBILITY TO IMPLEMENT FSW PROCESSES ON CNC MACHINING CENTERS

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Abstract: The article examines the possibility of realizing FSW - Friction Stir Welding processes on CNC machining centers. The FSW method was first proposed in 1991. Since then, it has been the subject of a number of studies, improvements and the addition of new technological applications. The text examines the design features of the most common combinations of processing centers and their technological characteristics from the point of view of their being used for releasing welding by the FSW method. The article contains an analysis and recommendations that can be a guideline for researchers and practicing engineers who would seek to implement the FSW method using available machining centers. The analysis and recommendations are made on the basis of a survey of some of the information published to date on the requirements and technological characteristics when applying FSW welding.

Keywords: Friction Stir Welding, Mechanical Properties, Machining centers

JEL Codes:

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TECHNOLOGICAL ASSURANCE OF ACCURACY IN THE TURNING OF DETAILS ON CNC MACHINES

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Abstract: Technological assurance of accuracy is a task at the stages of technological design and its management in the course of the process. The basis of the synthesis of technological solutions is the availability of reliable input information is associated with accuracy. The degree of its uncertainty is decisive for the effective implementation of the process. The paper analyzes the forms of providing this information and proposes a mathematical model for predicting turning accuracy. It allows to predict or estimate the accuracy obtained in the specific conditions, taking into account the action of the primary errors and their compensation during the process.

Keywords: Information assurance, Turning, Accuracy

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**AN INVESTIGATION OF SOME CHARACTERISTICS OF THE POWER
QUALITY OF POWER SUPPLY OF AN INDUSTRIAL INDUCTION
FURNACE**

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***Abstract:** The paper analyses some characteristics of electric current of power supply of a metal melting electric inductance furnace. The measurements of some of electric quantities have been made in the second of the furnace transformer and outside of the power electronic converter. The measurements were realized and results were recorded by three-phase power quality analyser MI 2885 Master Q4. The results are presented graphically and the changes in the electric current are analysed. The conclusions of experimental results can be used for development of technical solutions to improve the power quality of the power supply of the investigated induction furnace.*

***Keywords:** metals melting electric inductance furnace, electric current, power quality.*

***JEL Codes:** L60*

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A MODEL FOR SIMULATION OF SEPARATELY EXCITED DC MOTORS IN VIRTUAL ENVIRONMENTS

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Abstract: The paper presents the development of an equivalent electrical circuit, which can be used for simulation of separately excited DC motors in virtual environments, such as EVEEE, MicroCap, etc. In the accepted system analogy, the rotation speed corresponds to voltage and the torque – to current. The mass moment of inertia corresponds to the electric capacitance of the circuit and the constant, which represents the friction corresponds to the electric resistance. The study presents simulation results for two scenarios – when the motor is operated at nominal rate and when the motor is less loaded. All results indicate that the developed equivalent circuit allows to perform simulations, which correspond to the operation characteristics of separately excited DC motors.

Keywords: system analogy, DC motor, equivalent electric circuit, transient response, virtual environments.

JEL Codes: L60

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SUBSTANTIATION OF SOLAR INTENSITY LEVELS AND BIOLOGICAL NEEDS FOR LIGHTING DURING GREENHOUSE ROTATING FRUIT AND VEGETABLE PRODUCTS IN ALMATY REGION

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***Abstract:** The purpose of the article is to monitor the level of solar intensity during the period of growing fruits and vegetables in a greenhouse in the Almaty region. Through monitoring, the most comfortable conditions for the growth and development of plants in the production of fruits and vegetables are provided. Monthly solar intensities for November, December, January, February, March were measured and an assessment was made for the biological needs for lighting during the period of growing tomatoes in greenhouses in the Almaty region. It has been established that the intensity of the sun's rays in winter decreases by more than 10 times, therefore, in order to enhance the illumination, it will be necessary to additionally illuminate in the winter time of the day.*

***Keywords:** Greenhouse production, plant, automation, microclimate, illumination, monitoring, increase in productivity.*

***JEL Codes:** L60*

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A COMPARATIVE ANALYSIS OF OPTICAL INSTRUMENTS PROPERTIES FOR THE PREDICTION OF MAIN CHARACTERISTICS OF ENGINE OILS

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Abstract: *In the existing work, a comparative analysis of four measuring devices, operating on optical principle, was made to predict the main characteristics of motor lubricating oils. According to the colorimeter data, the regression models were found to have higher predictive properties than those obtained with a video camera and digital camera. The proposed research tools can be used with single-board microcomputer systems, which do not require complex computational procedures. The use of the proposed in this article techniques and tools in practice would reduce the effect of the measuring instrument experience.*

Keywords: *Optical sensors, Oil production, Regression analysis, Color components, Optical instruments, Principal component analysis*

JEL Codes: *L63; L 64*

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DESIGN AND DEVELOPMENT OF A TEST BENCH FOR SQUIRREL CAGE INDUCTION MOTOR

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***Abstract:** In industry electric drives a key point is knowledge of the operating characteristics of the electric motor driving them. The purpose of study is developing a stand for measuring the characteristics of an asynchronous motors. Which will give the opportunity to study different modes of operation of the squirrel cage induction motors and will help for determining the optimal mode of operation.*

***Keywords:** Squirrel cage induction motor, charecteristics, modes, efficiency.*

***JEL Codes:** L60*

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POSSIBILITIES FOR THE IMPLEMENTATION OF INTELLIGENT LIGHTING SYSTEMS WITH THE APPLICATION OF BMS

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***Abstract:** Intelligent systems for automated lighting control provide increased energy saving, improved convenience and comfort. Building management systems (BMS) are the "backbone" of such facilities. They stand out with their great possibilities for synchronizing and optimizing the work of various systems and services (lighting, heating, security, video surveillance, ventilation, air conditioning, access control, fire safety and others). Lighting management is also integrated in these platforms – in newly constructed buildings as well as in retrofitting of existing architectural objects.*

The report presents an overview and comparative analysis of the possibilities for implementing intelligent lighting systems. The ways of implementing such systems are described, as well as some of their features. Advantages and disadvantages of BMS are presented, with the idea that they can more easily integrate different algorithms for lighting control.

Relevant conclusions and recommendations are drawn for the construction of intelligent lighting systems.

Keywords: BMS, Intelligent lighting.

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APPLICATION OF THE RADIANCE SOFTWARE IN TRAINING LIGHTING ENGINEERING STUDENTS

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Abstract: *The training of highly qualified professionals in lighting technology requires continuous improvement, refinement and addition of already existing training materials. The traditional way of teaching in itself is no longer sufficient in the conditions of rapidly developing digital educational technologies. The need for a visual presentation of electrical parameters of the lighting systems depending on the environment is a prerequisite for the application of the RADIANCE software in training students in lighting technology. The report provides an analytical overview of a free sophisticated lighting visualization system that generates virtual images that are indistinguishable from real photos. The advantages and disadvantages of the finished system are presented, and the relevant conclusions are drawn.*

Keywords: *RADIANCE, Lighting Technology, Digital Educational Technologies, Electrical Parameters of The Lighting Systems, Sophisticated Lighting Visualisation System*

JEL Codes: *L60*

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EVALUATION OF STATISTICAL PARAMETERS OF OPTICAL SOIL MONITORING DEVICES

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Abstract: *In the paper application of four different digital optical devices to determine the color characteristics of soil samples are evaluated. Imaging of soil samples from different fields was carried out under the same conditions with a digital camera, a mobile phone camera, a document camera and a hand-held spectral color meter - colorimeter. The resulting images were processed in the MATLAB environment and for each image the average values of the color components in the RGB, HSL and Lab color spaces were obtained. A comparative analysis and evaluation of the statistical parameters of the optical devices was made. Principal component factor analysis, analysis of variance and hypothesis testing were used. Adequate multifactorial models were obtained that explained a very large percentage of the variance of the colour data. It was determined that the digital camera explained the highest percentage, 87.5%, of the total variance of the investigated variables in the R, G, B colour components; V^* from $(H^*S^*V^*)$; b^* from CIE $L^*a^*b^*$ 1976 models. The other technical means: mobile phone camera, document camera and colorimeter show almost the same percentage, respectively 81.3%, 81.19%, 81.15%, the total variance and the variability of the factor color characters. The resulting summary factor variables can be applied and used for further statistical processing and regression analysis.*

Keywords: *colour characteristics of soil samples, remote sensing of soil, digital camera, digital images, statistical methods, variance analysis, principal component analysis*

JEL codes: L60

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**MODELING THE OPERATION OF A SEQUENTIALLY EXCITATION DC
ENGINE IN MATLAB/SIMULINK**

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Abstract: *In the current study a virtual stand is examined, through which the operation of a specific sequentially excitation DC motor is simulated in the Matlab/Simulink environment. An approach is presented and data is obtained for constructing the natural and several artificial mechanical characteristics. with the virtual stand, the operational processes of DC motors can be simulated and analyzed during online training of students in the discipline "Electric drive" at the Department of Electric Power Engineering at RU "Angel Kanchev". with the help of the virtual stand can be obtained also data for the construction of other characteristics, using set models from Matlab/Simulink environment or data for various engines, whose parameters must be calculated in advance.*

Keywords: *Matlab/Simulink, DC motor, Model*

JEL codes: *L60*

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ANALYSIS OF THE FACTORS AFFECTING HOUSEHOLD ELECTRICITY CONSUMPTION

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Abstract: In the paper, for evaluating the degree of influence of individual factors on household electricity consumption, a dimensionless coefficient is introduced, representing the ratio of capacities or consumed energy for an average dwelling place from the three typical groups obtained at the two extreme levels of the relevant factor. The degree of influence of the factors with a periodic, determined, determined with random change over a long period of time and random characters on household electricity consumption was analyzed. It was established, that for the electric energy price, its ratio with the prices of other energy sources and the tariff policy, final levels of the factor cannot be fixed. It is shown the change in the regulated electricity prices for household subscribers supplied by *Elektrozapradselenie Sever*. Given the current political and economic situation in Europe, it is difficult to predict how the change in electricity prices for household electricity consumers will affect their electricity loads

Keywords: household electricity load charts, specific indicators of household electricity

JEL codes: L60

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LINEAR QUADRATIC CONTROL OF A SERVO SYSTEM

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Abstract: Linear Quadratic control of a servo system is synthesized in the current paper. Linear quadratic regulator parameters are determined using genetic algorithm. a laboratory modular servo system by INTECO Company is used in combination with Matlab/Simulink. The results of the synthesis are compared with a PD controller system, also tuned using the genetic algorithm, and show that both synthesized systems satisfy the contradictory performance requirements for system speed and control output magnitude.

Keywords: Servo system, Linear Quadratic control, PD control

JEL code: L60

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ASSESSMENT OF THE QUALITY OF MEASUREMENT OF PARAMETERS IN ANIMAL FARM

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Abstract: *In the paper evaluates the application and quality of temperature measurements with three different devices in an animal husbandry. Measurements were made under the same environmental conditions with different devices: a mercury thermometer with an accuracy of 0.01°C, a non-contact thermometer and a thermal camera. Measurements were also taken of the surface temperature of the cows without contact to assess the internal temperature of the animal, which is a significant criterion for assessing their well-being, and the accuracy of the measurements of the selected devices was also determined. from the measurements, the relationship between the ambient temperature and the surface temperature of the animal was also evaluated. from the conducted research, we can conclude that modern non-contact devices, and in particular thermal cameras, provide reliable, fast and accurate information about the well-being of animals. This information is extremely useful for breeders to predict at an early stage of ongoing livestock diseases such as cow mastitis and to assess the impact of the environment, especially in summer, which can help prevent the effects of heat stress. The application of modern methods for measuring environmental parameters give each breeder a clear idea of the state of the herd, thus they can prepare and implement appropriate solutions to reduce heat stress and animal diseases.*

Keywords: *temperature, animal husbandry, thermal camera, non-contact thermometer, heat stress*

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APPLICATION OF THE E-HEALTH AND PREVENTION SYSTEM IN PHYSIOTHERAPEUTIC PROCEDURES

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Abstract: *The study presents the application of an e-Health and prevention system in physiotherapy procedures – kinesitherapy and reshaped physical factors and the echo of physical and emotional stress on the patients' electrocardiographic signals and the work of the cardiovascular system. In ambulatory practice, a series of tests aimed at registering changes in individual fragments of the ECG curve were carried out and evaluated by prevention markers supplementing medical markers. The challenges in the application of electronic health care in the prevention of the cardiovascular system, combining technical, clinical, psychological and social analyzes in order to ensure a normal social and work environment for people, have been studied and evaluated.. The e-Health and Prevention system provides a reliable environment for evaluating the current state of the examined through flexibility and mobility, and provides the possibility of upgrading for application in various spheres of work and life. a functional analysis is given in view of the upcoming increased demands of the body under normal and pathological conditions during physiotherapy activities.*

Keywords: *electronic system, electrocardiographic signal, electronic health, prevention, physical therapy.*

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ANALYSIS OF ELECTRONIC SYSTEMS FOR CONTROL OF SMART GREENHOUSES

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Abstract: Agriculture is a major part of our lives as human beings. a lot of research has been carried out in order to be able to develop a monitored and controlled greenhouse system/environment that will help in solving the main problems relating to agriculture which is to enable the increase in the crops being cultivated all year round in the comfort of a small space like the home. Greenhouses help to protect crops from many diseases, particularly those that are soil born and splash onto plants in the rain. Numerous farmers fail to get good profits from the greenhouse crops for the reason that they can't manage two essential factors, which determines plant growth as well as productivity. Green house temperature should not go below a certain degree, High humidity can result to crop transpiration, condensation of water vapor, and water evaporation from the humid soil. to overcome such challenges, this greenhouse monitoring and control system comes to rescue. This project demonstrates the design and implementation of a various sensors for greenhouse environment monitoring and controlling. The main idea of the project is to do a research on existing methods and technologies related to control of parameters in a greenhouse.

Keywords: Greenhouse, Control, Electronic System, Arduino

JEL code: L60

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ANALISYS AND INVESTIGATION OF DIELECTRIC POLARIZATION: A REVIEW

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Abstract: *The concept of this review is to present an overview of the state of the art concerning the fundamental properties of electrode polarization of interest in the measurement of high conductivity samples and its implications for both dielectric and impedance spectroscopy. It is shown that no energy is needed for a polarization of molecules in a dielectric. Electric energy of a dielectric exceeds electric energy of an empty space with the same macroscopic electric field because of a non-uniformity of the real electric field in the dielectric. Initially a detailed description of what constitutes electrode polarization is provided and the problems that it induces. Finally, we also review recent attempts to employ fractal electrodes to bypass the effects of electrode polarization and to offer some physical explanation as to the limitations of their use.*

Keywords: *Electrode Polarization, Dielectric, Impedance Spectroscopy*

JEL code: *L60*

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CURRENT STATUS AND FUTURE DIRECTIONS OF RENEWABLE ENERGY SOURCES IN SPAIN

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Abstract: *The paper describe the energy mix of the different type of renewable energy sources in Spain. The focus is on the current situation with application of photovoltaics as well as the future trends. The risks and barriers for implementing of PV parks are explained. Short-term forecasts are presented regarding the development of the PV energy production.*

Keywords: *photovoltaic energy, energy mix, forecast*

JEL code: *L60*

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THE HOBBY TIME TRAINING APPROACH

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***Abstract:** Constructivism asserted that learning arises from building mental models based on experience. The concept of Developer’s point of view (DPV) learning approach is considered as “perceive the very solution to the problem as a game”, thus, making transition to a next level of gamification.*

The paper introduces the Hobby Time Training (HTT) concept as part of the DPV learning approach. The HTT assumes solving of small, apparently simple problems, which encapsulates deeply hidden potential. The solving takes place during the students’ free time and assumes unobtrusive guidance with as little as possible obligatory moments.

Bitwise operations contain the sought-after hidden creative potential, mainly due to the limited support both at the high and low levels. Besides that, bitwise algorithms suppose usage of some special techniques as word-level parallelism, unrolling loops and branch elimination. As an illustration of the hidden deep inner content of the bitwise problems, the attention is focused on the computing parity bit problem. Several sample solutions are discussed: from the Naïve Algorithm, through the Word-Level Parallelism Algorithms to the Hardware Supported Algorithm.

Keywords: Bitwise, Constructivism, Gamification, Hobby Time, x86/x64, Word-Level Parallelism

ASJC Codes: 1701, 1708, 1712

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PARKING GUIDANCE CASES ADAPTATION

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Abstract: Guidelines generated by Parking guidance information systems (PGIS) are typical examples of activity planning, and therefore can be implemented with Case-Based Reasoning (CBR) methodology. Collective experience utilization in finding free parking spaces improves decision quality. Previously identified cases for solving a parking problem rarely fully satisfy drivers' needs, especially when variety and the amount of attributes in the case description are large. In such scenarios, some or all case parameters need to be adapted to be useful when handling a particular new problem. When using CBR for the purposes of PGIS, there are specifics in case presentation and adaptation when building a solution for the main problem solved by such a system - successful finding of free parking space.

Keywords: Parking Guidance Systems, Case-Based Reasoning, Adaptation

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SPEECH RECOGNITION IN ANDROID SERIOUS GAME

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***Abstract:** The paper describes a developed serious game using speech recognition as a means of control and communication with the player. a brief overview of the importance of using an intelligent human computer interaction is carried out. The difference between voice and speech recognition is explained. The fields of application of this type of communication are described. The mechanics of the implemented game, the result of its testing, the problems encountered and its future development are discussed. The importance and benefit of using serious games developed for Android smart phones is explained.*

***Keywords:** Human computer interaction, serious game, speech recognition*

***JEL Codes:** L86*

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RESEARCH AND ANALYSIS OF PRACTICAL TRAINING AFTER COVID-19 WITH STUDENTS OF SPECIALTY "COMPUTER SYSTEMS AND TECHNOLOGIES"

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Abstract: *The paper examines and analyses student opinions of the practical training provided following a return to attendance after the restrictions resulting from the COVID-19 pandemic. For the previous two years, the practical training was conducted in an isolated emergency setting, while in 2022 it was conducted in a normal working environment - in person. To find the optimal scenario for the practical training of students from the "Computer Systems and Technologies" specialty, it is necessary to follow the development of the training process in constrained and in-person settings. Researching student feedback is one approach to achieving better results. The report presents the survey results about the practical training conducted with the "Computer Systems and Technologies" students in the last three years. The results were compared and analyzed, and the development of the students during this period was monitored. The questions in the survey include the students' opinions on the organization of the practical training, the planning of the topics and tasks, and the participation of students, lecturers, and specialists from the training organization in it. We receive useful feedback on how to assess the skills acquired during the practical training and what knowledge and skills will be useful to future engineers so that they can be included in the training to facilitate their realization in the work market. The formulated conclusions provide guidelines for the development of practical training after the crisis and the return to normal conditions of training and work.*

Keywords: *Practical Training, e-learning, Distance Learning, Survey*

JEL Codes: *I20, C88*

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DIGITIZATION OF BUSINESS PROCESSES IN THE WAREHOUSE

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Abstract: *This paper examines some key warehouse business processes from the point of view of their potential for automation and digitization. Different types of data sources are analyzed – accounting documents and forms, business correspondence, predictive analytics, data from IoT devices. Data from these sources, in turn, can be of different types and require different methods and means of collection, organization, storage and processing. The protocols for the exchange of the various types of data are consider. All these are done with the idea about the automatic extraction of useful information for the warehouse from collected data with the aim of automating as many business processes as possible with the help of software solutions.*

Keywords: *business process modeling, data collection, data analysis algorithms*

JEL Codes: *L10, L11*

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TEACHING CRYPTOGRAPHY AND DATA SECURITY: SIMPLIFIED MD4 HASH FUNCTION

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Abstract: Cryptographic hash functions are data integrity algorithms used in a variety of security applications like message authentication, digital signatures, one-way password files, intrusion detection, and virus detection. Although the SHA algorithms (inspired by the MD family) are the most widely used hash functions nowadays, teaching the MDx algorithm first is an approach adopted in most Cryptography and Data Security courses. The paper describes the teaching process of MD4 at the department of Computer Systems and Technologies of Ruse University. MD4 algorithm lays the foundation for several other popular hash functions like MD5, SHA-1, SHA-2, and RIPEMD. Due to the large number of operations in the full MD4, a simplified version suitable for students to work with by hand in a classroom setting is used. The authors present an especially developed educational tool for better apprehending simplified MD4.

Keywords: Cryptography, Hash function, MD4, Teaching tool

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TEACHING OPERATING SYSTEMS: MEMORY MANAGEMENT

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Abstract: *Operating System (OS) is probably the most complex software ever created by humans and the Operating Systems course is an essential component in Computer Science (CS) curricula and related majors. We, as CS educators, aim for every student to get an inside view of the structure and functioning of an operating system, and using appropriate teaching tools is an essential point in achieving this goal. In this paper, we would like to share our experience in teaching OS Memory Management using the TOST (Teaching in Operating System Tool) environment. TOST enables students to run several processes and to observe the allocation of memory blocks, both in contiguous and non-contiguous memory allocation (virtual memory paging). Students can alternate several contiguous allocation strategies or several page replacement strategies. It is possible to trace the addressing in virtual memory pages and the conversion of virtual addresses to real ones. The dynamic visualization of the memory allocation map makes it easy for the instructor to clarify the principles of locality - Temporal locality and Spatial locality. The ability to experiment with both theoretical concepts and their application in the same environment allow students to gain a better apprehending of the algorithms of OS modules.*

Keywords: *Operating Systems, Teaching Tools, Memory Management, Virtual Memory*

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ANALYSIS OF TRENDS IN DATA GATHERED BY A PERSONALIZED LEARNING PATH TRACKING SYSTEM FOR DOCTORAL STUDENTS

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Abstract: *The paper reviews methods for statistical analysis of data gathered and generated by a personalized learning path tracking system intended for use by doctoral students, their scientific advisors, and administrative personnel in an academic institution. With personalized learning growing in popularity, similar systems are increasingly being implemented by educators and educational institutions at all levels, so analyzing their efficiency and effectiveness becomes more and more important. The methodology and toolset used for the analysis are shown, the results analysed, and conclusions drawn from an experiment that spanned several years of usage of the system.*

Keywords: *Personalized learning path, doctoral students, data analysis*
JEL Codes: *C88*

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EDUCATIONAL COMPUTER PLATFORMS THAT IMPROVE LOGICAL THINKING WITH PROGRAMMING: AN OVERVIEW

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Abstract: *The paper reviews existing methods of developing computational and logical thinking at an early age by learning to code. Educational computer platforms that help children in programming are tools designed to address the challenges of education. their primary function is self-interaction with the user, emphasizing accelerated learning of skills outside the learning process. Still, they can be instrumental in classrooms as well. The idea is to develop not only coding skills but also to give learners a new approach to developing their imaginations while creating virtual art, games, or worlds. The report provides the most recent advancements in these educational computer programs, including a comparative analysis of programming environments designed for children.*

Keywords: Logic, Computational Thinking, STEM, STEAM, Computer Games, Computer Program, Programming, Coding

JEL Codes: L10, L11

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RESTORE AN OPERATING SYSTEM FROM RANDOM BACKUP DISK IMAGE

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Abstract: *The paper reviews a way to bring a computer system into working readiness, with the return of an arbitrary image of an operating system made on an unknown computer. Specific backup and recovery software environments are used, and specific points and processes are reviewed. It shows how essential drivers can be injected to initialize the operating system, as well as its subsequent reconfiguration for normal operation. They are shown the main advantages and disadvantages of the used backup and restore software environments.*

Keywords: *Effectiveness, automated software installation, software implementation, process control*

JEL Codes: *L86*

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A WEB-BASED LEARNING ENVIRONMENT WITH INTERACTIVE TIMELINE TO SUPPORT SELF-STUDY IN HISTORY

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***Abstract:** History teaching has always met its specific challenges, but with the ever-expanding digitalization in all areas of human activity, increasingly dependent by the digital technology students appear in the classroom, for whom the classical approach to learning history is completely alien. We can hardly imagine the modern student in the library, researching a plenty of sources, taking notes, analyzing and formulating conclusions. The timeline is a well-known tool for history teachers to visualize the chronology of historical events and to direct students' attention to specific events, people, and places. with the advancement of web technologies, the latter is increasingly used in an interactive digital online format, but it cannot yet be said that its potential as a means of effective self-training has been fully realized. This paper examines the process of design and development of a web-based environment with an interactive timeline operating in three modes that support the main stages of self-training - acquisition, assimilation and application of knowledge. The environment has an administrative panel, which enables the teacher to construct a hierarchical structure of historical eras and periods and create and fill with content interactive timelines associated with hierarchy's elements. The panel also supports the management of the published learning resources, the user registrations, monitoring the achievements and progress of the learners, as well as organizing online competitions between the students.*

***Keywords:** Interactive Learning Environment, Interactive Timeline, Innovative Learning, Self-preparation, History Education*

***JEL Codes:** I21*

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LEARNING VHDL USING THE CONCEPT OF VISUAL PROGRAMMING

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Abstract: *When the students studying programmable logic design have to learn a hardware description language (HDL) in order to implement their projects, they usually meet several challenges. The first one of them is due to the development environments for HDLs which are usually designed for highly trained professionals and could be complicated as an introductory tool for students learning HDLs. The next challenge is for the students to start thinking in terms of hardware when writing HDL code, and have in mind that each HDL structure models a digital device. The further challenge is for the students to get used to think in terms of signals, ports and processes running parallel to each other, rather than of variables, methods and functions. HDLs are compiled to a RTL structure, which requires a logically justified construction of the code, describing the behavior of the modelled device. In this paper is presented the process of design and development of a training environment that uses the visual programming concept to help the students to become familiar with the structure and hierarchy of the VHDL models. The students construct VHDL models by selecting and assembling together simple visual objects, while the environment is providing guidance in real time and is preventing wrong matches of VHDL operators and signals. The visual programming approach has been chosen because the digital students as a whole have visual-kinaesthetic learning style and most of them are familiar with visual programming tools, such as Scratch and Kudo from IT classes at school. The environment prompts the student to select a template from a library, thus avoiding inconsistent structures and combinations of devices in the project. When a template is selected, the “Visual Components” panel of the environment displays only the appropriate visual components, which correspond to the template. After the visual structure is assembled correctly, the student is offered to start its’ conversion to VHDL code. The output VHDL code is saved as a .vhd file and can be further open with any IDE supporting VHDL.*

Keywords: *Hardware Description Language, VHDL, Interactive Learning Environment, Visual Programming*
JEL Codes: *I21, I23*

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**INTERNET TRAFFIC ANALYSIS BY ANFIS, K-NEAREST NEIGHBORS
AND DECISION TREE APPROACH**

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Abstract: *The paper examines the applicability of Adaptive neural-fuzzy interface systems and k-Nearest Neighbors and Decision tree machine learning techniques in recognizing of areas of streaming Internet traffic from enterprise customers. The combined approach enables a process synthesis of different types of classifiers and selection of the most suitable analytical tool for traffic zone identification. An assessment of the RMSE criteria for different membership functions of the input variables at Hybrid and Backpropagation algorithms was evaluated about the neuro-fuzzy classifier. Synthesis of k-NN and decision tree classification models using resubstitution and cross validation techniques about accuracy and loss indicators was performed. Satisfactory performance indices have been established in the course of training and testing procedures about ANFIS, k-NN and DT classifiers. The investigations are conducted with MATLAB and STATISTICA software products.*

Keywords: *traffic analysis, anfis, RMSE, k-NN, decision tree, resubstitution, cross-validation.*

JEL Codes: *L10, L11*

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WIRELESS MICROWAVE TRANSPORT SOLUTIONS ACCOMMODATE DIFFERENT CHARACTERISTICS AND REQUIREMENTS TO SUIT POSSIBLE 5G SCENARIOS

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***Abstract:** to meet the 5G requirement for more capacity, new microwave solutions for optimizing the use of spectrum are now available. Carrier aggregation (using multiple bands on the same link), more powerful and efficient power amplifiers that enable the use of wider channels and the availability of millimeter-wave spectrum provide key functions for future network solutions.*

For example, in today’s frequency bands used for RAN backhaul (6-42 GHz), several vendors can provide transceivers capable of 2.5 Gbps in a single box (thanks to 4096 QAM modulation schemes in 2 x 112 MHz frequency channels).

Beyond this, current E-Band (80 GHz) based solutions stand ready to satisfy the initial wave of 5G introductions that require up to 10 Gbps transport capacity and 20 microsecond latency in urban environments. by combining E-Band with a traditional microwave frequency band (6-42 GHz), it is possible to achieve longer distances and preserve the usual high availability for the most valuable traffic. Combined with 100 percent efficient carrier aggregation it is possible to achieve between 10 and 20 Gbps bidirectional capacity. So, in upcoming years it is expected that microwave will be able to support 100 Gbps links using new frequencies and MIMO technology.

Keywords: 5G, RAN, Backhaul, E-Band, XPIC, MIMO, Multi-band.

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IMPROVING ELECTRONICS EDUCATION THROUGH PROJECT-BASED LEARNING

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Abstract: The world faces many challenges today and the key to their long term solutions lies in the education systems which are one of the main supporting pillars of all countries. A study on good educational practices was done. The best way to improve engineering education is through a well-organized and well-interconnected educational process that includes practical real-world problem-based and project-based learning approaches and outcome-based exam assessments. Some major problems with the Bulgarian education system are presented from the electronics engineering point of view. An analysis of the possible problem-solving is done. Some suitable practical solutions and approaches are presented, which improve the learning process despite all limitations.

Keywords: Education, Quality, Project, Electronics, Problem.

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THEORETICAL AND SIMULATION STUDY OF DIGITAL DIFFERENTIATORS AND INTEGRATORS

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Abstract: The paper presents the results from the theoretical and simulation study of digital differentiators and integrators. The theory and applications of digital differentiators and integrators are described in the paper. The circuits of the real first-order differentiator, central differentiator, first-order integrator, trapezoidal integrator, and integrator according to Simpson's rule are given in the paper, as well as the expressions of the transfer function and magnitude response of these devices are derived and presented in the paper. The expressions are analyzed and the graphical representations of the magnitude response, impulse response, and zero-pole plot are drawn using MATLAB and its extension Signal Processing Toolbox. The results in the paper are used in the course “Digital Signal Processing”, mandatory in the undergraduate curriculum of the specialties “Information and Communication Technologies” (2nd semester) and “Internet and Mobile Communications” (3rd semester).

Keywords: digital differentiators and integrators, digital signal processing, MATLAB and Signal Processing Toolbox.

