



Dubnica Institute of Technology in Dubnica nad Váhom, Slovakia

University College of Teacher Education in Lower Austria



International Society for Engineering Pedagogy – IGIP

Information Society for Engineering and Education

member of the Association of Slovak Scientific
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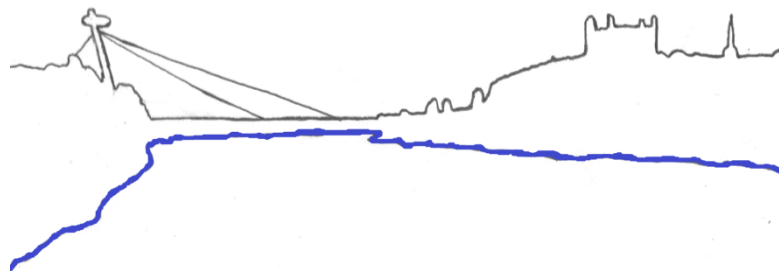
Institute of Technology and Business in České Budějovice
Czech Republic

The 11th International Scientific Conference

SCHOLA 2015

NEW APPROACHES TO ENGINEERING PEDAGOGY

BOOK OF ABSTRACTS



held under the auspices of the General Director of Higher Education Division of
the Ministry of Education, Science, Research and Sport of the Slovak Republic

on 10 - 11 December 2015

in Hollabrunn, Austria

Conference objectives: to create the platform for presentation a comparison of research results of pedagogical and scientific activities in education and training focused on field didactics.

TOPICS:

- Trends in field didactics
- Accreditation of study programmes
- Innovation of study programmes in teacher training
- Key competences of a teacher of content subjects
- Quality of education process
- Engineering pedagogy

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VENUE OF THE CONFERENCE:

University College of Teacher Education
Campus Hollabrunn
Dechant-Pfeifer-Str. 3, 2020 Hollabrunn, Austria

PAPERS:

Language: English
Conference publications: Open-Online-Journal R&E-SOURCE
All papers will be reviewed.

CONFERENCE LANGUAGE:

English

IMPORTANT DATES:

Registration and abstract submission deadline: **15 October 2015**
Final paper submission: **31 October 2015**
Conference dates: **10 – 11 December 2015**

REGISTRATION FEE:

100 € (free access to conference events on both days, conference materials, publication in conference proceedings, certificate of attendance, refreshment).

PAYMENT DETAILS:

Bank transfer preferred

Bank: Slovenská sporiteľňa, a. s., Nová Dubnica (Ul. P. O. Hviezdoslava 780, 018 51 Nová Dubnica, Slovakia)

Name: Dubnický technologický inštitút s.r.o., Dukelská štvrť 1404/613, 018 41 Dubnica nad Váhom, Slovakia

Bank account: 0362690627/0900

Variable symbol: number of pro forma invoice (pro forma invoice will be sent by e-mail after registration submission)

IBAN: SK 83 0900 0000 0003 6269 0627

SWIFT: GIBASKBX

Information on the conference (e. g. conference program, accommodation) will be continuously updated on **www.dti.sk** – section SCHOLA 2015.

ACCOMMODATION:

Hotel on Hollabrunn Campus

ABSTRACTS

The Impact of Family and School Cooperation on the Quality of the Education Process for Formation of Personality and Performance of Students

Martin Adamovič

Family and school represent two basic institutional categories in forming the personality of the pupil. Ambition of the family and school environment is to create optimal conditions of cooperation for its comprehensive development and preparation for successful social application in life. We compared the level of mutual cooperation between the school and the family in solving social problems as follows - cooperation and collaboration deficit, indicators of environment, social relationships, leisure, socio-pathological phenomena that occur in the lives of students. Research involved over 121 respondents of which 58 parents and 63 teaching staff. Both groups were divided into cooperating and non-cooperating respondents. Significant differences in the majority of monitored indicators were found in favor of cooperation between family and school. For indicators Leisure, cooperation between families and schools, observed differences were not statistically significant.

Edifying role of philosophy in education

Marián Ambrozy

Edifying the role of philosophy is reflected in the educational content. A lot of philosophers has in its theories educational edifying content. Such are for example: Plato, Aristotle, Kant, Schopenhauer and so on. Education must lead in shape of tolerance. There is possible to write many words about this theme. It is true, that the question of education is an important part of education. There are several views, include education or training falls within the definition. We try to argue philosophically. The aim is to highlight the various aspects of education in philosophy.

