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SESSION I

Economic development and policy

1) Regional economic cooperation

2) Media in support to sustainable development

3) Liberal Market and Human capital

4) Social movement, Brain Drain

5) Tourism in function of development

6) Sports activity and health care

7) Social engineering and its impact

8) Demography and impact on labour trade, employment and unemployment

9) Migration impact on development and labour market

10) European integrations and mobility

11) Economical development of far east and its impact in region

12) Cultural Diversity and its impacts

MEDIA AND POLITICS RELATIONSHIP IN MACEDONIA AND MEDIA SUSTAINABILITY

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ABSTRACT

The influence of politics and media ownership on editorial policy in different media in Macedonia is a key issue inherited since communism. Media independence and their professionalism suffer due to the very close cooperation between the media, their politics and business which are promoted together. Media and politics are in a very close cooperation and this cooperation goes beyond the primary interest that the media has and needs to have, which is the objective information of the society. Media politicization and failure to follow the main role are some of the most important and serious issues facing the media in Macedonia. How true can the news be having in mind the media and politics relationship and the media owners who have had and still have important political positions, and how much can we talk about democracy, freedom, peace, free speech and free media in current media conditions in Macedonia and how stable is the media system in Macedonia exactly under these conditions? This paper aims at analyzing media and politics relationship as a major media problem in Macedonia, as well as analyzing the implications that the society can have from such a relationship.

Keywords: Media, Macedonia, ownership, journalism, sustainability

IDEOLOGICAL PREFERENCES OF POLITICAL PARTIES AND THEIR INFLUENCE IN SOCIAL POLICY DEVELOPMENT OF MACEDONIA (POST 1991)

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ABSTRACT

With the collapse of the former SFRY[2], citizens, vulnerable groups in particular and the overall Macedonian society had to face the first decade of a prolonged transition, characterized by continuous reforms and rapid changes as a result of the newly emerging social conditions, ideological, political and economic challenges. The first decade of transitional period resulted in chaotic changes not only in the economic system, but in weaker measures of social protection and social security. With increased rates of unemployment, pensions and social security declining, health care services weakened, a number of legislative changes were introduced, both in terms of funding, administration and delivery of social policy services and institutional arrangements of social protection system. However, it has been shown that these policies and laws have not improved the overall situation of social beneficiary users nor have they helped to include them in the labor market. Since the independence of the country, social policies have undergone many changes broadly influenced by demographic factors, low economic growth and ideological 'preferences' of political parties governing the country so far. The question that naturally arises is: how much the measures applied have given rise to a positive change for the existence of the welfare state and to what extent it can be estimated that the social policies undertaken were influenced by ideological preferences? What is the legacy with the former state-socialist welfare tradition? Which were the main influences in the establishment of the welfare state in Macedonia? The aim of the paper is to analyze social policy development in the first decade of transition with the scope to further extend the research with the successive decades. Methodologically, this research is mainly characterized by literature review with the aim to analyze the social context in which reforms have undergone and being implemented. A document analysis of most important social policy documents will be used, and at least, (if possible) interviews with popular politicians being part of the reforms will be conducted.

Keywords: Social Policy; Political Parties; Social Protection;

ETHNO-DEMOGRAPHIC ECLINE IN POST-YUGOSLAVIA AND ITS ETHNO-POLITICAL IMPACTS IN CENSUS PROCESS IN THE REPUBLIC OF MACEDONIA

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ABSTRACT

When we consider that political power is usually a game of numbers, census becomes not only statistical, analytical or developmental issue, but a sensitive political issue. Especially, in heterogeneous societies, the census becomes a barometer for the country's policy towards national and religious minorities and vulnerable groups. But measuring ethnic, racial, linguistic, religious composition of a country is necessary to highlight and address roadblocks to equal opportunity and social justice. Like almost all political or socio-economic issues, the census too is a part of European Union (EU) accession process. Chapter 18 of the EU acquis communautaire that is needed to be complied by potential candidate and candidate countries for EU membership foresees the conduct of a population census by enlargement countries. So the census exercise is not only about providing good data for policy planning, but also for proving that both countries are "good" EU Member States that can fulfil their obligations as members. The census of national population of the Republic of Macedonia, an ethnically/religiously diverse candidate country for EU membership, is planned to take place in 2020. This issue is being discussed following the complaints of the international community, which has said that this process must be finalized, after the country failed to do this in 2011. But the increased mobilization of specific ethnic communities in Macedonia due to socio-economic inequalities may effect the proportional representation in state institutions that was guaranteed by Ohrid Framework Agreement. This study aims to investigate how census politics in the Republic of Macedonia has been used as a political device and how the census process has engendered tensions. This study demonstrates how census becomes more politicized process in demographic decline and mobilization of ethnic communities is being realized. This study aims to take a comprehensive look at census process in the Republic of Macedonia during European Integration. Strategy reports, case studies and interviews with local residents from different ethnic groups will be analyzed dealing with the representation of ethnic communities in state institutions, ethically-specific demographic declines and peoples' perception of census.

Keywords: European Integration, Macedonia, Demographic decline, Census.

THE IMPORTANCE OF PROFIT PLANNING AND CONTROL PROCESS, A LITERATURE REVIEW

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ABSTRACT

The profit is one of the main goals of the organization to look into profit condition of survival; it is the goal on how we look into the future cost and profit in order to have the business managed well. A company always considers the resources, capabilities and the goals on how the foundation of the income statement of the organization is made up to. The profit is up to planning in how the estimation is made to evaluate the best results. Every organization has a goal to set, to put on how well they go into profit planning and controlling the budget system. It takes an entire concept building on management functions in terms of planning and controlling in the management to come across the major needs of the organization and functions of it. The planning always comes to connect with the production and the operating systems which come to show various concepts on the techniques which are used in focused on operating the cost system and the system that is standard operating on the costing planning system. The budgeting always connects with the systems which are used independently on how they are not interring the depended. The word of the budget usually comes to show the interest of the money that we are spending for various things, costs, and how we are limiting that budget to look at the highest needs of the organization which does connect to the concept of how the budget is the major tool for connecting the limitation for the control system and avoiding the extra cost that we are spending on things in the organization which are leading to cost. A manager's task is to evaluate how well a business can be demonstrated and launched with functions and looking forward with future spending to enhance the best estimated as the quantitative statements are used for purpose of periods and policy made for organizations objectives. This research paper, through a literature review, is going to evaluate various concepts of the business to show the importance of planning in profit control and budget control and maximizing profit while minimizing the cost for a better performance in the organization.

Key words: profit, planning, control, process, budget, cost

CHALLENGES AND IMPLICATIONS FOR THE FUTURE OF THE WESTERN BALKANS TOWARDS EUROPEAN UNION

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ABSTRACT

This paper will focus on the policies developed by the European Union towards the Western Balkans. The main target of the paper will be to present how the conditionality policies of Albania, Bosnia and Herzegovina, Kosovo, Macedonia, Montenegro, and Serbia have been developed related to European Union’s criteria. We will give a look to past European Union’s enlargement strategies, nevertheless the center of our interest will be the Strategy for Western Balkans adopted in 2018. The Strategy makes us understand that the EU door is open to further accessions and also provides the priorities and areas of joint reinforced cooperation, addressing the specific challenges the Western Balkans face, in particular the need for fundamental reforms and good neighbourly relations. All of these will be presented in the paper briefly and comprehensively for each Western Balkan country. The paper concludes with an assessment of the general integration process of Western Balkan countries, and endeavors to compile some conclusions regarding this process and prospects of full integration of Balkan countries into the European Union in the future.

Keywords: European Union, Western Balkans, integration, strategy.

INFLUENCE OF LOCAL AND SELF-GOVERNMENT IN THE DEVELOPMENT OF MULTICULTURALISM\

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ABSTRACT

There are a number of key ideas in thinking about what 'culture' could mean. Generally, though, the concept is viewed in a broad sense to include elements of the way that people affirm their identity as individuals and in groups through the sharing of common objects, rituals, behavior, and knowledge. – as in this definition of culture from the UNESCO *Declaration on Cultural Diversity* (2001): I would cite: **Article3**: Cultural diversity widens the range of options open to everyone; it is one of the roots of development, understood not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence. **Culture is the foundation-stone of identity**. Local and central governments have important roles in ensuring that the fundamental freedom of communities and individuals to retain, interpret and express their own cultures is at least retained – and at best guaranteed and enhanced. The well-being of people, individually and collectively, is closely linked to the values that arise from a strong sense of cultural and national identity. A multi- ethnic and democratic society will express a multitude of cultural identities. Therefore in this context I would mention Skopje Municipality which consists of many nationalities: Macedonians more than 60 %, Albanians, more than 20%, and the remaining, Turkish, Bosnian, Roma, Vlah and Serbian. The inhabitants are dispersed in more than 150 villages. In many villages are spoken two or more languages. In many primary schools pupils learn along with the Albanian, Turkish and Bosnian. These are mostly local residents and have lived for centuries downtown and in these villages and always co-existed perfectly. With liability we can say that the Municipality of Skopje is a unique example of how people can co-exist with different ethnic backgrounds and religions. Cultural diversity in this region has contributed greatly in bringing the people among themselves. "All different all equal"

Keywords: Multiculturalism, equality, culture, co-existed, identity.

ROLE OF MARKETING IN THE PRODUCTION AND SALE OF KOSOVO WINE

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ABSTRACT

From the marketing context the wine is a specific product of the agricultural branch in Kosovo, while from the standpoint of consumption is relatively low, while applying the marketing concept wines represent a relatively representation most important export of Kosovo. In the same time, the presence of vineyard and vinery areas in Kosovo presents a resource very important in part of the southern economic region of Kosovo, with particular emphasis on Rahovec, Suhareka, Prizren, Gjakova, and Malisheva who represent the importance of this production and the greatest absorption of workforce in the branch of agriculture as the segment that generates of the economic development of the region and of Kosovo in general.The aims of this paper, on the one hand it is, to research, to see and scientifically verify the importance and application of the marketing concept with contemporary methods to improve growth sales and consumption of wines, and, on the other side, to recommend how much is needed to make important improvements in the quality of wines, promotion of sales channels, the export flow of wine and the deficiencies observed in promoting wines in foreign markets.Wine production in Kosovo has a thousand-year-old inheritance, as a traditional branch of agriculture, with a steady export performance with a tendency of growth, which should continue to contribute in the development of the southern economic region of Kosovo, but also in the overall economy of the country. Therefore, we consider it of a special importance is the improvement of all marketing activities so far, anyway and reassignment weaknesses in strengths wine production and its placement in the domestic market and the global market.

Keywords: marketing, promotion, wine, production, selling, agriculture, economic development.

HUMAN RESOURCE DEVELOPMENT AND THE CONTEXT OF KOSOVO

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ABSTRACT

Human Resource Development (HRD) refers to formal activities that will enhance the ability of all individuals to reach their full potential, by enhancing the skills, knowledge and abilities of individuals. HRD helps improve the productivity of people in concerned areas of work. By increasing productivity and making improvements to the skills base which will potentially help economics growth, as well as social development.Kosovo's national concern is to accelerate development so that there is a match between supply and demand for human resources. However, the challenges to reach this are: changing workforce demographic; educational system; eliminating the skill gap; need for life long learning and competing in global economy.

Keywords: Human Resource Development, Kosovo, challenges

STRENGTHENING OF BIOTECHNOLOGICAL EDUCATION IN MACEDONIA AS AN IMPORTANT DEVELOPMENT COMPONENT

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ABSTRACT

Biotechnology is a discipline which is applied in different areas such as: food production and processing, pharmaceutical industry, diagnostics etc. By strengthening of biotechnological education in Macedonia (SBEM) can be improved and modernized this field of education in order to meet the industry needs in the country. SBEM will be coordinated by the Faculty of Technological Sciences as a part of the "Mother Teresa" University in Skopje and it will include vocational high schools dealing with biotechnology in the Republic of Macedonia and appropriate clusters in the frame of Commercial Chambers. The main objective is to improve teachers' and trainers'competences and their ability to provide eLearning in-service vocational training courses for biotechnology secondary school teachers. Putting together of all stakeholders in biotechnological education will be done by establishment of a National Data for Biotechnological Education of Macedonia (NDBEM). Different type of training (courses, workshops, seminars) will be held at each faculty in e-learning way using active teaching/learning (ATL) approach. The trainings will be given by International and domestic experts in biotechnological education. ATL is important for university staff and vocational teachers as they had no pedagogical training during their graduate courses. University teachers will develop and implement classical and online vocational courses targeting recent advances in biotechnology for biotechnology teachers in VET schools. Previously, the market survey should be done in order to analyze the need of a real technological sector in cooperation with Commercial Chambers. NDBEM will be formed using assistance from Graz university and it will be used as a repository for online courses and teaching resources developed during trainings of university and teachers in biotechnology vocational education and training (BVET). Project deliverables will be stored and available in the NDBEM for future users. Its sustainability need to be provided by its recognition from the Ministries of Education and Science. SBEM will have the following specific objectives: improvement of quality and availability of vocational education; strengthening of professional and pedagogical competences of educators and trainers; and creation of the "open source" repository for educators in the area of biotechnological education.