JEL Codes: L96, L63, I23

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APPROACH FOR OPTIMIZING 3D CONTENT FOR VISUALIZATION IN WEB ENVIRONMENTS

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***Abstract:** The representation of objects, events and phenomena by means of 3D visualization is gaining more and more popularity. The mostly used distribution mediums for 3D content are web-based platforms, which are able to present 3D content in real-time using WebGL. Thanks to this fact, new forms of e-commerce using web-based virtual catalogs have emerged, and some organizations use this opportunity to successfully promote cultural and historical heritage by creating web-based virtual museums and exhibitions. This trend has increased the interest in 3D content that is created via 3D scanning methods based on the use of structured light. As a result of this process, textured 3D digital models of historical artifacts and objects are created. Unfortunately, these digital 3D models cannot be directly integrated for visualization in web-based environments, due to a number of limitations. In this paper, an approach is proposed for optimizing 3D content for visualization in web-based environments and platforms. This approach solves not only the problem of the limited bandwidth available for mobile users, but also the limited GPU power of mobile devices problem.*

***Keywords:** 3D content, 3D scanning, 3D visualization, 3D web environments;*

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EXPLORING THE POTENTIAL OF DEVELOPMENT ROBOTIC PLATFORM IN HANDLING DIFFERENT TYPES OF TASKS

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Abstract: *Robotic platforms are increasingly entering human daily life. According to their purpose, they replace people in different types of tasks. In this way, human time is saved and the precision of the task is also increased. Most robotic systems created are designed to perform one specific task. With development robotics platforms, the number of tasks that can be performed is unlimited, and what type they will be depends solely on the creativity of the developer. This report will explore the capabilities of the ROSbot robotic development platform to tackle a variety of tasks. The capabilities of this platform can be used in educational institutions to train future programmers in the field of robotics.*

Keywords: *Robotics, ROS, Autonomous robots, Mobile robots, Path planning*

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3D CONTENT CREATION THROUGH THE USE OF COMPUTER MODELING METHODS

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***Abstract:** Reconstruction and development of 3D models are complex tasks which require basic knowledge and understanding of 3D modeling approaches. Despite the diversity of approaches there are some common steps that should be followed for creation of decent three-dimensional models. These steps might be summarized as follows: selecting an objects for 3D modeling, choosing an appropriate method for reconstruction, passing through the workflow of the selected method, further processing (post-processing). In the paper the trends in the area of the 3D modeling of different objects are investigated and a solution for integration of 3D content in virtual environments is provided.*

***Keywords:** 3D content, 3D modeling, 3D modeling technologies;*

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DESIGNING AND DEVELOPING AN INTERNET OF THINGS SMART AGRICULTURE SOLUTION

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Abstract: *The Internet of Things (IoT) is a new concept that is gaining extremely fast popularity in recent years. This concept is gaining ground rapidly and is widely used in various areas of our lives. The Internet of Things (IoT) is at the core of today's smart cities, which rely on information gathered from various sensor modules to improve the efficiency of the urban ecosystem as well as to enhance the quality of life. The Internet of Things (IoT) technology can be integrated and to be useful, for example, in the field of healthcare to monitor the health status of patients, or it can be used for fitness tracking to create statistics on the activities of the training people without the use of mobile phones. In smart agriculture, the Internet of Things (IoT) can be used for real-time monitoring of various soil and environmental parameters. In this paper, a concept for creating a comprehensive platform for monitoring, recording and analyzing the results of measurements of soil and environmental parameters is considered.*

Keywords: *Smart solutions, Internet of Things, Smart agriculture*

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COMPARISON OF SOFTWARE FOR UAV PHOTOGRAMMETRY

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***Abstract:** In recent years photogrammetry has gained great popularity thanks to unmanned aerial vehicles (UAVs), commonly known as drones. Along with their development, the software for UAV photogrammetry has also developed, thus leading to a variety of photogrammetric software products. In order to help customers to orientate some manufacturers provide free trial versions of their software. That is the case with two of the most popular photogrammetric software – Agisoft PhotoScan (now Metashape) and 3D Survey. In this paper their pros and cons are discussed and some advice on their use is given.*

***Keywords:** UAV, Photogrammetry, Software*

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<https://www.youtube.com/user/3Dsurvey/playlists>

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EVALUATION OF THE SUITABILITY OF UAV ORTHOPHOTO FOR CADASTRE

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Abstract: *Unmanned aerial vehicles (UAVs) have gained vast popularity in recent years. UAVs, called also drones, have found application in many spheres of life – from military to civil applications, from amateur to professional uses. UAVs have made it quick and easy to gather geospatial information, thus optimizing the production process in surveying, cartography and cadastre. Having this in mind, an experiment was carried out to evaluate the suitability of UAV orthophoto for cadastre. In this paper the obtained accuracy is compared with the regulatory requirements and the results are discussed and analyzed.*

Keywords: *UAV, Photogrammetry, Accuracy, Cadastre*

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**AN APPROACH FOR BUILDING SECURE COMMUNICATION
BY THE MEANS OF COMPLEMENTARY SIGNALS**

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***Abstract:** Today, building secure communications is a very topical issue. Most often, it is solved by the application of signals with a complex inner structure, cryptographic tools, as well as specialized protocols for the exchange of messages. However, the continuous upward development of cyber attack technologies necessitates the development of combined approaches for cyber defense of communication and computer networks. Given this situation, the report substantiates the possibility of building a multi-layered cyber defense of communication and computer networks by simultaneously using channel coding through complementary signals and encryption, using a unified design.*

***Keywords:** secure communication, reliable communication, complementary signals.*

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CONTEMPORARY APPROACHES FOR EFFECTIVE RADIO SPECTRUM UTILIZATION

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***Abstract:** New principles and approaches for efficient use of the spectrum are considered. Methods for spectrum compaction, approach to assigning frequencies (WAPECS), and shared access models are presented. The application of cognitive radio in licensed shared access models is shown to complement traditional approaches. The problems in their realization and possible solutions are described.*

***Keywords** – Spectrum sharing; Licensed Shared Access ;Cognitive radio.*

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A HEURISTIC APPROACH FOR SYNTHESIS OF QUASI COMPLEMENTARY SIGNALS

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***Abstract:** The paper reviews a heuristic approach to generate quasi complementary signals. The heuristic algorithm starts from the worst starting point. The proposed scientific implementation depends on a sequential shift of the two initial sequences with the goal of minimizing the impact of local extremums until reaching the final criterion. The approach, substantiated in the paper, could be applied for development of new radar and radio-communication systems, possessing ability for reliable performance in hostile radio-electronic environment.*

***Keywords:** heuristic algorithm, optimization, quasi complementary signals.*

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BUILDING A CENTRALISED SMART CITY SYSTEM FOR URBAN MOBILITY MANAGEMENT AND SOLVING PROBLEMS RELATED TO PARKING AREAS, PUBLIC TRANSPORT AND ECO-TRANSPORT - TYPES OF COMMUNICATION AND DATA EXCHANGE PROTOCOLS BETWEEN DEVICES IN THE EXTERIOR PART OF THE SMART CITY SYSTEM

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***Abstract:** The focus of this article is to consider the basic protocols of communication and all the building blocks of the entire hardware and software structure in the construction of Smart City System in public transport. The basic concepts of the names and the function of the individual building elements and their division (hardware + software) of the whole structure of two main subdivisions will be introduced, conditionally called Exterior and Interior. The need to create such a centralized system, which consists of many different software applications communicating via API (Application Programming Interface), data collection in the central database, performing the necessary computational actions on central servers will be considered. The structure of the communication protocols for data exchange via REST API, which are specifically developed for Smart City System - Public Urban Transport, will also be considered and the overall concept of data exchange between the individual hardware and software modules will be explained through these protocols.*

***Keywords:** Smart City, smart solutions, public transport, eco transport, LoraWan network, API and central database, smartphone app, Android, iOS, Validators, Centralized system, Web applications, Servers, efficiency, GPS*

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BUILDING A CENTRALISED SMART CITY SYSTEM FOR URBAN MOBILITY MANAGEMENT AND SOLVING PROBLEMS RELATED TO PARKING AREAS, PUBLIC TRANSPORT AND ECO-TRANSPORT - OFFLINE VALIDATION OF TRANSPORT DOCUMENTS FROM THE SMART CITY SYSTEM

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Abstract: *The focus of this article is to examine in detail all possible cases and their respective Validation Algorithms for the different types of Transport Documents from the Smart City Public Transport System. Two main scenarios will be considered, respectively, in the presence of an Internet connection (ONLINE VALIDATION), ie. when we have a connection through the REST API to the central servers and respectively a scenario, in the absence of an Internet connection (OFFLINE VALIDATION), when local validation must be performed from the available hardware in the vehicle itself. Also, all the principles set for structuring the data parameters in the Electronic PD (Transport Documents) and in the physical carriers for Subscription - Mifare plastic cards will be considered in detail, in which the basic information about the Subscription itself is recorded and read, namely number of trips, period of validity, accessible lines, subscription card holder / user.*

Keywords: *Smart City, smart solutions, public transport, eco transport, LoRaWan network, API and central database, smartphone app, Android, iOS, Validators, Centralised system, Web applications, Servers, efficiency, GPS*

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BUILDING A CENTRALISED SMART CITY SYSTEM FOR URBAN MOBILITY MANAGEMENT AND SOLVING PROBLEMS RELATED TO PARKING AREAS, PUBLIC TRANSPORT AND ECO-TRANSPORT - SMART PARKING SYSTEM NETWORK ARCHITECTURE AND OPTIMIZATION

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***Abstract:** The goal in the development of traffic management systems, and in particular the implementation of complete intelligent parking systems in an urban environment, is to reduce personnel costs and optimize the use of all available resources. Currently, finding a parking space is usually random, with the driver finding one on the street based on sheer luck or multiple attempts. The process sometimes takes a lot of time and effort and, in the worst case, to the impossibility of finding a parking space. An alternative is to identify a specific paid parking lot that has a sufficiently large capacity and/or use prepaid parking subscription services accordingly. However, this is not an optimal solution, as it is usually possible that the parking lot in question is far from the user's destination.*

On the other hand, intelligent parking systems, and specifically those based on the streets themselves along the sidewalks, are based on LoRa nodes. The number of these networks is increasing due to their operation in the unlicensed radio frequency bands and their easy and relatively cheap construction. The scalability of such networks suffers as the number of deployed devices increases. Performance drops due to increased contention and interference on unlicensed LoRa frequencies. This leads to an increased number of dropped messages and therefore to unreliable network communication.

***Keywords:** Smart City, smart solutions, public transport, eco transport, LoraWan network, API and central database, smartphone app, Android, iOS, Validators, Centralised system, Web applications, Servers, efficiency, GPS*

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CLOUD COMPUTING- IMPLEMENTATION METHODS, ADVANTAGES AND DISADVANTAGES

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Abstract: *The advent of cloud computing technologies has allowed users to access many different services over the Internet. They provide data storage and access to it at any time regardless of where the user is. Cloud computing allows businesses to ensure maximum data security and privacy, as well as to ensure reliable recovery and backup of the information. This paper examines the basic types and operations of cloud computing technology. It will cover the main characteristics of cloud computing, deployment models, service models, uses, advantages-disadvantages, architecture, service provider and much more.*

Keywords: *Cloud, Cloud Computing*

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ANALYSIS OF IPV6 SCANNING AND EXPLOITATION ATTACKS

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***Abstract:** The paper reviews the existing IPv6 methods and strategies of scanning and which are the IP address security vulnerabilities exposed on the Internet that enable researchers to create effective defenses against potential attacks. In this paper, the different DNS scanners and techniques, Random scanning strategies and methods, as well low-byte scanning strategy will be reviewed. Once a vulnerability is detected in the IPv6 network, the Linux kernel can be used for the implementation of various attacks for code injection and exploitation. Remote access to the Windows Operating system can also be obtained using specific attacks and networks vulnerabilities in machines with assigned IPv6 addresses. The focus of the paper will also be directed on the Media Access Control (MAC) addresses, which are designed to be unique Layer-2 network interface hardware identifiers, and the related to them vulnerabilities and exploits.*

***Keywords:** IPv6, MAC, exploits,*

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DISCOVERY AND ANALYSIS OF EXIF DATA IN IMAGES

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Abstract: *with the rapid expansion of cybercrime, it has become important and urgent to begin conducting studies and research specialized in the evaluation on how the information is saved and how it is used as digital media metadata. This paper reviews how, in many cases, when a computer, phone, or mobile device is seized for evidence, the system will have graphic images that might be used as evidence. Digital images have stamps recorded as metadata written by its source. This could be a phone, camera or written on computer. Most digital devices "stamp" information on these graphic images that can tell us a lot about the who, what, when, and where the pictures were taken. This information is known as EXIF data and can very often be useful to the forensic investigators. The coordinates from the geolocation of the digital image can be reversed to display the location of the photoshoot on the maps.*

Keywords: *EXIF data, digital images, GPS, image forensics, image processing, image forgery detection, image metadata*

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TECHNIQUES TO PROTECT KEY OBJECTS FROM UNMANNED AERIAL VEHICLES

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Abstract: *This paper reviews and compares different unmanned aerial vehicle (UAV) countermeasures, and suggests techniques for combining Anti-drone radar systems. Nowadays, every smart device is networked and can be controlled remotely or collect information about the activity or cycle of actions it performs. The more connected the devices are, the more difficult it becomes to protect them during data transfer. If until now the main protection of networks was cyber security and the protocols and certificates introduced for data transfer protection, it should be noted that in recent years, unmanned aerial vehicles (UAVs) have also developed, which pose a threat to networks on another level. UAVs can undetected spy on key servers, data warehouses, military sites, airports, critical infrastructure sites and destabilize or stop their operation.*

Keywords: *Grid protection, Unmanned Aerial Vehicles, Air Defense, Anti-drone radar systems, Protection.*

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**PERSONAL EFFECTIVENESS AND SCIENTIFIC PRODUCTIVITY OF
DOCTORAL STUDENTS**

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Abstract: *The paper reviews the significance of some essential soft skills. The personal effectiveness and scientific productivity of the doctoral students at the department of “Machine Science, Machine Elements, Engineering Graphics and Physics” was analyzed based upon the quarterly and annual reports of the PhD students. A research methodology concerning the opinion of doctoral students on their personal effectiveness and scientific productivity has been perfected. Additional topics and questions related to critical creative thinking, solving scientific problems, and time management for their scientific and educational activities have been included in the investigation. The results obtained have been analyzed and presented graphically. Conclusions and recommendations have been made. Authors’ team envisages different measures and activities in order to improve the significant soft skills of doctoral students.*

Keywords: *Personal Effectiveness, Scientific Productivity, Research Methodology, Doctoral Education*

JEL Codes: C90

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INTEGRATION OF CAD SYSTEMS IN THE DIGITALIZATION PROCESS IN THE CONDITIONS OF REMOTE WORK AND INDUSTRY 4.0

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Abstract: *This report explores the possibilities for automation and digitization of engineering processes using CAD systems. The study shows the features and positive qualities when working with CAD systems in the conditions of remote work and the digital revolution Industry 4.0. Questions about working with remote access and cloud services as possibilities of modern CAD systems are analyzed*

Keywords: *Industry 4.0, CAD system, digitization, remote work, cloud services*

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COMPARATIVE ANALYSIS OF SPECIFIC CAPABILITIES OF CAD SYSTEMS FOR DESIGN

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***Abstract:** The report presents the results of a comparative analysis of the capabilities of some modern CAD systems for design and strength testing of machine elements - gears, shafts, bearings, etc.. The advantages and disadvantages of these CAD systems are analyzed. Conclusions are drawn for their application.*

***Keywords:** gear, machine element,, CAD system, design of elements*

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APPLICATION OF 2D CAD SYSTEMS IN DISTANCE LEARNING IN ENGINEERING GRAPHICS

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Abstract: *Distance learning offers great opportunities for student learning, but it is a real challenge for structuring and practical implementation of the learning process in technical disciplines related to graphic work. 2D CAD systems, having a number of drawing tools, are a necessary assistant and a means of visualizing the sequence for the production of graphic technical documentation. They are also used in checking the correctness of the geometric shapes, scale and dimensions of coursework sent by students as JPG photos. The paper reviews the practical experience of using 2D CAD systems in the distance education of students.*

Keywords: *Distance Learning, Engineering Graphics, Graphical Information, Correction, 2D CAD systems*

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STUDENTS IN ENGINEERING BACHELOR COURSES AND THEIR PRELIMINARY GENERAL TECHNICAL BACKGROUND

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Abstract: This paper reviews a study of the preliminary general technical background of students enrolled in the first year of engineering bachelor degree courses studying Engineering Graphics. Depending on the type of the secondary education of the student, it was studied what part of them had prior training in Engineering Graphics or a similar subject. An analysis was made according to the year of completed secondary education and their enrollment in higher education. The results obtained are presented graphically. In the conclusions, the authors' team gives recommendations and guidelines for the implementation of a learning process in accordance with the incoming level of the students

Keywords: Engineering Graphics, Education, Training, Students, High School

JEL Codes: C90

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A SIMPLE 1-D MODEL OF A SINGLE CYLINDER SI-ICE FOR COMBUSTION OF SOFC ANODE-OFF GASES

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***Abstract:** The paper presents a simple 1-D model of a single cylinder spark-ignited ICE created by means of the software product Ricardo WaveBuild. The model is applied for the combustion of the anode-off gases (AOG) emitted from a pre-defined solid oxide fuel cell (SOFC) stack that is modelled in a previous study of the authors. The geometrical and operating parameters of the stack and the engine, as well as the composition of the AOG for a fixed operating point of the stack, are presented. The model assumptions and the SOFC-ICE system integration for a cogeneration combined cycle, are briefly discussed.*

***Keywords:** SOFC, AOG, Combustion, ICE, Combined cycle, Model*

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USED ON REFRIGERANT PRESSURE IN AUTOMOTIVE AIR CONDITIONING SYSTEMS AS A DIAGNOSTIC PARAMETER

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Abstract: *This paper presents possibility of used various measured refrigerant pressures in automotive air conditioning systems as a diagnostic parameter. Automotive air conditioning systems have two lines (for low and high pressure). Depending on the particular malfunction in the air conditioning system, it usually responds by changing the pressures from normal in the low and high pressure lines. The measurement of these pressures can be used as a diagnostic parameter to detect various malfunctions.*

The purpose of this paper is to analyze specific values of refrigerant pressures in automotive air conditioning systems to determine specific malfunctions.

Keywords: *Automotive, Air conditioning systems, Refrigerant, Pressure*

JEL Codes: *Q54*

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LIVE CYCLE ASSESMENT OF VEHICLE LITHIUM-ION BATTERIES

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***Abstract:** The presented work concerns analysis of the spent energy and GHG emissions for production of Lithium batteries. The contents of metals and other materials are regarded. Energy spent for production of materials and its recycling is estimated. Finally, the LCA of energy and harmful emissions is done, including all phases of production - from raw materials to completely finished batteries, with using of different types of fuel or energy (NG, electricity etc.)*

***Keywords:** electric vehicle battery, Li-ion battery, energy consumption, GHG emissions*

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COMPARATIVE STUDY OF ENERGY CONSUMPTION AND ECOLOGICAL IMPACT OF MAIN TYPES OF CARS

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Abstract: In this article analysis of the structure of Life cycle of different types of fuels is done. On the basis of the energy production for 2015 and 2020 years and energy mix of European countries an assessment of the energy consumption and GHG emissions of cars is done. LCA of cars using gasoline, natural gas, hydrogen fuel cells etc. show advantages and disadvantages of different type of vehicles, during its whole Life cycle.

Keywords: electric car, energy consumption, GHG emissions, Life cycle assessment, environmental protection

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**STUDY OF ENERGY CONSUMPTION OF A CENTRAL DRIVE
ELECTRIC BICYCLE ON A ROUTE**

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***Abstract:** Traffic in urban conditions is characterized by high intensity, frequent stops and starts, and prolonged idling of the engine. As a result of increased fuel consumption, air pollution with harmful emissions increases significantly. with the growing environmental problems and air pollution, the electric bicycle appears as a technological solution.*

Presented article shows the results from a study of energy consumption of a bicycle with central drive on a route in town of Ruse. The obtained result are 10-15 times less than consumption of an electric car with one passenger. The level of emissions, in Bulgarian conditions, is approximately 4 g/km, which is significant less in comparison with electric car.

***Keywords:** electric bicycle, energy consumption, environmental protection*

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COMPARATIVE STUDY OF ENERGY CONSUMPTION OF TWO TYPES ELECTRIC BICYCLE ON A ROUTE

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***Abstract:** for the growing environmental problems and air pollution, the electric bicycle appears as a good technological solution. There are two types of electric bicycles – with central driving system and gears, and with direct drive on a wheel. Every one of these conceptions have advantages.*

In this study the energy consumption of two bicycles, using different driving system, are assessed. a typical city road is used for simultaneously motion of bicycles.

The results show a significant advantage of that system with central driving and gears. At the same conditions the energy consumption is significant low – from 12 to 28%, than respective of other bicycle (with driving wheel).

***Keywords:** electric bicycle, energy consumption, environmental protection*

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MAIN PROBLEMS WITH THE RECYCLING OF RAILWAY SLEEPERS TYPES

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***Abstract:** This article addresses issues related to the materials of the railway sleepers and their recycling. The properties of different sleeper types - wooden, iron, steel, reinforced concrete and plastic are considered.*

Recycling of the sleepers is one question that is relevant to environmental protection and is necessary to pay attention to this issue. Every year, a very large number of sleepers come out of use and therefore it is important to develop methods of recycling or re-use of materials. In the article, an analysis of the state of these problems has been made, regarding worldwide experience and existing methods. A conclusion is made.

***Keywords:** sleepers, recycling, re-use, environmental protection*

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FRI-2.206-2-TMS-04

MOTOR PROPERTIES OF ISOPROPANOL, AS A FUEL FOR INTERNAL COMBUSTION ENGINES

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Abstract: *The paper reviews physicochemical properties of isopropanol, used as alternative fuel for SI ICE. In this work are described composition (C, H, O), stoichiometric air/fuel ratio, lower heating value, laminar burning velocities, oktane numbers, viscosity, specific gravity and others. It is established wick alcohol, improve mixture properties with gasoline. The experimental investigation is conducted to evaluate the effect of using blends of isopropanol with gasoline (5, 10, 15 and 20% isopropanol by volume) on the performance and exhaust emissions of fore cylinder port fuel injection (PFI) test gasoline engine.*

Keywords: *Sparc ignition internal combustion engine, Isopropanol, Lower heating value, Stoichiometric air/fuel ratio, Laminar burning velocities*

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FRI-2.206-2-TMS-05

IMPROVEMENT OF THE PARAMETERS OF INTERNAL COMBUSTION ENGINES WHEN WORKING WITH BIODIESEL FUEL

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Abstract: *Ever since the first oil crisis in 1973-1974, it has become clear to humanity that one cannot rely only on oil as a source of fuel for the transport sector. Although biofuels are still seen as an alternative, their use is necessitated by the ever-increasing prices of fossil fuels and their imminent depletion, as well as by global goals to reduce greenhouse gas emissions and protect the environment. Nowadays, the question is no longer whether biofuels should be used in internal combustion engines, but what structural changes should be made in the engines so that when working with them, the best possible performance, economic and environmental performance can be achieved.*

Unlike conventional diesel fuel, biofuels have a high O₂ content in their molecule. This leads to an increase in the air ratio in the over-enriched combustion zone, as a result of which the rate of soot formation is reduced. With an increase in the proportion of oxygen in the fuel, the duration of the self-ignition retention period increases and the rate of heat release increases during the period of rapid combustion, as a result of which the concentration of NO_x in the exhaust gases increases.

Keywords: *Improvement, ICS, Biodiesel Fuel*

JEL Codes: *L10, L11*

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FRI-2.206-2-TMS-06

"GREEN" HYDROGEN AS AN ALTERNATIVE TO FOSSIL FUELS FOR INTERNAL COMBUSTION

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Abstract: *for the European Union to be able to reduce its net emissions to zero and contribute to a cleaner planet, a complete change of the energy mix in Europe will be needed. According to the European Green Deal, the transition will have to be combined with the provision of clean, affordable and secure energy for businesses and consumers. Energy is a problem area for Europe. In 2018, energy production and consumption accounted for 75% of EU greenhouse gas emissions. About 58% of energy consumption depended on imports, mostly oil and natural gas. The European Commission proposed in July 2020 a strategy for the use of hydrogen to achieve a climate neutral Europe. The aim is to increase the production of hydrogen from clean sources and establish it as a key element in the energy system by 2050.*

There are different ways of extracting hydrogen, which lead to the emission of different amounts of greenhouse gases. Pure hydrogen, also called renewable or "green" hydrogen, is produced by electrolysis - passing an electric current through water. The electricity used should be from renewable sources. No greenhouse gases are emitted in this process. For the time being, hydrogen has little relevance to the overall energy mix. The challenges are related to reducing production costs, increasing the scale of production, developing the necessary infrastructure and ensuring the safety of use. On the other hand, hydrogen can facilitate the development of an emission-free transport sector, heating and industrial production, as well as long-term energy storage.

Keywords: *Green Hydrogen, Alternative, Fossil fuels, ICS*

JEL Codes: *L10, L11*

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ENGINE DEVELOPMENT IN VIRTUAL ENVIRONMENT

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***Abstract:** Internal combustion engines have been in use for over 150 year. There is still room for improvement in efficiency and emission reduction. Constant improvements will ensure the future existence of the internal combustion engine. The design of the engine of the future is becoming more complex and demanding. to meet these demands a combination of development tools is required one dimensional (1D) and three dimensional (3D) computational fluid dynamic simulations, so that more concepts and ideas can be investigated, and at the same time using the least amount of resources.*

***Keywords:** 1D, 3D, Simulations, CFD, Effectiveness*

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DIMETHYL ETHER APPLICATIONS IN COMPRESSION IGNITION ENGINES

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***Abstract:** In recent years, more and more stringent requirements have been introduced for vehicles with internal combustion engines on emissions. The energy crisis and the surge in fuel prices led to the search for alternative sources of energy and fuels. Dimethyl ether (DME), as a synthetic fuel, is one of the alternative options that would find application in the fight to reduce harmful emissions from transport. DME is a clean fuel and its use in the transport sector would reduce pollution especially in large cities with intensive transport.*

***Keywords:** Dimethyl ether, ICE, Alternative Fuels, Emissions, DME*

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FRI-2.206-2-TMS-09

ETHANOL AS AN ALTERNATIVE FUEL FOR DIESEL ENGINES

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***Abstract:** In recent years, more and more stringent requirements have been introduced for vehicles with internal combustion engines on emissions. The search and development of synthetic and natural alternative fuels worldwide has become increasingly large-scale in recent years. The largest share is occupied by alcohols and, in particular, ethanol. Ethanol is currently the most widely used liquid biofuel.*

***Keywords:** Ethanol, ICE, Alternative Fuels, Emissions, Diesel Engine*

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**PUBLIC TRANSPORT AND NOISE ASPECTS – CRUCIAL PROBLEMS IN
DEVELOPING OF URBAN PASSENGER SYSTEMS**

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***Abstract:** The paper focuses on problems of sustainable development of transport systems with special attention paid to noise pollution. Solutions to reduce noise pollution are among the essentials to consider when determining the basic parameters of a transport scheme.*

***Keywords:** noise pollution, city logistics; technological innovations; environmental sustainability; urban transport; urban passenger systems*
***JEL Codes:** R41, Q53*

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OPPORTUNITIES FOR IMPROVING PASSENGER TRANSPORT BY RAIL TRANSPORT IN THE REPUBLIC OF BULGARIA

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***Abstract:** The article examines the current state of passenger rail transport in Bulgaria. For this purpose, an analysis of the state of the transport infrastructure and transport services for transporting passengers by rail was made. The potential and forecasts for the development of passenger transport by rail were examined, as well as the measures to improve the service. After that, an analysis of the effects of the improvement of passenger transport by rail was made.*

***Keywords:** Rail transport, Passenger transport, Quality of service*

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

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FRI-20.25-1-SITSTL-03

ASSESSMENT OF THE POSSIBILITIES FOR IMPROVING THE PASSAGE OF TRANSPORT FLOWS THROUGH A BUSY SECTION OF THE STREET NETWORK OF THE CITY OF SOFIA

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Abstract: *The main problem that is considered in the report is related to improving the conditions of passage through an extremely busy section of the street network in the city of Sofia during peak periods. Traffic is carried out in one lane per direction. The presence of bus stops on both sides of the section creates difficulties in the case of a stopped bus, which prevents the passage of cars from the respective lane. This creates queues that prevent the normal flow of traffic flows. On the basis of studies of traffic parameters, options for building an additional traffic lane or pull-out stops for buses are being evaluated. The results provide a basis for proposals that are expected to bring significant benefits to improving the passage of vehicles through this section.*

Keywords: *Bus stops, Pull-Out stops, additional traffic line, Traffic queue*

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FRI-20.25-1-SITSTL-04

ASSESSMENT OF PARKING IN THE STUDENTSKI GRAD QUARTER IN THE CITY OF SOFIA

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***Abstract:** The publication presents a study of parked cars in a Studentski grad district in the capital of the Republic of Bulgaria. The aim is to determine the necessary number of parking spaces, which are not enough considering those who wish to park in the studied area. The representative study is the basis for making adequate decisions, the applications of which will improve the parking conditions in the neighborhood.*

***Keywords:** Parking, Parking conditions, Parking planning*

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FRI-20.25-1-SITSTL-05

RESEARCH OF THE MOVEMENT SPEEDS OF CYCLISTS BY SECTION OF BICYCLE INFRASTRUCTURE

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Abstract: This report presents the results of a study conducted on the speed of movement of a cyclist in a section of bicycle infrastructure in the city of Ruse. The section is part of the bicycle network in the city of Ruse, connecting the residential districts "Rodina 3" and "Charodeyka-sever". The specific study was conducted with the aim of establishing the speed of movement of a cyclist in the individual points of the studied section. The section connecting the two residential districts has a length of 700 m and an elevation of 44 m. In its current state, it is difficult to climb for over 80% of cyclists passing through it, which has an impact on the choice of this mode of transport by the city's residents. In cities with a well-developed bicycle network, this type of transport is accepted by a larger part of their inhabitants, and is gaining popularity.

Keywords: bicycle infrastructure, bicycle network, bicycle transport.

JEL Codes: R41

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FRI-20.25-1-SITSTL-06

**CHALLENGES IN PLANNING HYDROGEN CHARGING
INFRASTRUCTURE FOR FUEL CELL ELECTRIC VEHICLES (CASE
STUDY FROM THE CITY OF RUSE)**

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***Abstract:** Hydrogen can power transportation with almost zero greenhouse gas emissions. The technological advances in fuel cell vehicles and electricity generation from renewable energy is underpin early market development in a number of countries. At the same time, the deployment of a sustainable hydrogen refueling infrastructure is faces of methodological and practical challenges, ranging from determining a physical location for its deployment to the availability of fuel cell vehicles.*

The paper reviews the challenges facing the planning of the first hydrogen charging infrastructure in the city of Ruse and the prospects for the future. Infrastructure costs depend on how hydrogen is produced and delivered to refueling stations. The methods for planning the capacity and the location of the first station for refueling vehicles with hydrogen are unknown in Bulgaria, including the need to overcome a number of barriers (normative, institutional, economic, social, etc.).

***Keywords:** transport hub, hydrogen refueling, fuel cell electric vehicles, hydrogen transition, hydrogen refueling station*

JEL Codes:

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FRI-20.25-1-SITSTL-07

**COMPARATIVE ANALYSIS OF EDUCATION IN TRANSPORT
SPECIALTY AT THE UNIVERSITY OF RUSE AND THE UNIVERSITY
POLITEHNICA OF BUCHAREST**

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***Abstract:** In the paper, a comparative analysis was made between the curricula in the educational and qualification degree "bachelor" of the study specialty related to the organization, logistics, technologies and management of transport at the University of Ruse and the University Politehnica of Bucharest. The similarities and differences in the disciplines, horariums, ECTS credits and forms of study from the two curricula are determined.*

The development of transport science and practice, the internationalization of higher education, including international mobility (Erasmus and others) require the development of comparative analyzes between different curricula that allow the recognition of learning stages (ECTS credits and others). They also allow the transfer of good practices in terms of training (theoretical, practical)..