Open Source Alternatives and Applications for Technical and Vocational Training

Miroslav Beňo - Andrea Vadkertiová

With the continuous development of new applications and operating systems incompatible with older versions, schools face the dilemma with the software and hardware upgrade. The authors deal with the question whether it is necessary to upgrade technology and software equipment. They show the potential of open source alternatives. The article discusses the possibility of including the open source software to technical and vocational training.

Quality in work of specialized subjects teachers

Alexander Bilčík

This contribution aims on characterisation of quality in activities of teachers according notions of students in the field of study Teacher training for professional subjects and practical preparation. It originated from a qualitative evaluation of opinions students stated in seminar works within the School Quality subject on Dubnica Institute of Technology in Dubnica nad Váhom.

Inverted Classroom Model as a chance to enhance didactics and computer literacy *Possibilities and limitations in initiating a professionalization process in an Induction Phase*

Gerhard Brandhofer - Peter Großböck

In the last decades the focus of teacher education in Austria was directed to Bachelor studies. After graduating the teachers were simply assigned to schools where they made their first teaching experiences. However, the career entry seems to be a very challenging and formative time for young teachers. Some may perceive this time as labour-intensive, others as overstrained. It is criticized that they learn rather accidentally and often use methods they learned from their own teachers, or simply are left alone. To support these teachers in best ways, some support measures were developed at the University College of Teacher Education in Lower Austria that can be consumed by the beginning teachers. One of these support measures is the Inverted Classroom Model in which an introduction in organisational work and necessary digital tools are integrated.

The Inverted Classroom Model in Technology and Engineering Education: Teaching “real---world” Skills to solve “real---world” Problems

Josef Buchner

An ambition for the Technology and Engineering Pedagogy is to teach skills, which are really needed in specific jobs. But as in all educational programs, the theoretical content is huge and often has to be preferred instead of practical experiences. Several studies show that the inverted classroom model (ICM) can link theory with praxis. Educators offer in this innovative concept learning videos combined with quizzes or lecture notes to their students and make sure that they attend prepared to class. As a result the in---class time changes: A diversity of teaching methods can be used to instruct the students in so called “real--world” skills such as problem---solving, working in teams, interacting with experts, planning, designing, programming, analyzing, testing and of course organizing projects with real clients. The results of the studies show that the students perform better and prefer this way of teaching. ICM also holds positive effects for educators: the diversity of teaching methods keeps their interest in the topic high even if repeating it semester after semester and various methods enforce the cooperation between educator and class.

The education of students of the academic discipline of Safety and Healthcare with the support of informational and communicational technologies

Jana Depešová - Viera Tomková

The creation of suppositions for the workplace safety and healthcare needs to create and to keep in work more systems of precautions. The scientific preparation of the students studying the discipline of OHS that happens in the Faculty of Technical and Informational Technologies includes the education of desired pedagogical knowledge needed for the function of the Safety Technician. From the view of educational process the main point is focused on the problems of interactive and multimedia teaching methods, scientific and content handling of the education via multimedia, beside with higher attention of students is expected against the studies and also their creative thinking is highly supported.

Enhancing Academic Readiness of Mature-age Students for Distant University Study

Dana Dobrovská - Pavel Andres

Improving academic readiness (cognitive and non-cognitive aspects) of technical practical classes teachers is one of the great imperatives in the introductory phase of distant engineering pedagogical studies. Our survey brings the interview data on opinions of university staff and fresh graduates from the bachelor programme Specialization in Pedagogy suggesting some improvements on the topic.

By The Media as a Way of Streamlining The Process of Education in Secondary Schools

Monika Dohnanská - Daniel Lajčín

The media not only surround us at every step, but the development of science and technology is heading forward so that the development of information technology is incredibly fast and we often have no choice but just adjusting to this trend. Otherwise, we find ourselves somewhere out of the loop and children, it would have been in if not the most modern telephone, computer and had not followed the program you are flying and which all classmates having fun. Whether we like it or not, the media there are and will be, watching news, sports, weather and advertisements that make us even though we often do not realize so much influence.