Keywords: biotechnology, database, education, stakeholders

TAX SYSTEM AND RATES IN THE REPUBLIC OF KOSOVO AND THEIR COMPARISON WITH THE BALKAN COUNTRIES

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ABSTRACT

In order to understand the functioning of the tax system and tax rates, we have addressed the issue of their importance for the formation of budget revenues for the state. During the research we have noticed that changes in tax rates, expansion of the taxable base and the creation of conditions for economic development are constantly changing in Kosovo and the Balkan countries. Although the tax system in Kosovo is new, it is competitive not only in the region but also wider. In the new fiscal package of 2015, tax rates have been changed. Personal Income Taxes have reduced some of the incomes, corporate taxation has 10%, insurance companies from 7% to 5%, while VAT is applied with two tax rates of 18% and 8%. Balkan states have significant differences in tax rates, but not in tax systems. In some taxes high rates are set, while in some countries we have lower rates. It is characteristic and interesting that the tax systems of these countries have been constantly reformed, reducing tax rates and redefining the tax base.

Key words: Taxes, tax rates, tax system, reforms, comparison

THE TECHNOLOGICAL CHANGE AND UNEMPLOYMENT IN DEVELOPING COUNTRIES – THE CASE OF REPUBLIC OF MACEDONIA

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Individual Researcher

ABSTRACT

The technological advancements and inventions are considered as a key factor for economy growth and development. There is a huge difference between the levels of technologies used across countries. Because of the increased access to education and opportunities, developed countries are more likely to use modern technology. Those countries can easily adjust the labor market and the whole economy to the changes. Additionally, developed countries are significantly more competitive because of the high-tech sectors, which increase the productivity and efficiency. On the other hand, developing countries find some difficulties in the process of implementing modern technologies. Moreover, developing countries have problems related to the labor market and it's adaption to the technological changes, especially because developing countries have high unemployment rates. The high unemployment causes additional social and economic problems like social gaps between the social groups, limited access to high-level education and poverty. This paper offers analysis of the possible approaches for reducing the unemployment by increased use of high technologies in developing countries, with particular reference to Republic of Macedonia. The main reforms that are required, are related to education, self-employment in technology-oriented businesses and financial support. These reforms should reduce the unemployment and solve the labor market's fails, by utilizing the opportunities offered by the high technology.

Keywords: Technological Advancements, Education, Economic Growth, Labor Market, Developing Countries

DETERMINATION OF CORPORATE CREDIT RATING OF THE COMPANIES IN THE REPUBLIC OF MACEDONIA AS A TOOL FOR THE CREDITWORTHINESS OF THE COMPANIES

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ABSTRACT

In this paper, the primary task is to show how important the credit rating is for decision-making for companies when concluding contracts for mutual cooperation between companies, and avoiding any financial risks. In this paper, among other things, through a case study is performed analysis of twenty five randomly selected companies from the Republic of Macedonia, and for the same several key financial indicators are calculated in order to reach the creditworthiness of the selected companies. As the main objective of this paper is after obtaining a clear picture of the credit rating of the companies from the calculated and analyzed results of the financial analysis, to be able to determine the financial power of a given company and their ranking according to the creditworthiness of the company. The paper aims to warn companies also in the Republic of Macedonia on the importance of the credit rating as a tool for the creditworthiness of companies when making smart decisions before concluding business contracts in order to avoid possible unintended consequences and financial risks. In the preparation of the paper, are used standard methods of secondary research for which through data sources were collected information on the characteristics, the notion as well as the elements and structure of the credit rating as a model for business decision-making and the adoption of smart decisions by the companies in the Republic of Macedonia.

Keywords: credit rating, credit rating companies, financial indicators, creditworthiness, net worth.

MATHEMATICAL PRODUCTIVITY MEASURES

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ABSTRACT

Usually concepts related to productivity are presented through different tables and graphs. The basic concept of the production function can be expressed mathematically, in this paper the accent will be put into some algebraic form of the production function such as: linear form of inputs, production function of Leontief, production function of Cobb-Douglas. Unlike the case of the linear production function, the dependence between input and output is not linear. Unlike Leontief's production function, there is no need for inputs to be used in fixed proportions. The Cobb-Douglas production function represents a predetermined degree of switching between inputs although it is not a perfect substitute. Knowing the mathematical form of the production function we can measure different productivity measures, eg. as we know the average production input is the output of production divided by the number of input units produced.

Key words: input, output, productivity, production, math.

THE CHANGE IN INTEREST RATES AND THEIR IMPACT ON CONSUMPTION

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ABSTRACT

Positive or negative interest rate changes / variations and their correlation with consumption and in general with the welfare of households is a very current and equally important topic for a country's economy that has a direct impact on its development. Therefore the institutes and financial markets take a very important place in economy as intermediates in savings collection and other funds for borrowers and investors. While doing this, their main role is to reconcile the various requests savers and borrowers , thus facilitating a higher level of savings and investment in the economy. Institutions and financial markets provide a framework to conduct the economic transactions and monetary policy, and help save on investments , thus supporting economic growth. This paper clarifies the definition of the interest rate and interest rate structure, starting from the class theory and the criticisms of classical interest rate theory as well as the mode of deployment in Kosovo, the factors that influence the change in interest rates are also some of the points that have been discussed. The methods used are quantitative and qualitative methods.

Keywords: interest rate, financial institution, markets, investments, consumers.

SESSION II

Sustainable planning & Construction, and Ecology

1) Regional aspects of environmental protection, and safety in work place

2) Environmental pollution and protection

3) Waste management

4) Environment and human health

5) New enviroemntal planing and constructio

6) Sustaible planinng and contruction

7) New advancements in urban planning

8) Transportation and communication chalenges in the era of ICT technologies

9) Spatial planing chalenges

COMPARATIVE STUDY BETWEEN EUROCODE 8 AND NATIONAL CODE“NC” (IN TERMS OF SEISMIC SAFETY OF AN EXAMPLE RC FRAME BUILDING)

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ABSTRACT

With the implementation of seismic codes, the seismic design of the structures to be built as well as the seismic safety estimation of old structures is performed.Nowadays, there are more than seventy seismic codes worldwide, one being stricter than the other and hence the seismic resistance of the same structure following different codes differ. This is due to the differences between countries/regions specific parameters which are ultimately reflected at their national annexes., such as:geographical positions, seismic hazard, environmental and economic conditions, etc. Our National design code “NC” is followed while analyzing, designing and construction of earthquake resistant high-rise buildings in Macedonia, whereas in member states of European Union, Eurocode 8 apply. Because Macedonia is on its way towards European Union, sooner or later,Eurocode 8 will substitute NC. So, a comparative analysis between these codes will not only contribute in studying their differences and similarities, but also will give a clear pictureover the estimation of sustainable planning and construction in Macedonia as compared with European standards. This work presents a comparative study between Eurocode 8 and NC in terms of seismic safety of an example RC frame building. Firstly, the elastic analysis and seismic design of the structure is performed following Eurocodes and NC, respectively, and then the obtained results are discussed both in aspects of seismic safety and economy. To estimate the provided resistance and ductility of the building, a nonlinear (static) pushover analysis is performed. At the end, it is concluded that Eurocode 8 offers both larger resistance and larger ductility than NC.

Keywords:*Analysis, Design, Eurocode 8, national design standards.*

HEATING, VENTILATING, AIR CONDITIONING SYSTEMSAND ERGONOMIC WORKPLACE SEATIN THE FUNCTION OF A SAFETY AND PRODUCTIVE WORKING ENVIRONMENT

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ABSTRACT

In most cases, the work environment would not be comfortable without the necessary internal control of the working environment with the request to air conditioning in nowadayshas given way to appreciation of its practicality in making our working conditions healthier, more safety and more productive. This means to applied to year round heating, cooling, humidity control, and ventilation required for desired indoor conditions. In this paper the main purpose is air conditioning refers to the control of temperature, moisture content, cleanliness, air quality, and air circulation as required by the European standards for the working environment. The results achieved through this processes aim to better environment condition, to keep indoor environments safe and productive while protecting and preserving the outdoors for generations to come. Many types of controls are available for use on air-conditioning, refrigeration, and heating equipment. They come in many sizes and shapes and do the job well for a period of time, but they all require periodic inspections, repairs, and replacement for the purpose of keeping the equipment in a regular condition and achieving an appropriate effect on the sustainability of the working environment in terms of protection and human health. Very important thing in safety and health at work is how to ensure that seating in the workplace is safe and suitable, because most jobs nowadays require people to sit whilst working. The aim of this paper is to advise that prevention is better than cure. The paper takes into account highlights rules with concrete examples of how a workplace seat should look like, so as to be as comfortable as possible and enable untiring work without consequences on worker health and environment working with high productivity.

Keywords: the work environment, heating, ventilating, air conditioning systems,ergonomic workplace seat.

DATA ON TOXICOLOGICAL MATERIALS OF AIR POLLUTION IN THE KICHEVO MUNICIPALITY

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ABSTRACT

One of the most dangerous of the toxicological properties of air pollution in the Kichevo plain is Oslome's thermal power plant with an altitude of 630 m which produces electricity from coal combustion, which is extracted from the surface of this site.At the Oslomee thermal power plant during the production of coal-fired power plants, these toxic substances are released into the atmosphere: carbon monoxide (CO), sulfur dioxide (SO2), nitrogen oxides (NOx), carbon dioxide (CO2) and dust or grace.The measurement of these toxicants has been done in the laboratory for the protection of the environment near the thermoelectric power plant within 2015 and beginning of 2016, which are based on the tolerable limits but the occurrence of diseases in the population of this country is increasing and based on statistics provided by the healthcare facility in the municipality of Kicevo these toxic substances cause a series of dangerous cardiovascular diseases, carcinogens and heritable diseases. Concentration of toxic substances in the air in the Kichevo plain from Oslome's thermoelectric power plant is "as good as the worst", which requires a more urgent solution because it affects the health of the country's population, the increase of mortality and the qualitative decrease of the nutrients that are obtained from the plant and animal world, which in the past have enabled the existence of the population of this area and today have negative action on their health.

Keywords: thermoelectric, living environment, toxins, protection

MATHEMATICAL AND NUMERICAL MODEL OF THE STEAM TURBINE FOR SUSTAINABLE ENERGY SOLUTIONS

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ABSTRACT

The mathematical model and numerical methods as an essential tool for the design and analysis of steam turbines for sustainable energy solutions are put forth in this paper. The last two decades in continuous increase in turbine inlet pressure and temperature. Modification of the turbo machinery parts, definitely require reliable and accurate predictions of the main flow dynamics characteristics and the heat loads imposed on the blades. One way to contribute to the sustainability of the environment and its energy resources is in the implementation of industrial steam turbine solutions for alternative energy applications. In that way the objective is to classify the influenced factors which affect the efficiency of the work of the turbine stage at defined thermodynamics properties of the flow. The numerical computation is conducted on the turbine model with two stages using the CFD commercial computer code CFX-TascFlow, based on solving of Navier-Stokes equation with applying a standard $k-\varepsilon$ two equation turbulence model.

PRELIMINARY DATA OF BIODIVERSITY IN STRICT NATURAL PARK OF BREDHIK (SHARRI MOUNTAIN) PART OF KOSOVO

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ABSTRACT

Sharri National Park of Kosovo is singled out by its floristic high diversity. It is considered as a main centre of biodiversity not only in Kosovo but also in Balkan and central Europe, because of its rich biodiversity and others natural values. There are gaps in the known distribution information of many spontaneous plants, especially for some of strict natural protected areas of this park. With the objective of filling in the data gaps and perhaps discovering plants that have therefore remained undescribed in the Strict Natural Reserve of Bredhik, we undertook a study for floristic inventory in this area, that differ from 11 others Natural Reserve of Sharri mountain ranged by its floristic diversity. In this paper will be presented preliminary data of one year scientific research work of taxonomic, endemism and distribution information. The material was collected during the vegetative period May – September 2018 and was prepared as the herbarium labeled with the collection sites, dates, biotope. Results showed that the studied area is very rich in total floristic composition, endemics and rare species. From the studied taxa until now, we have estimated that three taxa are stenoendemics and eight are local endemics. The Strict Natural Reserve of Bredhik is predicted to be the most floristically diverse area for its size in all of Sharri National Park of Kosovo. Some plant taxa within the study area appear to be threatened or endangered specifically from human actions.

Keywords: biodiversity, Natural Reserve, stenoendemic, endemic specie, Restelicë.

FLOW ANALYSIS OF UNGAUGED KAÇANDOLL RIVER

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ABSTRACT

River Kaçandoll, is an average size of Kosovo rivers, which does not have any gauging station. It is tributary of river Lap which is subject of year after year floods. Also, according to Kosovo Master Water Resources Plan, there is supposed to be build a dam for multi supply purposes.The aim of article is to calculate minimal, average and maximal flows of this river, with methods thatdo not use observed data. Minimal flow was estimated by method of regional correlation between minimal average monthly flow of p% probability and minimal average daily flow of p% probability. For average flow has been used “Method of predominant factors”, “Method of regional relation of precipitation and runoff”, “Method of runoff contour map” and “Langbain’s method”. Maximal values of flow were estimated by use of “SCS-unit hydrograph procedure”. These results are useful, for any design, until a gauging station will be established.