***Keywords:** Curriculum; Educational and qualification degree "bachelor"; Organization, logistics, technology and transport management; universities*

JEL Codes:

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FRI-20.25-1-SITSTL-08

ELECTRONIC APPLICATION FOR PROCESSING AND PUBLIC SHARING OF INFORMATION RELATED TO ROAD TRAFFIC ACCIDENTS

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Abstract: *The vast development of motorization leads to deepening of the problems related to road safety. This imposes higher requirements in the study of traffic accidents and the causes of their occurrence and the application of a systematic approach, based on the analysis of individual elements which affect the process of the occurrence of the accident and its consequences. Providing the possibility to compare the individual elements and study the interaction between them is a necessary condition for the increasing of the road safety. In order for the required information to be reached by the experts who perform the analysis of the realized traffic accidents, it is essential that modern approaches are applied. One of those modern approaches, which are being used nowadays, is through the development of electronic platforms for processing and public sharing of information related to the traffic accidents that have occurred. In the current research development, the need to create an electronic application for processing and public sharing of information, related to traffic accidents, is considered. Automating and digitalizing their registration processes would provide a database, containing various groups of information needed for better research and tracking. The introduction of an electronic version of the necessary documents is an opportunity to control the type and amount of information provided, which would lead to an improvement in the processes of research and analysis of road accidents, regarding the establishment of the causes and mechanism of their occurrence..*

Keywords: *traffic accident, database, road safety*

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FRI-20.25-2-SITSTL

FRI-20.25-2-SITSTL-01

THE LOW SPEED OF MOVEMENT OF THE FREIGHT TRAINS AS A FACTOR FOR DERAILMENT ON HORIZONTAL RAILWAY CURVES

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Abstract: It is often necessary to be reduced speed of movement of the trains in mixed traffic railway sections where the tracks repair is carried out. The trains movement with lower speed than design speed through the horizontal curves in a railway section causes additional load on the inner rail in the curves. The cant excess has been studied in the report. It is appeared when the freight trains are passed on horizontal curves in a railway section where the speed of the trains is temporarily reduced. The norms for determining the cant when horizontal railway curves are designed on railway lines with a gauge of 1435 mm have been studied. a study of rail accidents related to freight wagon derailments in horizontal curves in which the cant excess was a contributing or concomitant factor to the occurrence of the accident, was carried out. Results for the minimum speed of the freight trains movement below that the cant excess in the horizontal curve with relevant radius is observed have been presented in the paper. In this case the overloading of the inner rail of the track is increased and the conditions for derailment are available.

Keywords: Freight train, Horizontal curve, Horizontal alignment, Cant excess, Low speed, Speed limit

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A STUDY OF GROUND HANDLING SAFETY AT SOFIA AIRPORT

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Abstract: This report presents information about Sofia Airport ground handling. The various types of passenger and cargo transport carried out at the airport are examined. The specialized transport operations that ensure the ground and technical maintenance of the aircraft located on the territory of the airport are described. A description of the means of transport and aircraft maintenance equipment of the three ground operators operating at the airport is presented. Information on aircraft movements for the period 2015 - 2020 is presented. For the same period, a study of the incidents and events that occurred with ground traffic at the airport was conducted. The safety indicator has been determined.

Keywords: Sofia Airport, Ground Handling, Traffic Safety

JEL Codes: L91

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FRI-20.25-2-SITSTL-03

METHODICAL ASPECTS OF DECREASING TRANSPORT INJURIES IN BULGARIA

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***Abstract:** In the present report, a study of the methods of modern training in traffic safety for children up to 7 years of age was carried out. Children are active participants in traffic. Everyone is responsible for their safety on the street - parents, teachers, drivers of vehicles, institutions, non-governmental structures and organizations. System for organization and management of activities related to education and training on traffic safety in the preschool and school education system, approved by Order No. RD 09-1289/31.08.2016 of the Minister of Education and Science. This report examines the traffic safety curricula for grades 1 to 12, curricula for professional training of students for the profession of "motor vehicle driver", action plans for traffic safety in educational institutions and work plans of school committees on traffic safety. The aim is to define a methodology that will support the education and training of students in a culture of road behavior, which is related to the observance of generally valid rules for safe and tolerant behavior on the road and the norms of personal and collective safety.*

***Keywords:** Car accidents, Injuries, Methodical aspects.*

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FRI-20.25-2-SITSTL-04

TRAFFIC ACCIDENT ANALYSIS IN SPACE AND TIME (IN THE EXAMPLE OF MUNICIPALITY OF RUSE)

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Abstract: The research analyzes GIS analytic approaches, by determining the locations and times of crashes around Ruse, Bulgaria. to verify that the overall trend of traffic accidents is rising and that the rise is statistically significant, an exploratory space-time pattern analysis is carried out. The Crash data is obtained from local police department and includes the location, date, and time for every motor vehicle traffic accident in Ruse municipality between 2015 and 2020. Each traffic accident is projected on a digital map. a restructuring of the data is developed in order to be examined for space-time trends. The following queries are addressed in this paper: Which roads and crossings in Ruse have the most collisions? When and where do most collisions take place? What distinguishes the spatial distribution of fatalities from the spatial distribution of traffic accidents as a whole? Which roads or crossings consistently have a problem with traffic accidents throughout time? It will be possible to make better informed recommendations for legislation and other measures that can help minimize traffic accidents in the future by understanding where and when incidents happen in the municipality.

Keywords: Efficiency, Effectiveness, GPS, Seismic Protection Methods, Model

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MODERN TECHNOLOGIES OF HANDLING PROCESSES IN RIVER PORTS

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Abstract: *The Republic of Bulgaria is located at the crossroads of the Balkans between the roads connecting the countries of the European Union with Turkey and the Middle East, with Ukraine, Russia and Central Asia and between Greece and Scandinavia. The Danube River is the second longest in Europe and is the main inland waterway transport corridor connecting Western and Eastern Europe. Via the rivers Rhine, Main and the Rhine-Main-Danube canal, Corridor No. 7 connects the North Sea with the Black Sea. Ports are specially designed and equipped coastal operating points that are connected to the rail and road network of the respective country and are used for loading, unloading and transshipment of cargo, for navigational services of ships, as well as for passenger services. From a technical and operational point of view, the port is a complex of special facilities and equipment that ensure the safe passage of ships, their normal stay in it and create the necessary opportunities for loading and unloading and other operations. River ports are the backbone of inland waterway transport processes. As a result of the operational activities carried out, ports have become logistics platforms and means of achieving economic prosperity. An important condition for the quality performance of the functions of the river port is that its constituent elements meet certain technical, technological and organizational requirements.*

Keywords: *Port, Special facilities, Special equipment, Loading, Unloading, Technical requirements, Technological requirements, Organizational requirements.*

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FRI-20.25-2-SITSTL-06

STUDY OF OPERATING MODES OF HYDROGEN FUEL CELL G-HFCS-3KW

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***Abstract:** The paper presents a study of the operating modes of the G-HFCS-3kW hydrogen fuel cell. a working model was built to evaluate the parameters for different operating modes. The results define the consumption of hydrogen when changing the values of the power required for the efficient operation of the hydrogen fuel cell. The conclusions and practical results will be used in assessing the characteristics of an urban concept car powered by a hydrogen fuel cell.*

***Keywords:** Parameters, Operating modes, working model, Hydrogen, Fuel cell, urban concept car.*

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FRI-20.25-2-SITSTL-07

RESERACH OF DIGITAL SOLUTIONS FOR MANAGING INTERNATIONAL ROAD TRANSPORTATION COMPANY

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***Abstract:** The road transport of goods is complicated process and now it becomes more complicated based on the world economic crisis. In order to improve the quality of the service and working process as well as to reduce the transport costs, it appears the need of using digital solutions. In this article we will take a look in two already existing products and we will compare them, one of them is a standard application – DSV Driver application and the other one is new digital solution which includes all functions involved in the transport chain giving the user a totally new opportunity to control the whole transportation process - Nordstar One, which is used in a real time and proved that's working. What is the status of the transport market and how by implementing a digital solution, the service can be improved.*

***Keywords :** road transport, quality, transport costs, digital solution*

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FRI-20.25-2-SITSTL-08

RESEARCH INFLUENCE OF AUTONOMOUS EMERGENCY BRAKING OF CAR ON TRAFFIC SAFETY

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***Abstract:** to improve the safety of passenger in the car have been made many- safety belts, airbags, deformation zones etc. This is not the case with pedestrian safety. In Bulgaria pedestrian death are about 25% of all accident death, and this percent in Bulgaria is higher than in Europe where it is about 15-20%. Some of the reason for this are incorrect crossing of the roadway, the dark clothes with which pedestrian move in the dark part of the day and the driver do not notice them, the speed of the vehicle This research evaluates the effectiveness of autonomous emergency braking of traffic safety*

***Keywords:** pedestrian safety, death pedestrian, traffic accident.*

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FRI-20.25-2-SITSTL-09

RESEARCHING INNOVATIVE METHODS OF DELIVERY OF PARCELS THROUGH AUTOMATIC POST OFFICES

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***Abstract:** with the modern dynamic rates of technological development, accelerated production, increasing competition and expansion of consumer needs, creates conditions for the development of additional logistics supply chains, courier companies increase their efforts to satisfy customer requirements by increasing their system of offices, extending their working hours, working on holidays and weekends and add innovative delivery methods to stay competitive in the market. One of the latest innovations is the construction of a system of automatic post offices that cover the above-mentioned requirements of customers and remove the limits of limited working hours, add flexibility and mobility in the dynamics of hectic life. The autonomous model of automated post offices allows users to choose when to send and receive parcels and reduces the need for traveling suppliers and the construction of additional offices, as well as working in a positive direction from an environmental and economic point of view, reducing harmful greenhouse gas emissions and noise pollution from the additional vehicles.*

The report examines all the strengths and potential weaknesses of the system of automatic post offices and the impact on users and the environment in Bulgaria. The results show an increased interest in automatic post offices from busy users due to the ability to manage the time of sending/receiving parcels, as well as reducing car mileage for parcel delivery".

***Keywords:** logistics chain, shipment delivery, courier company, green zones, zero emissions, innovative methods*

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**MENOPAUSE: PHYSICAL THERAPY
IN HELP TO EASE "THE CHANGE"**

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Abstract: Menopause is not a Disease. It's a natural stage in a woman's life. Menopause occurs when estrogen and progesterone decrease and a woman's ovarian function stops. For many women this period can be a difficult physiological and psychological transition. The symptoms experienced include vasomotor (hot flushes and night sweats), psychological (depression, insomnia), somatic (palpitations, backache and, dizziness), and sexual (reduced libido and, vaginal dryness). Menopausal symptoms are associated with deterioration in physical, mental, and sexual health, lowering women's quality of life.

Of relevance to menopausal women, are the benefits of regular physical activity for reducing the risk of cardiovascular disease, osteoporosis, obesity, and depression. There are studies in the literature that deal with the effect of exercise on menopausal symptoms. Regular sports and exercise can help women over 50 to limit some of the symptoms accompanying menopause. Evidence shows that addressing pelvic floor muscle function, in conjunction with improving overall muscle strength and physical wellbeing, can help to reduce and even prevent many symptoms related to menopause. The impact of muscle activity is so profound and multifaceted that it favorably affects all body functions and structures, including protein biosynthesis.

In this regard, our study objective is examining the effect of physical exercise in women with menopausal symptoms.

Keywords: Menopause, Estrogen, Physical activity, Physical therapy, Quality of life.

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KINESITHERAPY FOR WEAKNESS PELVIC FLOOR MUSCLE IN WOMEN

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Abstract: The article examines the role of the pelvic floor muscles in women, risk factors for damage and weakness, symptoms and some specific techniques of kinesitherapy - pelvic floor exercises. These muscles can be damaged by childbirth, surgery, hormonal changes during menopause, or lose strength as a natural part of aging. The important role of kinesitherapy in improving the condition of women with such problems is identified, and a brief guide to rehabilitation is offered. Regular exercise both maintains and improves women's health at different stages of life.

Keywords: Kinesitherapy, Pelvic floor, Weakness, Pelvic floor muscle exercise benefit

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DISTAL FEMORAL FRACTURES – OUR TREATMENT PROTOCOL

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Abstract: *The paper reviews a treatment protocol for the distal femoral fractures. The indications, advantages and limitations of the double plating technique are discussed and evaluated in a series of 10 complex distal femoral fractures treated for a period of 5 years. The average age of the patients is 57 years, there are 3 males and 7 females. They are followed up for a period ranging from 8 to 24 months. All fractures have united for an average period of 18 weeks. Two of the patients had excellent, 5 had good, 2 had average and one had bad functional result. There are no major complications. Two patients had delayed fracture healing for periods longer than 6 months. Three knees had an extension deficit at the final examination. Double plating is recommended in case of medial bone loss, low bone quality, fracture comminution, obesity, diabetes, open fracture, treatment of non-unions.*

Keywords: *distal femoral fracture, double plating, treatment protocol, functional results*

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HEMISOLEUS MUSCLE FLAP FOR TREATMENT OF A GRADE III OPEN TIBIAL FRACTURE

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***Abstract:** The paper reviews the implication of a hemisoleus muscle flap for the treatment of a grade 3 open tibial fracture. The indications, advantages and limitations of the flap are discussed and evaluated in a case report. The age of the patient is 57 years. He is followed up for a period of 10 months. The fracture united for a period of 6 months. There was no deep infection. There was a partial flap necrosis, that was debrided and covered with split thickness skin graft. The knee joint regained full ROM, the ankle joint was stiff with an equines contracture of 10 degrees. Hemisoleus flap is recommended in case of a middle or distal skill loss. It offers biological coverage of the open fracture as well as uninterrupted blood supply. Sacrificing part of the soles muscle weakens the calf and may lead to contractures with improper rehabilitation.*

***Keywords:** grade 3 open tibial fracture, hemisoleus flap, functional results*

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**SOCIAL ASPECTS OF
STRESS URINARY INCONTINENCE**

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Abstract: *The article examines the problem of stress urinary incontinence in its social aspect and its impact on the quality of life. Data are based on a closed-ended, short-answer questionnaire of 50 women in Ruse with stress urinary incontinence. The received answers provide information about the manifestation of the nosology and its impact on the social and cultural life of women. On this basis, it is necessary to develop health and kinesitherapeutic programs for the treatment and prevention of stress urinary incontinence in order to maintain a high quality of life and cultural and social status.*

Keywords: *Stress urinary incontinence, questionnaire, social and culture difficulties*

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SCOLIOSIS REDUCTION WITH B.A.E. METHOD ON A 21 YEARS OLD FEMALE WITH CHECK UP AFTER A YEAR AND A HALF

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Abstract: *Ideopathic scoliosis in a 21 years old female who works as a hairdresser. The girl reports frequent pains in the cervical and lumbar tracts together with pain at her knees. She has been treated with the biomechanic anthropometric ergonomic method (B.A.E.) with positive results. Method: the girl was previously treated only with the physiotherapeutic protocols with insufficient result for two years. During the medical and physiotherapeutic management the pain improved only for short periods under treatment, she has been treated with the B.A.E. method for 18 months with positive outcomes both in the mobility and in the pain.*

Keywords: *Posture, Biomechanic Anthropometric Ergonomic Method, scoliosis, back pain, pain in the lower limbs.*

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Tiziano Pacini, Ferdinando Pivetta, Elisabetta de Juliis, Neck’s posture: woman 54 years old suffering from Dizziness, Labyrinthitis, Headache, Neck Pain, Shoulder Pain, Carpal Tunnel Syndrome, treated with Biomechanical Anthropometric, University of Ruse “Angel Kanchev”, 2013

Tiziano Pacini, Elisabetta de Juliis, Andrea Pacini: Thermography and Posture: The thermography allows to see the change of muscular muscles of the various body parts in real time. a person shows at the thermography investigation a muscular surface that is detectable as an image

proportional to the quantity of heat emitted by the muscles and by their work. Its usage can be studied in association with the B.A.E. method, University of Ruse “Angel Kanchev”, 2019

Tiziano Pacini, Elisabetta de Juliis, Ferdinando Pivetta, Implications of the Posture and of the gravitational field management in the Fibromyalgia and in its symptoms of pain and panic: progress test in the treatment of a 48 fibromyalgic man with the Biomechanic Anthropometric Ergonomic Method B.A.E. for 18 months, University of Ruse “Angel Kanchev”, 2019

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OCCUPATIONAL THERAPY ASSESSMENT AND INTERVENTION TO IMPROVE PLAY PARTICIPATION OF CHILDREN WITH DISABILITIES

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***Abstract:** Play has essential role in occupational therapy working in pediatric area. In order to improve participation in play of children with disabilities, the first step is comprehensive and specific assessment. Once the problems are determined reasonably, occupational therapy approaches are planned and performed individually or in group settings with the children. Important member in the process are parents, siblings, friends and peers. Occupational therapists work also very much on the influence of the environment where play takes places. The paper presents the most used methods and tools for play assessments and intervention.*

***Keywords:** Play, Occupational therapy, Assessment*

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FRI-2K.201-1-HP-08

PHYSIOTHERAPEUTIC GUIDELINES FOR THE TREATMENT OF URINARY INCONTINENCE IN WOMEN

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Abstract: *In recent years, there has been an extraordinary increase in the frequency and severity of urinary disorders and dysfunctions with a pronounced functional deficit and resulting reduction in the quality of life for these patients. It is necessary to get out of the classical boundaries of orthodox medicine and direct attention to the natural and reshaped physical factors of impact on the human organism, combined with kinesiotherapy. Urinary incontinence can affect anyone at any age.*

Keywords: *urinary disorders, natural and reshaped physical factors, kinesiotherapy.*

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FRI-2K.201-1-HP-09

THE ROLE OF CUPPING THERAPY IN SHOULDER PATHOLOGIES

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***Abstract:** The glenohumeral joint is part of the shoulder complex, which includes the clavicle, shoulder blade, shoulder bone, sternum and ribs, as well as the articular ligaments that connect and strengthen them. The large range of motion in the joint and its low congruence compromises its stability, which is a prerequisite for easy vulnerability. Pathological changes in the shoulder joint include: instability, dislocations, fractures, arthropathies and others. We'll discuss cupping as an alternative method that finds its application in complex treatment. The healing effect of the cupping therapy is due to the hyperemia and the irritation of the skin receptors. In this way, blood circulation is improved, muscle spasm is reduced, swelling and inflammation of the nerve roots are removed, skin breathing is improved, trophicity is improved, lymphatic drainage is improved.*

***Keywords:** Shoulder, Cupping therapy, Kinesiotherapy*

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THE ROLE OF THE PHYSICAL THERAPY AFTER TRAUMATIC DISLOCATION OF THE SHOULDER BY ATHLETES

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Abstract: *The shoulder joint is the most mobile joint in the musculoskeletal system. It is the most frequently luxated joint (about 45% of all joint luxations). Its stability is mostly achieved by soft tissue dynamic and static stabilizers (rotator cuff, joint capsule, glenohumeral ligaments). Limited skeletal stability and predominantly dynamic stabilization make it susceptible to luxation. Sports who are associated with heavy loads on the joints and connective tissue and are often accompanied by chronic problems. Dislocation is a condition that is more commonly seen in more contact sports such as football, rugby, wrestling, basketball, volleyball, etc. While not the most serious type of injury, dislocations can put athletes at long-term risk of more and more frequent shoulder injuries if not treated properly. The purpose of the present study is to examine the possibilities of the physiotherapy in the recovery process for athletes who have suffered this type of trauma, as well as the reduction of the risk of subsequent injuries.*

Keywords: *dislocation, shoulder, physiotherapy, sport*

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ALS – NEED FOR LONG-TERM KINESITHERAPEUTIC CARE

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***Abstract:** Amyotrophic lateral sclerosis (ALS) is known as a motor neuron disease characterized by progressive neurological symptoms, leading in most cases to disability or death. Intensive and long-term kinesitherapeutic care is important for the entire therapeutic process and for improving the quality of life of patients diagnosed with this disease. Regardless of the fact that complete recovery cannot be achieved, stimulating brain plasticity through neurorehabilitation methods, the possibility of functional motor recovery gives positive results in cases of disability.*

***Keywords:** ALS, neurodegenerative disease, kinesitherapeutic care*

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IMPORTANCE OF OCCUPATIONAL THERAPY FOR THE SPEECH DEVELOPMENT OF CHILDREN WITH DEVELOPMENTAL PROBLEMS

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Abstract: Being a multifaceted profession, by enabling people's participation in their meaningful activities, occupational therapy also plays a huge role in developing strengths in many other aspects of their personal growth, and improved communication skills is one of them. The aim of this paper is to give an overview of the main therapeutic approaches acquired in pediatric occupational therapy and their impact on children's speech and language skills.

Keywords: occupational therapy, speech and language development

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MODERN APPROACHES OF PHYSIOTHERAPEUTIC TREATMENT OF URINARY INCONTINENCE

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Abstract: Disorders in the function of the pelvic floor muscles can manifest with pelvic organ prolapse, urinary incontinence, fecal incontinence, difficult defecation, and chronic pelvic pain. Regardless of the form and severity of the condition, it affects the patient's daily life and can have consequences on his physical, financial, social and emotional well-being. Conservative management of urinary incontinence includes: (1) bladder training (based on a diary of voiding), (2) dietary and lifestyle recommendations, (3) pelvic floor muscle training with or without biofeedback, and (4) pharmacotherapy. Lifestyle changes include limiting fluid intake, reducing alcohol and coffee intake, quitting smoking, and reducing body weight. Bladder training is an important form of behavioral therapy. The goal is to increase the time between emptying the bladder and the amount of fluid it can hold. Physiotherapy uses Kegel exercises, exercises with vaginal cones, exercises to strengthen the abdominal, back and gluteal muscles. Kegel exercises are isometric pelvic floor exercises that completely target the pelvic muscles. Training with the help of vaginal cones is a specific training of the pelvic floor muscles. To hold the cone, the muscles must contract. Biofeedback uses tools to measure and provide real-time feedback on patients' physiological responses. With its help, they visualize the muscle activity, contraction and relaxation of the muscles of the pelvic floor.

Keywords: urinary incontinence, behavioral therapy, Kegel exercises, vaginal cone exercises, biofeedback

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**DYNAMICS OF ERRORS IN CLINICAL LABORATORY PRACTICE
DURING THE PERIOD OF THE COVID 19 PANDEMIC**

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***Abstract:** In modern medicine, great importance is assigned to the laboratory researches, the results of which are objective indicators for assessing the state of the organism. This gives grounds to consider the clinical and laboratory diagnostics as an important and significant part of all medical and biological disciplines. Without the results of the clinical and laboratory analysis, it is impossible to achieve an accurate diagnosis and to take effective decisions regarding the health of patients. The purpose of laboratory analysis is to minimize laboratory errors and obtain the most accurate result within certain limits, which can be used to make the necessary medical decisions.*

The challenge of Covid 19 is putting to the test in 2020-2022 the whole world, the whole global health system, specialists from all fields of medicine. The increase in the number of patients with Corona virus is straining the health systems in many countries of the world to the limit. In clinical-laboratory practice, an increase in the number of errors and inconsistencies is observed at every stage of the laboratory process, especially in the pre-analytical phase.

Despite the efforts of all healthcare professionals, it is likely that the Covid-19 pandemic will further accompany the human journey for an indefinite period of time. Covid-19 is an example of a disease that requires a multidisciplinary approach in which laboratory medicine and clinical researches are soundly established and play a significant and important role.

Keywords: Covid 19 pandemic, Clinical- laboratory errors, Clinical- laboratory practice, Laboratory medicine, Clinical and laboratory research.

JEL Codes: L10, L11

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BUILDING THE PROFESSIONAL IMAGE OF THE HEALTHCARE SPECIALIST THROUGH THE METHODOLOGY OF TRAINING

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***Abstract:** Building the professional image of the health care specialist through the health care training methodology is defined as a continuous, organized, purposeful, consistent and bilateral process.*

A process of active interaction and equal participation of the health care educator and future medical specialists, through which the trainees acquire not only a certain system of knowledge, skills and competences, but also build and develop as highly qualified specialists for the needs of health care, carriers of established for the profession, personal qualities.

The degree of assistance of the health care training methodology in the preparation of health care specialists in higher education for building their professional competences was established.

The systematic and regular self-monitoring of healthcare professionals: stimulates their awareness and independence; the critical approach to their own learning activity; provides timely feedback and information on gaps in learning content; provides an opportunity to self-monitor and assess their knowledge, skills and readiness to apply them; stimulates their independent cognitive activity.

Keywords: Build, Professional, Appearance, Healthcare Professional, Training Methodology, high school.

JEL Codes: L 10, L 13

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IMMUNIZATION COVERAGE IN RUSE REGION IN 2021 IN THE CONDIONS OF THE PANDEMIC

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Abstract: *Vaccination prophylaxis is a basic tool to fight against infectious pathology. It is a type of public policy that aims through normative regulation to establish diseases against which individuals in society must be vaccinated. Mass epidemics of infectious diseases with severe complications and high mortality such as cholera, plague, typhoid, variola, poliomyelitis, diphtheria and others have remained in the past, thanks to complex immunoprophylaxis among the population at a regional, national and global level. The elements of immune prophylaxis system, bioproduct effectiveness and immunization coverage interact dynamically to influence population immunity to vaccine-preventable diseases and govern public health.*

Keywords: *Prophylaxis, Vaccines, Diseases, Immunity*

JEL Codes: *L10, L11*

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NUTRITION AND PHYSICAL ACTIVITY IN BREAST CANCER PATIENTS

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Abstract: Malignancies, which are more than 200 types, are one of the main causes of death after cardiovascular and neurology diseases nowadays. The number of cancer patients grows every year worldwide and breast cancer still remains the most common malignant tumor among women. Although therapeutic options are improved, it still has high mortality rate. There are many clinical guidelines, recommendations and trials discussing nutrition and physical activities in patients with breast cancer. Nutrition and healthy eating habits are very important in cancer care. For this purpose we conducted an interview study. **Materials and methods:** We included 42 patients with breast cancer. Some of them were on active treatment yet and others are survivors for 5 and more years. The patients underwent interview that focused on information about eating habits, nutrition and everyday physical activities, expectations and impact on patient's quality of life. **Results:** Interviewed were 38 women and 3 men, at the age of 30 to 86, 22 of whom undergoing at the moment either operation, chemotherapy or radiation therapy. The rest 22 were survivors from the disease for 5 or more years. All the patients had different type of knowledge about nutrition in cancer disease. Women of younger age, were better informed about good nutrition and healthy eating habits during and after cancer treatment. Mainly old women and men admitted in the study, had no accurate knowledge that diet can help them live longer and had better quality of life. **Conclusions:** Good nutrition and forming of healthy eating habits is of great importance about breast cancer patients. Cancer and its treatment may cause different side effects among which are anorexia and cachexia, considered as the common cause of malnutrition. A registered dietitian should be part of the health care team. Unfortunately in our country there are not much such specialists and many of them do not take part of cancer treatment. There are no Bulgarian guidelines for clinical nutrition in cancer. Our study may provide valuable information for our patients and colleagues and can be basis for future larger investigations.

Keywords: Breast cancer, Clinical nutrition, Diet, Malnutrition, Physical activity, Survivors

JEL Codes: L10, L11

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SGLT2 - INHIBITION - A NEW HOPE FOR PATIENTS WITH HEART FAILURE

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Abstract: Many cardiovascular diseases lead to heart failure (HF). Worldwide, the prevalence of the syndrome varies between 1 and 4% of the population, and it is increased in countries with an aging population. Patients with heart failure have characteristic subjective complaints and objective signs that help us diagnose the condition. Most of people, especially those with reduced Ejection Fraction (HFrEF), have a poor prognosis, associated with increased mortality and rehospitalization, despite standard treatment. Treating patients with heart failure has been always a challenge for the doctor. The main goals of modern guidelines are: reduction of mortality and rehospitalizations, along with improvement of patients' functional capacity and quality of life. It is estimated that about 90% of patients remain symptomatic although they are on a standard therapy. In recent years, along with the standard treatment of HF with diuretics, beta blockers, ACE inhibitors, ARBs and MRAs, new therapeutic strategies with early inclusion of ARN-inhibitors and SGLT2-inhibitors have been very actively used. These medications significantly improve the prognosis and quality of life of patients with HFrEF and lead to a real revolution in the therapy.

Keywords: ACE inhibitors, ARBs, ARN-inhibitors, Beta blockers, Ejection fraction, Heart failure, HFrEF, MRAs, SGLT2-inhibitors

JEL Codes: L10, L11

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THE ROLE OF THE MEDICAL ASSISTANT IN PATIENTS WITH ACUTE RENAL COLIC

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Abstract: Renal colic is a common health complaint – it occurs in approximately 12 % of male and 7 % of female patients in the emergency department. Renal colic is caused mostly by fixed or dynamic urinary tract obstruction. The location of it largely determines the nature of the symptoms experienced by the patient. Kidney stones (nephrolithiasis or urolithiasis) are hard deposits made of minerals and salts that form inside your kidneys and can affect any part of the urinary tract. If a kidney stone becomes lodged in the ureters, it may block the flow of urine and cause the kidney to swell and the ureter to spasm, which can present with renal colic. The experienced pain is severe and sharp, felt in the side and back, below the ribs; radiates to the lower abdomen and groin; often comes in waves and fluctuates in intensity. The initial evaluation of this condition includes urinalysis, a complete blood cell count, serum electrolytes, serum urea and creatinine. Abdominal ultrasound is preferable diagnostic method for all patient groups including children and pregnant women. Noncontrast CT, KUB (Kidney, Urether, Bladder) radiography and excretory urography are also imaging studies of choice. Analgetic therapy and volume expansion are included in the management algorithm of renal colic.

Keywords: Renal colic, Kidney stones, Symptoms, Urinalysis, Abdominal ultrasound, Analgesia

JEL Codes: L10, L11

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OBSTRUCTIVE SLEEP APNEA IN CHILDHOOD

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Abstract: The syndrome of obstructive sleep apnea (OSA), in recent years, is gaining more and more popularity, in connection with its prevalence and diagnosis in childhood and the significant negative consequences on the health of adolescents. It represents a serious sleep disorder with adverse consequences, expressed in snoring, mouth breathing, cessation of breathing, frequent night awakenings. The reasons can be different, but most often in childhood they are due to hypertrophy of the tonsils, including adenoid vegetation, as well as impaired muscle tone of the muscles in the back of the oral cavity. Long-term consequences can include enuresis, behavioral disorders, attention deficit disorder, growth retardation, cardiovascular disease, and more. Worldwide, the prevalence of obstructive sleep apnea syndrome in children ranges from 1.2% to 5.7%. **The purpose** of the study is to determine the degree of awareness and behavior of students in children with obstructive sleep apnea syndrome. **Material and methods:** In the period April - September 2022, a study was conducted with 66 students from the "medical assistant" and "nurse" specialties. Statistical, documentary and survey methods were used. **Conclusions:** 77.3% of the respondents were not informed about the prevalence of OSA in childhood. 51.5% could characterize the OSA syndrome with more than one symptom. 33.3% of students would transport the child to an emergency department for specialist consultation and treatment, and 25.8% would administer medication in an outpatient setting and advise the parents to see a specialist. **Conclusion:** Sleep apnea is a potentially serious disorder in which breathing is interrupted repeatedly during sleep. The conducted study is an indicator for conducting non-auditory forms of training on issues significant for the child's health and less common problems.