Training Within Industry

Martina Džubáková - Michal Kopták

The trainer is one of the most important role a supervisor must have to eliminate common daily problems and improve supported process. Since TWI was originally developed during World War II, one trend that has emerged in the workplace is the practice of placing training responsibilities that were once the domain of the supervisor to the specific departments. As a result, these supervisors spend their days chasing down problems and finding ways to make things work and meet productivity targets a customer requirements. "Reborn" TWI programs return supervisors to a more active role, reversing the way in which many companies operate today.

The Proposal of Behavior Strategy related to Demanding Social Situations in Management of Secondary School with the use of innovative predictive Software Tools

The quality of the teaching process

Gabriela Gabrhelová - Imrich Andrejčák - Jana Smoligová

The article proposal deals with objectives related to program of perspectives within secondary school development, where a set of new approaches and methods are being applied, while the approaches are concerned to education and culture context existing in unified Europe. The article aim is to find a set of new solutions concerned to management of demanding situations, when managing secondary schools, while the above-mentioned solutions should be concerned to theoretical and methodological aspects and to utilization of innovative facilities existing within prediction software products as well.

The importance of activating methods in vocational education

Gabriela Gabrhelová - Dáša Porubčanová - Lenka Pasternáková

Today, success of pupils is associated more with teachers than parents, and in future, it will become even more apparent. It is the teachers and their enthusiasm and initiative, which determine the success of society by appropriate motivation. Teachers are not only a workforce, but they become the capital essential for the success and development of students. This article deals with the application of activating methods in vocational training.

Positive School Climate – The Condition for High-quality Education

Jana Hanuliaková - Dáša Porubčanová

The educational environment in school represents an important role in acquiring new knowledge and practising of one's skills. It is also important for the creation of social interactions and development of pupil's individuality. It includes both class and school climate, which is its qualitative index. In the following text we characterise the social and the emotional part of the school climate; in the context of secondary school students and their aggressive behaviour. We analyse secondary school pupils' statements and their evaluation of the school climate. We deal with the possible cooperation between the school and a family; as the high-quality cooperation takes part the creation of optimal school climate. It might also represent the prevention of pupils' aggression. Success rate and the ways of implementing this approach depends on an educator, or more precisely, on a teacher. He, through his personality, is a carrier of positive values, character and volitional qualities. Through them he is being able to display empathy, congruence, acceptance towards his pupil.

Discoveries and research in educational practice activities

The acquisition of knowledge, practical activities in the teaching unit

Lívia Hasajová - Mária Korintušová - Ľubomír Verbovanec

Investigation of nature necessarily belong to the elementary attribute of learning. Through research activities in their science lessons, for example. Mathematics, Chemistry. Students are given the opportunity to explore nature as a system. Observe mutual transformation and influence of natural storylines.

Education for tolerance
Mastering global challenges

Andreas Hejj

A Native American Indian goes to a New York bar. The barman asks him: Well, how do you like life in our grand old city? The red man answers him with a question: And you, how do you like life in our ancient homeland?

When different cultures meet it is usually the members of the other group that are considered rude because they do not behave in a way the first group would expect its own members to behave. Because the strangers' behaviour is strange and not in accordance with local expectations, it cannot be prognosticated what they are up to, so the locals will grow reserved and suspicious with the strangers. Due to what social psychology terms a self-fulfilling prophesy, this mistrustful approach will elicit the worst possible side of the „other” culture, and that in turn will feed the vicious circle yet more momentum, and keep tension increasing.

It is undoubted that tensions experienced more and more often in culturally and ethnically increasingly diverse societies of the 21st century pose a great responsibility to educational science. The present study examines the development of xenophobia taking into account the results of depth-, social- and evolutionary psychology. It demonstrates how important the knowledge of one's own cultural roots is, so that the group members are not forced to idealise their own culture, because then they are not able to see and accept their negative properties. Instead these properties and the corresponding behavioural patterns are projected onto another cultural group being made fun of, pilloried or even persecuted.

Luckily educational science is well equipped to meet this challenge and to contribute effectively to the peaceful coexistence of diverse cultures. Besides providing an empathic introduction to one's own and the neighbours' cultural traditions and motive systems, the objective is to form a concept of humankind that allows one to perceive even the most differently thinking and acting person as a human with a heart in his/her chest – even if one has absolutely no sympathy towards the other person's ideology, values system, judgements or even behaviour.