Keywords: flood, flows, region, correlation, precipitation, SCS method

RIQUALIFICATION OF PRISHTINA'S CENTER COMBINING SPATIAL UNITS AND CREATING A CENTRAL SQUARE IN PRISHTINA

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ABSTRACT

City is an album of architecture, tradition and memories but Prishtina is known to have a lack of it. Over the years this city has lost its identity, and nowadays it is known as "the city of concrete" or sometimes as "the city without a river". Going back in time and exploring how it was and how it is today, we see an undocumented city for more than 70 years of existence. A city that has faced a deep urban degradation since World War II and goes on nowadays also. The urban and architectural space of Prishtina has been violated with certain political issues from time to time, and the consequences are present even now! Both rivers Vellusha and Prishtevka (Prishtina) have been covered by violence allegedly in the name of "the purity of the city", then many historical building has been destroyed for the sake of the new under the motto "Destroy the old, build up the new". Such things faded Prishtina's former character, reflecting an urban tragedy that now belongs to the city. The main purpose of this study is to remind the present problems of Prishtina, with particular emphasis on the treatment of public spaces that play an important role in our formation as people, our behavior and our beliefs. Public spaces in Prishtina, especially those located in the center of the city, reflect the need for immediate intervention! Starting from "AdemJashari" square, which is divided and much neglected, continuing to "Ibrahim Rugova" square, "Skenderbeu", "Mother Teresa", "ZahirPajaziti" and the "Heroinat" square, by removing physical barriers near to the Assembly and Government building of the Republic of Kosova, stopping the traffic in the streets "Garibaldi" and "Xhorxh Bush", this project aims to create an inclusive space- the central square of Prishtina, which extends up to the cathedral "Mother Teresa" and will include eco links and interactive relations with other public spaces in the city. The goal of this study inspired by sustainable architecture and driven by the lack of a clear image of an inclusive city that offers desirable environments for all kind of people, is the creation of a healthy, attractive and adaptable space for residents, passersby and tourists. Further, the study claims to improve the well-being of citizens by minimizing air and acoustic pollutions, hence directing the city toward a smart one.

Keywords: *public space, square, river, center, Prishtina.*

STRESS, COPING AND SALIVARY pH: A LONGITUDINAL STUDY IN HEALTHY YOUNG ADULTS

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Psychological stress leads to activation of the autonomic nervous system (ANS), therefore salivary pH, which is regulated by the sympathetic and parasympathetic nervous system, may be used as a biomarker of stress. The aim of this study was to assess the association between the perceived stress, depression, anxiety stress, coping, optimism and salivary pH in healthy young adults over time. A prospective longitudinal study. 141 university students (Males 29.1%, Females 70.9%) gave saliva samples at three time points (T1, T2 and T3) over a period of seven months for measuring pH, and answered the Perceived Stress Scale 10 (PSS10), Depression Anxiety Stress Scale 21 (DASS21) and Brief Cope to assess the perceived stress, depression, anxiety, stress and coping, respectively. RM ANOVA showed that pH levels were significantly different over three time points, $F(2, 244) = 8.369$, $p < 0.001$, partial $\eta 2 = 0.064$. Multiple linear regression analysis showed that perceived stress, depression, self – destruction, gender, and high-intensity physical activity predicted pH at T1 (n =141), $R2 = 0.158$, $F(5,134) = 5.016$, $p = 0.000$, adjusted $R2 = 0.126$. At T2 (n =134), salivary pH was predicted by saliva flow rate, emotional coping, self-distraction, dysfunctional coping, support seeking, and smoking less than one pack a day, $R2 = 0.166$, $F(4,128) = 6.354$, $p < 0.0000$, adjusted $R2 = 0.140$. At T3, saliva flow rate, gender, anxiety, stress, and self-distraction contributed substantially to the model's ability to predict salivary pH at T3 (n=124), $R2 = 0.260$, $F(5,118) = 8.299$, $p < 0.0000$, adjusted $R2 = 0.229$. This longitudinal study indicates that salivary pH is a reliable, non-invasive and inexpensive marker of ANS activity associated with perceived stress, depression, anxiety, engagement coping, and self-distraction coping in naturalistic setting.

Keywords: saliva pH, perceived stress, depression, anxiety, coping

SUSTAINABLE URBAN TRANSPORT SYSTEM IN IZMIR CITY -TURKEY, WITH RECOMMENDATIONS FOR THE CITIES IN REPUBLIC OF MACEDONIA

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ABSTRACT

The development of technology, the growing trend for fast and reliable transport of passengers, air pollution, traffic congestion, increased problems with population growth and high costs for using private vehicles, have led to the need of building urban transport systems that will provide economic and environmental sustainability and urban areas will be more efficiently used. A sustainable urban transport system requires strengthening various features of the system including mobility, accessibility, social equity, efficiency, safety, security, low carbon, comfort and people – and environment-friendliness. There are various ways to describe an implementation method for sustainable urban transport in a city. In order to see how this works in a city of millions citizens, this paper presents the system of sustainable urban development of Izmir City – Turkey. It also provides a guidance on how the experiences and concepts applied there can be adapted to our cities in order to have sustainable urban development in the cities of the Republic of Macedonia.

Keywords: *Sustainable Urban Transport System, Public transport,*

OPTIMAL MODEL OF LOW ENERGY BUILDINGS IN NORTHWEST MACEDONIA USING PHOTOVOLTAIC SYSTEM INTEGRATED INTO A DOUBLE FAÇADE

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ABSTRACT

Integration of photovoltaic panels into new and existing architecture offers an opportunity to design energy-efficient and environmentally friendly buildings. Building envelope is the main element responsible for energy needs within a building. This study investigates integration of photovoltaic systems into double façades in the existing public administration buildings in northwest Macedonia. While reconstruction, the double glass with integrated photovoltaic is placed on the existing structure, taking into account the need for daylight and natural ventilation. The integration of photovoltaic systems into double glazed facades, has not been sufficiently explored, especially in Macedonia. Optimal photovoltaic systems will be integrated into the double facades of the Regional Local Administration. The system has variations depending on the position of the photovoltaic modules and the angle of inclination which are important factors for the conversion of solar radiation in which the installation of double facades is planned as an additional layer during the renovation in order to increase energy efficiency. Using scientific methods the modeling process provided by the computer program, the optimal model of the double facade will be determined. The optimal model of double façade, i.e. the optimal orientation of the building and the inclination angle of photovoltaic modules are among the most important issues when designing a photovoltaic system used in double facades. The building newly - designed envelope and its tested parameters will be designed as a low energy building. Durability of the system is guaranteed by aesthetic, high - quality integrated modules, as well as by accompanying equipment. The model thus obtained can be implemented in other buildings as well. The concept of low energy buildings represents a modern way of managing life processes and it is based on energy efficiency and environmental protection.

Keywords: double façade, energy saving, energy efficiency,

PRELIMINARY DATA ABOUT THE FLORA OF THE SHUTMAN STRICT NATURE RESERVE, SHARR MOUNTAIN NATIONAL PARK, KOSOVO

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ABSTRACT

Mountain's Sharri are characterized by a rich floristic diversity. Its geographical position; geological factors, hydrology and climate factors are enabled this mountain range to have rich biological diversity, flora and vegetation as well as presence of endemic, sub endemic and other important species. Actually, information on the shoreline distribution of flora in Sharri Mountains is incomplete, especially in the Shutman region; this is due to lack of comprehensive floristic studies.

In this paper will be present partial data of one year scientific researcher work. The study was carried out at the Shutman, Natural Strike Reserve in Sharri National Park, Kosovo, to determine the distribution of flora with special focus on endemic and sub endemic plants of the study area. Floristic studies are preliminary intended to document all taxa for a geographic region where the study was carried out. Endemic and sub endemic taxa represent a unique step in the process of evolution; they contribute to assessment the diversity and uniqueness of a flora. The scientific material was collected from spring until late summer 2018, preparing the herbarium, accompanied by data for site-collection, biotope, etc. During this study about 50 taxa have been collected. From the preliminary floristic analysis, it results that the Shutman Natural Resource Flora is rich in species and is characterized by high number of endemic taxa. Some taxa can be candidates for the status of threatened or endangered plants.

Keywords: Flora, biodiversity, endemic and sub endemic taxa, Shutman Strict Nature Reserve.

IMPLEMENTATION OF EN1317 NORM FOR GUARDRAIILS IN MACEDONIA - NECESSITY OR ESSENTIAL?

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ABSTRACT

The situation with the guardrails on the roads in the Republic of Macedonia is more than critical. The guardrails set on all roads are older than 40 years, an average, according to the YUS standards, valid in that time. The development of science, technology and material production in this area is advanced to the extent that the overall procedure for the use of a guardrails (from materials, production, quality, appearance, testing to installation) is standardized, especially at the European level according to the EN1317 norm. By adopting this norm in the form of a national standard in the Republic of Macedonia, the possibility for its application is open. But that application in areas of design, performance and surveillance, is necessary to harmonize and standardize, taking into account their specificities and conditions. This paper analyzes the legal regulations in this area, analyzes the existing situation with the guardrail on the roads in relation to the degree of danger of traffic participants, the target groups for education are defined, methods for advancement of knowledge, the necessary action steps for the use of the norms in certain areas and urgent measures for the improvement of the traffic safety were proposed. The use of this European norm and its practical application in the fastest time are imperative - essential for the state, to raise the level of traffic safety.

Keywords: traffic safety, traffic accidents, guardrail, EN1317.

DRAZHNJA ORE BELT - GEOLOGICAL OVERVIEW AND 3D INTERPRETATION, KOSOVO (SE EUROPE)

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ABSTRACT

The Drazhnja deposit is located in the Eastern Kosovo, 23 km northeast from Prishtina, in the external zone of the Trepca Mineral Belt (The Trepca Belt of Pb+Zn+Ag mineralization is located within the NNW-SSE trending Vardar zone). The area belongs to the western margin of the Lece massif and is composed of andesite-dacite volcanic and pyroclastics of the Late Mesozoic-Early Tertiary age. The Lece intrusive complex has intruded a folded Cretaceous sedimentary sequence, as well as metamorphosed Paleozoic-Mesozoic rocks (mainly schist and carbonates) and small serpentine lenses of Jurassic age. The mineralization has mostly a hydrothermal-metasomatic character and occurs in the form of stock works, impregnations, and also filling fractures in carbonates. Main ore minerals are sphalerite, boulangerite, galena, pyrite and marcasite. About 6 million tonnes of Pb+Zn ore with content above 7 % has been documented. Only Drazhnja mine is presented in this paper.

Keywords: Kosovo, Trepca Belt, Drazhnja, Mine, Deposit, Lead, Zinc, Vardar zone, Reserves and Resources,

TRANSFORMATION OF THE INDUSTRIAL ZONE IN SHKUP, IN AN ARTISTIC - CULTURAL FUNCTION

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ABSTRACT

The city of Shkupi is known for the history of craftsmen. Handicrafts, various handicrafts, many other jewelery are some of the crafts that were previously the main point that the inhabitants of Shkup described. And why not create an area where people will have the opportunity to produce their works, at the same time to expose them, but also to have school spaces where they demonstrate their craft. For this, this study deals with the components that I have identified as key to the urban and architectural success of the industrial area and which are also measurable: production, collective memory and sustainable development. The production is analyzed which implies an industrial construction carried out in an efficient area that can unify some of the city's features in itself. By choosing the right location we gain a beautiful and functional architecture, and a production facility that will in itself maintain the character of the location that is known for it. The second component is more interesting for studying because it deals with collective memory and conscious building that the area will bring to the city. Consciousness through the architectural parameters of old buildings, with a deepening in the preservation of Albanian architectural heritage. All this in the study is examined under the pressure of continuous expansion of the architectural plan that respects a host of urban, architectural and social requirements. And finally, we are studying the aspiration we have put before ourselves, which will be sustainability. With the application of the newest technology, four successful objects will be presented, which will have different functions, such as industrial, exhibition, residential and educational space. We will have an industrial zone that goes hand in hand with the educational and economic character. These three elements are the key to creating a functional area so I chose to embark on them, using the mixed method. These are elements that can be measured and enabling the study of how this area came to be today. Not only are they the keys that can be used to redefine the city of Shkupi and I believe it can give tangible results in how the city works and how to protect the heritage, form a true identity of its beauties and have conscientious multidimensional construction.