Keywords: Apnea, Snoring, Sleep disorder, Child

JEL Codes: L 10, L 11

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MODIFIING ROLE OF THE FAM167A-BLK RS2736340 POLYMORPHISM IN THE DEVELOPMENT OF SYSTEMIC LUPUS ERYTHEMATOSUS

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Abstract: *The aim of this case-control study was to investigate the association between the BLK rs2736340 C/T polymorphism and the susceptibility to SLE in Bulgarian patients. Altogether 58 patients with SLE and 100 unrelated healthy controls were included in this study. The polymorphism shows no association with the development of the disease. An association was observed between the TT genotype and photosensitivity. Our results indicate that the BLK polymorphism might play a disease modifying role in the susceptibility to SLE.*

Keywords: *Healthy, BLK polymorphism, SLE*

JEL Codes: *L10, L11*

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PATIENT HEALTH LITERACY AND THE NURSING PROCESS

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Abstract: *The article focuses on major emphases of patient health literacy as an important factor in the nursing process.*

Health literacy can be defined as people's ability to access health care, understand and use information in a way that promotes and maintains their good health. Inadequate health literacy can have profound health and financial consequences. Research shows that patients with low health literacy have poorer health status; are at greater risk of hospitalization; have less knowledge about disease management and health behaviors; do not actively participate in the process of making decisions related to their health, etc.

Assessing patients' level of health literacy in the implementation of the nursing process enables nurses to provide interventions that aim to increase patients' autonomy regarding their health and making informed decisions to achieve desired health outcomes.

Keywords: *Health literacy, Nursing process, Nursing*

JEL Codes: *L 10, L 13*

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GIANT ANEURYSM OF RIGHT COMMON FEMORAL ARTERY

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Abstract: True arterial aneurysms are defined as a 50% increase in the normal diameter of the vessel. Clinical symptoms usually arise from the common complications that affect arterial aneurysms—namely, rupture, thrombosis, or distal embolisation. Although the aneurysmal process may affect any large or medium sized artery, the most commonly affected vessels are the aorta and iliac arteries, followed by the popliteal, femoral, and carotid vessels. Although abdominal aneurysms may cause symptoms because of pressure on surrounding structures, about three quarters remain asymptomatic at initial diagnosis. with the exception of vague abdominal pain, clinical symptoms usually result from embolisation or rupture of the aneurysm. We present a case of giant right AFC aneurysm in a 66 years old male after patch plastic AFC, AFS and APF 3 years ago. He takes anticoagulant therapy prescribed after operation. Now the patient presented with mild right leg pain at inguinal region from 10 days, oedema, hyperemia and pulsatile mass. Methods of diagnosis: on palpation: pulsatile mass in right inguinal region; CT-angiography show: heterodensity structure 75/92mm axial/coronal size.; Catheter angiography show: ruptured aneurysmal dilatated right common femoral artery. We tought decision for surgical treatment.

Keywords: Arteria, Aneurysm, Mortality, Treatment

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GIANT CYSTIC TERATOMA OF THE MESORECTUM IN A MALE PATIENT. CASE REPORT

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Abstract: Mature cystic teratoma (MCT) or dermoid cyst is a benign tumor originating from germ cells. Usually it arises from the ovary, but it can occur in males too, most often in the testis. In males oelvis teratomas are extremely rare. They usually present with symptoms related to mass effect in the pelvis.

We present a case of giant MCT in a 52 years old patient. The patient presented with mild lower abdominal pain and chronic constipation. On rectal digital examination a large, soft tumor mass can palpated that is not inside the rectal lumen. CT and MRI show a large cystic tumor in the mesorectum with compression of the rectum and deformity of the pelvic walls. Open surgical enucleation was performed. a drain was left in place of the tumor in the mesorectum. Postoperative period was uneventful. Liquid diet was advanced on postoperative day 1. The drain was removed on postoperative day 3. Patient was discharged on postoperative day 5. Histology turned mature cystic teratoma as diagnosis. At 6 months postoperatively patient has no complications.

Giant MCT are unusually located in male pelvis, but few cases can occur. Surgical enucleation was feasible and safe in our case and there were no complications related to continence.

Keywords: Giant mature cystic teratoma, Mesorectum, Teratoma

JEL Codes: L10, L11

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FRI-2G.309-2-MCDA-03

**CHALLENGES IN DIAGNOSING
IDIOPATHIC PULMONARY FIBROSIS**

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***Abstract:** Idiopathic pulmonary fibrosis (IPF) is part of the group of interstitial lung diseases and is a rare chronic progressive fibrosing interstitial pneumonia with unknown etiology which develops in adults. It is the most common and the deadliest. The purpose of this review is to draw attention to the process of diagnosing IPF by showing the importance of early diagnosis for treatment and therefore for improved survival of patients.*

***Keywords:** Idiopathic pulmonary fibrosis, Diagnosis*
***JEL Codes:** L10, L11*

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FRI-2G.309-2-MCDA-04

NEWBORN UMBILICAL CORD CARE

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Abstract: Cutting the umbilical cord, treating the umbilica remnant after birth until it falls off, and the umbilical wound after that are part of the routine care given to newborns. **The aim** of the present study was to investigate the care taken in handling the umbilical remnant and umbilical wound in the neonatal period. **Material and methods:** The study was conducted in June-July 2022 in the Republic of Bulgaria. The participants are neonatologists from 28 leading neonatology units in our country. Through a voluntary survey containing prepared open-ended questions, the necessary information was collected. **Results and discussion:** The usual practice is for the midwife receiving the newborn to clamp and cut the umbilical cord. The clamping of the umbilical cord is most often done towards the end of the first minute. Very rarely do parents discuss delayed clamping before birth. When performing this manipulation, the rules of sterility are observed by the service personnel. Most often, 70% ethanol is used as a disinfectant. In the daily care of the umbilical cord, some centers also use a drying cream/spray. Due to the early discharge of the newborns, a very small proportion of them don't have umbilical remnant when leaving the neonatal unit. Usually, the umbilical cord is separated between the 5th and 10th postnatal days. One of the main problems that are discussed with parents before leaving the neonatology department is the care for the umbilical remnant after discharge. **Conclusion:** The umbilical remnant care residue in newborns is unified for most neonatology centers in the Republic of Bulgaria. It is necessary to build a unified national algorithm for this, as part of routine care for newborns.

Keywords: Newborn, Umbilical cord

JEL Codes: L10, L11

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INTRACORONARY ELECTROCARDIOGRAM-GUIDED STRATEGY FOR THE TREATMENT OF CORONARY BIFURCATION LESIONS – EFFECT ON MORTALITY

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Abstract: Revascularization of bifurcation lesions remains an interventional challenge. The current study aimed to evaluate the influence of intracoronary ECG-guided revascularization strategy on the clinical outcomes of patients after coronary bifurcation stenting compared to the currently accepted standard of care. Patients with coronary bifurcation lesions who underwent percutaneous revascularization were enrolled in a prospective all-comers’ registry, and a comparison between patients who underwent intracoronary ECG-guided revascularization and those treated with a provisional T-stenting strategy was made. A total of 768 were included in the analysis - 349 patients underwent icECG-guided strategy and 419 – PTS. The overall all-cause death was 23.2% and cardiovascular death was 15.9%. Patients with icECG guidance had significantly lower all-cause and cardiovascular mortality – icECG vs PTS: all-cause mortality – 20.3% vs. 25.5%, log-rank $p=0.006$; cardiovascular mortality – 12.6% vs. 18.6%, log-rank $p=0.004$. The effect of decreased mortality was most pronounced in patients with no or moderate increase of troponin post-PCI as well as those with higher-than-normal baseline concentrations. Intracoronary ECG-guided strategy for coronary bifurcation PCI led to a decreased patient mortality when compared to the provisional T-stenting strategy. This effect was most pronounced in patients with no or moderate increase of troponin post-PCI as well as in those with higher-than-normal baseline concentrations.

Keywords: Coronary bifurcation, Percutaneous coronary intervention, Clinical outcomes

JEL Codes: L10, L11

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COMPOSITE GRAFT IN SUBTOTAL TRAUMATIC AVULSION OF THE AURICLE - CASE REPORT

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Abstract: *The aesthetic result after post-traumatic reconstruction in the area of the head and face should not be underestimated. The loss of a whole body part after trauma is leading to serious disability, poor quality of life and low self-esteem, especially in young people.*

We present a case of subtotal avulsion of the ear in young man. The patient is administered in emergency department 2 hours after the trauma. During the examination we identified multiple bruises temporally and parietally on the head, subtotal avulsion of the auricle with lobular skin pedicle, multi-fragment trauma of the cartilage, haemorrhage from the upper pole of the lesion and contamination. We performed an emergency surgery. In lateral decubitus position, under local anesthesia, multiple lavage with antiseptics and removal of the foreign bodies was done. Repositioning and fixation of the cartilage fragments. Suturing the skin with a running suture. Specific sterile bandage for fixation of the reconstructed auricle. Postoperative antibiotics and prevention of the venous congestion therapy was administered. Sutures were removed on 10th postoperative day. One month after the surgery there are no complications and the patient is satisfied with the aesthetic result.

In cases of subtotal avulsion of the auricle, in emergency conditions and lack of possibility for microsurgery, reconstruction of the auricle with composite graft is the recommended procedure in the literature. If successful and without complications, we can expect really good aesthetic result.

Keywords: *Reconstruction, surgery, Auricular avulsion, Composite graft, Emergency*

JEL Codes: *L10, L11*

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FOOD ADDITIVES-ALTERNATIVE APPROACH IN MONOTHERAPY AND ADJUVANT TREATMENT OF SOCIALLY SIGNIFICANT DISEASES

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Abstract: Plants and the biologically active substances contained in them are a new alternative for treatment of socially significant diseases in the form of monotherapy or as an adjuvant treatment to the main medications.

In ancient times the healing properties of plant extracts and a number of unlimited compounds were well known empirically, but with the advancement of medicine and pharmacotherapy they have been left behind.

Today the pharmaceutical industry is once again showing great interest in phytopreparations and natural products because of their properties. In this article are reported the pharmacoeffects of some widely distributed plant extracts and natural substances like lemon balm (*Melissa officinalis*), piperine and Magnesium in the treatment of socially significant diseases such as anxiety, depression and other dysfunctional conditions of the central nervous system and of Monakolin K, Choline and Hydroxytyrosol in the control of dyslipidaemia and hypercholesterolaemia, a major risk factor for vascular diseases

Keywords: Plants extracts, Food additives, Treatment alternative

JEL Codes: L10, L11

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CONTEMPORARY ASPECTS IN THE APPROACH TO THE TREATMENT OF NON-HEALING WOUNDS

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Abstract: *In recent years, there is a high frequency in chronic wounds with a tendency for it to increase even further, whilst the challenges for their successful treatment are complex. The most recent causes for them vary from diseases such as diabetes, vascular diseases, tumours of the skin and subcutaneous tissue, posttraumatic complications, radiation, or complications due to bedsores. It is very important that a consensus is reached in relation to the treatment of chronic wounds. It should be based on knowledge and experience, in conjunction with scientific evidence. This could improve the health of a lot of patients, and would create an economic advantage for a lot of hospitals and health care facilities.*

Keywords: *Chronic wounds, Chronic wound healing, Consensus approach, Multimodal treatment, Improvement of current practices*

JEL Codes: *L10, L11*

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**EVIDENCE-BASED NURSING PRACTICE IN THE CONTEXT OF
HEALTHCARE QUALITY AND PATIENT SAFETY**

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***Abstract:** Many European and international organizations are involved in the problems of the quality of nursing care and patient safety. In recent years, the issue of patient safety has been recognized as a key element of total quality. Despite the many programs adopted to improve quality and safety, WHO reports a significant number of deaths. In the United States and developed European countries, the nursing process, validated nursing documentation, and evidence-based nursing practice have been applied to improve the quality of health care for more than 30 years. Against the background of the personnel crisis in Bulgaria, the lack of national standards for good nursing practice, the lack of nursing documentation and a nursing process implemented in practice, the quality of health care, as well as the safety of patients, is significantly threatened. As a full member of the European Union, Bulgaria needs to synchronize the requirements for the health care system and health care with the European normative documents concerning the quality of health care and patient safety. The nursing process, as well as evidence-based practice, are science-based activities, and their implementation affirms the importance and autonomy of the nursing profession.*

***Keywords:** Evidence-based nursing practice, Standards, Nursing documentation, Quality, Safety.*

***JEL Codes:** I, 128*

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MIDWIFERY DOCUMENTATION – CHALLENGES AND NEW HORIZONS BEFORE AUTONOMOUS MIDWIFERY PRACTICE IN BULGARIA

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Abstract: Good record keeping is integral to midwifery practice and it has always been a key component of safe, effective and individualized care provision. This article explores the challenges and possibilities of implementing specialized midwife documentation as an integration tool for autonomous midwife practices in Bulgaria. The current professional framework that governs independent midwifery practice on a national level is reviewed and authors discuss available charting tools. Challenges regarding specialists' attitudes towards record keeping are explored and the importance of proper documentation is explained in the context of autonomous practice integration. An originally developed form for prenatal consultation is suggested.

Keywords: Record Keeping in Midwifery, Midwifery Documentation, Autonomous Midwife, Midwife Led Care, Midwife Documentation, Private Practice Midwife, Patient Centered Care

JEL Codes: I10

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CONFLICT MANAGEMENT METHODS IN HEALTH CARE

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Abstract: *Conflict management for Health care specialists is defined as an important factor in maintaining a positive work environment which increases quality and patient safety. It is realized by means of prevention and regulation of the development of conflict situations process with the purpose of minimizing their destructive influence.*

In the report are presented results of a self-study among students of the Master's program in Healthcare Management, Department of Health Care, "Angel Kanchev" University of Rousse of the factors for the conflicts in the Health care. In this report practical applicable strategies and methods are considered that predict, prevent, and manage the conflict at the health care specialists.

After analysis, conclusions are drawn: the effective communication is a form of conflict management in the health care; the head and senior nurse/midwife have a significant role in creating a favorable working environment without interpersonal conflicts; building a good team is of vital importance for the conflict management and for the quality of the health care provided; the study of conflicts enhances the ability to timely detection and handling of conflict factors, improves the organizational skills for the formation of a good, professional microclimate, without stress, with a desire for continuing education.

Keywords: *conflict, management, health care, methods and approaches*

JEL Codes: *I 23*

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HOSPITAL ANXIETY IN INVASIVE CARDIOLOGY

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Abstract: *The identification and management of hospital anxiety and depression are an essential part of the care of patients with cardiovascular disease. That is why the report aims to present the importance of hospital anxiety and to determine its prevalence in patients hospitalized in an invasive cardiology unit. Methods. The study included 128 patients hospitalized for elective coronary angiography. They were assessed on the hospital anxiety subscale - HADS-A before and after viewing a video film about the nature of coronary angiography, preprocedural preparation and postprocedural health care. Results. The reported changes in the results of HADS-A are in the direction of reducing the patients' anxiety, which proves that the applied intervention leads to a decrease in the level of anxiety. Conclusion. The first step to overcoming hospital anxiety is to inform and expand the knowledge of the patient. When the patient receives adequate information, presented in a way that is comprehensible to him, anxiety has less chance to prevail.*

Keywords: *HANDS, Hospital Anxiety, Invasive Cardiology, Cardiovascular Disease*

JEL Codes: *I10, I19*

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PANDEMIC AND MENTAL HEALTH

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Abstract: *The recent pandemic caused by SARS-CoV-2 has led to isolation and social distancing. Loneliness and isolation in general have been shown to be strongly associated with anxiety, depression and self-injurious behavior throughout an individual's lifetime and are accepted as risk factors for mental health during and after the imposed quarantine. At the beginning of the pandemic, people were afraid of infection and whether they would survive. Gradually, with the accumulation of experience and observation, the conclusion was reached that no less dangerous is the so-called post covid syndrome. Mainly, fear is the leading cause of damage to mental health - fear of infection, fear of life, fear of consequences, fear of income, fear of loved ones... According to the WHO definition, stress is a non-specific response of the body to any demand made on it, a response to threat, real or imagined. Panic attacks have existed well before the COVID-19 epidemic. What is specific about this pandemic is that one of the main physical symptoms of panic attacks - shortness of breath - is also one of the main signs of COVID-19.*

Keywords: *Pandemic, mental health. post covid syndrome*

JEL Codes: *I 18*

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THE NEED FOR NUTRITIONAL SUPPLEMENTS DURING PREGNANCY

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Abstract: *The intake of food by a pregnant woman is an extremely important process both for her organism and for the fetus that develops in her. During pregnancy, it is often necessary to take nutritional supplements. Due to the impossibility of a varied and specific food menu, the pregnant woman's busy work schedule, insufficient free time for food preparation, the high price of food products, the short shelf life of organic foods, the need for a different menu, frequent meals, but in small portions fresh food and many other factors. The purpose of nutritional supplements (supplements), which are concentrated sources of nutrients (vitamins, minerals, amino acids, PNMK) or other substances with a nutritional or physiological effect (probiotics, enzymes, bee products, powdered herbal plants and etc.), is a supplement to normal nutrition. They are not usually used alone as food, regardless of whether they have nutritional properties. They are used to correct nutritional deficiencies or to maintain an adequate intake of certain nutrients.*

Keywords: *Pregnancy, Nutrition, Nutritional supplements*

JEL Codes: *I10, J13*

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THE BIRTH PLAN AS A TOOL OF INFORMED CHOICE FOR THE WOMAN GIVING BIRTH

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Abstract: The mass medicalization of childbirth, led to further advocates of natural childbirth publishing best practice procedures. The WHO, includes the importance of effective communication in recommendations for a positive birth experience published in 2018. It focuses on the experience of care as a critical aspect of ensuring high-quality birth and improved woman-centred outcomes. Recommendations include, antenatal education courses for parents, informed choice and a woman's right to manage her own body, use of a birth plan as an information and education tool. Attendance at antenatal childbirth education courses led by a midwife and the development of a birth plan are associated with more vaginal births. These findings suggest that patient education and preparation for childbirth can influence how childbirth will flow, providing them with informed choices. Education and birth plans can be used as quality improvement tools to potentially reduce cesarean sections. The aim of this report is to examine the effect of the development and implementation of birth plans, during the birth process and the satisfaction of women giving birth.

Keywords: birth plan, informed choice, prenatal education, maternity.

JEL Codes: L1

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ROLE OF THE NURSE IN MENTAL HEALTH MANAGEMENT

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Abstract: *Mental health cannot be defined only as the absence of mental illness, but as psychological well-being and/or adequate adjustment in accordance with socially accepted standards of human relations. In the modern world, mental health is defined as a state of well-being in which an individual “realizes his potential, copes with the normal stresses of life, is able to work productively and is able to contribute to society. It can be said that there is no perfect mental health, but there is a drive to achieve its optimal limits. In providing assistance to patients with mental disorders, the nurse applies a variety of professional approaches and clinical thinking skills in the fields of psychiatry, therapy, infectious diseases, etc. The treatment of such patients requires an individual approach and dynamic monitoring of the patient's condition. The psychiatric nurse must possess a high level of social intelligence, since the patient's mental illness is accompanied not so much by medical problems as by many problems of a social nature. Based on the literature review, which refers to a number of sources and various authorial judgments, the indispensable role of the nurse is proven. A nurse working in a psychiatric hospital must have communication skills combined with good theoretical knowledge in the field of psychology, psychotherapy, have a high degree of empathy, kindness, responsiveness and be able to determine the appropriate care for patients by determining their individual needs.*

Keywords: *Mental health, psychological well-being, nursing, mental disorders, psychiatry*

JEL Codes: *I10, I20*

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DIABETES NUTRITION. PRINCIPLES IN PREPARING A FOOD REGIME

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Abstract: Diet is an essential element in the treatment of diabetes mellitus. The ratio of the main nutrients in the menu is determined according to the goals of metabolic control. Daily caloric intake is calculated based on body weight, physical activity, gender, profession, accompanying chronic diseases. The distribution of nutritional elements (carbohydrates, proteins, fats) is individualized depending on the patient's lipid profile, accompanying chronic diseases, kidney function, and eating habits. Adherence to the basic principles of nutrition in patients with diabetes mellitus improves metabolic control, maintains normoglycemia, and prevents chronic complications.

Key words: Principles of nutrition, normoglycemia, metabolic control, chronic complications

JEL Codes: I10, I20

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**SUSTAINABLE DEVELOPMENT OF LIFE INSURANCE RELATED TO
INVESTMENT FUNDS AND THE LIFE CYCLE MODEL**

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Abstract: Inflation and long-term low interest rates have accelerated consumer demand and a sharp shift from traditional life insurance products with guaranteed insurance amounts to equity-tied insurance. Its distinctive complexity, high costs and specific price/quality ratio, they have come face-to-face, with the ever-increasing needs and requirements of insurers for quality insurance protection and higher returns, their significantly limited knowledge and financial literacy and the necessary environmental, social and management aspects in the insurance industry that surround the whole issue. An adequate and sustainable outcome for the insured is closely linked to the balanced contribution of the life cycle model of insurance products and the proper conduct of the sales process stages by insurance intermediaries, ensuring transparency by national authorities in providing information on the integration of sustainability risks and taking into account adverse sustainability impacts on individual insurance.

Keywords: life insurance, life cycle, sustainable investment, digitization, insurance protection.

JEL Codes: G22, G23, G52, G53, Q56

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RESEARCH AND ANALYSIS OF THE FACTORS FOR SUCCESSFUL IMPLEMENTATION OF LEAN PRODUCTION IN BULGARIAN MICRO, SMALL AND MEDIUM-SIZED MANUFACTURING ENTERPRISES

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***Abstract:** This publication presents the results of a survey in Bulgarian micro-, small and medium-sized manufacturing enterprises aiming at establishing what are the main factors for a successful implementation of Lean Production. Various approaches to the defining these factors are discussed, being themselves representative publications in the world scientific literature on the subject. The questions in the survey are aimed at establishing and summarizing the reasons why Lean tools have not been implemented in Bulgarian SMEs' operations. The attitudes, capabilities and interest of different companies in the implementation of Lean are analyzed.*

***Keywords:** Lean Manufacturing, Micro-, Small and Medium-Sized Enterprises, Success Factors.*

***JEL Codes:** M11, M21*

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CONTEMPORARY SUPPLY CHALLENGES FOR BULGARIAN FURNITURE PRODUCERS

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Abstract: *The paper reviews the main contemporary challenges and problems for Bulgarian furniture producers regarding material supply. The research is based on a survey and interview of supply managers of furniture production companies in Ruse, Bulgaria. The main target is to reveal the impact of the logistic limitations caused by the war in Ukraine, COVID-19 and other global events, influencing the business processes of the furniture producers. The research focuses over the period of March-September 2022. Based on the interviews the author presents the list of activities the producers often apply to minimize the risks generated by the environment's uncertainty.*

Keywords: *Supply Chain Management, Materials, Logistic challenges*

JEL Codes: *M11, M21*

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ROLE OF BUSINESS INTELLIGENCE SYSTEMS IN THE OPERATIONAL MANAGEMENT OF PRODUCTION

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***Abstract:** In recent years, more and more companies are interested in how to introduce a new concept of organization development. How to get process information just in time. How to best support operational decision making. This concept is called Business Intelligence System (BIS) and more specifically, how to use this system to support analytics in operational decision making. The reasons for this are economic rather than technological. The BIS methodology reveals a new way to properly manage business operational processes in systems and provides information on most root causes of problems as well as analysis and suggestions for proper decision making. This in turn allows to solve and prevent future problems in organizational and functional aspects. But also contributes greatly through the application of business intelligence system to modernize the company. The purpose of this paper is to show how operational management will benefit if we implement BIS and integrate it into operational decision making.*

***Keywords:** Business Intelligence, Business Intelligence system, Analysis, Decision-Making, Management, Operational decision making, Operational review, Operational planning=*

***JEL Codes:** M13,*

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MANAGEMENT INFORMATION SYSTEMS IN BUSINESS AND IN FUTURE MANAGERS EDUCATION

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Abstract: *The paper has a scientific-applied nature and is aimed at contemporary information systems and digital devices that support managers, providing them with accurate and reliable information covering all business activities. The purpose of the report is to discuss the role of management information systems in business and in the education of students from Ruse University "Angel Kanchev". The completed research tasks (1) argue for the spread of management information systems and the importance they have in the processes of digitization and digital transformation in business and (2) present an example of using the web-based information system for comprehensive business management "bgERP" in the educational process to students who are preparing for management positions by studying in the specialties "Business Management", "Digital Management and Innovation" and "Industrial Management", educational and qualification "Bachelor" degree.*

Keywords: Management Information Systems, Business Management, Education, bgERP

JEL Codes: L86, O33

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THE MARKETING CHANNELS IN THE DIGITAL WORLD

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Abstract: Digital transformation has entered every sphere of socio-economic life at a rapid pace. The conversion of analog to digital transformed the marketing concept and it acquired digital dimensions. This transformation requires changing marketing strategies and channels to reach consumers. The digitized approach supports the achievement of market goals by business organizations. The purpose of the study is to outline the transformation of the marketing concept in the digital world and to present the main digital marketing channels and formats.

Keywords: Digital Marketing, Digital Channel, Digital Advertising, Digital Transformation

JEL Codes: M31, M37

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INTERNATIONAL TRADE IN THE CONTEXT OF AGRARIAN POLICIES

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Abstract: *Globalization processes lead to the liberalization of international trade with agricultural products, but they are balanced by the national agrarian policies of rich countries such as the common agricultural policy of the EU and others., which are protective in relation to their agrarian sectors. Developing countries, due to the strong dependence of their economies on the agrarian sector, are striving for significant liberalization. This opposition makes the liberalization of international agricultural trade slow, controversial and difficult. International trade is carried out on international markets, whose income from the trade of agricultural products and food globally ranks third after the trade in petroleum products and steel. Despite the positive prospects for the growth of international agricultural and other markets, respectively of the international trade, their depression by wars, pandemics and protective agrarian policies generates agflation and global inflation. The positives, the negatives and the contradictory nature of international trade require Bulgaria to determine its place in it, based on its competitive advantages as an exporter of certain agricultural products, respectively as an importer of others. Marketing strategies not only allow this, but also increase the export potential of Bulgarian agricultural products (cereals, bee products, etc.) on their international markets.*

Keywords: *Globalization, Liberalization, International markets, Agrarian protectionism*

JEL Codes: *Q13, Q17, Q18*

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AN APPROACH TO DEVELOP A METHODOLOGY FOR SELF-ASSESSMENT OF AN ENVIRONMENTAL MANAGEMENT SYSTEM THROUGH A MATURITY MODEL IN ORGANIZATIONS FROM THE MINERAL AND RAW MATERIALS INDUSTRY

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Abstract: This paper reviews maturity models, aiming of presenting the essence of self-assessment using a maturity model of environmental management systems as a factor for achieving sustainable development of organizations from the mineral raw materials industry in Bulgaria. a Methodology for determining the level of maturity through a maturity model of environmental management systems, according to ISO 14001, has been developed and presented. The results of the implementation of this Methodology gives confidence to all interested parties that the company works in an environmentally friendly manner, annually assesses its current level of maturity and implements activities to increase it in order to achieve sustainable development of its activity. As a future study, the practical application of the methodology will be carried out in two companies from the mining industry.

Keywords: Maturity model, Environmental management systems, Methodology, Mineral raw materials industry.

JEL Codes: Q54

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E-SERVICES IN MUNICIPALITY

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***Abstract:** The priority for e-government introduction was announced more than a decade ago in Bulgaria but the transition process is very slow, ineffective and fragmented. Each structure of public administration is facing challenges to define the customers' needs and best way to provide required services. The paper dis-cusses the problem of transition of services, provided by public administration to IT based in municipalities, examining the example of Municipality of Vidin. An analysis of types of administrative services, provided by Bulgarian municipalities is proposed. The specific of e-services is described. Based on this the way for e-service provision is defined. The services in municipality of Vidin are analysed and recommendations for improvement of the process of transition to e-services are proposed.*

***Keywords:** Administrative services, public administration, e-services, e-government*

***JEL Codes:** H19, H89*

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AN EMPIRICAL STUDY OF THE AWARENESS OF BULGARIAN SMES REGARDING THE NATURE AND CHARACTERISTICS OF LEAN MANUFACTURING

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Abstract: This publication presents the results of a survey on the awareness of Bulgarian SMEs about the essence and characteristics of Lean Production. As key participants in the Bulgarian economy, SMEs provide about 65% of the added value and about 75% of employment in Bulgaria. They are also most sensitive to the changes in the business environment. The survey was conducted among the managerial staff of the enterprises in which Lean Production has not been implemented. Conclusions and recommendations are made about the ways and means of popularizing this modern paradigm, which is part of the toolkit of the currently ongoing Fourth Industrial Revolution.

Keywords: Lean Manufacturing, Micro-, Small and Medium-Sized Enterprises.

JEL Codes: M11, M21

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POLITICAL BUSINESS CYCLE

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Abstract: *This paper reviews existing views and theories concerning the influence of the political cycle on business cycle. Political business cycle is explored with two main goals: (1) to present mainstreaming views relating political cycle to business fluctuation and (2) to identify whether the existing evidence disambiguously finds any electoral effects on fiscal policy. The report provides a review of the theories exploring the unfluence of poltically motivating fiscal decisions over the business cycle.*

The empirical evidence on discretionary fiscal policy shows that there are significant politically motivated changes in in fiscal policy. Cyclicity of elections induces periodic fluctuation in fiscal decisions implemented by governments. Incumbent parties are trying to “lure” the voters through manipulating the components of aggregate demand. The theoretical explanation of macroeconomic implications of electoral cycle is trying to encompass the main incentives and techniques, parties are using in the light of incoming elections. by doing so, they could possibly turn a countercyclical policy into a procyclical. Excessed spending could change the phase and intensity of business cycles or even giving a rise to new cyclical wave.