Creation of Educational Case Studies for Management Education at Dubnica Technology Institute

Kateřina Hrazdilov Bokov - Radka Vanckov

Case study is typical method of qualitative research, an important tool for teaching of economics and managerial disciplines in the educational and study programs. Application and use of case studies in teaching are widely discussed, praised or criticized, not only in the academic literature. Far less attention is paid to problems of the creation of case studies. The article discusses the steps, limitations and approaches associated with creation of educational case studies for MBA study programs at Dubnica Technology Institute in Dubnice nad Vhom or other educational and training institutions in the Slovakia and in abroad.

Development of the Web-Game-Portal focused on Serious Games for Elementary School Pupils

Marián Hostovecký - Filip Čička

The main purpose of the present paper was to design and develop a web portal that would store intelligent educational games aiming to eliminate cognitive shortcomings in elementary and secondary school pupils. The design of the portal was based on a previously implemented project that was aiming to find out the differences in cognitive levels among elementary and secondary school pupils in five selected subjects. The tests were carried out on a sample of pupils in the border region between Slovakia and the Czech Republic. The evaluation of these tests revealed specific shortcomings in specific cases. On this basis, we decided to create so-called serious games. For the purpose of storing these games it was necessary to create a portal that would contain them.

Education as a determinant of financial law development

Filip Hrmo

The paper defines basic educational approaches in the field of financial law. It points out the interconnection of jurisprudence with educational sciences. The selected aspects of qualitative researching activity in education of experts of financial law are specified in details. By examining didactic knowledge in the legal domain, some of practical methods of educational processes are presented. It was confirmed that the active educational methods have come to the fore. When applying these methods, participants of legal education are actively involved into the legal process. The result is a strategy of legal education, which is closely linked with the strategy of educational teaching process. The elements of the implementation process of legal education contribute significantly to defining of the concept of learning and development of financial law. An important factor in the development of financial law is the cycle of the legal education, which contributes to the educational effectiveness of legal sciences.

Engineering Pedagogy and its role in quality assurance in higher education

Roman Hrmo - Lucia Krištofiaková

Professional training of engineers who teach at secondary schools and universities of technical orientation was initially focused only on technical training. Experience has shown that the success of such training depends also on whether they acquire the necessary pedagogical erudition. We consider it important that university teachers acquire the theoretical and practical pedagogical-psychological training aimed at tertiary teaching. By this, one element of quality assurance in higher education within the internal quality system is complied. In our paper, we describe the importance of teacher training of university teachers, the importance of engineering education, we point out the importance and place of IGIP (Internationale Gesellschaft für Ingenieurpädagogik / International Society for Engineering Pedagogy) in this process and finally, we focus on pedagogical training of university teachers as part of quality assurance in higher education within the internal quality system at Dubnica Institute of Technology in Dubnica nad Váhom, Slovakia.

Analysis of a selected professional text in a professional secondary school textbook

Lenka Hrušková - Jana Brcková - Jana Forejtová

This paper analyses a professional text of a textbook used at secondary school level. The aim of this analysis is to determine the average complex text difficulty rate of a selected professional text. At the same time, the analysis focuses on the density of technical expertise information in the number of terms.

Content and Language – how to integrate them on tertiary level

Ľudmila Hurajová

The paper outlines approaches that integrate subject content and professional foreign language into learning environment on tertiary level. It is discussed if CLIL approach suits to internationalization concept of HE. The paper deals with feasibility of CLIL application in Higher Education Institutions and describes the major goals of ERASMUS+ project - Transnational exchange of good CLIL practice among European Educational Institutions in which Department of Languages and Humanities of Faculty of Materials Science and Technology is currently involved. Finally, potential utilization of the project outcomes on tertiary level is described.

Doctoral Students and Necessary Academic Skills

Gabriela Chmelíková

The paper is aimed at making familiar with necessary academic skills of doctoral students as experienced at the Slovak University of Technology in Bratislava, Faculty of Materials Science and Technology in Trnava. The author focused on the preparation of doctoral students regarding the need of industrial practice as well as the requirements of individual study programmes. As worded by the Faculty departments, the emphasis is put on specific doctoral students' outcomes which resulted in particular preparation within reading, writing and presentation skills development. Finally, the contribution proposes the possible further development and upgrade of teaching English at tertiary level of education.