Keywords: *Analysis, Design, Eurocode 8, national design standards.*

HEALING SPACES
(ARCHITECTURE SPACE AS REGENERATION OF SENSES)

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ABSTRACT

This project focuses on the impact that architecture has on humans and how through designed space human beings can mentally be healed. Healing Spaces - are a series of interior spatial narrations that are connected with each other through the exterior spaces. The purpose was the creation of a fragmented unit to avoid long corridors – encountered in any project so far presented. A short link is made with the concept of "village" where a continuation of the inhabited area is felt, rather than the intervention of a single unit. Can we use the power of the space we live in favour of mental well-being and our well- being? Can mental space be designed to be as enjoyable and not stressful? During this topic it is expected to be fully argued that space can cure and educate man and his mental state. Important role plays the creation of narration, which is different for everyone because of the sequence of spaces that are experienced. Different volumes are proposed as "organs" where each function is complex as an "organism" with other units. The functional connection is reinforced by the physical connection created by connections system in the landscape. The manifestation of this narrative starts from inside out, from light, darkness, nature, selected greenery, ground, sky, to smells, sounds, water and temperatures creating narrations that work as prophylaxis to well-being. All these elements promote mental curiosity and stimulate the desire to experience the spaces as well as reinforce the presence of sensory senses in human existence. Receiving data from relevant institutions, literature analysis, and other similar cases in addressing these spaces will serve to contextualize the situation. Interviews with experts in philosophical, psychological and architectural fields will serve to reveal the most human relationships in relation to architecture and mind spaces in relation to architectural spaces.

Keywords: *Healing Spaces, Architecture Spaces, regeneration of senses*

HIGH-RISK WORKPLACES RANKING ACCORDING TO RISK ASSESSMENT

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ABSTRACT

Providing a safe and healthy working environment nowadays is a cornerstone of work quality as a collective concern, equally prompted by humanitarian as well as economic considerations. In order to create a safer and healthier workplace, and in accordance with the Macedonian Law on Safety and Health at Work, every employer is obligated to conduct a risk assessment for every workplace. It involves a systematic recording, evaluation of risk factors that can cause injury, illness or occupational disease, and identifying possibilities to prevent, reduce, or completely eliminate the risks. A risk assessment for different workplaces in many companies in the Republic of Macedonia was conducted using a licensed software package for processing and analyzing data and high risks were specially studied. Afterwards, the identified high-risk workplaces were ranked according to severity. Risks are ranked in three categories: low, moderate and high risks. For the first-ranked workplace - electrical installer of transmission lines, 35 out of a total 43 risks (or 78%) identified in the full risk assessment, were ranked as high risks. For the last-ranked workplace - a construction machine operator, 21%, or 9 out of 42 risks in total, are high risks. From the analysis, it can be concluded that the largest number of these high risks refer to injuries due to the workplace and work environment characteristics. The conclusions strongly suggest that special attention needs to be paid to the collective protective measures while performing field work, accompanied with the obligatory use of personal protective equipment (PPE).

Keywords: high risk; workplace; risk assessment

AIRSPACE CAPACITY WORLD AIR TRACK ELASTIC NETWORK – WATEN, THE BASIS FOR FULL AUTOMATION IN PROCESS OF CONTROL AND SEPARATION OF CIVIL AIR TRAFFIC

ILIR MEHMEDI

ABSTRACT

This work describes, explains and proves necessity for stabile global air track network World Air Track Elastic Network – WATEN to accommodate future air traffic and enable full automation in process of control and separation of civil aircraft during en route phase of flight under instrument flight rules - IFR. According to long term forecasts global air traffic will rise in average of 5% per year threatening to overload the airspace and limit future development of civil air transport. New solutions for improving the safety of the flight by automation and increasing airspace capacity through more efficient airspace use will enable continuous increase of number of flights. More then 70% of incidents and accidents in civil aviation are caused by human factor therefore a strong need exists for higher level of automation in civil air transport especially in process of control and separation of civil aircraft that are flying under instrument flight rules. Automated systems will separate traffic by using appropriate equipment, software and procedures. The first phase will exclude air traffic controllers' and their active control of traffic and in the next phase pilots will be excluded too. One of basic conditions for full automation in process of control and separation of air traffic is setting of permanent global network of air tracks named: World Air Track Elastic Network – WATEN as a physical base for aircraft systematic movement and matrix for separation procedures. It will be established as permanent but with physical and commercial elasticity and based on direct tracks that are part of earth's great circles connecting the most important destinations in the World as a Strait Line Network. Other destinations will be included in Secondary Network. Aircraft using this network, Global Navigation Systems and WATEN MODE equipment on board of aircraft will have possibility to separate themselves from the other aircraft in same or opposite direction of flight as well as to cross the track of other aircraft in horizontal or vertical plane without external help. Lack of airspace capacity will additionally stimulate a need for completely new approach to aircraft separation. Group flight, which is now reserved for other types of flight, will become legal part of regular procedure for commercial aircraft. Automatically separated traffic will enable for higher level of safety, reduction of number of occurrences, greater capacity of the airspace and more stabile flow of civil air traffic.

STATISTICAL ANALYSIS ON THE ENORMOUS GROWTH OF RESPIRATORY DISEASES FROM AIR POLLUTION IN TETOVO AND GOSTIVAR 2016/17

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ABSTRACT

Air pollution continues to be a significant concern to public health worldwide and a tough problem confronted by both developed and developing countries, whose exposure has many substantial adverse effects on human health, especially in respiratory diseases. The purpose of this study is to confirm the eventual large increasement of the respiratory diseases that may occur as the result of polluted air. Also, the analysis of the number of patients affected by respiratory disease and the doubts that it may have on increasing the number of these patients. The data was provided by the Department of Hygiene and Epidemiology at the Tetovo and Gostivar Hospital Hospital . Total number for 2016/17 of patients affected by respiratory diseases. Accurate data analysis and how these patients are presented, each month, and in which season of the year are more pronounced**.** Our results significantly indicate that from the polluted air, the most affected are the age group of 0 to 6 years of age. Comparison according to both cities, the largest number of patients belongs to the city of Tetovo and that is 65.66%, while in Gostivar the total number for 2016 was 34.34%. However, it is worth noting that Tetovo has more inhabitants. Based on the data from the health institution of the Tetovo and Gostivar Hospital and statistical data processing, we conclude that air pollution has a major impact on the growth of patients affected by the respiratory system.

Keywords: respiratory disease, polluted air

METHODS FOR ANALYZING AND SUPPORTING A SUSTAINABLE PRODUCTION SYSTEM

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The growing awareness of global warming and the exponential increase of the usage of non-renewable natural recourses, as a consequence of the significant growth of population and technological advancement over the past century, have initiated a more focused global approach towards sustainable development. The holistic concept of sustainable development includes three interdependent elements known as the pillars of sustainable development such as economic development, social equity and environmental responsibility. Each of these components consists of different sub elements with distinct degree of relevance. One the most influential parts of economic development is surely sustainable production especially sustainable production systems. This paper reviews different methodologies and methods for analyzing and supporting sustainable production systems. This is done through illustrating their key elements: definition, principles, tools, advantages and disadvantages. The elaboration of the methodologies and methods is from a general point of view as a result of the fact that the deployment of the methods may differ a lot in two distinct production systems even on the same line of work. Comparing the various methods that offer different perspective for obtaining and evaluating the sustainability of a production system sheds light upon their common ground as well as their potential complementarity. The initial emphasis is in defining a sustainable production system, as well as its principles and goals which should be in compliance with the goals of a global sustainable development.

Keywords: Sustainable development, production system, life cycle, key performance indicator, sustainable production

STRATEGY AND TACTICS FOR ADDRESSING WORSENING OF THE AIR QUALITY IN WESTERN BALKANS

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This research/applicable project aims to address the problem of environmental pollution in Macedonia and assist one of the main stakeholders - the citizen - directly, both with managerial and technical solution. The current situation is alarming beyond reason, and especially the air pollution in Macedonia and in Western Balkans is a complex problem that needs urgent action on many levels. We have investigated the problem of worsening of the air quality in Macedonia during the heating season in a project carried out by participants of Ghent University Belgium, University St. Kliment Ohridski Macedonia within a Harvard University CSI module for Problem Driven Iterative Adaptation (PDIA) in the course of 12 weeks during the heating season of Autumn/Winter 2017. The PDIA approach prescribes the strategy of addressing complex problems by decomposition into sub-causes, their formulation, investigation of authority, acceptance and ability and providing iterative search for solutions (best practices, positive deviations, …) that may work in specific context, in our case Macedonia, as initiation point for expansion across the region. The investigation resulted with proper identification of several main sub- causes to the problem. Our tactical approach is to focus on the citizen as one of the main stakeholders, in a holistic manner but also contributors to the pollution and/or solution, using the Denica method, based on the Sense-and-Respond framework. Our contribution aims to bridge scientific solution and reality in practice, to guide and help various stakeholders to obtain a helicopter view and draft strategy for this complex problem, along with a system of roles and accountabilities that will support the citizen's adaptable behaviour towards reducing his/her own participation in the air pollution, on tactical level. The methodology that involves scientists and practitioners and combines strategy and tactics for complexity can be replicated in the Western Balkans, enabling proper context capture and effective addressing of the problem, for the benefit of all.

INTELLIGENT VEHICLES

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ABSTRACT

The history of intelligent vehicles has developed over the last two decades. Although the first ideas were born in the 1960s, the level of maturity of the technology at that time did not allow pursuit of the original goal of implementing fully autonomous all- terrain all-weather vehicles. Intelligent Road Vehicles examines specific aspects of intelligent vehicles such as enabling technologies, human factors and an analysis of social and economic impacts. Today the development of new technologies in transportation, respectively in the vehicles, is closely related to the problems of modern society - an increasing population increase and settling in densely built areas. Using ITS (Intelligent Transport Systems) in traffic bring significant improvement in transportation system performance, including reduced congestion and increased safety and traveler convenience.This paper presents a variety of applications and components of ITS (Intelligent Transport Systems) in vehicles. These systems have until recently looked like a distant future, but today they are part of the standard equipment, making all the systems in a vehicle a unique entity which seeks to reduce travel time, traffic accidents, fuel consumption, as well as to increase the capacity of roads and driving comfort. There are also presented the advantages of intelligent vehicles in the near future in the best way and the proposed model with working of an intelligent electronic car.

Keywords: Intelligent transport system, Intelligrnt vehicles, Traffic flow

EXPLOITATION OF ECOSYSTEM SERVICES IN NATIONAL PARK OF SHEBENIK – JABLLANICË; A COMMUNITY BASED PERCEPTION IN 10 YEARS

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ABSTRACT

National Park of Shebenik – Jabllanicë (NPSHJ) is situated in the northeastern part of Librazhd, in border with Macedonia. Proclaimed as a National Park in 2008, now ten years later, the communities living nearby the areas of this park have adapted their businesses and exploitation of ecosystem services to meet the standards of management of the park. On 2015 the concept of management changed in another level of administration, by giving the community instruments and assistance in diversifying their offers. NPSHJ is home for an important number of flora and fauna species which in the recent years has been promoted sustainably through the guided tours undertaken by the community. The agro-products now are expected to be marked with the logo of the park as a proof of the best quality. The area is very rich and there are a lot of levels of protection that intertwine together that it seems that sometimes the community is deprived by accessing what for them is just next door. This study includes a analyze of how the mindset of the community has influence in improving their services, protecting the park, and contributing in a sustainable development of the area, serving as a tangible example of how nature protection can boost the local economy.

Keywords: protected area, community, economy, Albania

ACTIVITIES FOP ADOPTION OF INTEGRATED PRODUCT POLICY IN MACEDONIA: FOCUS ON THE ENVIRONMENT

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ABSTRACT

Integrated Product Policy(IPP) is relatively a new policy. This fact provokes a significiant interes. One of the main points of this policy is to minimase negative environmental effects of products. All products produce less or more environmental degradation in all phases of products life-cycle, during their,s design, preparation, production, assembling, packaging, transport, distribution, storing, salling, using, ande waste management. Very often the products life - cysle is copmplicated and long and produces an involment of the number of participants. European Union, as one of the world leaders in many sectors of environment is dedicated to improve the environment as one of the crucial elements of quality of life of its citisents. It is important to emphases that even for the EU, IPP is in an early stage. The EU adopts strategic and planinig documents and legal regulation that treats this policy, connecting many spheres, besides the others the most important are spheres of economy, particlulary industry, consumers and environment. The quantities of products has been growing permanently and this increases the importance of IPP. The Republic of Macedonia, as a member with candidate staus for full membership of the EU since 2005, has the obligations to transpose and implement the EU strategies, plans and other documents, standards, practices and as weel, the legal regulations. In the process of transposing Macedonia has some positive results, but the problems appear with its practical implementation. The expecting start of negotiations between Macedonia and EU in all 35 chapters will guarantee the improvement of existing situations. In the field of IPP Macedonia is in a very early phases. There are adopted some strategies and other documents that partially consider this policy, but there are only few legal acts and other documents that cover it on an integral manner. In the future there is a need of stronger activities from all involved stake holders such, as industry and all business sector, central and local government institutions, science, non governmental sector and other stakeholders. The complexity of IPP requires this. The main goal of this research is to analyze the situation in the field of IPP and to compare it with the conditions in the EU. Also the research aims to provokes further reaserches and to give some recommendations for the further actions.