Keywords: *Political Budget Cycles, Discretionary Fiscal Policy, Election*

JEL Codes: *E32, E62*

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**LEARNING IN AN ONLINE ENVIRONMENT - A PREREQUISITE FOR
BURNOUT IN STUDENTS**

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Abstract: *The report is focused on the issue of the stress that is generated in students in the online learning environment. The nature, characteristics and types of stress are examined, and the so-called professional burnout state is presented in more depth. Results from previous studies, identifying stressors impacting students and pupils during online learning, are derived and compared. Maslach's method for assessing professional burnout is clarified. In the subsequent presentation, this method is used as the main tool in conducting an empirical study related to the assessment of stress levels in students of University of Ruse "Angel Kanchev" during online learning imposed by the COVID pandemic. The obtained results are analyzed. Specific guidelines for overcoming the identified higher stress levels in order to avoid reaching a state of professional burnout are presented.*

Keywords: *Stress, Online Learning, Burnout, Maslach Model*

JEL Codes: *I23*

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INVESTIGATING CONSUMER MOTIVATION IN THE ADOPTION OF A NEW PRODUCT UNDER THE CONDITIONS OF UNCERTAINTY

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Abstract: *The question related to what behavior consumers exhibit in conditions of uncertainty is extremely relevant at the present time. Therefore, the report examines consumer behavioral responses provoked by factors that generate uncertainty. The results of an empirical study aimed at researching end users from Ruse and the region regarding the perception of a new product (bio-dough snacks) are presented. It is established which motivational factors influence consumers in the process of making a decision to purchase this new for the region product by classifying potential consumers according to the Rogers model. Specific conclusions are drawn, on the basis of which recommendations are formulated, revealing possible alternatives to stimulate the generation of positive attitudes among consumers towards the new product.*

Keywords: *Consumer Behavior, Conditions of Uncertainty, Motivational Factors, New Bioproduct*

JEL Codes: *L69*

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STAFF MANAGEMENT DURING THE PANDEMIC AND CHANGES IN LEGISLATION

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Abstract: *The coronavirus pandemic has impacted the operations and put into question the future survival of many organizations worldwide. The change in the way of life caused by the new normal posed challenges to the performance of the daily work duties of the employees and tasks for the organization. These changes have an impact on certain lines of activity, which necessitates their study and management for the future survival of organizations. The spread of the disease COVID-19 at the end of 2019 led to the imposition of anti-epidemic measures that affected social life. These new measures, which were introduced and repeatedly changed, are implemented mainly in the form of new rules and restrictions introduced in various regulatory documents. In this regard, the changes in labor legislation introduced as a result of the spread of the corona virus infection and the impact they have on the activities of organizations and the management of those employed in them are of interest.*

Keywords: *Human resource management, Management decision, Pandemic situation*

JEL Codes: *M12, L13*

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SPECIFICS OF THE SUCCESSFUL INTRAPRENEUR

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Abstract: *The intrapreneurs are rather important factor for the success of any firm. They have exceptional role in the industrial companies, because of their different point of view and energy to initiate new elements in the company. Therefore, it is important to know their specifics. The purpose of this paper is to outline some of the specifics of the successful intrapreneurs from theoretical point of view. The here done research is part of a PhD research activities on the machine building companies in Bulgaria.*

Keywords: *Intrapreneurs, specifics*

JEL Codes: *L10, L11*

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THE STATE OF BEING AGILE – A CASE STUDY

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Abstract: *The turbulent external environment, the global competition, fragile demand and the increasing requirements of potential customers place a big challenge to the enterprises worldwide. The agility of enterprises offers a way to help the businesses predict the new global economic trends and makes use of crucial moments as new opportunities for development. The agility of the enterprise uses internal and external change in the environment to increase its competitiveness and thus ensures stable and profitable existence of the enterprise. One objective of this paper is to define what an agile enterprise is and how the state of agility helps enterprises be more successful. The main objective is to use a methodology to evaluate the current conditions of the dynamic business ecosystem to find out what are the driving forces pushing the enterprises to be agile. The data used in the paper is derived through a questionnaire filled by the managers of ten randomly selected industrial enterprises in Bulgaria. Analysed is that part of the questionnaire which deals with the turbulence of the external environment of the enterprises. The results show that most of the tested enterprises have challenges given by the ecosystem in which they operate.*

Keywords: *Agile, Enterprise, Industry, External Environment*

JEL Codes: *M21*

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PRODUCT DEVELOPMENT – AGILE APPROACHES FOR THE ENTERPRISE

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Abstract: *The conditions of the current financial and economic environment, prove the need for additional research and promoting new ways of organizing the product development process of enterprises. The turbulent external environment, the global competition, fragile demand and the increasing often unpredictable requirements of potential customers place a big challenge to the enterprises worldwide. The agility of enterprises offers a way to survival, development and growth potential in this highly turbulent business reality. It helps the business to predict the new global economic trends and makes use of crucial moments as new opportunities for development. The agility of the enterprise uses internal and external change in the environment to increase its competitiveness and thus ensures stable and profitable existence of the enterprise. The agile methods of product development help the enterprise generate rapid and continuous innovation in order to manage the changing priorities in the pursuit of meeting the customer's expectations.*

Keywords: Agile, Agility, Product Development, Agile Manufacturing

JEL Codes: M21

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CONSTRUCTION PERMITS AND THE BUSINESS CYCLE. THE CASE OF BULGARIA

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Abstract: *This paper examines the relationship between new construction permits and GDP change in Bulgaria. We use descriptive statistics and bivariate tests to find out if construction permits can be used as an early predictor of developments in the business cycle. Conclusions are drawn about the applicability of this approach on the regional level, where data about GDP is publicly available only on an annual basis and fluctuations in economic activity are more difficult to detect.*

Keywords: *construction permits, economic growth, Bulgarian regions, housing market*

JEL Codes: *E01, E32, E37, R31*

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CONCEPTUAL FRAMEWORK FOR THE ECONOMIC EVALUATION OF FULLY-SUBSIDISED PUBLIC TRANSPORT IN THE MUNICIPALITY OF RUSE, BULGARIA

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Abstract: *In this paper we do a selective survey of the introduction of a fare-free public transport system in several European cities and draw conclusions about the possible effects of a similar hypothetical policy measure in the city of Ruse, Bulgaria. In order to achieve this goal, we propose a conceptual framework to identify the possible stakeholders, as well as the positive and the negative consequences from such a measure. Its implementation should be based on clear data-driven criteria and preliminarily specified conditions to determine it as successful*

Keywords: *Public Transport, Transport Policy, Fare-Free Transport, Bulgaria*

JEL Codes: *L99*

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**KNOWING, UNDERSTANDING, AND CONVERSING.
THREE GEOCOMMUNICATION CASE STUDIES FROM ASIA. APPLIED
PERSPECTIVE.**

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***Abstract:** The text analyzes processes, not events; development is a phenomenon shaping the common face of Japan, China and India, the three Asian countries included in this study, and outlines regionalism as a reality. Obviously, if the Cold War has radically changed the pre-WWII world order and led to its bipolarity, if the post-Cold War has imposed the image of a unipolar world due to globalization, today a new, equally radical change is in progress to a multipolar world, where those countries, achieved state independence in the first phase, and have developed national economic prosperity in the second, are already striving to position their Selves on the big chessboard of the international communication not as pawns, but as global powers.*

The analysis is a part of a bigger project examining the politics-media-development nexus of Japan, China, India and 15 other countries from the so-called Far East.

***Keywords:** Geocommunication, Developmentalism, Power, Perception, National Interest, Regionalism.*

***JEL Codes:** D83*

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CROSS-CULTURAL MARKETING RESEARCH AS A TOOL IN STUDYING CONSUMER PSYCHOLOGY ACROSS BORDERS

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Abstract: *Cross-cultural marketing research is a relatively new direction of cross-cultural research. Marketers introduce cross-cultural research methods in studying consumer psychology. The paper introduces cross-cultural marketing as a concept and presents an overview of the most popular cross-cultural research methods in marketing. Multiculturalism in marketing is defined by catering to culturally diverse groups of consumers, based on national culture characteristics. The text presents the newest contributions to value orientations theories and how they are related to cross-cultural marketing research. The work focuses on research approaches applicable to multicultural environments of consumers, located in different countries.*

Keywords: *cross-cultural marketing, cross-cultural research, consumer psychology, cultural diversity*

JEL Codes: *M31, M39*

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**MAN + MACHINE – PROSPECTS AND READING
CAPACITY IN FINANCE**

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***Abstract:** This paper examines risks and opportunities concerning financial asset management and stocks. When an economic possibility appears, new players are included into the market. Based upon previous cumulation of data experts can see a broader picture, therefore the probability of starting businesses live expectancy estimate can get more precise. New models including age description, behavioral patterns and seasonal specifics can give advantage over traditional forecasting methods. The expanded machine learning capacity changed the landscape of investing. In a not too far distant future the investment firms can provide grants for specific startups and even be involved in founding new businesses due to precise evaluation of forthcoming public needs.*

***Keywords:** Stocks, Cumulation of data, Investing*

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**TENDENCIES OF THE REGULATORY AND LEGAL BASIS OF THE
SOCIAL RESPONSIBILITY OF BUSINESS AND SOCIAL INVESTMENT**

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***Abstract:** The modern development of CSR in our country coincides with the transition to building a market economy and social democracy. In order for CSR in Bulgaria to become not a temporary trend, but a law for business behavior, as in Europe and the USA, a complex of legislative initiatives and additional stimulating measures are needed.*

At the beginning of the third decade of the XXI century, the role of business in the social life of the country increased. Its influence on the social, economic and social spheres is becoming more and more noticeable. Therefore, it is important to analyze the possibilities and methods of the state regulation of social responsibility, first of all, from the point of view of the design of CSR and SI institutions.

***Keywords:** Corporate social responsibility, Social investment*

***JEL Codes:** M1, M14*

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IMPACT OF CONTROLLED ANXIETY AS A WAY OF DEALING WITH STRESS IN HIGH SCHOOL STUDENTS

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Abstract: Human resources are the main factor for the successful innovative policy of the organization. The development and the consolidation of human capital is a key problem and a significant prerequisite for the competitiveness of organizations in the industrial and tertiary economic sectors. The behavior of human resources under different levels of anxiety and the degree of their creative productivity in organizations in terms of their creativity and innovation is a topical topic in the scientific space. In this regard, a social experiment was conducted, through which the behavior of human resources was observed at different levels of anxiety and the degree of their creative productivity in terms of their creativity and innovation. The aim of this report is to present and analyze some of the results of this primary social experiment. The report presents the results of only one group of participants from the conducted research - secondary school students completing specialization after secondary education.

Keywords: Anxiety, Human Factors, Creativity, Innovation, Innovation Process, Management.

JEL Codes: I12, I23

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FRI-1.322-1-SW-03

METHODOLOGY FOR TRAINING STUDENTS AS PART OF THE DISCIPLINE: BASICS SOCIAL WORK (HISTORY AND THEORY)

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Abstract: *In social work as a science, the knowledge and methods of many sciences are used, for this reason it is said that this science has an interdisciplinary character. As a scientific and academic activity, social work is relatively new for Bulgaria. The preparation of students in the "Social Activities" specialty is important and fundamental for the future development of budding specialists in the field of social work. Professional training of graduates of the specialty provides the necessary theoretical and practical knowledge, as well as forms skills that will contribute to a wider professional realization in the field of social activities of any type.*

The purpose of the report is to present modern methods and approaches which are applied to teaching of students at the universities. The methodology presents some types of exercises and the basic requirements for their structuring.

Keywords: *social work, methodology, training methods, student, objects of social work, methods of social work.*

JEL Codes: I23

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FRI-1.322-1-SW-04

EFFICIENCY AND EFFECTIVENESS OF APPLICATION OF SPECIAL SEISMIC PROTECTION METHODS

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Abstract: *The report presents a serious and painful problem of our time - codependency. a codependent is any person who has allowed themselves to be influenced by another person's behavior and is obsessed with the idea of controlling that person's behavior. The motives are often ideal, altruistic, born of care and love in order to satisfy his needs. This approach is extremely inappropriate because while the incentives are right, the actions are wrong. Life with an addict is difficult and full of daily challenges. Often, the means of codependency are a reaction of self-defense and lead to disruption of relationships, cause pain, and, if no measures are taken, self-destruction. Psychosocial work with co-dependent persons is essential for preserving the psycho-emotional state of the co-dependent person himself and his ability to provide help and support to the addict himself. The report reviews the manifestations and characteristics of codependency and the stages of its development. There are intermediate steps to deal with the condition through individual and group psychosocial work.*

Keywords: *alcohol dependence, co-dependence, psychosocial work*

JEL Codes: *I12; J10*

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FRI-1.322-1-SW-05

**GEOCOMMUNICATION.
THE NEW COMMUNICATION.
THEORETIC PERSPECTIVE (PART ONE)**

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Abstract: *International communication is a public communication of survival and predominance. It is a communication of pros and cons, of Self vs. Other. So, its image is of a systematic relation process between status quo and change, dialectically interconnected.*

The notion of geocommunication was not born of geopolitics and geoeconomics, though associated to them. It comes from the perception of communication as the fourth fundamental human activity¹. It is worked on three basic pillars: sociotechnological, intercultural and image-making communication.

Model of Geocommunication opens into radical dynamic changes of human communication algorithm in the 21st c. It introduces some terms, new for the Bulgarian Media Studies, such as geocommunication, mass Self-communication, holistic communication, etc.

It aims to provoke a debate on the transformation of Marshall MacLuan’s powerful notion Media is the Message into Message is the Media in a time when mass Self-communication occurs to be a serious communicative opposition to the mass Media-communication. It aims to provoke a debate on the transformation of Marshall MacLuan’s powerful notion Media is the Message into Message is the Media in a time when mass Self-communication occurs to be a serious communicative opposition to the mass Media-communication.

Keywords: *Geocommunication, Message, Image-Perception, Image-Reception, Nationalism, Cosmopolitanism.*

JEL Codes: D83

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¹The other three are *production, reproduction and recreation*; communication as the 4th one is an activity with an welding effect and without it no one of the rest or their products may function.

FRI-1.322-1-SW-06

A FRAMEWORK FOR ESTABLISHING AN OBSERVATORY FOR SOCIAL INNOVATIONS AND INTERACTIONS: THE CROSSROAD OF THE DIVERGENT AND CONVERGENT APPROACH IN RECONSIDERING COMMUNITY ECOSYSTEMS

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Abstract: *The paper aims to present the observatory model as a tool for successful interaction between different and often contradicting in their needs, expectations, and ideas stakeholders in regional ecosystems. An overview of the "observatory" concept and its application is made to rethink community policies, ensuring active involvement in all stages, from the design to the implementation, monitoring, and control. Based on the remaining foreign practices in the USA, Honduras, Brazil, as well as EU countries of establishing and developing different community-oriented observatories to reconsider or improve the management of existing ecosystems, the paper proposes a general model for designing a regional observatory for social innovations and interactions as part of the regional eco-social system. It also provides guidelines for its establishment and development. The author comments on the model in terms of digital transformation trends and their effect on applying the approach of the social observatory. The paper is an output of implementing "A study of regional potentials for development of socially innovative ecosystems in terms of digital transformation," financed under the Scientific Researches Fund"- a research project of the Faculty of Business and Management at the University of Ruse "Angel Kanchev."*

Keywords: social observatory, innovation, interaction, eco-social system, digital transformation

JEL Codes: C31, O35, Q56, R58

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FRI-1.322-1-SW-07

METHODOLOGY FOR EVALUATION OF SOCIAL ACTIVITIES' AWARENESS IN HOSPITALS

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Abstract: *The application of social activities in hospitals is directly related with quality of healthcare services and patients' wellbeing. There is a need of well-established relationship between the medical team and social workers for timely and adequate social services and activities provision. What is the state of art in Bulgarian hospitals and if the patients can obtain all necessary social services? to answer this question, we developed a methodology for inquiry among medical staff in hospitals. We evaluated their awareness about available social activities in hospitals and, cooperation with social workers. The inquiry was held among 171 representatives of medical staff in Bulgarian hospitals and we found out that there is not sufficient knowledge about the role and functions of social workers in hospitals. Some recommendations about qualification improvement are provided.*

Keywords: *Social activities, social work, hospitals, social services, training*

JEL Codes: *I19, I31, M53*

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TEACHING AND LEARNING FOR SUSTAINABLE DEVELOPMENT GOALS (SDGS) THROUGH STUDY CASES

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Abstract: *The complex global economic situation, as a result of the Covid'19 pandemic, is reflected in various challenges facing the world economy. The education system has also been under pressure to live to the numerous obstacles. The aim of this paper is to present real case from the practice of Bulgarian companies in the field of the shoemaking production industry with its strengths and barriers faced in the process of its active work. The information on the industry profile, the specifics of the company data and the state of the company policy of the Government in Bulgaria is up-to-date and is extracted from official documents, company records and interviews during the survey. During the last two years of on-line education, giving the opportunity to students to be an active part in the developments of study case was one of the instruments partially to overcome lack of internships in firms. One of the case studies used was "Ingilis Group" - luxury shoes that turn green", is going to be presented in the next pages.*

Keywords: *Corporate Social Responsibility, Sustainable Development Goals (SDGs); Responsible Education*

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FRI-1.322-1-SW-09

A MODEL FOR INCLUSIVE EDUCATION OF STUDENTS WITH SPECIAL NEEDS AT UNIVERSITY OF RUSE, BULGARIA

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***Abstract:** The paper presents the model identified at University of Ruse, Bulgaria, Department of Management and Social Activities for inclusive education of students, such as: students with special needs because of physiological or mental problems, students with disabilities and students with traumas caused by family problems, violence and others. The main thesis of the paper is that the interest of such students towards studies in the area of social work and public health is provoked by their disadvantaged position and a special approach is needed in order to guarantee their successful professional realization after their graduation. The paper presents an overview of the national and European regulations in the field of inclusive education and gives some recommendations to the respective authorities for the improvement of the normative base and social practices.*

***Keywords:** inclusive education, students with disabilities, traumatic behavior.*

***JEL Codes:** I20*

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MANAGING THE CATEGORIZATION AND SOCIAL SIGNIFICANCE OF SPECIES DIVERSITY IN THE UNIVERSITY BOTANICAL GARDEN

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Abstract: *The paper reviews the species diversity of the Subdivision Gymnosperms in the University Botanic Garden. A botanical garden is a place where plants are grown, categorized and documented for scientific purposes. Plant species are presented with their names according to internationally recognized botanical nomenclature. A search for diagnostic characters in the taxonomic literature found limited studies on the morphology of the subdivision Gymnosperms. Most often, data refer to individual species or smaller taxonomic groups. Plants are described following the APG IV classification system in divisions, classes, families, genera and species. The additional information about the plants is presented via a QR code, including information on the origin and global distribution of the species, general category of use, interesting facts.*

Keywords: *botanical garden, biodiversity, Gymnosperms*

JEL Codes: *I23, L38, M14*

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FRI-1.414-MIP

FRI-1.414-MIP-01

**AN APPLICATION OF TIME SERIES FOR FORECASTING THE PRICES
OF FINANCIAL INSTRUMENTS**

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***Abstract:** In this paper, technical analysis of 10 financial instruments is performed. Based on historical data, the standard deviations of the rates of return and the correlation matrix between them are estimated. Time series and in particular ARIMA models are considered to forecast the prices of the considered instruments.*

***Keywords:** Time Series, ARIMA, Price Forecasting.*

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FRI-1.414-MIP-02

THE BETA COEFFICIENT AS A VOLATILITY INDICATOR IN THE PORTFOLIO MANAGEMENT THEORY

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Abstract: In this paper, the volatility of a certain share is described, and the beta coefficient is introduced as a significant measurement of the market volatility. The beta coefficient is presented graphically and mathematically, and an easier formula is derived to make smoother and time-saving the process of making financial strategies. Further, the standard deviations, the rates of return and the coefficients of correlation are calculated from the data for the period 01.10.2021 – 30.09.2022. After that, the beta coefficients are calculated, and a comparison is made both Bulgarian companies – Alterco JSC and Speedy JSC.

Keywords: Beta Coefficient, Volatility, Benchmark, Asset's Return, Rate of Return, Profitability, Portfolio Management Theory, Risk.

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FRI-1.414-MIP-03

**METHODOLOGY FOR TRAINING TEACHERS IN INFORMATICS AND
INFORMATION TECHNOLOGIES FOR IMPLEMENTING STEM
EDUCATION IN SCHOOL**

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***Abstract:** Students' skills in science, technology, engineering and mathematics (STEM) are becoming an increasingly important part of basic literacy in today's knowledge economy. The methodology described in the article is applied to Informatics and Information Technology teachers in order to train them to apply STEM education in selected elective robotics classes.*

***Keywords:** Education, Stem, Training teachers.*

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OBSERVATION AND ASSESSMENT OF THE QUALITY OF LEARNERS' KNOWLEDGE USING MIND MAPS

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***Abstract:** The present article examines the possibility of using electronic mind maps as a tool for quality control of students' knowledge and proposes a model for evaluating the structural component, which includes a set of methods for evaluating different aspects of the quality of training. For its practical application, an algorithm for quantitative analysis is needed, as well as the need to write down a set of evaluation criteria and a methodology for its application - the subject of an upcoming study.*

***Keywords:** Information technologies, Mind map, Teaching, Interdisciplinary, High school.*

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A COMPARATIVE ANALYSIS OF TEST CONTROL IN COMPUTER MODELING AND INFORMATION TECHNOLOGY TRAINING

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***Abstract:** This article presents a comparative analysis of different types of test control in assessing the acquired knowledge and skills after completing the study section "Creating and processing a graphic image" of students from the junior high school stage. Emphasis is placed on Google's cloud technologies and their use in computer modeling and information technology education.*

***Keywords:** Teaching, Test control, Assessment, Cloud technologies.*

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FRI-1.414-MIP-06

IMPROVING THE STUDENT ASSIGNMENT GRADING SOFTWARE SYSTEM AT THE UNIVERSITY OF RUSE

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Abstract: *The paper describes the business analysis process for the assignment, covering and completion of student education system assignments, as well as parts of the process itself. The necessity for improving the process and creating a robust architecture for the management of historical data, as well as creating monitoring reports and systems for better control is analysed and realised. A critical part of the created software system - meaning its' inclusion to the whole university infrastructure, and synchronising the data flow through a secure message bus is described. The iterative approach to the creation of the system is presented, as well as some of the improvements – both technological, and those related to the logical business process evolution. Most common troubles and feedback are analysed and improved upon. The results of increasing student grade coverage, as well as the impact of introducing the system into the infrastructure are presented.*

Keywords: *Education, Web, Software Architecture, Databases, Business Analytics, Service Bus (RabbitMQ).*

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FRI-2G.305-PP

FRI-2G.305-PP-01

**PROSPECTS BEFORE FULL FUNCTIONING OF AUTODIDACTIC GAME
IN KINDERGARDEN**

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***Abstract:** Play and games are important for child's development. They occupy a significant place in preschool education programs. However often in pedagogical practice teachers offer to children didactic exercises instead of games. Especially when it comes to autodidactic games. The aim of current paper is to offer perspectives before full functioning of autodidactic game in kindergarden. Therefore, there are analyzed essential characteristics of autodidactic game, namely: victory, variability, imaginary situation, game signaling. their presence in the gameplay will enhance its educational and developmental effect.*

***Keywords:** Children Game, Autodidactic Game, Essential Characteristics of Autodidactic Game.*

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KNOWLEDGE OF CHILDREN'S RIGHTS THROUGH THE EYES OF STUDENT TEACHERS

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Abstract: from kindergarten to high school graduation, children study topics related to knowledge of children's rights as set out in the United Nations Convention on the Rights of the Child. to a large extent, knowledge about rights is accumulated at every stage of the school period, and its provision is woven into various academic disciplines. Teachers inform about children's rights, as they are obliged by Ordinance No. 13 of 21.09.2016 on civic, health, environmental and intercultural education to form consciousness and virtues in children; to create individuals who understand and uphold common human values.

This report presents the results of a survey conducted among 2nd-year students, majoring in Social Pedagogy, Elementary School Pedagogy with a Foreign Language, and Preschool and Elementary School Pedagogy about the motivation for studying the subject Rights of the Child, part of the curriculum for the OKS Bachelor and the need to knowledge of children's rights. Questions related to knowledge received in secondary education, as well as ways of providing it, are discussed.

Keywords: children, child rights, issues, convention.

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PRINCIPLES AND METHODS OF DISTANCE EDUCATION OF ADULT LEARNERS

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Abstract: *The paper reviews the adult education as an important element of lifelong learning. Lifelong learning is a concept that represents the continuity of the learning and education process and refers to a range of formal and non-formal learning activities, both general and vocational, undertaken by adults after completing initial education and training.*

Adults seek training for a variety of reasons: to improve their employment prospects; to develop personally or professionally; to acquire advanced 'transversal skills' such as critical thinking and problem-solving skills; to improve social cohesion and promote active citizenship.

The pandemic and the digital transition have accelerated lifestyle changes, which in turn require people to update their knowledge, skills and competences to fill the gap between their education and training and the demands of a rapidly changing job market.

Keywords: *E-Learning, Knowledge, Skills, Adult learners.*

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TRAINING AND PROFESSIONAL SUPPORT FOR SOCIAL ASSISTANTS PROVIDING CARE AT HOME

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Abstract: *The global population ageing rate is much faster than in the past. People around the world, today, are living longer. Every country in the world is seeing an increase in both the number and proportion of older people. Countries face major challenges to ensure that health and social systems are ready to cope with this demographic change. Home care is at the heart of this, allowing people to age in place and keep their families intact. The challenge for professionals is to find ways to respond to the coming crisis by providing high quality care in the home environment. At the heart of home-based care is an understanding of the needs of consumers on the one hand and carers on the other. Social assistants provide a variety of services to users beyond direct care activities. Services include family support, consumer counselling, listening, crisis intervention and much more. Working as a social assistant requires a lot of training and support from different professionals all the time. But are they getting that training and that professional support?*

Keywords: *Home care, social assistants, training, professional support.*

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PRINCIPLES FOR CONSTRUCTING AND APPLYING MICRO-LEARNING TECHNOLOGY IN THE DISTANCE TYPE OF EDUCATIONAL INTERACTION

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Abstract: *The report is devoted to the analysis of the transformation of education under the influence of the process of digitization of society. The development of new information and communication technologies leads to the need to modify the digital educational environment. There is a need to improve training methods and approaches. Therefore, it is particularly important to improve the methods and approaches to training by constructing and testing training programs based on the current concepts of the individualization and differentiation of the didactic process. World practice shows that one of the particularly effective approaches in this direction is the use of modular training and, in particular, micro-learning as a phenomenon of the digital transformation of education. Microlearning is an aspect of the concept of modular personalized pedagogical interaction and is perceived as an innovative educational format of programmed learning. The report describes the essence of this current trend in the field of application of distance learning, an analysis of the advantages, disadvantages, areas of application and tools for creating effective educational resources based on the possibilities of microlearning is made.*

Keywords: *Innovative educational technologies, Distance learning, Interactivity, Micro-training, Micro-course, Micro-employment, Digitalization, Digital transformation.*

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PEDAGOGICAL INTERACTIONS FOR SENSORY DEVELOPMENT IN PRESCHOOL CHILDREN

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Abstract: *Sensory education is a system of pedagogical interactions aimed at forming the ways of sensory cognition and improving sensory processes, i.e. formation of methods for sensory knowledge and improvement of sensation and perception. Preschool age is the most favorable period for intensive sensory development and upbringing of adolescents. The general level of sensory education and development at this age depends on the inclusion of the child in learning about the surrounding world.*

The authors emphasize the exceptional role of sensory education at this age, as a foundation for all other types of training and activities, as well as for successful socialization, which in turn begins precisely from this age period. The report presents effective forms, methods and resources for developing the sensory skills of children of preschool age, through a system of pedagogical interactions aimed at forming the ways of sensory cognition and improving sensory processes, i.e. formation of methods for sensory knowledge and improvement of sensation and perception.

Keywords: *Sensory, Effectiveness, Pedagogical Methods, Model, Preschool Education's, social and cognitive skills.*

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EXTRACURRICULAR ACTIVITIES IN BULGARIA - A CONDITION FOR THE FORMATION OF STEM SKILLS AND COMPETENCIES IN THE PUPILS

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Abstract: The publication describes the interaction of leisure institutions. An analysis of national normative documents is carried out, which indicates the methodology for the selection and implementation of extracurricular activities, which take place as a priority in thematic areas of the main STEM fields – ‘Digital creativity’, ‘Natural sciences’, ‘Mathematics’, ‘Technologies’. Participation in them supports the development of students' key competencies in mathematics, informatics, natural sciences, and technology while supporting their professional orientation.

Keywords: extracurricular activities, STEM, key competencies, primary school.

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FUNCTIONS AND PRINCIPLES OF DIDACTIC ANIMATION IN THE EDUCATION OF PRIMARY SCHOOL STUDENTS

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***Abstract:** Didactic animation is a relatively new approach that is gaining more and more popularity in pedagogical theory and practice. It is appropriate for its use in teaching primary school students, who at this age need joyful experiences related to both learning and play, which is still a desirable and important activity in their daily lives. The fun, curiosity, fun and attractiveness accompanying the animation approach increase the motivation of students to do academic work, attract their attention and inspire them. As a result, adolescents are casually and actively involved in educational and cognitive activities. The successful application of didactic animation in the learning process in primary school depends to a large extent on getting to know its functions and guiding principles. Therefore, the main purpose of this report is to reveal the functions and principles of didactic animation. They are derived as a result of approved lessons in the education of Bulgarian language and literature students in the second grade, based on the animation approach.*

***Keywords:** didactic animation, animation approach, functions, principles, learning, elementary school.*

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DIGITAL PLATFORMS AND MOBILE APPLICATIONS FOR PHYSICAL AND SPORTS ACTIVITY

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***Abstract:** The use of mobile apps and digital platforms to track physical activity and sports activities was introduced even before the COVID epidemic. But the period of forced isolation had its impact on the need to improve electronic means and forms.*

Specialized platforms for learning, training, teaching and refereeing have been introduced in different sports. with the improvement of motor and technical-tactical skills, software programs are created and improved.

In this report, we will present a comparative analysis of mobile applications and digital platforms for some types of sports.

***Keywords:** Comparative Analysis, Digital Platforms, Mobile Applications, Fitness and Exercise Apps, Physical Activity, Sports.*

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FRI-2G.305-PP-10

ENERGY IS ETERNAL, ENERGY IS EVERYWHERE, ENERGY IS ENDLESS

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Abstract: *The paper reviews the effectiveness of teaching hours in an electronic distance learning (EDE) setting due to he imposed anti-epidemic measures in February-March, 2022. The results of an integrated lesson are presented, which includes studies drawn from the works of world-renowned scientists and developed by students of the 10th and 12th grades. The aim was to investigate the effectiveness of an integrated lesson, including the subjects of physics, with teacher M. Stoyanova, English language and folklore - E. Kopcheva, music and English language Dragomir Mitev, and chemistry and biology - with teacher V. Stoyanova.*

Keywords: *E-Learning, Integrated lesson, Knowledge, Skills.*

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FRI-2G.305-PP-11

THEORIES OF THE PROFESSIONAL AND CAREER DEVELOPMENT

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Abstract: This scientific material explores the variety of theories, exploring the PCD. The structural theories of professional and career development, which focus on the individual characteristics of the person and its professional responsibilities. This category includes theories developed by Frank Parson, John Holland, as well as socioeconomic theories. The second category of theories refers to individual human development. Theories about professional and career development are oriented towards the biological, psychological, sociological and cultural aspects of the choice of the career by the individual. Among them are the interrelationships between the stages of development (childhood, adolescence, maturity) and the professional dynamics of man.

Keywords: Theories of Professional and Career Development, Personal Development, Leadership, Social Development, Social Roles.