The quality of the education process in the context of teaching notes

Katarína Ižová - Martina Polčáková

This article discusses the quality aimed at education process that is the most important of all processes at school and therefore its quality is a crucial element for the quality of schools as well. We primarily emphasize the teaching preparations in the short term, thus preparing the teaching notes, which is an indicator of a successful, efficient and above all quality course. In the article we present the results of the already carried out surveys and the results of our previous questionnaire survey, which will seek the opinions of teachers of secondary vocational schools on prepared teaching notes for the subject Enterprise Economics.

Information Literacy and Communication Skills of University Teacher

Ľubica Jedličková - Tímea Šeben Zatková

In the discussions about the quality of education, an important place have the questions about the academic curriculum, skills of search, interpretation and creative usage of the information. Therefore there are increased demands on the teachers in higher education and on their skills to work with texts. Teacher should critically and creatively work with variety of texts and information and also be able to teach the students to work in this way. There is also a need to be effective in the work with information, to create texts and be able to use tools of ICT as a part of education and functional literacy. The study brings besides the theoretical overview also some practical examples from the higher education and thoughts about selected questions.

Technical training for the use of project-based teaching

Robert Jurča - Jindřich Petrucha - Andrew Napthine

We have been working as teaching staff for years and we can responsibly say that many of the present students lack the technical or logical thinking. That is why we are convinced that even in the area of general subject we can support technical education, through appropriate tools. Why do we think so? We are convinced that present modern days are full of technical resources. That is why we can use these technical resources even in teaching of “non-technical” subjects and to use their function to introduce these technical resources to the students. We are facing the situation where society is developing quickly and it is transforming from the modern society supported by information and communication resources towards searching for the spiritual dimensions and the essence of its being. One of the many conveniences of today is the possibility to implement modern information technologies into teaching. Students will learn not only handle these technologies, but also to use them. There are very convenient elements that interconnect general education and technical education – project learning or problem learning.

Instruction Videos for Psychomotor Skills Development

Jana Jurinová

The paper responds to the unsatisfactory situation in teaching technical subjects. The paper provides methodology for making instructional videos as one of e-components of the developing multimedia educational aid (MEA). The MEA was intended to develop students' psychomotor skills. In assessment and evaluation of the results achieved by natural pedagogical experiment, we followed Simpson's taxonomy. The author presents the opinion that with an assistance of didactically processed multimedia elements, taking into account the specific features of the content, the information and motivational functions, exposure capacity, formative-systematized, repetitive-fixing, control-examinable and diagnostic-didactic functions can be provided. Empirically, based on investigation, she proves that in the case of appropriate processing of such a tool, its implementation in the educational process will facilitate the transition from theory to practice, and support the self-study process.

Student Attitudes toward Teaching Mathematics at the Masaryk Institute of Advanced Studies in Prague

Jitka Jurková

Two main attitudes are currently being discussed at the Czech Technical University in Prague regarding teaching mathematics: theoretical approach and on the other hand, approach stressing practical orientation of mathematics. The discussion is being proceeded especially among academic and research workers. However, in order to gain additional information not only from the teaching personnel, but also students, a quantitative research focused on student attitudes towards teaching mathematics was conducted. In the research we concentrated especially on student opinions regarding usefulness and utility of mathematics for economic studies, student emotional attitude to mathematics and student preferences with regard to didactic principals and teaching aids. The result of the survey revealed the students preference towards solving real economic problems during the courses rather than focusing on theoretical mathematics.

Information literacy and information education at universities

Iveta Kmecová

The paper deals with problems of information literacy, while its theoretical part is concerned to education in information science and technology systems and the practical one is closely related to implementation of activities within selected university, which concern to utilization of machine readable information resources. However, we have applied a questioner method in order to investigate opinions of users related to satisfaction with education activities of selected academic library as well.

Interdisciplinarity in theory and practice

Petra Kowalíková - Anna Papřoková

The text is focused on the issues of an interdisciplinary approach onto teaching and research at the Universities. It focuses on the conditions, advantages and results of the cooperation between the humanities and technical disciplines. Using empirical data, it illustrates the benefits of interdisciplinarity for a development of competences of the University graduates (in terms of improvement of their competitiveness in the labour market). Referencing to the specific projects, it can document the use of an interdisciplinary approach in scientific and research activities.