Keywords: *Integrated Product Policy, regulation, environment, European Union*

STABILITY ANALYSIS OF EMBANKMENT DAMS

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ABSTRACT

Dams possess high economic and political importance, they play critical role in agriculture, development of urban and rural areas, water supply, generation of hydroelectric energy, control and regulation of water current velocity. Slope stability analysis of an embankment dam respectively an earth dam is very important to ascertain the stability of the structure. It depends on its geometry, its components, materials, properties of each component and the forces to which it is subjected. A failure of earth dam is attributed to the following: hydraulic failure, seepage failure, piping through dam body and structural failure due to earthquake. There are several applicable methodologies that have been put forward for analyzing the overall stability of a dam, from traditional methods to modern ones; like the infinite slope analysis model and the limit equilibrium models (Bishop's Model, Ordinary Method of Slices, etc.) which are based on the typical Mohr-Coulomb Model to express the safety factor in the earth slopes. Both of those models have their own advantages and disadvantages; for example, the infinite slope model is more suitable and convenient for the surficial slope stability analysis; while the limit equilibrium models are professional for the circular slip surface analysis in the deep slope and could provide a much higher accuracy but with much more complicated calculation process. This paper provides mathematical modeling for optimizing earth/embankment dam designs and for computing the factor of safety. It also presents a heuristic approach and the results and comparison of the application of two models to an example earth dam design.

Keywords: *Dams, Embankment, Analysis, Stability*

ENVIRONMENT AND HUMAN HEALTH: SUSTAINABLE FEATURES OF BUILDING MATERIALS OF VERNACULAR BUILDINGS AND THEIR CONTRIBUTION TO ITS HUMAN DESIGN

TOMOVSKA RADMILA

Independent researcher

ABSTRACT

Selection of materials for the construction of a house can significantly affect the extent to which it will be characterized as a "healthy home". Having this in mind, the paper discusses the environmental impact of applied building materials in the case of a traditional Ohridhouse which was selected as a representative of vernacular architecture in the Balkan region. Respecting the principle of relying on local resources which is a characteristic of vernacular architecture, materials used for the construction of Ohrid houses are natural, non-toxic, most of them are organic, and none of them causes environmental pollution during the deconstruction, i.e., does not threaten its natural course.Consideration of the impact of building materials on the environment emphasizes the positive characteristics of selected natural materials as well as sustainable character of building principles of Ohrid masters. The following criteria were analysed: the amount of energy embodied in the particular material; the use of natural materials; locally produced building materials; use of durable materials; level of toxicity; recyclability; waste minimization; reuse of materials and the biodegradability of materials. The aim of this paper is to point out that the principles of environmentally responsible construction applied on the case of the Ohrid vernacular architecture are timeless guidelines in construction of healthy and sustainable architecture. The established character of being ecologically friendly and healthy which is typical for applied materials on selected examples of vernacular architecture, offers the opportunity for a review of sustainable strategies that are used for several centuries, but still keep their significance in contemporary sustainable practices and environmental design.

Keywords: Traditional Ohrid House, Natural Materials, Non-toxic materials, Low-embodied-energy materials, biodegradability.

CONTEMPORARY SUSTAINABLE DESIGN STRATEGIES REGARDING WASTE MANAGEMENT BASED ON THE TRANSCENDENTAL BUILDING PRINCIPLES OF VERNACULAR ARCHITECTURE

TOMOVSKA RADMILA

Independent researcher

ABSTRACT

Contemporary sustainable tendencies reinvent ways for reducing waste and lost of materials, which leads to a reduction of environmental pollution. Having this in mind, the objective of this paper is to reveal and promote certain forgotten design strategies of the Balkan's vernacular architecture, which today have become popular from the perspective of waste minimization. More precisely, this research analyses sustainable design strategies that are in correlation with reuse and waste reduction by using the example of traditional Ohrid house as a selected representative of the Balkan vernacular architecture. Furthermore, this research points out at sustainable solutions regarding on-site minimization of construction waste in the example of the traditional Ohrid house during the three phases of the material's and building's life cycle: pre-building, building, and post-building phase. The study was conducted in the following steps. At first, the basic conceptual framework of sustainable design is briefly explained in order to indicate which of the mentioned principles, strategies, and methods can be recognized in the analyzed case. Than, the sustainable qualities, or the so called "green features" of the analyzed building materials of traditional Ohrid house, were established on the basis of previously defined criteria. A comparative analysis of the strategies and methods implemented on the analyzed case with the contemporary sustainable design strategies and methods offered precise results which are elaborated as concluding remarks in this paper.The applied on-site waste minimization measures and the principle of using materials with low-embodied energy, identified in the example of the traditional Ohrid house, can be understood as conceptual basis for finding more efficient solutions in today's material and energy conservation practices, proving that sustainable architecture could be achieved by a simple and thoughtful application of local materials and building techniques.

Keywords: Reuse, On-site waste minimization, Traditional Ohrid house, Sustainable design strategies, Ohrid's vernacular architecture.

RAILWAYS IN THE WORLD - A NEW WAY OF GLOBAL MODERN TRAFFIC

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ABSTRACT

The existed railway infrastructure in the world presents a functional network for the existed traffic. The conventional lines despite of old applied technology, present a great opportunity for the traffic and modern communication development. The adequate construction of new vehicle transport, provides communication in two directions consistently, safe and controlled. New Self Balancing Electric Vehicle can be adapted and modified mainly for passenger transport. The movement of vehicles can be done in two directions and in two ways becoming a modern railway "Highway". Controlled Electric Vehicles and without driver are going to move in one track and through telecommunication networks can be controlled from the distance. By analyzing the conventional and modern transport forms, in conclusion this new form of traffic is more safe and controlled which saves time, financial means, facilitates the existing traffic and reduces the risks of accidents.

Keywords: Communication, Railway, Infrastructure, Control, Electric Vehicle.

EVALUATION OF BUILDING STROKE AND EARTHQUAKE AT THE SELECTED PILOT ZONES IN PRISHTINA CAPITAL CITY

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ABSTRACT

The geological – tectonic building of Kosova is very complicated. As a result of this building, Kosovo is one of the most active countries in South-East Europe. Based on the existing seismic hazard maps of Kosovo for return periods of 100, 200, 500, 1000 years, in Kosovo it is possible to occur an earthquake with maximum magnitude 9. Geological structure of building location and seismic hazard are necessary to study the resonance effect which can be caused by earthquakes. The causer of resonant effect or amplification of amplitudes is the height of objects and topography of location. Generally, those amplifications are caused by long-period components of seismic waves, while the short period of amplitude components are reduced. Knowing that Kosovo is in a high seismic region, the motive was to make a survey of a small sample in the city of Prishtina so that this sample represents the seismic state of new and old buildings in this city. In order to reduce earthquake damages, it is crucial to estimate seismic performance of buildings in tectonically active regions. Structural system, date and quality of construction and geotechnical properties of soil are important parameters, which affect seismic behavior of the buildings. In this study, building inventory data collected by the Kosovo statistics agency are used to assess the damage states to buildings in Prishtina City. Damage assessment for the buildings is made based on an earthquake of magnitude 8, on 12 Kopauniku, 16 Prishtinë - Janjevë and 23 Prishtinë Drenas fault lines. HAZUS methodology is adapted to reflect building stock in Kosovë. Building damage, life loss and maximum ground acceleration maps, which will be used to prepare emergency plans and take safety measures, are proposed for Prishtina. This study aims to carry out a seismic risk assessment for capital city of Kosovo - Prishtina, based on building inventory from a field study. Contributions were made to existing loss estimation methods for buildings. In particular, a procedure was introduced to estimate the seismic quality of buildings using a scoring scheme for the effective parameters in seismic behavior. The building inventory was conducted by trained observers in a selected region of Prishtina that had the potential to be damaged from expected future earthquakes according to geological and geotechnical studies. Parameters that are known to have some effect on the seismic performance of the buildings during past earthquakes were collected during the inventory studies. The inventory includes data of about 125 buildings on 7.75 ha. The evaluation of inventory data provided information about the distribution of building stock according to structural system, construction year, and vertical and plan irregularities. The inventory data and the proposed procedure were used to assess the building damage, and to determine casualty and shelter needs during the M7 and 8.0 scenario earthquakes, representing the most probable and maximum earthquakes in Prishtina, respectively. The damage assessment and loss studies showed that significant casualties and economic losses can be expected in future earthquakes. Seismic risk assessment of reinforced concrete buildings also revealed the priorities among building groups. The vulnerability in decreasing order is: (1) buildings with 6 or more stories, (2) pre-1963 constructed buildings, and (3) buildings with 3–5 stories. The future studies for evaluating and reducing.

Keywords: *Seismic Risk, vulnerability, building topology, damage assessment*

SESSION III

Technology, ICT, Education and science

1) Food-technology,safety and security

2) Impact of Technology on education, chalenges

3) Education, research and innovation

4) Regional co-operation in project networking

5) Agriculture and textile industry opportunities

6) Applied Mathematics

7) Application of Chemical Technology

8) Energy and Renewable resources,

9) ICT Education for Sustainable Development

10) ICT skills and employability

11) Building up ICTcapacities and regional networking

12) Use of ICTcapabilities in Science and Education

13) Bioingering and medical advecements

14) Public health

15) New technologies and Industrial Management

FUTURE OF THE SCIENCE: TISSUE ENGINEERING

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ABSTRACT

Tissue engineering is an emerging multidisciplinary field. This field of engineering allows us to create naturally derived new tissues and/or organs in the laboratory. Basically, this field of science aims to replace old tissues or organs with the personalized ones. One of the most important tissues are cartilages which is a part of the connective tissues. Thousands of people suffer from cartilage tissue loss or injuries. Many researchers make a great effort to solve this problem. For this purpose, our group offers a quick and efficient decellularization process for costal cartilage decellularization without any detergent. In this regard, the decellularized bovine costal cartilage was prepared with Na2 EDTA. Then various characterizations such as DNA content, hydroxyproline assay, Glycose Amino Glycan content were conducted. Fabricated acellular matrices were cross-linked. After that, human mesenchymal stem cells were seeded onto fabricated matrices and cellular behaviour was assessed together with SEM and immunohistochemical methods. As a result, these outcomes were suggested that efficient solutions for cartilage tissue decellularization in terms of stem cell direction into chondrogenic differentiation. The *in vitro* experiment might help to understand detergent-free decellularization impacts on fabricated matrices but this experiment should be supported with *in vivo* studies in order to reveal possible regenerative effects.

Keywords: tissue engineering, DNA, stem cell

THE RATE OF PESTICIDES PRESENCE IN THE GRAPE CULTIVATED IN KOSOVO

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ABSTRACT

Treating grape with pesticides continues to be a common practice of the farmer to protect the product from various infections. The use of pesticides is as good as harmful for both the product and the human body. The positive side of using pesticides is to protect the product from infections caused by various injurious. While, the negative side of using pesticides is when farmer use a higher dose than prescribed, these excess doses in grapes cause an irregular fermentation process, while in human body, with slow deposition, cause a large number of diseases. By curiosity that does farmer use the foreseen dose of pesticides for treatment, I was inspired to do this research about the rate of pesticides presence in the grape cultivated in Rahovec, respectively in Kosovo. During this research we have assigned two monitoring points at two parcels with minimum and maximum sea level. Two samples were taken for each parcel. The samples were taken in three phases, starting from berry formation, beginning of the aging of the berry and ending with the full technological aging of the grape berry. The method used to measure the presence of pesticides in grape is called QuEChERS (Quick Easy Cheap Effective Rugged Safe) and this method is implemented in the liquid chromatography (LC) device. The objective of this research was to identify the used pesticides doses by the farmer and the absorption of them from grape through the waiting period (karenca) and up to full technological aging of grape, and the results of this research have given us a positive conclusion and expectation that the grape consumer and wine producer are using a safe and free agricultural product from pesticides residues.

Keywords: grapes, pesticides, protection, waiting period (karenca), product.

INTEGRATING OF EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) AND STEM IN PRIMARY EDUCATION IN THE REPUBLIC OF MACEDONIA

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ABSTRACT

The twenty-first century is called the "century of science" because of the significant progress and actualization of the STEM education. Today we face "incredible" discoveries and ultra advanced technology, although on the other hand, the percentage of hunger and poverty is enormous. From this aspect, we can conclude that by integrating ESD in STEM education, lots of opportunities are offered to overcome challenges, such as everyday needs of human through his unstoppable achievements, amazing discoveries and securing a sustainable society for the future generations. This research raises the question of whether the curricula that cover STEM education in primary education include all three components of education for sustainable development or they are identified only with environmental education. In addition, the question arises as to whether STEM teachers are competent in the field of sustainable development education in accordance with the competencies for ESD, developed by the United Nations Economic Commission for Europe (UNECE).To this end, in order to arrive at the answers to the questions asked, a survey of representative sample teachers from the primary schools in the municipality of Prilep was delivered in order to perceive the existing situation regarding the implementation of education for sustainable development in the curricula that cover STEM education, and the level of competences for education for sustainable development among teachers who teach these subjects.