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FRI-2G.305-PP-12

ORIGIN OF THE CONCEPTS OF SOCIAL GENDER IDENTITY IN BULGARIA AND WORLDWIDE

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***Abstract:** The paper reviews existing educational, philosophical, psychological and political concepts and ideas about the phenomenon "social identity" in Bulgaria and in another countries, which are involved in searching pedagogical optimizing strategies, influencing over the contemporary educational process.*

***Keywords:** Social Identity, Education, Comparative Analyze, Historical Review.*

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PROFESSIONAL GENDER ASYMMETRY IN THE EDUCATIONAL SYSTEM

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***Abstract:** The paper reviews analyse of the existing situation in professional and career gender asymmetry in the Bulgarian educational system the report presents an analysis of statistical data regarding the gender distribution of academic professors and teachers, as well as strategic documents addressing gender equality at the national and international level.*

***Keywords:** Professional and Career Development, Professional Asymmetry, Educational System, Contemporary Aspects.*

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TRENDS AND INNOVATIVE APPROACHES IN PROFESSIONAL AND CAREER GUIDANCE

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Abstract: *The paper reviews existing innovative approaches and techniques for professional and career guidance. As information technology develops, their application is also growing in terms of career guidance. A number of examples resulting from the scientific and empirical development of the disciplinary field can be drawn. The purpose of this report is to examine and describe some of them. There had been observed the Fuzzy Analytic Hierarchy Process, the IoT-theory, the DLEI influence over the process of professional guidance.*

Keywords: *Professional and Career Guidance, Approaches, Trends, Effectiveness, DLEI.*

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BULGARIANS' SENSE OF HUMOR EXPRESSED BY IRONICAL AND JOKEY PHRASEOLOGISMS

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***Abstract:** In Bulgarian language there are many ironic and jokey phraseologisms (= phraseological unit = PhU), in which, along with their purely evaluative meaning, we find a smart expression of Bulgarians' sense of humor. This sense of humor is undoubtedly a reflection of Bulgarians' attitude to reality and originates mostly from their worldview. Therefore, in the context of this subject-matter, it is quite interesting to study the Bulgarians' sense of humor, understood through the prism of phraseology and as a reflection of Bulgarian national mentality.*

***Keywords:** Ironic and Jokey Phraseologisms, Bulgarian Language, humor.*

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**SUBJECT LAYER OF THE LITERARY CONCEPT *FAITH*,
OBJECTIVIZED IN THE BULGARIAN DRAMAS OF THE BEGINNING
OF THE TWENTIETH CENTURY**

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Abstract: *The article presents a cognitive-stylistic analysis of the subject layer of the literary concept faith, linguistically represented in Bulgarian dramas from the beginning of the twentieth century. Observations on the excerpted material show that the subject layer of the considered concept is encoded by sound, visual and tactile signs that are related to the actualization of faith as a belief in the real existence of God and as a creed, religion. The done cognitive-stylistic analysis reveals not only the content of the concept faith, but also contributes to the study of the Bulgarian literary picture of the world.*

Keywords: *cognitive stylistics, literary concept, subject layer, cognitive-stylistic analysis, faith.*

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ON SOME ASPECTS OF THE CULTURAL MODELS OF THE FESTIVE TRADITIONS, RITES AND RITUALS OF BULGARIANS AND POLES

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Summary: The study presents aspects of the cultural models of the festive traditions, rites and rituals of Bulgarians and Poles with regard to the value systems of these two peoples. It highlights parallels and contrasting patterns, sheds light on issues such as the autonomy, specific characteristics as a result of interaction, different ways of continuity, the effect of ideology, religion etc. The indicators are: conservatism, social function, relations and attitude to family and kin, autonomy, coherence and comparability of the worldview.

Key words: cultural models, rites and rituals, festivities, Bulgarians, Poles.

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IVAN SHISHMANOV – THE REFORMER AND THE BULGARIAN EDUCATION

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Abstract: Prof. Ivan Shishmanov is the Bulgarian intellectual, who served the Bulgarian socio-political and cultural life as a devoted man of science and as a statesman for 40 years. He was only 28 when he worked on the Law on Public Education of 1890, during the mandate of Minister Georgi Zhivkov. Later he was a minister in the same Ministry (1903-1907). with his educational policy, which is the subject of this research paper, Prof. Ivan Shishmanov proves that the educational factor has an enormous impact in the modern state and for this reason, he had been working as a real master on the institutional construction of Bulgarian culture, education and science. The ideas of the professor in Bulgarian studies Ivan Shishmanov for the schools in Bulgaria have their modern projections in Bulgarian education today.

Keywords: Ivan Shishmanov, education, programme, reforms, school, teacher.

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THE IMAGE OF WOMAN IN “WOMEN’S PORTRAITS” BY EMANUIL POPDIMITROV

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***Abstract:** The text focuses on the specific ways in which Emanuil Popdimitrov constructs women’s characters in his famous poetic cycle “Women’s Portraits”. Although the genre of the portrait presupposes representation of a person which captures the characteristic features of His/Hers personality, Popdimitrov’s “Women’s portraits” are not exactly portraits and not quite “women’s”. They use women’s figures only to depict the experiences of the lyrical subject. The text surveys the features of the physical portrait and the influence of the secession aesthetics in women’s representations in order to show that the main aim of the poet in his “Women’s Portraits” is to aestheticize the image of woman and to depict Her as symbol of beauty and perfection.*

***Keywords:** Emanuil Popdimitrov, “Women’s Portraits”, women’s character, aestheticization, secession aesthetics.*

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FRI-2G.309-LL-06

BULGARIANNESS ACCORDING TO SONGS DEDICATED TO THE NATIONAL FOOTBALL TEAM

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Abstract: *The paper examines the self-presentation of national characteristics and symbolism according to songs dedicated to the Bulgarian men's national football team. To date, four songs created in the period 1986–1998 gained popularity in the country. The analyzed texts are undoubtedly transferring rhetorical strategies of songwriters and producers, and due to the participation in the World Cup tournaments in Mexico (1986), USA (1994) and France (1998) they reflect the feelings of unity, satisfaction and hopes of the public, perceived as a collective, people or nation. The Bulgarian football team is revealed either as an emanation of the community, its spirit and qualities (on the basis of sameness between the nation and its sports team), or as the consolation of the nation (on the basis of the opposition 'poor people – exceptional team'). The most significant model of Bulgarian communal valuing turns out to be the maintainance of the National Revival symbolic system with an emphasis on sacrifice and the figure of the hajduk. The research clearly shows that by the end of the 20th century Bulgarians continue to present themselves as junaks (folk heroes), while the nation is thought of in the categories of common people.*

Keywords: *football song, Bulgarian national team, bulgarianness, national self-presentation, World Cup songs.*

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MUSICAL ENVIRONMENTS IN REALITY TALENT SHOWS

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***Abstract:** The report explores the methods of creating musical environments in TV reality talent shows, reflecting the cultural and regional specifics, political situation, and audience parameters. The research is based on the authors' professional experience, TV Bibles documentation, as well as international profiles studies. It contains three segments: 1. Reality shows prerequisites for occurrence and first examples. 2. Music environment in talent shows; 3. Musical repertoire in singer competitions.*

***Keywords:** Reality Television, Content creating, music.*

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SOME FEATURES OF THE HUMAN AUDITORY SYSTEM

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Abstract: *The human auditory system has enormous capabilities for perceiving and processing sound signals. Modern three-dimensional surround systems have been developed using in-depth knowledge of the features and conditions of human hearing. This essay discusses a few pschoacoustic regularities that affect human auditory perception.*

Keywords: *psychoacoustics, absolute hearing thresholds, differential hearing thresholds, loudness, critical hearing bands*

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TO SENSE THE SPACE AND SOUND

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***Abstract:** The paper reviews experimental approach and results used in two master classes "Spatial sound scene" (associate Prof. Elena Trencheva PhD; associate Prof. Valeria Krachunova Popova, PhD) and their attempt to achieve audio-visual product by using space as a visual environment defined by the perception of sound and vice versa - sound as a sound environment defined by the perception of space. The paper covers the aspects connected to the possibilities to impact and change these perceptions when both environments are combined in one product/film; the interaction of the visual and sound departments to make a good symbiosis and a unified message of the final product.*

***Keywords:** Design, Sound Design, Experimental, Post Production, Recording, Audio mixing.*

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GUIDO ADLER'S IDEAS OF “MUSICAL CHIAROSCURO” AND “ACOUSTIC PERSPECTIVE” IN THE CONTEXT OF HIS CONCEPT OF STYLE AS WELL AS THEIR RECEPTION IN CONTEMPORARY MUSIC THEORY

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***Abstract:** This piece of research examines Guido Adler's ideas of “musical chiaroscuro” and “acoustic perspective” set forth in his work “Style in Music” regarding performance as an aspect of his concept of style. The exposition presents the author's views and comments on certain aspects of the ideas formulated while also tracing their reception in modern understanding of musical space. A conception is put forward for the application of “musical chiaroscuro” and “acoustic perspective” in the context of current developments in performance theory and performance practice.*

***Keywords:** theory of musical style, performance style, musical space, performance.*

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MUMBLECORE: FEATURE FILMS IN THE DOCUMENTARY AESTHETIC

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Abstract: *The paper reviews mumblecore’s characteristics of a specific art movement in cinema. Born out of the desire of filmmakers lacking a sufficient budget but eager to tell film stories, the movement has successfully developed in the digital age, where filming technology is more accessible than ever. with a major focus on the characters’ inner world, told through their everyday lives, the movement appears as an alternative to spectacular blockbuster films. Aiming to create a sense of realism, mumblecore films use the aesthetics of documentary cinema. The main components of these films are the acting and the plot. They are usually made with a very low production budget, making them very suitable for filmmakers in countries with a very limited budget for cinema. At the same time, those films allow an impactful presentation of important social and cultural issues. The mumblecore films found their place on streaming platforms, where they generate high viewership.*

Keywords: *Mumblecore, Low-budget films, Film directing approaches, Feature, Documentary.*

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DEVELOPING MUSICAL LITERACY IN CHILDREN THROUGH CLASSICAL GAME APPROACHES, ORIGINAL MUSIC GAMES AND DIGITAL EDUCATIONAL RESOURCES

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Abstract: *The focus of the article is to present the author 's model of musical literacy. It is based on the idea of gamification, using didactic materials created by children, i.e., puppets and toys that are constructed on the principle of LEGO toys. The created versions are attractive for children, and a pre-arranged colour code allows the performance of a particular melody that can be played on traditional and non-traditional musical instruments. The process of making the puppets and toys by children is seen as a creative act that would contribute immensely to their further involvement in play actions. This would also facilitate the formation of attitudes and a deeper perception of the puppet as a partner in play and communication.*

Keywords: *Music education, musical literacy, play, composing, educational resources, puppet.*

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STEM: SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

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Abstract: *STEM is a broad term that groups together four academic disciplines: science, technology, engineering, and mathematics. STEM education is the teaching of science, technology, engineering, and mathematics in an academic context. Instead of training students in any one of these domains, STEM combines all four in an interdisciplinary and applied approach, to better equip students to have a career and consider real-world applications. You'll find STEM in all levels of education, from school curriculums, college subjects, and university degrees, right through to CPD courses and professional certifications. These four subjects are typically taught through hands-on learning and real-world projects – enabling students to prepare for a job in this growing field. STEM is an umbrella term that covers a range of subjects, and many academic disciplines that fall under this category. There are many skills you'll gain from studying STEM. STEM classrooms typically focus on project-based learning. Projects and activities conducted usually involve modern technology to accentuate the practical applications of science in the near future. Students get to apply the various domains of STEM in a context that helps them realize a connection between the classroom and the world around them. In order to be minimized by the effects of pandemic, teaching staff of universities should be trained to use pedagogical and digital methods for active students and instruments that support the development of the student's personal knowledge. Through STEM, students develop key skills including: problem solving, creativity, critical analysis, teamwork, independent thinking, initiative, communication, digital literacy. In this paper we will present the DigiSTEM project. The objective is to promote innovative utilization of educational technology, learning analytics and use of open educational resources (OERs) in online, classroom and blended learning, especially in HEIs STEM subjects.*

Keywords: *STEM education, educational technology, learning analytics, open educational resources.*

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QUALITY RESEARCH OF THE MOTIVATIONAL PROGRAM ON EMPOWERING SENIOR'S VOLUNTEERISM

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Abstract: *The article presents an education awarding program developed under the Erasmus+ project "Keep going, reach goals, get an award: empowering senior volunteerism" (GGA, No. 2020-1-LT01-KA204-077966; <https://gogetaward.eu/>). Its concept is similar to the Duke of Edinburgh's Award, an international program for young people. The Award Program means motivating seniors for volunteering, helping them to find purpose in their later life, set new goals, reach them, and get an award to validate their efforts and personal achievements. Research on the quality of the program in Bulgaria, Lithuania, Slovenia, Latvia, and the Netherlands shows that it can be successfully implemented in non-formal education providers such as third age universities, libraries, adult education centres, cultural houses, local communities, small local enterprises, and volunteer accepting organizations.*

Keywords: *volunteerism, volunteers, award program, seniors.*

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INTEGRATING INTERACTIVE TOOLS IN MATHEMATICS EDUCATION

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Abstract: *The usage of interactive materials in mathematics education opens new opportunities for teachers to present it as funny and interesting. Combining classical and modern methods in teaching allows to achieve a better dynamic, both in learning and in communication between a teacher and students. Selecting the right resources leads to increased student achievement, student satisfaction, and teacher satisfaction as well. Digital tests and quizzes also bring a significant benefit to students - they are checked much faster, which means faster feedback.*

The paper presents the platforms Kahoot, Quizizz and TeacherMade for tests developing, which are suitable for practice and homework, as well as for ongoing control of knowledge. Using them allows greater flexibility in the preparation of the tests themselves and different possibilities such as mixing questions and/or answers. The atmosphere in the classroom when the students solve such a test is significantly different from the usual tension after the distribution of question papers in public tests - there is euphoria, "awakening" and competitive spirit.

Examples of Kahoot, Quizizz and TeacherMade tests are given.

Keywords: *Kahoot, Quizizz and TeacherMade, online tests, Geometry, innovation.*

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- <https://quizizz.com/>
- <https://teachermade.com/>

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TEACHING SYSTEM EQUATIONS BY USING GEOGEBRA

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Abstract: Innovative educational technologies are a necessity dictated by the dynamic development of society. their usage implies creation of new learning environment with such an organization that stimulates and motivates the students, making the lesson more dynamic, provoking interest, which is the basis of their activity.

Systems of equations are an important part of algebra, which is studied in the 9th form of general education in mathematics. Systems of linear equations with two variables and systems of quadratic equations with two variables are represented in the training course. Students learning several methods of solving systems of equations - by substitution, by addition, as well as how to graphically represent the solution to systems of linear equations. This learning material may not be of interest to each student; therefore, some great help definitely includes innovative technologies such as GeoGebra.

This present paper introduces the platform GeoGebra for solving graphically system equations. Modern teaching resources can support the work of teachers, especially when keeping the student's attention is a difficult task. Teachers can visualize the answers of system equations using GeoGebra. New technologies are a particular interest to students, and if they are adequately included in education, they can only support it.

Keywords: GeoGebra, graphics, system equations, new technologies.

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A MODEL OF STEM - LESSON

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Abstract: *The paper presents a model of STEM lesson. The STEM approach, through which inter-subject connections are successfully mastered, also contributes to increasing the activity and interest of students and learning the content, is described.*

In Vth grade, the usage of a calculator is also considered - lesson "Using a calculator. Applications." Students have basic knowledge of working with a calculator from math lessons in IVth grade, as well as conditional operators in block programming.

An example of a STEM lesson "Using a calculator. Applications", is described. It's for new knowledge and underlines the practical usage of addition of decimal fractions, order and properties of operations, by solving problems with a calculator. The specificity of the lesson predisposes to combining the lesson with Information Technologies, named "Creating and using a calculator".

Keywords: *STEM lesson, Maths, innovation.*

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ENTERTAINING PROBLEMS FROM GRAPH THEORY

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***Abstract:** The article describes how Graph Theory can be presented in an easy, accessible and engaging manner to secondary school students and thereby increase their motivation to learn the science of Mathematics. Basic theoretical knowledge from this theory is introduced in a student-friendly form. a system of entertaining tasks with drawings and solutions has been developed. New ways of visualization using modern technologies are proposed.*

***Keywords:** Education, Graph theory, Entertaining tasks, Graph, Graph-tree, Vertices, Edges.*

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FRI-2.116-ERI-07

APPLICATIONS OF GRAPH THEORY AND ITS ROLE IN TEACHING MATHEMATICS

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Abstract: Graph theory is widely used in various fields of human activity such as flight planning, suggesting an optimal route for movement, speeding up data transfer, event planning, surfing the Internet, marketing in social networks. These activities are described in order to motivate students to study the discipline. The role and importance of Graph Theory in mathematics education are explored. A student-friendly introduction to the theory is offered through the Königsberg Bridges problem.

Keywords: Education, Graph theory, Application of Graph theory, Social media marketing, Odd edges, The Königsberg Bridges problem.

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FRI-2.116-ERI-08

INCLUSION OF EARLY LANGUAGE LEARNING AS COMPULSORY IN PRESCHOOL

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Abstract: Early foreign language learning is becoming an increasingly fundamental role in the ability to speak and learn foreign languages throughout our lives. This article analyzes the need for the introduction of foreign language training as mandatory in preschool groups.

The proposal comes after a detailed study of the number of preschoolers for four consecutive school years, in a particular kindergarten, comparing how many of them attended and how many did not attend an additional pedagogical service, English. The data presented by the survey show that most parents are aware of the need for the early introduction of foreign language learning, but still remain part of them who have not realised the need for initial learning in a foreign language in the preparatory groups of the kindergarten. The current development addresses the issue of the lack of equal start for children in their foreign language education, entering the first grade of school education. On the basis of the State educational requirements and standards for the learning content in a foreign language, the authors of the article present arguments in support of the need for an equal start and the consequences of the late introduction of the foreign language into school.

Keywords: Foreign language learning, Motivation, Education, Equal start, English language, Learning, additional pedagogical service.

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FACES OF PLANE SHAPES IN MS EXCEL BY USING A CERTAIN INTEGRAL

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Abstract: *In mathematics classes, bachelor students are taught to calculate certain integrals using a specific abstract symbolism. This development proposes the inclusion of computers in the computing process, which facilitates a deeper and lasting absorption of basic concepts, methods of solution and stimulates the interest of the learners. The proposed approach of teaching in IT classes prepares the students to successfully apply their knowledge of mathematics to solve practical tasks and participate in experimental studies of professional problems. Through appropriately selected examples, they gain an expanded understanding of what they have learned in the mathematics, with opportunities to solve entire classes of tasks of a given kind and their application in different spheres of life. The visual presentation of solutions, using graphical computer capabilities, contributes to a more durable absorption of the studied material, mastering key concepts and concepts in both mathematics and IT. The examples of training used with interdisciplinary commitment make the learning process easier and more fascinating, it is possible to automate the numerical calculations and output their graphical representation in a very short time.*

Keywords: *Faces of Plane Figures, Definite Integral, Interdisciplinarity, MS Excel.*

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FRI-2.116-ERI-10

USE OF CLOUD TECHNOLOGIES FOR TRAINING IN MATHEMATICS OF TALENTED STUDENTS AND ADMISSION AFTER FOURTH GRADE IN HIGH SCHOOLS OF MATHEMATICS

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***Abstract:** The article presents the possibilities for using cloud technologies for creating digital learning resources and for conducting online tests in the teaching of mathematics in fourth grade. Through the use of the Google applications, digital learning resources have been developed, which are used through a created digital classroom. Emphasis is placed on Google applications and their ability to be used in math education.*

***Keywords:** education, mathematics, pedagogy, training, cloud technologies, talented students, fourth grade.*

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FRI-2.116-ERI-11

APPLICATION OF THE FIVE-LEVEL MODEL OF TEACHING MATHEMATICS ON THE TOPIC OF GEOMETRIC PROGRESSION AND IT'S PROPERTIES

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***Abstract:** This paper presents Geometric progression and its properties. This topic is a part of the Progressions module, which is included in the compulsory Mathematics curriculum in the 10th grade. The Five-level Mathematics teaching model suggested by A. Lecheva has been applied. The model's stages are described and relevant examples and tasks have been selected. The developed methodology is applicable for both traditional and distance education.*

***Keywords:** Progressions, Geometric progression, Five-level teaching model*

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FRI-2.116-ERI-12

THE TOPIC OF GEOMETRIC PROBABILITY IN PLANE AND SPACE IN SCHOOL MATHEMATICS

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***Abstract:** This paper presents Geometric probability in plane and space. It is suitable as introduction, developing the knowledge and skills of students in the module Elements of the probability theory and statistics, included in the Mathematics curriculum in 11th grade. The used teaching model allows interaction not only between the teacher and the students, but also between the students themselves. The developed instructional materials can be easily adapted for distance education.*

***Keywords:** Geometric probability, Five-level teaching model, Mathematics competence.*

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FRI-2.116-ERI-13

THE TOPIC OF PROBABILITY OF THE SUM OF COMPATIBLE EVENTS IN THE 9TH GRADE MATHEMATICS CURRICULUM

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Abstract: *This paper presents the Probability of the sum of compatible events. Relevant examples and tasks have been selected to demonstrate the theory behind it. The solutions have been presented analytically and graphically. The topic is part of the module Elements of the probability theory and statistics, included in the compulsory Mathematics curriculum in 9th grade. The presented teaching method contributes to the development of constructive thinking, the ability of expressing thoughts, the ability to clearly and precisely structure knowledge, the ability to communicate with others and self-expression.*

Keywords: *Probability, Probability of a sum of compatible events, Five-level teaching model.*

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**CREATING E-TESTS IN MATHEMATICS IN 8TH GRADE FOR DISTANCE
LEARNING IN AN ELECTRONIC ENVIRONMENT**

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***Abstract:** The article examines the difficulties that students face when learning irrational numbers and presents two tests on the topic of square root in the 8th grade. The tests are implemented using the online form creation tool Google Forms.*

***Keywords:** School education, distance learning in an electronic environment.*

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APPLICATION OF THE “GEOGEBRA” PLATFORM IN THE TEACHING OF SOLIDS IN 5TH AND 6TH GRADES

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***Abstract:** The report examines the use of the “GeoGebra” platform in the teaching of solids in 5th and 6th grades. The possibilities of the offline platform for working in class and for checking knowledge are described.*

***Keywords:** School education, GeoGebra.*

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FRI-2.116-ERI-16

BASIC METHODS OF SOLVING TRIGONOMETRIC EQUATIONS STUDIED IN SCHOOL

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***Abstract:** The article discusses the main types of trigonometric equations studied at school and methods of solving them. Each described method is illustrated with examples. their advantages and disadvantages are presented and practicable recommendations are made.*

***Keywords:** School education, trigonometric equations.*

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FRI-2.116-ERI-17

EXTREMAL PROBLEMS IN GEOMETRY OR HOW SIGNIFICANT IS THE CHOICE OF THE PARAMETERS

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***Abstract:** The paper deals with finding extremes for geometric models that could arise in geometric optics, instruments design, construction, shipping, etc. The essentials of such kind of problems are among the set of geometric objects to choose one whose particular element (segment, angle, area) is minimal or maximal. The key role in the investigation is the choice of the parameter with respect to which the particular element has evaluated. It is interesting to note that the choice of the parameter is not unique and often there is no reason in choosing it. Generally speaking, if the corresponding function that evaluates the particular element with respect to a parameter is too complicated for extremes examination it is better to choose another parameter. The most efficient (according to the authors) solutions are presented to some examples as well as other choices of the parameters are commented in subsequent remarks since it is not initially known which one of the parameters will bring to the efficient (or possible) solution.*

***Keywords:** Geometric models, Finding of extremes, Parameterization.*

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JUDEO-CHRISTIANITY AND CHRISTIAN ZIONISM

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***Abstract:** The terms "Judeo-Christianity" and "Christian Zionism" have a long and controversial history. The adjective "Judeo-" was coined to denote a hybrid phenomenon, such as identifying the Yiddish language as "Judeo-German" or "Judeo-Polish". The term is widely used (in French as well as in English) to refer to the early followers of Jesus who opposed the apostle Paul in wanting to limit Jesus' message to the Jews. They bring to the fore their demand in God's message that Jewish law and ritual be maintained. In this way, "Judeo-Christianity" began to sound synonymous with two of the Abrahamic religions, viz. God's conversion to all who are at the same time followers of Judaism, with its already established canons, and to the newly emerging Christianity*

***Keywords:** Religion, Christianity, Judeo, Zionism, Messianism*

***JEL Codes:** Z28*

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***Abstract:** The study compares two periods of European (in)security on the grounds of post-Second World War and post-Cold War diachronic analysis. Conclusions provide synthesis of similarities and differences.*

***Keywords:** European security, European defence, European army, war and peace*

***JEL Codes:** F52, F53*

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THE HYBRID THREATS OF THE 21ST CENTURY – DEFINITION AND MEANINGS

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Abstract: *This paper presents and discusses some points of view about the hybrid warfare and hybrid threats nowadays. The different meanings of the concept “hybrid warfare” are presented and analyzed on the basis of topical publications in the field. All examples in the paper are connected with the recent geopolitical situation and its reflection on the global security.*

Keywords: *Hybrid Warfare, Hybrid Threats, Cyber Security, Global Security.*

JEL Codes: Z28

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CHALLENGES RELATED TO ADMISSION OF INTERNATIONAL STUDENTS IN BULGARIA: A CASE STUDY FROM BRIE²

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Abstract: *The paper examines problems related to admission of foreign candidates to Bulgarian universities. The obstacles are of political and legal character. All of them are demotivating for candidates and impact negatively recruitment. The paper explores a particular case study with a candidate from Eritrea who has applied for the master program European Studies and Public Administration at Bulgarian-Romanian Interuniversity Europe Center (BRIE). The centre was founded in 2002 and has provided education for more than 200 students from 16 countries.*

Keywords: *International Education, Degree Recognition, International Relations.*

Jel: F59

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FRI-2G.510-1-ESIS2-01

**FOUNDING AND DEVELOPMENT OF
INTERNATIONAL ELIAS CANETTI SOCIETY**

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***Abstract:** The paper explores International Elias Canetti Society (IECS). The INGO was founded to preserve the cultural legacy of Canetti. In the course of its development its profile has expanded to include management of cultural events, civic education, research and publishing. The analysis is based on data, collected from annual reports, archive of IECS, media publications. The findings provide a synthesis, related to the added value of the organization for strengthening of civil society in Bulgaria and Europe-wide. .*

***Keywords:** civil society, transnational civil society*

***Jel:** A13*

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CLAIMS OF (NON-)DISCRIMINATION BY THE TURKISH LINGOCULTURAL COMMUNITY IN BULGARIA

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Abstract: *In the period from 1878 to 1989 the Turkish linguocultural community in Bulgaria experienced both discrimination and non-discrimination practices, incl. a complete isolation within a so called vazroditelen process. After 1989 in the context of western foreign policy orientation of the country, a new model of governance of cultural diversity was adopted. Important reforms were implemented such as restoration of names, representation in parliament, opportunity to practice one's own religion and traditions, use of "mother tongue", etc. The paper finds out, that today representatives of the community are more likely to state, that practices of discrimination decrease, and those of non-discrimination increase.*

Keywords: *Cultural diversity, Turkish linguacultural community, Discrimination, Non-discrimination.*

Jel: A13

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**POTENTIAL OF EU MULTI-LEVEL GOVERNANCE
FOR STRENGTHENING THE PROTECTION
OF CULTURAL DIVERSITY IN BULGARIA**

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***Abstract:** Multi-level governance (MLG) is the practice of identifying and solving various societal problems through coordination between the decision-making bodies and civil society at three territorial levels in the EU – supranational, national and sub-national (regional and local). The paper explores policies related to protection of cultural diversity and identifies the potential of MLG to strengthen their positive impact on the Turkish linguocultural community in Bulgaria.*

***Keywords:** Cultural Diversity, EU Multilevel Governance.*

***Jel:** A13*

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EUROPEAN TERRITORIAL COOPERATION AND TERRITORIAL CAPITAL

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Abstract: *a previous publication analysed EU cohesion policy as a territorial approach to development. It concluded, that the policy aims at the achievement of two terminal goals (economic&social cohesion, territorial cohesion) and one instrumental goal - territorial cooperation. This paper continues the conceptual analysis. It argues, that the political framework of European territorial cooperation (1) enables the identification of territorial capital and (2) harnesses the identified territorial capital to deliver cohesion policy outcomes.*

Keywords: *European territorial cooperation, territorial capital, cohesion policy*

JEL Code: *Z18*

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FRI-2G.510-1-ESIS2-05

**READING PRACTICES IN THE DIGITAL ERA.
DOWNLOADING AND COPYING OF BOOKS IN THE CONTEXT OF THE
DILEMMA INTELLECTUAL RIGHTS - ACCESS TO CULTURE**

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***Abstract:** The paper explores the major changes in society due to the upsurge of digital technologies embedded and impacting the social and cultural context of everyday practices. The transformations of cultural consumption and reading practices in particular are one side of the coin. On the other side are the changes in public relations that ground the so-called economy of knowledge and call for a new concept addressing the universal right of access to culture. Representative empirical data for the adult population of Bulgaria are presented in the paper that reflect practices of downloading and copying book, including the illegal use of free intellectual resources. Analyzed data highlight key perceptions that could navigate the discussion and help build a balanced strategy that is both inclusive for society and protective for authors and publishers.*

***Keywords:** culture, books, reading practices, digitalization*

***JEL Codes:** Z18*

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2022 ELECTIONS IN ITALY: HOW THE FAR-RIGHT USED POPULIST NARRATIVE TO WIN THE ELECTION?

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***Abstract:** This paper aims to answer the question how the far-right political parties in Italy used populist narratives to win the 2022 elections. This election result likely means that Italy will have its first far-right government since the end World War II. Pre-election promises of coalition partners pose a significant threat to Italy’s democratic standing and its commitment to European values. The paper argues that right-wing leaders in Italy, namely Giorgia Meloni and Matteo Salvini successfully used anti-elitist, anti-democratic and anti-European sentiment among Italian voters in order to gather electoral support. The paper attempts to make a prediction on whether the far-right coalition will maintain its conservative positions or it will turn progressively to the mainstream, as it is often the case for far-right populist parties once they become part of the ruling government.*

Keywords: Populism, Italy, Elections

JEL Code: A19

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FRI-2B.313L

FRI-2B.313-1-L-01

**THE REMUNERATION OF THE PEOPLE'S REPRESENTATIVES IN THE
PRINCIPALITY/KINGDOM OF BULGARIA (1879 – 1944)**

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***Abstract:** The article examines the issue of the evolution of the various payments owed to the deputies in the Bulgarian parliament in the period from the beginning of the formation of the new Bulgarian statehood to 1944.*

***Keywords:** constitutional right; parliamentarism, history of Bulgarian law.*

FRI-2B.313-1-L-02

THE RIGHT OF LABOUR IN THE CONTEXT OF ECONOMIC RIGHTS

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***Abstract:** Economic rights include the right to work, to an adequate standard of living, to shelter, as well as the right to a pension if one reaches a certain age or is disabled. Economic rights reflect the fact that human dignity requires a certain minimum level of material security. One of the most important economic rights is the right to work for every person. Labour is exercised through human ability called labour power. Labour force or ability to work is the sum of physical and mental abilities available to an individual. But it is not labour power per se, but its application that matters for labour law.*

***Keywords:** Economic rights, right of labour, labour power*

***JEL Codes:** J20, J60, J80*

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

THE MEASURE OF LAW AS THE FOCUS OF LEGAL VALUES

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Abstract: *The measure is a substance of Law. It provides the sharing energy of law. It is a volume concept of The Philosophy of Law and legitimate the sense and the content of law. It contains justice, equity, proportionality, liberty, synallagmaticity in realizing of public relations.*

Keywords: *Measure of law, Philosophy of law, General theory of law, law sense, justice, equity, liberty, proportionality, synallagmaticity.*

FRI-2B.313-1-L-04

ABOUT THE DIFFERENCE IN THE NOTIONS – “FACT FROM REALITY”, “NORMATIVE FACT” AND “LEGAL FACT”

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Abstract: *There is a controversy in the legal theory regarding the notion of “fact”. Essential to its understanding is the distinction between the notions of “normative fact”, “fact of reality” and “legal fact”. The current mixing of the mentioned concepts leads to difficulties in the understanding of fundamental theoretical notions. Legal practice, for its part, uses the terms permanently and relatively without contradictions.*

The present report has two purposes: to analyze the substantive characteristics of three two types of notions and to bring out the essential features of the fact from the reality, the normative fact and the legal fact.