Quality Assurance on Engineering Education

Wilhelm König

The quality assurance system QIBB which is based on European recommendations has been successfully implemented at all Austrian Colleges for Engineering, Arts and Crafts (HTL). Co-operation of educational institutions and industrial enterprises is an important additional feature of quality development, regarding continuous teacher training as well as the needs of the labour market.

Communication in educational practice

Daniel Kučerka - Ludmila Opekarová - Roman Hrmo - Monika Karková

The aim of the article is to analyze the effective communication of the managing pedagogical workers. The paper points to the essence, meaning and function of the communication in the teaching practice. Communication means the process of transmitting the mutual understanding through the information, symbols such as the speech, character, font, and so on. On the other hand if there is no mutual understanding after the transfer of symbols, the effective communication does not occur. The communication process is divided into the basic elements that together in relations make up the model of the communication process (Čambál et al., 2000).

The survey deals with the analysis of the effective communication of the managers in the educational practice. The survey sample consisted of 20 managers from four secondary schools in the South Czech Region. In the items of the questionnaires we focused on their views on the communication culture or the effective communication with their subordinates. The results show that 40% of the workers think that they should improve their communication with subordinates. However, all agreed with the opinion that they are satisfied with their job.

Collaboration of language Section with Subject-specific Departments in STU MTF

Emília Mironovová

The current paper puts forward several ideas of how to implement a fruitful two-way collaboration system of Language Section with the subject-specific departments of the STU MTF (Slovak University of Technology, Faculty of Materials Science and Technology) to enhanced teaching/learning process and to justify the role, enhance its prestige and strengthen the position of the Language Section in the environment of an engineering faculty.

Teaching Engineering Students to Communicate Effectively

Juraj Miština

The importance of clear concise communication is often overlooked by the typical engineer and scientist. Based on the research findings, the paper emphasises the importance of communication skills in training students for technical and engineering professions. The author provides research findings in analysis of the most common mistakes in preparing PowerPoint slides, and in giving oral presentations. He shows practical outcomes and methodology for proper communication training. The published findings would help teachers of engineering and science subjects to find the way how to implement communication and presentation skills into technical subjects, as well as to increase efficiency of their technical presentations in educational process.

Perspectives of teaching the humanities and social sciences at technical universities

Libuše Páleníčková

Teaching social sciences and humanities is fully established at technical universities, which was endorsed by the adoption of the Bologna Declaration in 1999. Most technical higher education institutions have managed to incorporate at least 10 % of economic and humanities courses in the instruction, but some of them transferred the form of teaching these subjects from compulsory optional to optional, therefore, they are attended by lower number of students than the desired proportion. Currently, there is also a significant decline in the number of students as a result of unfavourable demographic development, which brings a drop in funding of universities. This condition is also adversely affecting the teaching of social sciences. The article analyses the situation at the VŠB - Technical University of Ostrava and considers the future of teaching humanities. It finds the solution in making the offered courses more attractive, and in their more practical focus.

Didactics of technical subjects at secondary schools in Czech Republic - development, state and perspectives

Pavel Pecina - Petr Sládek

The paper gives an overview on the origin and historical development of didactics of technical subjects at high schools in Czech Republic. On the selected research findings we analyze the current situation and we suggest the way of further development of didactics of the technical subjects with emphasis on the importance of research activities and development of teaching methods in this area.

Conceptual mapping from the point of view of the development of learning process effectiveness

Gabriela Petrová - Nina Kozárová

The paper is concerned with the issues of conceptual mapping in educational process. The conceptual map, as the visualisation of the system of knowledge, decreases the fear of failure for learners, since it helps not only in recalling knowledge, but can recode information into a form which is easier to remember. This is why conceptual maps support learning with comprehension and block learning by heart without understanding mutual relationships. Creating maps, learners are able to use interdisciplinary connections through which they remove isolated knowledge and modify structures of their inner knowledge system. Although during the study each learner uses a different strategy, in general it is assumed that conceptual mapping will be more suitable to the learners equipped with good visual imagination. The research was expected to prove whether a concrete learner's learning style, applied during mental representation of the learning matter, influences the conceptualisation of knowledge reflected in the conceptual map.