Keywords: education for sustainable development, STEM, primary education, competences for ESD

ICT EDUCATION FOR SUSTAINABLE DEVELOPMENT

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ABSTRACT

ICTs are accelerators and amplifiers of change. They are redefining how we interact with each other and the world around us, a specific application is social media, which facilitate real-time communications, data exchange as well as not trustworthy one. For public institutions, this situation is a constant risk because their stakeholders are constantly receiving and sharing any type of information from known and unknown sources, whether it is fake it can cause mistrust about the administration itself, plans, projects and the decision making process as well as harm leaders' or public servants' reputation among their public management. According to the 2030 agenda of Sustainable Development, one of the goals, country members have to achieve is providing an effective, accountable, and inclusive institutions at all levels. This means public institutions have to be actively involved in the ICT education process with their stakeholder in order to build a sustainable culture where citizens are able to recognize the source of the information, through the responsible use and consumption of social media in the context of public affairs. Synergy and good governance through educational are the key into the institutions to ensure a sustainable performance in their social media channels.

LEVEL OF USE OF E-LEARNING IN UKZ FOR 2018

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In UKZ, e-learning started to be used since the summer semester of the academic year 2015/2016. The commission for accreditation in 2016, among other things, would write: "e-learning should be implemented without hesitation. The first step has been done successfully by implementing Moodle ... " This year, the version Moodle 3.2 was installed on the university server. Using Moodle 3.2 at this level of use, the following actions are taken: *the teacher manages his / her subjects; each course is divided into 15 weeks, each week the teacher chooses appropriate materials in accordance with the syllabus; the teacher can create a folder where the students decide on homework or project assignments; checking and evaluating is timely and transparent; exam results and colloquia are announced by the professor on the notice board from where the student is informed in real time; a forum can be used where can be debated for some issues; students who are members of the subject can take materials that have been placed by the teacher in different formats e.g. text, photo, video sequence; the student can enroll and unenroll in the relevant subject, taking the key from the subject teacher.* Moodle 3.2 also offers many other opportunities to improve the teaching and learning process but at this initial stage it is thought that this level of use is sufficient. Throughout the training sessions were introduced the positive aspects of e-Learning and this has enabled a large number of teachers to perceive the use e-Learning not as a burden but as an effective tool for the teaching process and teacher-student communication. Based on the surveys conducted at UKZ, it emerges that e-Leaning is required more from students because it improves these services: efficient flow of information, access to literature and teaching materials for each subject, transparency in the assessment process, teacher-student communication at all times etc.

THE IMPACT OF CONTEMPORARY TECHNOLOGY ON CHEMISTRY EDUCATION

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ABSTRACT

The era of global changes and advancements in the digital technologies affects the education including chemistry not only as a science, but as a vital part in the educational process of chemistry. The modern technology therefore, is present at balanced level in the chemistry classroom and in the laboratory. Within the computerization and the interactive methods in teaching, the contemporary classroom nowadays cannot be imagined without computer, projector and equipment versus the traditional classroom where board, chalk, and sponge were the most common items. This extended application of technology emerges also in the laboratory. All the instruments needed for quantitative and qualitative analysis are connected with internet technology. Hence, the aim of this paper is to give a cross section in the research study where students (n = 10) were tested. The outcome is to present how the contemporary technology impacts on improving their skills and knowledge in the chemistry development. With the use of PowerPoint presentations and interactive approach towards the students, students can achieve better results up to 75%. The visualization process of the study units impacted on the better memorizing of the needed material (90% of the tested students). The technology plays important role also in the laboratory where students are introduced with instruments of higher resolution and simultaneously is obtained systematic understanding of the principles of chemistry using classical and contemporary analytical methods. The use of the technology in chemistry helps students firstly to be aware of how it works digitally and then to try the experiment itself. It should be highlighted that the confidence of the students was higher up to 80% when they used contemporary technology in the design of their experiments resulting in rational spending of chemicals.

Keywords: chemistry education, laboratory, technology

PORTFOLIO-BASED ASSESSMENT IN ESP CLASSES

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ABSTRACT

This paper evaluates the effectiveness of portfolio-based assessment in ESP classes at the University of Mitrovica. For the implementation of this action research, one- hundred and twenty students with relatively same proficiency level attended ESP classes for ninety minutes for one semester, that is fifteen weeks. For the purpose of the study, the students were divided into controlling group and experimental one. Each week the students were assigned different tasks: tasks in reading (three long reading texts), writing (three writing essays), and listening and speaking. Group A (the experimental group) was taught through portfolio assessment, while group B (the controlling group) attended the conventional teaching/learning methods. Students were able to observe their strengths and weaknesses based on the teacher´s written feedback and/or other students´ comments. The data collected with t-test indicate that the students in the experimental group showed significantly better acquired ESP skills in writing and reading as well as regarding students´ confidence in speaking and listening, the group A surpassed the controlling group. In conclusion, ELT nowadays encompasses ELT process and product. That is, the 21st century students who are taught through portfolio assessment further their general problem-solving language skills, improve their critical thinking skills, as well as enhance their abilities for deeper language structurein every aspect of tasks given.

Keywords: portfolio-based assessment, ESP, teaching

OPTIMISING THE CONVERSION OF WASTE COOKING OIL INTO BIODIESEL

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ABSTRACT

Worldwide petroleum-based energy resources are being depleted – onshore crude oil production peaked decades ago but our demands for petroleum are still going up. Biodiesel is one of the two liquid biofuels that in the short term is expected to contribute the most to reducing current EU-25 50% external dependence on fuels for transport. The United States' continued dependency on imported petroleum, particularly from the Middle East, has become an important national security issue. Lastly, environmental concerns such as pollution and global climate changes provide further motivation to address the energy challenge that we face today. Technology is available, biodiesel texture is very similar to oil-derived diesel, and economic profitability seems sufficient thanks to the existent framework of fiscal and other financial supports. In the present work, we focused on the production of biodiesel (which is an important biofuel) from vegetable oils. With the conventional technology, vegetable oil mixed with alcohol (e.g., methanol) reacts in large-scale batch reactors and in the presence of an alkaline liquid catalyst (e.g., NaOH or KOH) to form methyl esters or biodiesel and glycerol or glycerine. The transesterification reaction can take up to 12 hours or longer to complete; and at the end of the reaction, it is necessary to use an acid to neutralize the liquid catalyst and to separate biodiesel and glycerol from the product mixture. The catalyst-neutralization and product separation steps are time-consuming, tedious, and costly. However, yet the production and use of biodiesel is not sufficient. Why? It is a fact of convincing the right players in the field and solving non-technological barriers. Relevant efforts have still to be done for improving legislative frameworks and product standards, selecting the most appropriate raw materials, encouraging producers and fuel distributors, convincing vehicle manufacturers, and widely spreading the benefits of biodiesel to the citizens for improving end user acceptability and achieving full scale use of biodiesel in Europe.

Keywords: biofuels, tranestrificaion, vegetable oils

FACIAL EXPRESSION RECOGNITION TOWARDS SMART LIVING ENVIRONMENT FOR PEOPLE WITH THE PHYSICAL DISABILITIES

IVAN CORBEV

ABSTRACT

In this paper we analyze the possibilities and methods for using assistive technologies with focus on the people that cannot regularly control different aspects of their home environments. This paper presents a smart home environment platform for assisting people with physical disabilities. Four modules are included in the platform that enables end users of the system to complete everyday activities without additional assistance. 3D cameras are used to capture facial landmarks and expressions in order to map the user intent into a specific action in the smart home environment. Actuators are triggered to complete actions based on the detected and mapped facial expressions. The system is targeted at users that suffer from motor disabilities and are unable to use their hands and feet to control the surrounding environment.

CHALLENGES THROUGH THE PROCESS OF TRANSFORMATION TO TEACHING HEALTH CARE INSTITUTIONS

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ABSTRACT

Since the foundation of University of Gjakova with Medical Faculty as a part of it, the Regional Hospital in Gjakovaas a General Hospital, but also other Health Care Institutions, in this city, beside the patient care have the mission of teaching and research too. They share the responsibility to host and provide Clinical Practice for students of Nursing and Midwifery. In line with models of transforming the Teaching Hospitals, we aim to present a unique model which could be an accepted way of immediately dealing with existing situation and in the meantime serve as a bridge toward transforming process without encroachment the processes of healthcare, patient satisfaction, and their outcomes. As a part of ERASMUS +, our staff have actively participated in Projects and presented future plans toward new practices. Based on the Teaching Curricula there is a need for remodelling the existing Health Services. Relying on the European Perspective, toward establishing new Health Care Strategies for Elderly and Palliative Care too, this will ensure the consistency of the studies, incorporate all necessary professionals toward the modern and updated studies and a better outcome not only of in- patients but also Family Medicine as incorporated part of this process.

Keywords: Health Care Institutions, nursing, midwifery.

DEVELOPMENT OF NEW TECHNIQUES FOR ESTIMATION OF AIR, WATER AND SOIL QUALITY IN THE REPUBLIC OF MACEDONIA

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ABSTRACT

One of the main imperatives to human civilization is the environmental protection as a precondition for its survival on Planet Earth. Due to that reason, the scientists are in continuous race to discover and invent new approaches in environmental analyses. Each country, according to its needs, specificities and standard establishes monitoring system of air, water and soil pollution in order to prevent possible risks and consequences for its inhabitants. In the Republic of Macedonia is functioning monitoring of all environmental media managed from the state, local to institutional level regarding their competences and responsibilities. But, not all parameters are included in that system, although some of them are very important and are closely related to the human health, agriculture and other living beings. In order to improve the current monitoring system, "Mother Teresa" University developed new techniques that are not part of the routine in the institutions and laboratories dealing with this issue. In that sense, we implemented molecular technique for detection of bacterial species *Legionella pulmonalis* using sophisticated DNA method known as Real Time PCR beside the conventional one which is time consuming and with the low level of sensitivity. Our results showed the presence of this pathogenic bacterium in air samples from individual air conditioners and collective cooling system in the companies. Bearing in mind few outbreaks which currently have happened, it is important to put this technique in routine practice. In the field of water protection, we modified and validate a technique which is not on a list of the authorized laboratories, related to so call Surface Active Substances. It is also very important parameter which should be systematically followed in drinking water samples. Our investigation showed the absence of such substances from the drinking water in several water supply companies in Macedonia, but it will be important to involve this technique as a part of lab services in such companies. And finally, beside the geochemical map of Macedonia for the presence of heavy metals in soil, we established dynamic technique for following of the uptake of heavy metals from soil. For that purpose, the experiment with seedling of pepper on contaminated and non-contaminated soil was designed and in vegetation cycle the dynamic of uptake will be followed in order to search for appropriate system for remediation of contaminated soils.

Keywords: environment, monitoring, *Legionella*, surface active substances, uptake, heavy metals

ANALYSES OF POSSIBILITIES OF FLIPPED CLASSROOM IN TEACHING INFORMATICS COURSES

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ABSTRACT

The focus of the research study is to investigate and analyses the current state of use of flipped learning in Informatics. Also analyzed are the priorities of European commission: “Europe should act now providing the right policy framework and a stimulus to introduce innovative learning and teaching practices in schools, universities, vocational education and training (VET) and adult learning institutions.” Therefore the research study has investigated the flipped learning possibilities in use in Informatics to introduce and analyze innovative learning. The research study is based on the theory of Bloom's revised taxonomy of cognitive domain. This taxonomy provides six levels of learning discussed in the research methodology section. In order to analyze all this, a case study experiment was realized and insights as well as recommendations are presented.

Keywords: flipped classroom, informatics, programming, effectiveness of learning, flipped learning paradigm

ANALYSES OF ONLINE VIRTUAL LEARNING LAB FOR PROMOTING HIGHER EDUCATION COURSES AND COLLABORATION BETWEEN UNIVERSITIES

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ABSTRACT

The focus of the research study is to investigate and analyses the current Online learning lab programs are a type of blended learning, which means that elements of place-based education are blended with online instruction. Fully online instructional programs use the Internet to provide digital content and varying degrees of interaction with instructors, peers, and content experts in order to replace or enhance place-based instruction. Students within their internship requirements will be required to participate in online virtual learning courses and webinars to complete their education within the University. Currently in the country and broader region there is no online, virtual labs or distance education courses and there is a very limited and small collaboration in between Universities in teaching in classical classrooms and share of activities and experiences and mobility of students. The research study analyses and provides insights into the opportunity to address these issues and though the virtual lab helps in increasing collaboration, exchange experiences in between Universities and student can virtually increase their mobility in different programs and get exposed to different opportunities, educational systems, cultural differences, educational systems and ways of doing this differently. Insights and recommendations are provided, argumented and discussed.