Keywords: *fact from reality, normative fact, legal fact, understandings, perceptions*

JEL Codes:

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FRI-2B.313-1-L-05

STUDIES ON THE LEGITIMATION OF THE STATE

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***Abstract:** a group of teachings that investigate and presents the grounds that legitimize the state. They have as their subject the meaning of existence of the state, deriving its mission and role. These studies are oriented towards social values, as legitimizing foundations. In this regard, the justification of the state is the derivation of its mission related to the preservation of the social community.*

***Keywords:** State, Mission, Social values, Legitimize*

FRI-2B.313-1-L-06

**THE DISCIPLINARY RESPONSIBILITY OF CIVIL SERVANTS IN THE
PRINCIPALITY OF BULGARIA**

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***Abstract:** The article analyzes the regulations regarding the disciplinary responsibility of civil servants in the Principality of Bulgaria (1879 – 1906). Within the mentioned period, three successive laws for civil service officials functioned.*

***Keywords:** civil service, disciplinary liability, Principality of Bulgaria.*

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

**ON THE PRIVILEGE OF THE FIRST RANKED CANDIDATES IN THE
LISTS FOR PARLIAMENTARY ELECTIONS**

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***Abstract:** The paper discusses on an actual issue – the preferential voting in parliamentary elections in Bulgaria and especially the privilege of the leaders in the lists of candidates to receive all non-preferential votes for themselves. The author makes a short review of the development of preferential voting in the contemporary Bulgarian legislation and states her opinion on the matter.*

***Keywords:** elections, National Assembly, preferential voting*

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

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

SCHENGEN LAW AND THE AREA OF FREEDOM, SECURITY AND JUSTICE IN THE EUROPEAN UNION

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Abstract: *The Maastricht Treaty (signed on February 7th, 1992) provides that the Member States are resolved to facilitate freedom for movement of persons while providing higher level of security and safety for their people. This is a step further for opening common borders between the states and, thus, establishing the internal market as an area without frontiers where freedoms for movement for persons, goods, services and capital is ensured. First attempts were made in 1984 by signing the Saarbruecken Agreement between France and West Germany for gradual abolition of border checks on the common Franco-German border, and – above all – Schengen Agreement from 1985 between France, West Germany, and BeNeLux on the gradual abolition of checks at their common borders. The efforts toward more freedom in cross-border movement are related to necessary measure to safeguard public order and public security. This is why the above mentioned agreements provide cooperation between competent authorities in the fields of visa and immigration policy, and combat of transfrontier criminality. So, all further acts to these goals are later called “Schengen acquis”, and they establish the Schengen area as a symbol of free movement in crossing common borders and compensatory control on external borders, as well as approximated national policies in certain fields – e.g. visa, asylum. to the beginning of 2000s the accession of majority of EU Member States to these legal acts is a fact.*

The Amsterdam Treaty (from 1997) integrates these achievements into the European Community competences and makes significant reform to the third EU pillar. Visa, asylum and immigration policies are moved to the first pillar (integration) and within the third pillar remain police and judicial cooperation in criminal matters. Till the time of entry into force of this treaty most of the old Member States of the Union have been accessed to the Schengen agreement and the Convention for its application.

Finally, the Treaty of Lisbon revokes the three pillar system of the EU and proclaims the area of freedom, security and justice as an integral part of the Union’s policies defined and developed via rules of the Treaty for the functioning of the Union – Art. 67-89. The area is now based on the policies of free movement of persons (where lack of internal border control is provided to the citizens), immigration and visa and asylum (oriented to third countries nationals) and police and judicial cooperation in criminal matters (with the aim to combat criminality that affects the interests of more countries), and civil justice cooperation (where access to justice and mutual recognition of judicial acts on civil matters is provided).

Keywords: *European integration, European Community, Area of Freedom, Security and Justice, Schengen Agreement, Maastricht Treaty, Amsterdam Treaty, Lisbon Treaty, external border control, internal marker, freedom for movement of persons, immigration, asylum, police and judicial cooperation in criminal matters, judicial cooperation in civil matters, Frontex, Europol, Eurojust, European Prosecutor’s Office, Eurodac, Schengen Information System*

JEL Codes: *L10, L11*

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

THE AGREEMENT IN ADMINISTRATIVE SANCTION PROCEDURE

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***Abstract:** The administrative violation is an offence of the established order of the state government. It is a public act of danger. Because of that it is necessary to engage the administrative responsibility of the violator. This is achieved by imposing an administrative sanction. The administrative sanctions are imposed by competent bodies. a new condition in administrative sanction procedure is the agreement between the competent body realizing administrative sanctions and the violator. The aim of agreement is to conclude the administrative sanction procedure more quickly.*

***Keywords:** Administrative violation, Administrative sanction, Procedural Law on Administrative Sanction, Agreement, Administrative liability*

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FRI-2B.313-1-L-10

**PRECLUDING EFFECT OF THE FORCE OF RES JUDICATA,
ARISING FROM THE COURT DECISION ON CHALLENGING
AGAINST AN ADMINISTRATIVE ACT**

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Abstract: The paper examines the precluding effect of the force of res judicata, arising from the court decision on challenging an administrative act, in perspective of its addressees and subject matter.

Keywords: Precluding Effect, Res Judicata, Administrative Procedure.

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

TAX SOVEREIGNTY AND GLOBALIZATION

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***Abstract:** The paper outlines the changes in the mechanism of exercise of tax sovereignty as a result of economic, political globalization and digitalization. New economic and political realities require new concepts of the nature, limits and dimensions of tax sovereignty. Global interdependence increasingly requires mutual synchronization of national legal orders. The lack of coherence between national taxation systems often leads to a state of deregulation with respect to potential tax objects and the use of this situation for tax avoidance by companies. In the global world the approach of coordination by the assessment and collection of taxes increasingly prevails over that of subordination.*

***Keywords:** tax, sovereignty, globalization, digitalization, decentralization, coordination, cooperation*

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

**THE CONCEPTS OF TAX SOVEREIGNTY AND TAX JURISDICTION IN
INTERNATIONAL TAX LAW**

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***Abstract:** The paper examines and compares the concepts of tax sovereignty and tax jurisdiction, which are fundamental in international tax law. These concepts are inextricably linked and quite often considered as interchangeable, but closer examination reveals their specificities. It is concluded that tax sovereignty expresses the supreme, principle authority of the state to assess and collect taxes on its own territory, and tax jurisdiction – a legal form of practical realization of the state's powers in the field of taxation within a fiscal territory.*

***Keywords:** sovereignty, jurisdiction, power to tax, legal order, fiscal territory, international tax law*

FRI-2B.313-1-L-13

**COMPETENCE OF THE MUNICIPAL ADMINISTRATION OFFICERS
REGARDING THE ASSESSMENT, SECURING AND COLLECTION OF
LOCAL TAXES**

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***Abstract:** According to Art. 4 of the Local Taxes and Fees Act, Local taxes shall be assessed, secured and collected by municipal administration officers according to the procedure established by the Tax and Social-Insurance Procedure Code. The related acts shall be appealed according to the location of the municipality in whose area the obligation has arisen in accordance with the procedure laid down in the Tax and Social Insurance Procedure Code. In these proceedings, municipal administration officers, determined by order of the mayor, have the rights and obligations of revenue authorities, and in the proceedings for the securing of tax obligations - of public enforcement agents. This is not the case with their competence in proceedings for coercive collection of local taxes. It is carried out by public enforcement agents in accordance with the Tax and Social-Insurance Procedure Code or by judicial enforcement agent in accordance with Code of civil Procedure. The subject of this report is to reveal the specifics of the procedure for assesment, securing and collecting local taxes on the one hand, and the enforcement procedure on the other.*

***Keywords:** local taxes, competence, enforcement procedure*

***JEL Codes:** H 71, K 34*

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

SIMILARITIES AND DIFFERENCES BETWEEN THE CIVIL PLEDGE UNDER THE OBLIGATIONS AND CONTRACTS ACT AND THE COMMERCIAL PLEDGE UNDER THE COMMERCE ACT

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***Abstract:** The paper reviews the similarities and differences between the civil pledge and the commercial pledge. Despite their close connection, there are significant distinctions between them. In order to be well distinguished, it is necessary to make a comparison. The characteristic of both pledges require in-depth review and attention to detail.*

***Keywords:** Civil pledge, obligations and contracts act, commercial pledge, commerce act*

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

ENTERPRISES OF SOCIAL AND SOLIDAR ECONOMICS - LEGAL SYSTEM AND NATURE

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Abstract: *The strategic goal of the Law on Enterprises of Social and Solidarity Economics, pron. SG. No. 91 of November 2, 2018, amended SG. No. 17 of February 26, 2019, amended and add. SG. No. 24 of March 22, 2019, add. SG. No. 17 of February 25, 2020, is the differentiation, development and development of an economic branch which is predominantly socially oriented and whose main purpose is to generate a positive social added value in the direction employment, standard of living and social inclusion of vulnerable population groups.*

The law aims to create the legal framework for the development of the social and solidarity economy as an economic sector with special rules with a view to improving the access to employment and training for acquisition or improvement of professional qualification in order to raise the standard of living of people of vulnerable groups, creating conditions for supporting people from vulnerable groups for social inclusion and independent living, reducing social inequality and sustainable territorial development.

The law creates opportunities for cooperation and closer cooperation between social enterprises themselves, between social enterprises and other interested parties, such as municipalities, the state, investors, citizens, etc.

Enterprises in the social and solidarity economy operate differently from traditional forms of doing business and economic unification. The major difference is that this form of entrepreneurship uses innovative approaches to achieve certain social goals as a result of its activity. The main characteristic of social enterprises is that they attach social importance to their economic goals - especially in the selection of staff and the distribution of positive financial results. In so doing, they combine public contribution and economic initiative.

Keywords: *Social goals, Enterprises, Enterprises of Social and Solidarity Economics*

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FRI-2B.313-1-L-16

**ARREST OF SHIPS IN THE RIVER PORTS OF THE REPUBLIC OF
BULGARIA**

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***Abstract:** The purpose of the report is to analyze some peculiarities and difficulties in the implementation of the regime of the International Convention for the Arrest of Ships from 1999, which regulates the arrest of ships in maritime claims, but also applies to river transport on the Danube. Criticism of the choice of this regime by the legislator and a proposal for changes are made..*

***Keywords:** arrest of ship, maritime claims*

***JEL Codes:** H 71, K 34*

FRI-2B.313-2-L

FRI-2B.313-2-L-01

**ABOUT THE ENTRY OF THE AUTHORISED OFFICER IN THE
COMMERCIAL REGISTER**

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***Abstract:** The authorised officer is the representative with the widest representative authority of all commercial representatives, whose regulations are contained in Chapter Six of the Commercial Law. They are indisputable in theory and practice the advantages of authorisation (power of attorney), both with a view to protecting the interests of the trader and third parties. There is no unanimity neither in the legal literature nor in practice regarding the effect of the entry and deletion of the authorised officer from the commercial register. In this report, through an in-depth analysis of the various opinions in the doctrine and a review of the judicial practice, it is clarified what are the prerequisites for the entry (respectively for the deletion) of the authorised officer in the register, what legal consequences it generates*

***Keywords:** authorised officer; entry, deletion from commercial register.*

FRI-2B.313-2-L-02

IMPOSSIBILITY OF THE HOLDER YOUR OWN YES ALL DEFEND WITH A CLAIM UNDER ART. 75 FROM THE LAW FOR PROPERTY

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***Abstract:** Ownership claims regulated in art. 75 and Art. 76 of the current Law on Property, are intended to ensure the protection of dominion over movable or immovable property. It is irrelevant whether the person exercising the actual power is the owner or holder of the limited real right. In the current report, the emphasis is placed on the exclusion of holders from the group of claimants when filing a claim for violation of possession (Article 75 of the Law on Property). On the basis of the theoretical views, a comparative legal study of some foreign legislations concerning ownership protection, the weaknesses of the current legal system under Art. 75 of the Law on Property.*

***Keywords:** protection, possession, holding, claim, legal order;*

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

**EFFICIENCY AND EFFECTIVENESS OF APPLICATION
OF SPECIAL SEISMIC PROTECTION METHODS**

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Abstract:

Keywords: Efficiency, Effectiveness, GPS, Seismic Protection Methods, Model

JEL Codes: L10, L11

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Goleva, P., Stoychev, Kr. Non - profit legal entities. Civil law regime. Sofia, 2018. Bulgarian Center for Non-Profit Law Publishing House. (*Оригинално заглавие: Голева, П., Стойчев, Кр. Юридически лица с нестопанска цел. Гражданскоправен режим. София, 2018. Български център за нестопанско право*).

FRI-2B.313-2-L-04

THE SPECIAL KIND OF DIVISION

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Abstract: *The present study examines the division of inheritance carried out by the testator during his lifetime. a historical overview of the institute has been made. The main moments in carrying out this special type of division under the current Bulgarian legislation in its two forms - division of a will and division of a donation - have been examined. The application of the institute in practice is not widespread so far, which is one of the reasons for developing the present work. The article aims, in addition to contributing to the scientific community, to sprak interest and familiarize the reader with the possibilities that art. 77 et seq. of the Inheritance Act provides in order to avoid future disputes between the heirs in the event of the death of their common ancestor.*

Keywords: *Inheritance, Heritage, Will, During lifetime, Bequest, Donation, Division, Partition, Property, Property Division.*

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FRI-2B.313-2-L-05

ABILITY TO CHALLENGE PATERNITY UNDER THE AMENDMENT OF THE BULGAIAN FAMILY CODE OF 2020 - OCCASIONS AND RATIO LEGIS FOR THE CHANGE AND COMPARISON WITH THE LEGAL REGIME IN OTHER EU MEMBERS

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Abstract: *The mother is always known. a father is the one whom marriage points to. This is how the ancient Romans defined the principles on which the system of filiation was based. In order to discuss paternity disputes in comparative law, the methods for establishing paternity and the related mechanisms for challenging paternity according to Bulgarian family law should be defined: 1. the above-mentioned Roman principle is enshrined legislatively in Art. 61 of Bulgarian Family Code "The mother's husband is considered the father of the child born during the marriage or before the expiration of three hundred days from its termination."; 2. the recognition under Art. 64-65 of Bulgarian Family Code – the recognizer declares that the recognized person originates from him. Challenging the recognition under Art. 66 of Bulgarian Family Code is also part of the legislative revision of 2020 - the recognition can be contested by any person who claims to be the parent of the person recognized, through a claim filed within one year from the knowledge of the recognition; 3. the third way to establish paternity - successful prosecution under Art. 69 of Bulgarian Family Code by the mother or the child. The actual "disputing" of paternity in this case should be carried out within the framework of the court proceedings through objections, appeals, annulment of an effective decision. The subject of this comparative legal study is the regulation in the EU member states is challenging the presumption of paternity and contesting recognition.*

Keywords: *challenging, Comparative Law, European Union, Family Law, paternity.*

JEL Codes: *K15, K36*

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INVALID, ANNULED AND DESTROYABLE MARRIAGE

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Abstract: *The paper reviews a short historical review of Bulgarian legislation of Family Law after the Liberation of Bulgaria to our days. It describes three different variations of violation of marriage rules and their consequences for marriage - annulment of marriage, nullity of marriage and regular marriage with the disciplinary liability of the officer of a town hall. The paper in short review defines a plaintiff in each case, who can lay a claim in front of a judge court and individual period for each hypothesis of nullity of marriage. In conclusion, is made a review of already made changes of legislation and it is supplied opinion for norm making of the important social phenomenon, which must be set to today's society.*

Keywords: *marriage, annulment of marriage, nullity of marriage*

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RESTRICTION OF PARENTAL RIGHTS AS A CONSEQUENCE OF THE IMPLEMENTATION OF EDUCATIONAL MEASURES UNDER ART. 13, PARA. 1, ITEM 11 AND ITEM 13 OF THE ZBPPMN

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***Abstract:** It is the duty and right of parents to care for and educate children, to exercise supervision and subsequent appropriate control of their behavior, so that adolescents can socialize as full members of society. Sometimes, due to various reasons, the parental functions are not performed and in these cases it is necessary, in order to protect the interests of the child and those of society, for the state to support the parents by applying educational measures to the child, and in some cases also to the parents. In this way, some of the parental rights are limited, and this can be seen as both a help and a sanction for parents who do not know how to take adequate care of their children*

***Keywords:** restriction of parental rights, educational measures, parental capacity*

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

CORRELATION BETWEEN GENERAL AND SPECIAL SUBROGATION CLAUSES UNDER THE BULGARIAN OBLIGATIONS AND CONTRACTS ACT

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Abstract: *The general subrogation clause in Bulgarian civil law is presented in Article 74 of the Obligations and Contracts Act. Its text is laconic: “A person who has performed another's obligation, having a legal interest to do so, shall assume the rights of the creditor”. The same act includes some special subrogation hypotheses. The paper examines and criticizes the existing opinion in the legal doctrine that the prerequisites under the general subrogation clause are also presented in the special ones. The practical conclusion inevitably following from this belief is that the collateral providers who are not principal debtors can employ both the special subrogation provisions and the general clause to step into the place of the satisfied creditor. The present article explores the thesis that the general subrogation clause is not applicable in hypotheses regulated by the special norms, which means that its scope of application is more limited than the common belief.*

Keywords: *subrogation, performance, guarantor, collateral, creditor, obligation, co-debtor*

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CONTROL POWERS OF THE SUPERVISORY BOARD IN THE TWO-TIER MANAGEMENT SYSTEM OF A JOINT-STOCK COMPANY

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Abstract: *The report reveals how the supervisory board of a joint-stock company exercises its control powers. Emphasizes on the control powers of the supervisory board. The Bulgarian regulatory framework does not contain a basis for good and effective corporate governance. The interests of all stakeholders are not sufficiently protected, which is mainly due to the fact that the law does not contain a quality response to the problems it has to solve. The measures of control influence that the supervisory board exercises cannot be clearly separated from its management rights. The importance of control in recent times has grown considerably because the owners of capital have had to cede their powers of management to others. And since the owners remain so, it is only natural that control comes to the fore.*

Keywords: *Bulgarian law, Joint stock company, Management bodies, Distribution of functions, Commercial Law, Supervisory boards, Problems related to the management, Control powers.*

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FRI-2B.313-2-L-10

THE STRUCTURE AND QUALIFICATION OF EMPLOYEES AS A STANDARD FOR THE QUALITY OF SOCIAL SERVICE

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***Abstract:** Social services shall be activities aimed at supporting individuals in prevention and/or overcoming of social exclusion, exercising rights, improving the quality of life. Social services shall be financed by the state budget, the municipal budgets and private providers of social services. Social services shall be provided in accordance with an Ordinance on the Quality of Social Services. The quality standards for social services shall be standards for organisation and management of the service, qualification and professional development of the staff who carry out the activity of providing the service, the efficiency of the service in terms of the results achieved for its beneficiaries in response to their needs.*

The article discusses some labour law aspects relevant to the activities of social service providers in terms of the introduced quality standard.

***Keywords:** Social services, quality of social services, qualification and professional development of the staff*

***JEL Codes:** K31*

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

APPLICATION OF PUBLIC ORDER CONSIDERATIONS IN INTERNATIONAL FAMILY RELATIONS

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***Abstract:** The presence of an international element in family relations leads to the connection of this type of legal relationship with the legal systems of two or more countries claiming to regulate it by means of their own substantive legal regulations. In the cases where the internal conflict of law norm of the Bulgarian international private refers to the foreign legal order, it may come into conflict with the principles regulated in the Bulgarian law. This report examines the mechanism of action of the consideration of public order in international family relations and, more specifically, its negative and positive function.*

***Keywords:** public order, marriage, family relations, collision;*

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

GLOBALIZATION, MARRIAGE AND INTERNATIONAL LAW

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***Abstract:** The paper reviews international relations, which are based on globalization and on close relations in business, private lives, etc. legal relations, concentrating on family relationships. Persons take a different role in each relationship, and it is important to take an overview of marriage relations, including these ones with foreigners or getting married abroad in front of a domestic or foreign magistrate’s office. The paper describes needed documents for getting married and the obligation for registration of the marriage in the own national register of the population.*

***Keywords:** marriage, foreign marriage, marriage with foreigners, documents for marriage, registration of marriages in the citizenship country*

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BASIC CRIMINOLOGICAL CHARACTERISTICS OF THE OFFENDER ASSESSMENT SYSTEM

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Abstract: *The report highlights the leading criminological characteristics of the offender assessment system implemented in Bulgarian prisons and probation services. It is the main tool for the study of convicted persons, giving the basic guidelines for the correctional work carried out during the execution of the sentence. Its structure and content are analyzed, which are compared with the achievements of criminological science. The assessment items are presented in the context of the cause of the criminal behaviour, noting their individual and cumulative effects on it. The main task of the report is to clarify the importance of assessment for the correction and re-education of offenders, which is one of the purposes of punishment.*

Keywords: *Criminal behaviour, punishment, assessment of offenders, correctional work, correction and re-education*

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

CRIMINOLOGY OF SOCIAL REACTION

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Abstract: *The science of criminology is subject to various definitions. The main reason for this is the fact that there are different opinions about the scope of criminology. Traditionally it is seen as the science that studies the causes of crime. Since the 1960s, however, a significant number of criminologists have turned their scientific interest to the mechanisms of social reaction against crime. their research is known by the name “theories of social reaction” or “criminology of social reaction”. This report aims to present the content of these theories.*

Keywords: *Criminology, Criminology of social reaction, Criminological theories, Sociology of Crime*

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FRI-2B.313-1-L-31

COMPARATIVE LAW REVIEW OF THE CRIMINAL SANCTION

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***Abstract:** The interest of conducting a comparative study in the field of legal sciences has long been considered indisputable. The present work aims to offer the reader exactly this kind of study. The object of the research is the criminal sanction. As the most visible part of criminal law, the criminal sanction has always been an object of undoubted interest on the part of all who study this branch of law.*

***Keywords:** Comparative Law, Criminal Law, Criminal Sanction, Punishment*

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FRI-2B.312-1-NS

FRI-2B.312-1-NS-01

POLITICAL CORRUPTION - A THREAT TO THE STATE

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***Abstract:** The report examines the current state of the forms of political corruption in Bulgaria. Analyzes the causes of this phenomenon - its genesis and development. Conclusions have been made about the necessary preventive actions that will lead to the neutralization of its influence on the state administration and society as a whole and to the restoration of the democratic foundations of the state, as a pledge of national prosperity and survival of the nation.*

***Keywords:** Conclusions, political corruption*

JEL Codes:

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FRI-2B.312-1-NS-02

MECHANISMS FOR DECISION-MAKING IN STATE MANAGEMENT

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***Abstract:** The report examines the topical issue of how, who and why strategic decisions are made in public administration. The relationship between the sovereign and the executive power in the implementation of the basic principles of democracy is analyzed and conclusions are drawn about the necessary transformation of the state management system in accordance with the Constitution of the Republic of Belarus.*

***Keywords:** Conclusions, public administration*

JEL Codes:

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FRI-2B.312-1-NS-03

SECURITY STUDIES IN CONTEMPORARY POLITICAL SCIENCE AND THEORY OF INTERNATIONAL RELATIONS

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***Abstract:** for traditionalists, the state is the main object of analysis. . Security is about national survival in an anarchic world. Understanding the balance of power is the key to traditional security. The main task is to ensure the survival of the state. Because power is the best means of doing this, security research focuses on the role of military power.*

The most widely held belief is that, in the long run, free market growth and new technologies solve more problems than they create. However, there is a perception that increasing prosperity and integration increase political instability. Prosperity leads to greater economic integration and dependence, which creates a sense of danger as it increases the importance of international economic relations and therefore increases potential friction

An increasing number of scholars, referring to the trends of globalization of world politics, the reduction of the share of interstate relations in it due to the growing role of non-state actors, propose to consider the traditional field of international law in a broader context of "regimes" of world politics, which are the most proven mechanism for arranging the systems of international relations.

Keywords: Security, The global system, The Security Council

JEL Codes:

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FRI-2B.312-1-NS-04

**LEGAL ESSENCE OF THE DECISIONS OF THE REPUBLIC OF
BULGARIA NATIONAL ASSEMBLY (ACTS ON DECLARATION OF
MARTIAL LAW OR EMERGENCY STATE)**

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***Abstract:** The National assembly of Republic of Bulgaria performs its legislative role through the proposal, discussion and adoption of laws, decisions and declarations. In 2022, a reference note from the Directorate of "Plenary Sessions, Parliamentary Control and Final Texts" shows that 84 laws, 122 decisions and 1 declaration have been adopted in 2022.*

Subject of this work is the methodology applied for adaption of the decisions of the National Assembly in Republic of Bulgaria, the legal principles to be followed and in particular the procedure of decision/s adaption of the National Assembly on the issue of declaring war (martial law), exclusion of peace, provision for help for third parties in case of martial law and / or an emergency situation/state, as well as decisions on internal affairs of martial law or emergency situation adoption.

***Keywords:** decisions of the National Assembly; legal principles of the decision; decisions to declare martial law or state of emergency; functions of the National Assembly*

FRI-2B.312-1-NS-05

**MEANING AND ESSENCE OF THE TERM "SPECIAL KNOWLEDGE"
WHEN APPOINTING FORENSIC EXPERTISE IN THE CRIMINAL
PROCESS**

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***Abstract:** The following article discusses the essence of the term "special knowledge" used in the Criminal Procedure of Republic of Bulgaria and its application in the implementation of the "expertise" method of proof. In criminal proceedings the use of special knowledge is carried out through the application of its different subtypes, namely by attracting knowledgeable people, specialists from various fields of science, technology or art to carry out a non-scientific research, one that can give an answer to the tasks arisen in the course of the investigation.*

***Keywords :** special knowledge, expertise in criminal proceedings, research, science, technology, art*

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FRI-2B.312-1-NS-06

OPERATIVE HEARING ON THE BULGARIAN CRIMINAL PROCEDURE CODE - ESSENCE AND SOME PROBLEMS.

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Abstract: with the amendments and additions to the Criminal Procedure Code of 2017, in the stage of preparatory actions for examination of the case in a court hearing of the first instance, an operative hearing was foreseen. The same is not judicial, but preparatory. However, as such, it deserves careful consideration because it represents a concrete manifestation of the current conception of the role of the court in the modern criminal process. In this report, it is precisely from this point of view that an answer is sought to the question, whether the operative hearing meets the basic principles of the process, of the Constitution of the Republic of Bulgaria and of the ECHR. In order to make this answer, which is one of the merits of the report itself, it is followed in detail whether the current formulation of the institute is compatible with the aspirations laid down in the motives of the Act Supplementing the Criminal Procedure Code of 2017, as well as whether the applying of the operative hearing leads to any significant practical utility.

Keywords: criminal proceedings, operative hearing, fair trial, summary proceedings, prosecutor, accused party, court.

JEL Codes: K410, K420

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FRI-2B.312-1-NS-07

HISTORICAL DEVELOPMENT OF THE FIREARMS LICENSING REGIME

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***Abstract:** This presentation discusses the historical aspects that cover the regime under which the procedure for issuing and revoking an already issued firearm handling permit falls.*

***Keywords :** firearm, permit regime, individual administrative act*

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FRI-2B.312-1-NS-08

SPECIFICITY OF THE FORENSIC PSYCHOLOGICAL EXAMINATION OF MINOR SUBJECTS, VICTIMS OF SEXUAL CRIMES

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***Abstract:** The article examines an extremely topical topic of forensic psychology, namely the specifics of preparing a forensic psychological conclusion for minors who have been the subject of sexual assault. Two main supporting aspects are noted in the clinical study of the group, on the one hand what is their clinical ability to give credible testimony, and on the other hand how the experience of sexual violence has affected and will affect their further development. In addition to the specifics questions that are the subject of the forensic psychological examination of minors victims of sexual violence, the basic steps of the methodology of conducting the overall research are presented, taking into account the calendar age and the trauma experienced by the sexual violence.*

***Keywords:** forensic psychology, minors victims, sexual violence.*

FRI-K1-1-QHE

FRI-K1-1-QHE-01

**THE ROLE OF INNOVATION PARTNERSHIPS IN THE CREATION OF
INTELLECTUAL PROPERTY**

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***Abstract:** The paper presents a methodology for uncovering, developing, nurturing and improving innovation partnerships. The basis of the partnership is the implemented innovation management system at the University of Ruse, Bulgaria. The innovation portfolio is the starting point which serves to create a short list of potential internal and external partners. The expected outputs of implementing the guidance of ISO 56003 are the innovation partnership agreements in combination with non-disclosure agreements. The plans for the future include targeting potential partners in order to improve the overall performance of the innovation management system and more specifically- to protect the intellectual property rights of the university and its community of researchers.*

***Keywords:** Innovation Management Systems, Innovation Partnership, ISO 56003, University of Ruse.*

***JEL Codes:** D23, D85, L24, O30, O34*

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FRI-K1-1-QHE-02

NEW POST-COVID REALITIES IN THE HIGHER SCHOOLS IN BULGARIA

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***Abstract:** The post-Covid 19 period proved to be difficult and unclear for many of the higher education institutions in Bulgaria, due to the change in the conditions of study, research and internationalization. This also led to a new policy in the management of universities, in search of a true way to overcome a number of demographic, financial and technological problems. Regardless of the changes that have occurred, the tendency is to preserve the role of higher schools as a place for social development and cohesion, playing a role in the exchange of knowledge, for working in an atmosphere of mutual respect and recognition.*

***Key words:** post-Covid 19 period, study, research and internationalization, new policies in higher education*

***JEL Codes:** I23*

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FRI-K1-1-QHE-03

**LEGAL FRAME OF TRAINING IN SPECIALTIES FROM THE
REGULATED PROFESSIONS IN THE FIELD OF HEALTH CARE**

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***Abstract:** The legal frame of training in specialties from the regulated professions in Bulgarian higher education institutions follows the principles of the hierarchy of legal acts. The Guarantees the realization of the right to higher education as a basic right of citizens according to the Constitution are bound by general and special norms in different normative acts. The most comprehensive and precise is the legal framework of higher education in the field of health and health care, which is examined in the report by analyzing the norms of national, European and international legislation.*

***Keywords:** higher educational institutions, regulated professions, right of education*

***JEL Codes:** K38*

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EFFECTIVENESS OF ONLINE LEARNING ON HEALTH CARE IN BULGARIA

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Abstract: *The report examines the application, methods and trends in online healthcare education in Bulgaria. Attention is paid to new, effective, modern methods for increasing the quality of online education. The extent to which online learning can replace proven traditional learning is debated. The article presents the results of a study on online education, conducted in April 2021 in a number of universities in Bulgaria, which train in the professional field of Health Care, specialty Nurse and Midwife. The results of the conducted survey among the trained students can serve to improve both online and face-to-face training through the use of innovative tools in health care education in Bulgaria. In both types of training, additional educational resources recommended by respondents can be included. The creation of new web-based educational resources (video materials, serious games, virtual simulations, video presentations, webinars, etc.) can supplement the traditional methods of training students in the professional direction "Health care", specialties Nurse and midwife in Bulgaria.*

Keywords: *Quality of Education, Online Education, Health Education, Nurses and Midwives*

JEL Codes: *I23*

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**HIGHER EDUCATION TEACHERS SURVEY FOR ESTABLISH THE
INOVATIVE ELEMENTS IN INSTRUCTIONAL TECHNOLOGIES**

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Abstract: The paper presents higher education teachers survey for establish the inovative elements in instructional technologies. The survey is done under the project “HE Teachers and Institutions and Instructional

Technology (HIIT)”, Erasmus+ programm; Action type KA220-HED - Cooperation partnerships in higher education. Planned activity in the project included conduct research; create educational initiatives; develop training; apply innovative approaches to teaching; provide teaching for staff; pilot test training; create an e-learning space based on instructional technology principles; disseminate and exploit the results; management activities; quality activities; team building activities. The main objective of this result (PR1) is to develop the curriculum, syllabus and learning approach for HE STEM teachers. Therefore, the first step is to define the skills and competence that these teachers need to be able to design, develop, use, manage, and evaluate the process of learning mediated by technology applications in their courses, i.e., the Instructional Technology skills and competences. The focus groups will take place with 10 teachers per focus group in each of the 4 participating HEIs. We reached to 13 STEM teachers for survey answers. They are from 4 Institutions and are specialists in 6 Areas of Higher Education: Automatics Engineer; Machine Engineer; Electrical Engineer; Transport Engineer; Physics Engineer and Information Technologies. The survey is organized in 6 main questions. All answers are analyzed. All the teachers from the focus group thing that the instructional technologies are promising and necessary.