Keywords: Online Virtual Learning Lab, distance education, collaboration, classical classrooms vs online labs

APPLIED MODELLING AND OPTIMIZATION IN NUTRITION, FOOD TECHNOLOGY AND BIOTECHNOLOGY

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ABSTRACT

Data analysis, development of models, optimization of different processes in the laboratory or industry becomes the everyday life of an engineer and scientist. Starting with experiment planning– modelling and optimization in data collecting plays an important role. Which approach will be used (linear, non-linear) depends on the problem that should be solved. Linear optimization, fuzzy approach, chemometric tools and artificial neural networks are some tools that turn a problem into a challenge. Lecture under the title *Applied modelling and optimization in nutrition, food technology and biotechnology* will try to give some answers on questions as (i) how modelling and optimizing is used in development of new industrial products, (ii) or menus, (iii) how a production process can be optimised, or (iv) how chemometrics, fuzzy approach or artificial neural networkscan be used in nutrition, food technology and biotechnology. All presented applications are published in current contents indexed journals thus confirming their scientific value but also the interest of the scientific and professional community for the mentioned topics.

Keywords: modeling, optimization, nutrition, food technology, biotechnology

ARTIFICIAL INTELLIGENCE AND SOME OF ITS METHODS IN ROBOTICS - AN OVERVIEW

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ABSTRACT

The main purpose of this paper is to highlight the features of Artificial Intelligence (AI), how it was developed, and some of its main applications. The Artificial Intelligence and Robotics although addressing in similar problems. The two fields interact profitably in the area of building intelligent agents, this inter action has resulted in important developments in the area of vision and phased action. The missing element is a basic understanding of how to relate human functions (physiological, physical, and cognitive) to the design of intelligent devices and systems that aid and interact with people. Artificial Intelligence (AI) is a field that enables the computers to imitate human intelligence and to make computers more useful. Robotics is the branch of technology that deals with design, construction, operation and application of robots and computer systems their control sensory feedback and information processing.This paper describe about methodologies for developing and improving the robotics field via artificial intelligence.

Keywords: Artificial Intelligence, Knowledge based Systems, Artificial Intelligence in Robotics, Advantages & Disadvantages of Artificial Intelligence.

PERFORMANCE ANALYSIS OF PARALLEL AND SEQUENTIAL SORTING ALGORITHMS – COMPARATIVE STUDY AND IMPLEMENTATION ON DIFFERENT HARDWARE PLATFORMS

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ABSTRACT

Nowadays, processing of voluminous data sets is the key challenge of many researchers. Even the ordering of the data is a big challenge when voluminous of data are in expression to be sorted in ascending or descending form. There are number of sorting techniques and algorithms evolved within the time. Researchers now are focused in hardware processing capacity and the methodology of sorting. In this paper we have described the comparison aspect of parallel and sequential sorting algorithms implemented in sequential processing and parallel processing hardware platforms. Nowadays graphics cards are coming with parallel architecture, this way GPU is providing new opportunities to use parallelism and speed up the execution time. In our case study we have treated Odd-EvenMerge Sort and Parallel Odd-Even MergeSort algorithms with same solving nature implemented in Central Processing Unit (CPU) and Graphical Processing Unit (GPU). The execution time is measured for multiple test cases with random generated numbers. Referring to the results we notice that parallel implementation is more effective in time execution for huge dataset of elements, therefore sequential algorithm can be more optimal if we have a small dataset of elements.

Keywords*:* Parallel programming, GPU, CPU, Odd Even Merge Sort, CUDA

COMPARATIVE ANALYSIS OF THE STRUCTURE OF ALBANIAN SIGN LANGUAGE

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ABSTRACT

Sign language is a form of nonverbal communication in which words-terms are displayed with signs or gestures of the hands, which can carry significance of individual thoughts, words or whole sentences, depending on the context, or a complex series of ideas. Sign languages vary as spoken languages. Vocabulary, grammar and syntax of a sign language are ranged from spoken national language. Linguistic evidence suggests that national sign languages are fully developed languages and sign languages in different countries have certain grammatical and syntactical similarities, given the fact that they are gesturing visual codes. Sign languages have own accent, dialect and distinctive vocabulary. Sign language is taught as any foreign language. Signs dictionaries are main didactic tool for learning the gestures, and have occurred simultaneously with the creation and development of the education of deaf people. Dactylology is equivalent to oral speech. It is a manual alphabet and serves to replace the oral speech in communion with educated deaf. It helps people without hearing impairments to understand the deaf culture and deaf can understand each other if they know and master the dactyl signs. Dactyl signs are arbitrary signs adopted the fingers of one or both hands. Every written letter is replaced with a finger sign, apart from gestures, which are unlimited and which represent a whole word - term. Thus, in dactylology there are as many signs as letters in an alphabet of a language. Basically, it is the alphabet in which the letters (graphemes) are replaced by the position of the fingers (dactilema) and they help one word to be written in the air. This paper is focused on a comparative analysis of the structure of Albanian sign language in Macedonia, Albania and Kosovo in order to determine differences or similarities of sign languages with the same spoken language (Albanian).

TRANSFORMATION OF HIGH PRECIOUS EDUCATION INSTITUTIONS FOR VICTIMS IN THE CONDITIONS OF COMPETITION

IZET ZEQIRI

ABSTRACT

In contemporary conditions, the external environment of educational institutions is found in permanent changes and turbulence. Organizational transformation, restructuring, reorganization and other major changes are frequent in efforts of educational institutions to develop or to survive. Based on these conditions, transformation of the organization into contemporary conditions is a condition for the growth and development of the organization, as well as a condition for survival and growth of the organization. In the theory and practice of management, organizational transformation is mostly used in crisis situations of the organization. In a crisis situation, the management of the organization has available some transformation models to emerge from the crisis. In the last two decades of the twentieth century, as a result of rapid and frequent changes, technological, economic, social, demographic and other factors have contributed to the discontinuity of many Higher Education Institutions. By influencing higher education institutions by these factors, it is impossible to maintain competitive advantage by using incremental (small and step-by-step) models of change. Radical and major changes and transformative transformations of the organization are necessary. Organizational transformation processes are difficult, complex and dynamic processes. So they are often described as "trips", which for many managers represent endless trips. The authors who have contributed most to the transformation process of the organization are Gouillart-Kelly. According to Gouillart-Kelly, business transformation represents the orchestrated genetic reshaping of the organization's architecture, realized by working simultaneously at even different speeds through the four dimensions of transformation: redirection, re-conceptualization (reframing); Restructuring; Revitalization; Renewal. All these elements of the organizational transformation process will be subject to study by placing them in the implementation focus in higher education institutions. Also in this paper will be analyzed the Koter Model in the Transformation of the organization as a model of successful management in contemporary conditions requiring rapid response to changes, adjustments to changes occurring and guidance of necessary changes.

Keywords: Organizational Transformation, Redirection, Re-conceptualization, (Reframing); Restructuring; Revitalization; Renewal.

MODELLING AND OPTIMIZATION OF PHYSICAL CHARACTERISTICS BASED ON UV-VIS/NIR SPECTRA OF AQUEOUS EXTRACTS OF LAVENDER, MINT AND MELISSA

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ABSTRACT

Plants which belong to *Lamiaceae* family contain a large number of naturally occurring compounds, with important antioxidant activities. They are often used in traditional and modern medicine, food industry, cosmetics and pharmaceutical industry. UV-VIS/NIR spectroscopy, in combination with chemometrics, is often applied to build models for qualification and quantification of the major compounds in many agricultural products and plant materials. The aim of this work was to investigate the applicability of UV-VIS/NIR spectroscopy for prediction of electrical conductivity (G) and total dissolved solids (TDS) of lavender (*Lavandula x hybrida* L.), melissa (*Melissa officinalis* L.) and mint (*Mentha piperita* L.) aqueous extracts. Plant extracts were prepared by conventional aqueous extraction at T = 40, 60, 80 °C, rpm = 500 min^{-1} and sampled at regular time intervals (0.5, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, 70, 80, 90 min). Principal Component Analysis (PCA) and Partial Least Squares Regression (PLS) were used for qualitative and quantitative analysis of the recorded UV-VIS/NIR spectra of each extract. PLS models provided very good prediction of G and TDS for mint extracts (T = 40 °C) using UV-VIS/NIR spectra in the spectral range of λ = 400 – 1699 nm. Determination coefficients were higher than R^2 = 0.9, for both model prediction and model validation. The ratio of standard error of performance to standard deviation (RPD) was greater than 3 indicating good quantitative application of developed models. The results show that UV-VIS/NIR spectroscopy, in combination with multivariate analysis, has a promising potential to qualitatively and quantitatively predict the physical characteristics of plant materials.

Keywords: medicinal plants, UV-VIS/NIR spectroscopy, Principal Component Analysis (PCA), Partial Least Square regression (PLS)

ON THE COMMUTATIVE NEUTRIX CONVOLUTIONS INVOLVING THE GENERALIZED FRESNEL SINE INTEGRALS

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ABSTRACT

In this paper some commutative neutrix convolution products of generalized Fresnel sine integral $S_k(x)$, and its associated functions $S_{k+}(x)$ and $S_{k-}(x)$, with other functions are evaluated. These functions are defined as locally summable functions on the real line. The Fresnel integrals first were used by Augustin- Jean Fresnel in optical problems. Later N. Nielsen studied various properties of these integrals. In the first part of the paper the definition of the generalized Fresnel sine integrals are given.

$S_k(x) = \int_0^x \sin\left(u^k\right) du$, for $k = 1,2,$. Then, the commutative neutrix convolution product of generalized Fresnel sine integral and x^r for $r = 0,1,2,$ are evaluated. Finally, at the end of the paper, some corollaries involving commutative neutrix convolution products of combination of these distributions are given.

Keywords: Fresnel sine integral, convolution, commutative neutrix convolution.

5G AND FOG (EDGE) COMPUTING: A SURVEY FOR SUSTAINABLE DEVELOPMENT GOALS

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ABSTRACT

The Internet of Things (IoT) as well as the Future Internet of Everything (IoE) aims to connect billions of smart objects to the Internet, which can bring a promising better future in the society. However these objects would generate large amounts of data and which would transmitted to the high performance cloud computing centers for further processing. However, this conventional approach would lead increased latency, and a resource wastage such as network utilization, storage, etc. The Fog (Edge) computing paradigm is been proposed to counterpart the weakness by pushing processes of knowledge discovery using data analytics to the edges of the network. On the other hand, the next step in the evolution of mobile communications is 5G, which is a key of the component of the future networked society. Due to its massive system capacity, higher data rates, very low latency and ultra-high reliability, 5G would provide significantly enhanced the mobile broadband experience but also support a wide range of new wireless applications and use cases. A combination of 5G with fog computing would significantly contribute for the achievement of the sustainable development goals. This paper provides a survey how 5G and fog computing combined together would achieve the necessary sustainable development goals.

PERMUTATION GROUPOF THE ORDERn, S_n

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ABSTRACT

Group theory began to develop by the end of the 18th century and progressed slowly and restrained in the first two decades of the XIX century. Only within a few years, around the 1830s, it received an instantaneous effort with Galois's works, bringing a valuable contribution to the development of Mathematics. At the beginning of the last century Group Theory was crystallized as an algebraic discipline on its own and is now one of the most elaborate and fertile areas of algebraic studies with many applications within the Algebra itself and other branches of Mathematics (Differential Equations, Functions Theory, Topology etc.) as well as in various fields of science, such as Crystallography, Quantum Mechanics and so on. In this paper will be considered the permutations of the order n and the action of their composition that together form the group. Permutations of the order n are a special case of the permutations of a set with n elements and exactly the case when A is the numeric set $\{1,2,\ldots, n\}$. The permutation of a set $A=\{a_1,a_2,\ldots,a_n\}$ is nothing more than a bijection $\sigma: A\to A$.

Historically, the permutation ofthe set A with n elements have been studied by naming them as permutations of n symbols $a_1, a_2,\ldots, a_n$. Although the beginning of the permutations study dates back to the 13th century, when it was recognized, among other things, that the number of them was $n!$. The purpose of this work is to develop Galois methods and build them a doctrine, showing how ease they allow to be solved all the problems of the equation's theory.

Keywords: theory, group, permutation, order n, S_n.

ANALYSIS AND COMPARISON OF THE RESULTS FROM ENERGY EFFICIENCY CALCULATION PERFORMED WITH THE USAGE OF DIFFERENT SOFTWARE PACKAGES

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ABSTRACT

Following recent adaption of the EU legislative in the field of building's energy efficiency, calculation of energy class for every new and reconstructed residential, administrative, educational and public building in Republic of Macedonia is mandatory. Furthermore, energy class (energy passport) of the building must be depicted on a building's facade. This paper analyses the differences in calculation obtained by using two different software packages. One of the packages is freeware, while the other one is obtained under educational license. Calculation of the energy class refers to the building of the Faculty of Technical sciences in Bitola with a total area of approximately 5700 m^2, built in 1961. Both software packages use the same calculation methodology, in accordance with Macedonian regulative. Although using the same calculation method, the results obtained by using two different software shows a difference in the energy consumption of the building. However, due to the poor energy characteristics of the object itself, the energy class obtained by the calculation is the same in both cases.