Keywords: *Instructional Technologies, Survey, Innovative Approaches*

JEL Codes: *I21*

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ANALYSIS OF RESULTS FROM EMPLOYER SURVEYS

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***Abstract:** The Center for Career Development at the University of Ruse "Angel Kanchev" permanently conducts a survey among partners, companies and institutions - employers, thus striving to comply with business requirements regarding staffing needs and quality of students graduating from the University of Ruse, here a survey of student opinion is also included. Based on the conducted research, feedback is provided to universities, faculties, departments and specialties on improving the quality of the educational process and its effectiveness in a competitive environment and good implementation in the labor market.*

***Keywords:** Surveys, Analysis, Recommendations.*

***JEL Codes:** I21*

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**DIRECT SYNTHESIS OF GRAPHENE BY USING COMBINED
ELECTROLYSIS AND ULTRASONIC METHODS**

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Abstract: Graphene is a new nanomaterial that possesses many amazing characteristics. It is believed that graphene is a next-generation conducting material with the potential to be used for obtaining of electrodes for supercapacitors. Graphene is a flat honeycomb lattice made of a single layer of carbon atoms and possed an unique properties - very high electrical conductivity, excellent mechanical properties, etc.

In the present paper, a monolayer graphene was synthesized by simultaneous application of electrolysis and ultrasound. High pure, finely dispersed graphite was used as precursor. Graphene is obtained as a result of a combination of chemical and physical treatment. Sulfuric acid was used as the electrolyte. It loosens the weak Van der Waals bonds and, together with the acoustic action of ultrasound, contributes to the cleavage of the individual layers of graphene.

The physico-chemical properties of the resulting graphene were haracterized by Raman spectroscopy, TEM, SEM, etc.

Keywords: graphene, ultrasonic method, electrolysis, TEM, SEM

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THE INTERGENERATIONAL FAMILY BUSINESSES AS AN INSTRUMENT FOR DEVELOPMENT OF THE FOOD INDUSTRY

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Abstract: *The small food production firms have different challenges to survive the strong marketing competition with the big companies. They rely on the support, provided by their relatives and some strategic friends. But most of the young family members are not willing to work together with their parents due to variety of reasons. Instead, the youths could establish their own economic activities, which are linked to the firms of their parents. The purpose of this report is to present the student willingness to go for such businesses and the research has been organized within the INTERGEN international academic network, which focused to study the intergenerational family business as a stress management instrument.*

Keywords: *food production, vertical integration, family businesses*

JEL Codes: *D1, M13*

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**OBTAINING CORUNDUM CERAMIC SAMPLES INCORPORATED
GRAPHENE**

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***Abstract:** Traditional ceramics are characterized by high inflexibility, high melting temperature, high thermal stability and wear resistance, but its application is limited due to low crack resistance and poor electrical conductivity. Introduction of fillers into ceramic matrices appears to be an effective approach to address these issues. As a representative of two-dimensional materials, graphene is a promising filler in this respect due to its outstanding properties: excellent mechanical properties, high electrical conductivity, high thermal conductivity, etc. The incorporation of graphene nanostructures in ceramics offers new opportunities to improve existing and impart a variety of new properties to ceramic materials. The preparation of corundum ceramic samples with incorporated graphene structures is described in this paper.*

Keywords: *graphene/Al₂O₃ composites, ceramic fillers, graphene structures*

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A NEW LOOK ON THE TITRATION OF WEAK ELECTROLYTES: APPLICATION OF THE LEAST SQUARES METHOD

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Abstract: The paper presents an application of the least squares method for simultaneous determination of weak and strong acids concentrations in a solution using potentiometric titration with strong base. In contrast to the traditional understanding of the acid-base titration process, where the equivalent point is found through the position of the inflection point and/or the rapid change of the pH value, we suggest to use the whole titration curve in order to find the unknown concentrations. This is helpful in many cases, where the titration curve does not have the typical form with well defined equivalent point, as for example titration of mixture of very weak and strong acids, diluted solutions and many other cases. We developed a mathematical model for the simulation of the titration of weak and strong acids with strong base. As a next step, this model was adapted for determination of the acids' concentrations using the least squares method. It was tested on two different titration experiments, namely the potentiometric titration of acetic acid and HCl mixture with NaOH. The two unknown parameters for the least squares algorithm were the concentrations of the both acids. The deviations between predicted concentrations and the real values are acceptable, and depends mainly on the pH-meter calibration. This approach could be easily extended for titration of very weak electrolytes or other similar applications.

Keywords: Titration, pH, weak electrolyte, least squares method, simulation

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FERMENTATION TECHNOLOGY OF LEAVES FOR FLAVORED DRINKS

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Abstract: *The article shows options for fermenting tree leaves (cherries, apricots, lindens) and berries (raspberries, currants) to obtain aromatic raw materials. The purpose of the work is to obtain a modernized technology for obtaining dried leaves with the aroma of the corresponding fruits or berries. To obtain the desired effect, the possibility of using the tea leaf preparation technology was investigated. The basis of this technology consists of three main operations of preparing the leaf for drying - partial dehydration (or cold drying), leaf rolling, fermentation in a semi-closed vessel. Further, the fermented leaves are dried according to special regimes. It was found that the technology of tea leaf preparation can be successfully used for leaves of trees and berries. Three basic operations make it possible to obtain flavored leaves. The article shows that the intensity of the aroma and its correspondence to fruits and berries to a large extent depends on the conditions for the first operation - cold drying. The result of the study is that partial dehydration can be successfully carried out in two ways - classical (sheet packing in fabric layers) and modernized (freezing followed by defrosting). The upgraded method makes it possible to simplify the subsequent twisting operation and shorten the duration of fermentation. Drinks from the leaves after fermentation are an alternative or a good addition to herbal teas.*

Keywords: *Fruit Tree Leaves, Berry Leaves, Fermentation, Tannins, Aroma*

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**ANETHOLE ISOLATION, SYNTHESIS, PROPERTIES:
BRIEF OVERVIEW**

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***Abstract:** The aim of the present paper was to review the chemical and biological characteristics of the anethole, its isolation and synthesis. It is one of the main isolates in the global essential oil industry. It is obtained from three types of oils - anise, badian (star anise) and fennel by crystallization and rectification. Anethole is an aromatic substance with exclusive use in the food industry, cosmetics, medicine, technology and other spheres of human life.*

***Key words:** Anethol, isolation, synthesis, properties*

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FRI-LCR-1-BFT(R)-03

PRESERVATIVES USED IN FOOD –ANTIOXIDANT ACTIVITY AND SPECTRA IN UV-VIS, MID-INFRARED REGION

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***Abstract:** Preservatives are added to protect processed foods against microbial contamination. Antioxidants are additives that prevent oxidation and lengthen the shelf life of food. Preservatives and antioxidants have different technological functions in food. The aim of the present study was to determine and compare the antioxidant activity by analytical spectroscopic methods of widely used and available preservatives in both the food industry and household, such as ascorbic acid, acetylsalicylic acid, citric acid, potassium sorbate, and sodium benzoate.*

***Keywords:** Preservatives, Antioxidant activity, Ascorbic acid, Acetylsalicylic acid, Citric acid, Potassium sorbate, Sodium benzoate.*

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FRI-LCR-P-2-CT(R)-01

**POSSIBILITIES FOR THE PREPARATION OF CERAMIC MATERIALS
INCORPORATING GRAPHENE AND CARBONATE NANOSTRUCTURES**

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***Abstract:** There is a growing worldwide effort to produce new ceramic materials that combine the unique functional (electrical, magnetic, mechanical, etc.) properties of nanocomposite material with the properties of ceramic materials. In the production of ceramic and composite materials with specific properties, nanotechnology plays a significant role in obtaining the starting components in a finely dispersed state, which not only intensifies the synthesis process but also leads to improved and reproducible product properties. In this paper, a review of the possibilities of preparing ceramic materials incorporating graphene and carbonate nanostructures is presented.*

***Keywords:** nanotechnology, ceramic materials, graphene nanostructures, carbonate nanoparticles*

FRI-LCR-P-2-CT(R)-02

MICROWAVE-ASSISTED SYNTHESIS OF COST-EFFECTIVE AND ENVIRONMENTALLY FRIENDLY ELECTROCHEMICAL MATERIALS

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Abstract: Here we report the microwave-assisted synthesis of nanocomposites from natural zeolite and cellulose phosphate. Microwave irradiation conditions, such as irradiation power and time, required to optimize the synthesis of zeolite electrochemical materials were studied.

The growing interest in the use of zeolite-modified electrodes results from the specific framework structure, containing the three-dimensional system of cages, and channels with various shapes, sizes, and topologies (Chen, C.Y., et al). their molecular sieve properties and ability to undergo the ion-exchange process with transition metals result in their catalytic property (Guzmán-Vargas, A., et al; Porada, R., et al). Cellulose-based materials also show interesting electrochemical properties and will be interesting to study their application of it for hydrogen production (Marzouki, R., et al).

The electrolytic model solution content of 1 M KOH and 18 g.l⁻¹ NaCl. The electrocatalysts were characterized by SEM, XRD, and BET. The electrodes are studied electrochemically by means of cyclic voltammetry, galvanostatic measurements, and Tafel slopes. The electrodes are designed and optimized in terms of the amount of composites.

Keywords: microwave assisted synthesis, cellulose phosphate, natural zeolite, seawater, electrocatalysts

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FRI-LCR-P-2-CT(R)-03

UNCERTAINTIES IN THE DESIGN OF SUPPLY CHAIN FOR BIODIESEL WITHIN THE REPUBLIC OF BULGARIA

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Abstract: *The problem discussed in this article can generally be expressed as follows. We have a range of energy crops that need to be converted to biodiesel, which include crops such as sunflower, rapeseed and others. We envisage a ten-year planning horizon that includes government regulations, manufacturing, construction and a carbon tax. For the purposes of the study, a model of a biodiesel resource supply chain has been developed, including a set of collection points and a number of search areas, as well as potential locations for individual facilities and biorefineries. In order to compile the optimization model of a sustainable resource-supply chain, we need to take into account the uncertainties related to supply and transport. For this reason, we use a scenario-generating campaign. We consider two scenarios: centralized mixing of biodiesel with petroleum diesel in the appropriate ratio for the period and diversified. We will monitor the impact of each of the scenarios on the price of the finished product and the amount of greenhouse gas emissions over the entire life cycle of the fuel. Based on the obtained results, conclusions have been formed in favor of the diversification scenario, which will serve as a guide in the development of the problem, including the construction of a mathematical model in conditions of uncertainty.*

Keywords: *biodiesel, sustainable supply chain, modeling, uncertainties, scenarios*

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FRI-LCR-P-2-CT(R)-04

INFLUENCE OF THE HEAT TREATMENT ON THE TENDENCY TO INTERGRANULAR CORROSION OF AUSTENITIC STAINLESS STEEL AISI 321

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Abstract: The paper presents the results of electrochemical testing on intergranular corrosion of stainless steel AISI 321. AISI 321 was subjected to quenching at 1050°C, sensibilization at 650°C and stabilizing annealing at 850°C. Experiments were done in a 5% H₂SO₄ water solution to determine the susceptibility of the steel in different conditions to intergranular corrosion attacks. The open circuit potential was measured till reaching a stable value of the steady state potential, and then anodic polarization was performed in the range -300...+1600 mV. The results from potentiodynamic polarization allowed to choose an etching potential in the transpassive region to reveal the tendency of the steel to intergranular attacks and the microstructure. It was found that the sensibilization for one hour at 650°C led to microstructural changes favorable to increased tendency to intergranular corrosion. This result suggests that, though AISI 321 is alloyed with titanium, additional heat treatment must be taken to overcome the possibility of intergranular corrosion provoked by the changed microstructure during different technological processes, such as welding.

Keywords: Stainless steel, Intergranular corrosion, Microstructure, Electrochemical corrosion

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FRI-LCR-P-2-CT(R)-05

SYNTHESIS AND PHYSICOCHEMICAL CHARACTERIZATION OF NOVEL ZIRCONIUM AND HAFNIUM TELLURITES

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Abstract: Novel tellurites of zirconium and hafnium $ZrTeO_4$ and $HfTeO_4$ were synthesized by the hydrothermal reaction of $ZrOCl_2 \cdot 8H_2O$, $HfCl_4$, respectively, TeO_2 , and water. The phases were analyzed by Powder diffraction and FTIR spectroscopy. The tellurites crystallize in monoclinic system, space group $C2/m$, with crystallographic parameters: $a = 9.9358(18) \text{ \AA}$, $b = 4.0117(73) \text{ \AA}$, $c = 8.5165(89) \text{ \AA}$, $\beta = 108.41(6)^\circ$ for $ZrTeO_4$ and $a = 9.9104(25) \text{ \AA}$, $b = 3.9940(31) \text{ \AA}$, $c = 8.5136(27) \text{ \AA}$, $\beta = 108.33(5)^\circ$ for $HfTeO_4$. Due to their extremely close atomic (Hf 1.442 \AA , Zr 1.452 \AA) and ionic radii (Hf^{4+} 0.75 \AA , Zr^{4+} 0.74 \AA) and the identical structure of the inner electronic shell, the chemical properties and crystal-chemical characteristics of their compounds are obviously very similar. Data were collected on a Bruker D8 Advance diffractometer at 293K in the range of $8 < 2\theta < 80^\circ$. In the infrared spectrum of the tellurites, the strong bands from 890 to 730 cm^{-1} could be assigned to the $\nu(M=O)$ or $\nu(M-O-M)$ vibrations, where M is zirconium or Hafnium. The peaks in the range of 650 – 450 cm^{-1} in the infrared spectrum of the tellurites could be ascribed to one or more of the vibrations of $M-O$, $Te-O$, $Te-O-M$, all of which fall in this range.

Keywords: Hydrothermal synthesis, Zirconium tellurite, Hafnium tellurite

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FRI-LCR-P-2-CT(R)-06

**APPLICATION OF A MATHEMATICAL MODEL FOR MAKING A
SMART DECISION FOR IMPROVING SUSTAINABILITY OF COMBINED
DAIRY / BIODIESEL SUPPLY CHAIN**

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***Abstract:** Biodiesel is considered as an inexhaustible, clean consuming substitution on fossil fuel. It is set up from a different feedstock's including dairy waste scum. The development of a mathematical model for making a smart decision for improving sustainability of biodiesel supply chain using dairy waste scum as a feedstock is center on the presented work. The article presents superstructure of a combined dairy/biodiesel supply chain and mathematical model for making smart decision for sustainability. The given task is formulated in the terms of a MILP. The aim of the mathematical model is minimizing the total annual costs. The optimization criterion is defined in terms of economic sustainability, and environmental assessment data are implemented as part of it. The prepositional mathematical model is implemented on an example study from Republic of Bulgaria. The received results may be used as a device\ for intelligent decision-making.*

***Keywords:** Biodiesel, Dairy waste scum, Supply chain, Optimal design, Sustainability, Mixed integer linear programming*

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FRI-LCR-P-2-CT(R)-07

PECULIARITIES OF GRINDING UP ENGOBE SLIPS FOR DECORATING CERAMIC BRICKS

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Abstract: *This article discusses the features of the preparation of engobe slips to create decorative and protective coatings on the surface of ceramic bricks. Despite the variety of existing compositions of engobe compositions, when grinding most of them, there is a problem of grinding duration, which requires significant energy costs. This problem can be solved using a step-by-step scheme for separate grinding of leaners with the loading of clay components at the second stage. The comparison of the rheological and technological characteristics of engobe slips of the three-component system "refractory clay - quartz sand - cullet" was carried out with joint and separate grinding of lean and clay materials. The optimal characteristics of the main technological parameters have been established, at which the most acceptable indicators of the properties of engobe slips are achieved. The application of engobe suspensions on the surface of dry semi-finished bricks with their further firing at 1050–1100 °C made it possible to obtain coatings with good aesthetic and physical-mechanical properties: water absorption 1.5%-2.6%, mechanical compressive strength 25–28 MPa and frost resistance not less than 50 freeze and thaw cycles.*

Keywords: *Slip, Engobe, Grinding, Clay, Cullet, Fluidity, Roasting, Sintering, Water Absorption, Frost Resistance*

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FRI-LCR-P-2-CT(R)-08

SYNTHESIS AND ANTIMICROBIAL ACTIVITY OF 2-[4-METHYL-4-PHENYL-2,5-BIS(SULFANYLIDENE)IMIDAZOLIDIN-1-YL]-1H-BENZO[DE]ISOQUINOLINE-1,3(2H)-DITHIONE AND ITS METYL DERIVATIVE

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***Abstract:** This paper shows the interaction of 1,8-naphthalic anhydride with 5-methyl-5-phenyl- and 5-methyl-5-tolylhydantoins, where the derivatives can be DNA targeting, anticancer and cell imaging agents in one rapidly developing medicine field.*

***Keywords:** 1,3-phenalenediones, isoquinolines, hydantoins, antimicrobial activity*

FRI-LCR-P-2-CT(R)-09

MULLITE CERAMIC PIGMENTS OBTAINED FROM BIOWASTE - RICE HUSK

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Abstract: *One of the relatively newest and promising ceramic pigments are those obtained on the basis of the mineral mullite ($Al_2O_3 \cdot 2SiO_2$), in the crystal lattice of which colored chromophore ions are incorporated. In addition to high colouring ability, these pigments have high temperature stability, insolubility in silicate melts and high reflectivity. The aim of the present work is to synthesize mullite pigments from waste raw materials (rice husk ash), colored with five chromophore elements, Cr, Fe, Co, Cu, Ni, by solid-phase synthesis method and to characterize their properties. Biowaste - rice husk burned at 650°C was used as a source of SiO_2 . The synthesized materials were investigated mainly by X-ray phase analysis and spectrophotometric color measurement using a Lovibond Tintometer RT 100 Color.*

Keywords: *mullite ceramic pigments, , rice husk, colored chromophore ions*

FRI-LCR-P-2-CT(R)-10

CERAMIC PIGMENTS BASED ON THE MINERAL MULLITE
/3AL₂O₃.2SiO₂/

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Abstract: Mullite (Al₂O₃.2SiO₂) is a mineral derived from aluminosilicates at high temperatures. This type of mineral is mainly obtained artificially and it is a high-quality refractory and ceramics raw material. The aim of the present work is to synthesize ceramic pigments based on the mineral mullite by solid-phase spinning method by introducing Co, Ni, Cu, Fe and Cr as chromophoric elements using chemically pure raw materials. SiO₂.nH₂O was used as the source of SiO₂. The synthesized materials were investigated mainly by X-ray phase analysis and spectrophotometric color measurement using a Lovibond Tintometer RT 100 Color.

The influence of the coloring ions on the formation of the parent mineral was also investigated.

Keywords: mullite, ceramic pigments, solid-phase sintering, chromophore elements, color characteristics.

FRI-LCR-P-2-CT(R)-11

ACIDITY ADJUSTMENT OF THE SOLUTIONS FOR COATING DEPOSITION AND FURTHER SEALING BY LOURIER BUFFERS

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Abstract: The present paper provides valuable practical information on the preparation of buffer solutions in accordance with data presented in the encyclopedic handbook of Y.Y. Lourier. Among the wide variety of buffer solutions proposed by the author, only phosphate and borate are discussed here. The main reason for the interest in these types of buffers is that phosphating is a common procedure for sealing various primers for corrosion protection, while $\text{Na}_2\text{B}_4\text{O}_7$ and H_3BO_3 are usually preferred electrolyte additives for electrochemical film deposition. For the reader's convenience, pH-composition tables are presented. The data in these tables enable preparation of suitable buffers for various coatings and other technological purposes.

Keywords: pH buffers, Buffer compositions, Electrochemical deposition electrolytes, phosphatation solutions.

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FRI-LCR-P-2-CT(R)-12

DIOPSIDE CERAMIC PIGMENTS OBTAINED BY A SOL-GEL METHOD WITH THE PARTICIPATION OF DIFFERENT CHROMOPHORE ELEMENTS

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Abstract: The sol-gel method is used for the synthesis of diopside ($\text{CaMgSi}_2\text{O}_6$) ceramic pigments doped with cobalt, iron, nickel and manganese ions. Pure grade raw materials such as TEOS - $\text{Si}(\text{OC}_2\text{H}_5)_4$ and nitrates of Ca^{2+} , Mg^{2+} , Co^{2+} , Fe^{2+} , Cr^{3+} and Mn^{2+} have been used for the synthesis. The aim of this study was to obtain isomorphic substituted diopside based ceramic pigments. Series of ceramics in the system $\text{CaO.MgO.MeO.2SiO}_2$ ($\text{Me} = \text{Co}^{2+}$, Fe^{2+} , Cr^{3+} , Mn^{2+}) were synthesized via sol-gel method and sintering at 800, 900, 1000, 1100 and 1200°C. The resulting ceramics were studied by powder X-ray diffraction, infrared, UV-Vis spectroscopy, electron microscopy, electron paramagnetic resonance. The ceramics obtained by sol-gel method mainly contain diopside, which crystallizes even at 800°C. The small amounts of additional phases depend on the type of metal ion and the sintering temperature. The phase composition and the color coordinates of the obtained ceramics were determined. The best pigments have been added to the white earthenware glaze and tested as a sanitary ware pigment.

Keywords: diopside pigments, sol-gel, CIELab color measurement

FRI-LCR-P-2-BFT(R)

FRI-LCR-P-2-BFT(R)-01

**STARCH – MICROSTRUCTURE, TEXTURAL AND
THERMAL PROPERTIES**

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***Abstract:** The present study focuses on the investigation of rice, corn and wheat starches. The size of the granules for each type of starch, as well as the changes characteristic for the gellatinisation process at different temperature regimes, were established. The swelling capacity, solubility, water-holding capacity, and syneresis were also determined. The textural properties of the starch gels were characterized by their firmness, gumminess, adhesiveness, springiness, and cohesiveness. It was found that the wheat starch had the highest solubility, and the corn starch has the lowest % of syneresis.*

***Keywords:** rice, corn, wheat, gellatinisation, syneresis*

FRI-LCR-P-2-BFT(R)-02

BIOGAS PRODUCTION IN A SYSTEM OF CASCADE ANAEROBIC DIGESTERS

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***Abstract:** The paper reviews the use of a system of cascade connected digesters, in order to produce biogas. During the experiments, different mixtures are used as feeding material to the digesters. The aim is to investigate the influence of such cascade system and its potential to produce biogas. It's believed that such system could be built at middle and low scale farming places, so that organic waste like straw and manure could be collected and utilized into the digesters. The experiment consists of two main parts: part one is the construction of digesters cascade system, and part two is loading the feeding material into the digester. The digesters are interconnected to each other, allowing feeding material to be transferred from one digester to another. Then each digester is connected with biogas holder, in which biogas is collected. The temperature control in each digester is achieved by a system of heated and thermally insulated pipelines running around the reactors and connected to boiler. The digesters are also thermally insulated. The temperature is set at 35 ° C. Samples were taken daily for analysis.*

The process of mixing plant waste material with cattle manure is believed to improve the process of anaerobic digestion and results in higher yield of biogas with higher methane content.

Keywords: Biogas, cascade digesters, waste plant material, methane content, cattle manure

Acknowledgement. The research is supported by BNSF under project KII-06-H27/4/2018.

FRI-LCR-P-2-BFT(R)-03

CO₂ RECYCLING WITH PRODUCTION OF ORGANIC CHEMICALS BY ELECTROLYSIS

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***Abstract:** The research is focused in the electrochemical reduction of bicarbonate and carbonate anions to organic compounds. Graphite rods are used as electrodes, in which the cathode is modified with activated carbon doped with metal oxides (stanoxide, titanium tetraoxide and magnetite). Results show significant amount of formic acid, as well as presence of methanol, some amounts of aliphatic carbohydrates, olefins and aromatic compounds.*

The successful results from the research carried out, could be an opportunity to recycle carbon dioxide into usefull organic products after absorption in alkaline solutions and subsequent catalyzed electrolysis.

***Keywords:** electrochemical reduction, carbonates, bicarbonates, graphite electrodes, oxide catalysts*

***Acknowledgement.** The research is supported by BNSF under project KII-06-H27/4/2018.*

FRI-LCR-P-2-BFT(R)-04

POSSIBILITIES TO IMPROVING THE CALCIUM CONTENT IN WHEAT BREAD

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***Abstract:** At the present stage, it is necessary to encourage and increase the intake of foods that have a positive impact on human health. An appropriate way to ensure a healthy diet is to include natural products that are rich in biologically active substances, incl. mineral elements. Bulgaria is a country with a traditionally high consumption of wheat bread, but it is relatively poor in minerals. This has directed our interest to the possibility of enriching wheat bread with non-traditional raw materials for bread production - rosehip flour, pumpkin seed flour and nettle flour. The calcium content in wheat bread samples, prepared with the addition of 5% and 10% of the specified flours, was investigated using the highly sensitive AES-ICP method. from the obtained results, it was found that the calcium content of the fortified samples varies from 138 mg/kg (5% pumpkin seed flour) to 2872 mg/kg (10% nettle flour). This amount is significantly higher than that found in bread, made only from wheat flour type 500, where it is 108 mg/kg. Enriching wheat bread with these type of flours makes it possible to increase calcium intake. with the addition of 10% nettle flour, more than 70% of the body's daily calcium needs would be met for both men and women, which is 10 times higher than in the control sample. This is an appropriate nutritional approach for the prevention of deficiency conditions.*

***Keywords:** Calcium, Mineral content, Wheat flour, Pumpkin seed flour, Rosehip flour, Nettle flour*

FRI-LCR-P-2-BFT(R)-05

INVESTIGATION OF ACTIVE PAPER PACKAGING MATERIALS WITH SILVER WATER

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***Abstract:** Paper-based packaging materials with silver water coating were developed. their antimicrobial activity against Gram-positive, Gram-negative bacteria, yeasts and molds was investigated. It has been established that the tested packaging materials have a significant antibacterial and less fungicidal effect.*

***Keywords:** Paper packaging, Silver ions, Antimicrobial activity*

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FRI-LCR-P-2-BFT(R)-06

DEVELOPMENT OF FUNCTIONAL FOODS FOR TYPE 2 DIABETES

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Abstract: *Type 2 diabetes is a rapidly developing disease, the prevention of which includes the consumption of specialized functional foods. In this regard, the aim of this study is the development of functional food products with a hypoglycemic properties: a marmalade-like food product and mousse with the replacement of sugar in the recipe with stevia extract and with a mixture of stevia extract and inulin. The raw materials selected for the products development include apples “Golden”, mint, various gelling agents (gelatin and agar-agar), etc. to obtain optimal compositions of the developed food products, combinations of various types of raw materials and their country were experimentally determined. As a result of the research, the recipe was optimized and a technology for producing marmalade and mousse with hypoglycemic properties was developed. The research included the study of the physical, chemical and sensory properties of the developed food products. The content of the simple carbohydrates determined by the refractometric method showed that products with the addition of stevia extract contain 26-28% less sugars than the reference sample, and the water activity (a_W) is 0.97, which is higher than in the reference sample. It was also determined that in order to obtain optimal technological and sensory properties, the mass of mint added to the composition of the developed products should be 1.3% of the mass of apple puree, and the mass of stevia extract should be 0.4%, respectively. The mass of inulin should be 3% of the mass of puree, mass of gelatin 2.1% and agar-agar 1.7%. The obtained experimental data showed that the developed food products have the claimed properties and improved technological and sensory properties and can be recommended for use by people with type 2 diabetes, as well as for the prevention of the disease.*

Keywords: *Functional Foods, New Product Development, Type 2 Diabetes*

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FRI-LCR-P-2-BFT(R)-07

DEVELOPMENT OF FOODS WITH ANTIOXIDANT AND ANTICANCER POTENTIAL

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Abstract: Malignant tumors have become one of the main causes of mortality in the world, people who are faced with a diagnosis of "cancer" especially need proper nutrition. Due to insufficient intake of essential nutrients, a person's condition may worsen, with the subsequent development of the disease. The aim of the work was to develop oatmeal bars with berry marmalade layers, which have antioxidant and anticancer properties. As raw materials, products of autochthonous origin were used: sea buckthorn, black currant, pink grapes, honey, sunflower seeds, walnuts, pumpkin seeds, etc. Research methods included the technological development of recipes for bars to obtain the most harmonious combination of all components used. The analysis of the studied samples of berry juices with the free radical DPPH and the analysis of UV spectra of the studied samples were also carried out. The highest values of antioxidant activity were obtained for sea buckthorn and grape samples, amounting to 92.52% and 90.45%, respectively. The analysis of UV spectra confirmed the content of such antioxidant components as polyphenolic compounds characteristic for all studied samples and registered at a wavelength of the 220 nm. for the sea buckthorn sample, a second peak was recorded at the wavelength of 350 nm, characteristic for antioxidant components such as carotenoides. The results of the sensory evaluation showed that the bar with sea buckthorn marmalade layer had the most pleasant sensory properties. Based on all the results obtained, it can be concluded that the developed food products can be recommended for consumption by consumers.

Keywords: functional food, antioxidant and anticancer potential, technological process, food development.

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