Keywords: energy efficiency, buildings, software, calculation

EDUCATION, RESEARCH AND INNOVATION

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ABSTRACT

One of the most important topics in the modern world is education. The main aim of this paper is to provide an overview of the Hungarian higher education system and present an analytical review of the educational innovation field in Hungary. Hungarian universities is attracting a lot of foreign students from all over the world. There are some results which Hungary has achieved. For instance, in 2010, five universities were awarded the title «research-intensive university», by the Ministry of Capacities. Around seven universities were formally acknowledged as excellent universities, which is using a different type of innovations to provide a different program (BSc, MA (MBA), PhD) not only for local students, but for international as well. By the Hungarian government in 1996 was established a non-profit organization «Tempus Public Foundation». The organization managing international cooperation programs and special projects in the field of education, training and EU-related issues. This program finds talented and motivated students and will promote science. The paper is going to be based on a literature survey and author research.

Keywords: education, education technology, innovation,

MEETING EVERY STUDENT IN EFL CLASS BY DIFFERENTIATED INSTRUCTION

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ABSTRACT

English Foreign Language has becoome a part of mandatory courses in most university programs. Although very necessary and willing to be learnt, the English language learning for some students continues to be a challenge. The main cause seems to be the diversity of students in English foreign language mixed ability classes regarding students’ language level proficiency. this diversity is the result of many factors, such as social, economic, psychological etc. as a result, the students are different and explore to find the appropriate ways from which the learning would take place according to the way they want. therefore, the solution of this problem is thought to be the implementation of differentiated instruction during the teaching and learning process. Differentiated instruction as a set of strategies that are implemented by the teacher is the main tool that would enable English foreign language improvement in the classroom. This educational tool shows its importance since it does not leave any student behind since it is already proved that " one size does not fit all’’ regarding the teaching methodology. The study is conducted in University of Gjakova, at Faculty of Education. The research is seeking for the extent of differentiated instruction in this institution and its effectiveness in reaching needs of students who have different readiness, interest and different learning styles.

Keywords: *Differentiated instruction, EFL learning, teaching methodology, learning methods.*

INCREASING STUDENTS' MOTIVATION FOR LEARNING MATHEMATICS THROUGH AN E-PLATFORM WITH MATH – DEBATES

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ABSTRACT

In this paper will be presented the electronic platform http://mathdebate.azurewebsites.net within the new teaching method MATH – Debate, the possibilities and ways of its use, at learning mathematics in elementary school (students 11-14 age) from the users (teachers and students). From the presented survey, we can see the impact of the new method in the connection of the increasing motivation for learning mathematics and improving the results of the process of learning. This research is performed and supported within the ERASMUS +, Project MATH Debate, Ref. number: 2016 – 1 – MK01 – KA201 – 021659.

Keywords: Mathematics, Debate, Project, Erasmus+, teaching method.

THE MOST COMMON MISTAKES CHEMISTRY SCIENCE STUDENTS MAKE: HOW TO AVOID THEM?

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ABSTRACT

As a diverse science, chemistry itself implements properties, structures, transformations and dynamics of all types of materials. The new challenges in the development of the scientific discipline do not overcome problems that students have faced in studying chemistry process. The aim of this paper is to highlight some of the most common misconceptions while studying chemistry and how to avoid them. The classification was made in accordance with the type of mistake in the science itself among group of students (n = 15) tested in one year time at various branches of chemistry such as inorganic, organic, analytical and physical chemistry. Based on the analyses, it was observed that the problem in more than a half of the students was the foreknowledge in the previous education. In inorganic chemistry course, the students had difficulties with levelling the chemical equations and laboratory work. The stehiometric coefficient was often confused with the lower index of the formula. The students were supposed to have good knowledge of periodical table of the elements, the oxidation state of the element, and which bonds can be made with each atom. Many of the students are having difficulties with the terminology and the different use of the laboratory equipment. The laboratory work is to seek a lot of patient, repeatability and praxis. In the organic chemistry for example, although the compound benzene has double bonds, the recognition of substitution and addition reactions were confused. In addition, the functional groups can also make difficulties for understanding organic chemistry, especially within those that have similar names such as ethers and esters, amines and amides and etc. In analytical chemistry the groups of cations and anions were problem, while in the physical chemistry it was found that the principles of thermodynamics were one of the most difficult parts for understanding. The main problem was resolved once the teacher went once again at the basics of each chemistry branch. The students were satisfied and the results in the tests were better up to 85% due to the fact that the basics of chemistry were explained.

Keywords: chemistry, chemistry branches, mistakes

DIDACTICAL IN-SERVICE TRAINING OF ACADEMIC STUFF AS A CONDITION FOR QUALITY ASSURANCE IN TERTIARY EDUCATION

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ABSTRACT

In the Republic of Macedonia, neither in the previous state has never been established a system which should provide systematic achieving of experiences and skills related to the teaching process for the academic staff. It means that except the graduates from the study programs at the faculties that are teaching base such as: pedagogy, natural sciences, arts, philology, philosophy and physical education, other graduates have never possibility to acquire formal education or courses in methodics, didactics, pedagogy, psychology, docimology, andragogy etc. Even the acquired knowledge of the mentioned graduates is not enough and it is not a guarantee for realization of successful teaching process as further teaching assistant, lecturer or university professor. Such situation caused a lot of improvisations in this domain resulting in stereotypic teaching process and non-objective assessment and evaluation. Namely, immediately after the graduation, part of the best students (hopefully) is recruited as collaborators at the universities. Very often this is very stressful moment for most of them due to the fact that they have never attend a course and they have never learned: how to organize the teaching process, what is the class structure, how to motivate and animate students, how to communicate with students, which kind of methods can be used, how to organize practical training and internship, what are the available teaching materials, how to create criteria for assessment etc. Missing of such competences among the collaborators and professors create a sense of uncertainty. From the other side, all over the world the trends in this field are in expansion offering new and contemporary approaches in teaching process in academic institutions increasing the quality in their educational services. Having in mind these facts, with the mission to improve the quality of tertiary education services, it is necessary as soon as possible to set up a system for teacher training of academic staff. One of the integrative functions of the Universities should be organization and maintenance of this system. For such purposes in the frame of “Mother Teresa” University was established Center for Educational Policies and Training (CEPT) where already have started concrete activities by organizing seminar for modern trends in academic teaching and workshop for preparation of study programs and syllabuses in cooperation with prominent international partners. It is sure that CEPT is not a magic tool which will immediately solve the problems related to quality assurance in the university, but for sure it can contribute in providing better education services. There are still opened issues related to legal status of CEPT, sustainable financial support, appropriate human resources which need to be solved as soon as possible in order to avoid any improvisation and its devaluation.

Key words: didactic competences, training, academic stuff, quality assurance, universities

PHYTOCEMICAL SCREENING OF ANIOXIDATIVE COMPOUNDS AND REDUCTIVE ABILITY OF *NIGELLA SATIVA* SEED EXTRACTS

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ABSTRACT

Nigella sativa (NS) known as "Black seed" has been used since the ancient Islamic practice in treatment of many diseases possessing analgesic, anti-inflammatory, anti-cancer and antimicrobial properties. It is considered to be a remarkable antioxidant as a result of the presence of many phytochemicals such as steroids, phenols, coumarins, saponins, flavonoids, tannins, cardiac glycosides, and diterpenes. Furthermore, NS is consisted of bioactive compounds which can be utilized as raw substance in the production of synthetic medicines and also as a seasoning spice and food additive. The aim of this work was screening bioactive compounds and reductive ability of NS seeds purchased from the local market, finely crushed to powder. Following the preparation of aqueous and methanolic extracts (50 $mg \cdot cm^{-3}$), the samples were kept in dark at 24 h with determined yield of 1.65 and 3.28 (%w/w), respectively. Standard qualitative methods and an UV-Vis spectroscopic method based on the formation of Perls' Prussian blue complex of the reaction between Fe^{3+} and the soluble ferrocyanide were used in the analysis. The absorption maximum was set at 700 nm, where the concentration range was between 0.01 and 10 $mg \cdot cm^{-3}$.The analysis for screening the presence of phytochemicals showed a positive reaction for phenols, terpenoids, flavonoids, tannins, saponins and cardiac glycosides in both types of extracts.The presence of antioxidative compounds in *NS* seed with the ability to reduce free radicals at different concentration provides a scientific credence for further research of natural products and their wide-ranging medicinalusage.

Keywords: *Nigella sativa.*, antioxidants, reductive ability

THE NATIONAL ICT STRATEGIES IN THE FOCUS OF BUILDING DIGITAL SKILLS POLICIES FOR SUSTAINABLE DEVELOPMENT IN THE WESTERN BALKANS - COMPARATIVE ANALYSIS -

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ABSTRACT

This paper focuses on the state of digital skills in the Western Balkans. The comparative approach in analyzing the official ICT strategies and other relevant legal documents aims at finding effective policies for building digital skills in the Western Balkans. Also, these strategies are compared with the Digital Agenda for the Western Balkans, the EU Digital Single Market Strategy, and the 2030 Agenda for Sustainable Development. Digital skills are very important for the development of the digital economies and societies in the Western Balkans. The Western Balkans countries have created ICT strategies or strategies for information society development and have specified measures for building digital skills among their citizens. But different indexes showed that the countries in the Western Balkans still suffer from a growing professional ICT skills shortage and a digital literacy deficit. This excludes many citizens from the digital society and holds back productivity growth in the Western Balkans. The conclusions from this research can serve as inspiration for the creation of national digital skills strategies and policies in the region. The well-prepared and effective digital skills policies will ensure inclusive and quality ICT education and will promote lifelong learning opportunities for all citizens toward sustainable development in the Western Balkans. In the next years effectively created digital skills policies could sustainably increase the number of people with relevant digital skills and grow their opportunities for employment, finding jobs and entrepreneurship.

Keywords: digital skills, Western Balkans, sustainable development

IMPORTANCE OF VISUALIZATION IN MATH PROBLEMS AT THE UNIVERSITIES

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ABSTRACT

The small desire to learn mathematics among students, difficulties to master the material can be solved if we approach their visual representation. Mathematical books that contain only problems without their visual representation are hardly acceptable by students. So, demonstration and visualization play an important role in the teaching process of the subject mathematicsin primary, secondary schools and universities. They make the teaching content interesting and accessible, especially when technical devices are used. This paper is the beginning of the research in which we will have two groups of students, at two Universities: Mother Teresa Skopje and Goce Delchev Stip, which will process mathematical content(algebra, geometry, analysis) in two different ways (some with GeoGebra and on a computer, and others without visualization and GeoGebra) then will be done testing, the results will be compared and a conclusion will be drawn. For this purpose, a student questionnaire was made to see what their thinking about learning mathematics with visualization in both University and the results from questionnaire are given in this paper. Complete results of awhole research will be published additionally. The software we chose to be GeoGebra because it is easy for use and is offered free of charge. It is dynamic mathematics software, supporting science, technology, engineering and mathematics education.

Keywords: Mathematics, GeoGebra, Visualization.

THE ASSESSMENT OF QUALITY MANAGEMENT SYSTEM IN THE MEAT INDUSTRY

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ABSTRACT

The food safety management system, with particular emphasis on the quality of meat products in Kosovo, is of a particular importance to the consumer, as it is a basic principle for human health. Therefore, we have seen the importance that the study subject on this thesis to be the quality assessment of the extra sausage produced in the "DINAMIKA" plant in Prizren.To achieve the master thesis's goal has been selected the technique FMEA (failure modes and effect analysis), which includes analyzing product characteristics, product components, hygienic assessment, procedures at each stage of the manufacturing process, which can lead to the risks that may come from staff, equipment, distribution which is monitored by HACCP system with its 7 principles to achieve the overused goal. This technique provides safety and reliability in results and it is also a well-known technique throughout the world. The practical part is the result of studying the HACCP documentation in this plant and the result of visits during the production process of sausage at the factory "DINAMIKA".The study details the legal framework respectively the administrative instructions and applicable laws in Kosovo for which it has the mandate to implement especially the Veterinary and Food Agency in our country. HACCP in sausage production is considered essential for optimal pathogen control, however, it is not yet possible to exclude mesophilic bacteria, but exception are salmonella and listeria. From the conclusions reached, there are recommendations for further studies that provide sufficient quality meat products.

Keywords: Food safety, HACCP, meat industry, mesophilic bacteria.

STUDENTS BEHAVIOR ANALYSIS TO IMPROVE THE LEARNING PROCESS USING MOODLE DATA

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ABSTRACT

Moodle is a platform for e-learning. By using the Moodle data we can analyze the behavior of the students. By analyzing student data, we can find out how their behavior affects their success. Specifically, we can explore the activities of students in courses in Moodle. For this purpose, we can use the logs and the tables of Moodle database. Because it is about big data, we will use the big data tools for analysis. By analyzing we can find out how students behave, what their platform activity is, what they most often use, which learning materials they use, etc. After the analysis, we will perform clustering of students in several clusters. For this purpose, we will use some of the clustering techniques and tools. The main goal is by looking at the activities of students to find techniques that will help students to have better results and to improve the learning process. In the future such analyzes can greatly help teachers in creating courses, the types of the learning materials they will share on e-learning platforms, tasks they will give to students and so on. The future of education is in the analysis of the student behavior, and the improvement of learning process based on the analysis.

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