Computer Aided Design System and its Acquisitions for the Professional Literacy of Students

Martin Podařil - Ján Kmec - Daniel Kučerka

The contribution is focused on features and functionality that program Autodesk Inventor can provide to the user with the emphasis on link between study and practice. Modules of this program can be used in all phases of design and technological process that means from modelling in 3D space through creation of assembly and relevant drawing documentation to the strength and dynamic analysis of proposed components and mechanisms.

“COMPUTER SECURITY” and its importance in engineer education

Ildikó Pšenáková - Veronika Stoffová

The computer security is an important and actual problem in digital age. How can a regular user prevent cyber-attacks aimed at his/her computer or at other IT devices connected to the Internet? What should she/he look out for when browsing web pages not to become a victim of computer crime? The authors of this paper seek to answers these and many other similar questions. They propose to include topic of “Computer Security” not only into the curriculum of engineers such an object or as a thematic unit but also for future teachers of computer science.

The Importance of Technical Experiment in the Teaching Process

Education in Highly Progressive Materials and Technologies

Soňa Rusnáková

In the 20th century all industrialized countries need to recognize the essential role of theory-based technical education in the efforts of commercial and industrial competitiveness, and its main role in strengthening human potential. As the world's rapidly growing volume of public funds, entered into support-oriented projects in the field of high-tech materials, increasing the responsibility of universities and other research organizations to use them effectively. This is subject to the professional qualifications of investigators of these projects. Currently, composite materials are considered like progressive materials 21st century, they can solve many of the current problems with light, faster and more efficient materials, components and systems. We have to take full advantage of the benefits from the application of composite of materials, not enough for us just the research and development of new products, but we also have other professionally educated successor in the younger generations. And that's why today of great importance also have activities related to education and training.

The Safety Analysis for the Safety-Critical Processes

Veronika Stoffová - Milan Štrbo

Ensuring a safety of technology process is very important. Therefore it is necessary to include the safety analysis into the developing process of automatic control system and also to curricula at technology universities and high schools. The aim of the article is to propose a methodology for implementing a model-driven safety analysis of dynamical technology systems. The safety analysis is performed in the process of control system development, especially aiming at safety-critical processes of system operation. The methodology was divided into a few steps. The individual steps of the methodology are carried out in a hierarchical sequence. The roles of individual methodology steps are detailed in the paper. The principle of safety-critical process monitoring based on models is also described in the presented article.

The Quality of Education for the Development of Information and Communication Competencies of Teachers

István Szőköl - Melinda Nagy

The field informational and communicational technologies is currently a sector which is rightly devoted a growing, society-wide attention. Human information behaviour is part of the communication, processing and using information in society. It is reflected in the activities of finding information, in media and electronic communication, in the perception of texts in traditional and electronic forms. Modern technologies not only penetrate all structures of society, but also the lives of individuals.

This publication deals with the impact of the quality of education in terms of the development of ICT skills.

Prevention of risk behaviour in transport for the elderly

Kateřina Šmejkalová

The factors that influence the emergence of traffic accidents, are the technical condition of the motor vehicle, the technical condition of the infrastructure and not least the human factor. In particular the person of the driver is problematic not only from the perspective of the knowledge, skills and attitudes, but also of the psychological and physical condition of man. Post, beside the presentation of the exploratory investigation for the elderly, offers a possible solution to the preventive course for seniors, including experience with his pilot background check. In the framework of an exploratory investigation, they were compared drivers – women and men not only by their knowledge (knowledge in the area of rules of traffic on the road and the theory of safe driving), but also their practical skills in the management of the motor vehicle in the simulated driving skill. Exploratory investigation at the same time included the views of respondents – the elderly on the current situation in the transport sector.

Comparison of the results from the analysis of teaching elementary school students in the field of safety and healthcare in Slovak and Czech Republic

Viera Tomková - Jana Depeřová - Danka Lukáčová

The question of student's safety of elementary schools, during the educational process or above it shakes in every country. The motivation for all interested sides lies in the death statistics of scholar, carfare and other accidents of students. From these reasons state institutions that are interested in inclusion of the questions connected with safety and healthcare of students, try to solve these problems with different means and forms. One of the ways is the implementation of questions connected with safety and healthcare to the educational process of students. This report describes the insertion of education of safety during work and healthcare in the educational process of students of elementary schools in the Slovak and Czech republic and it compares the results.

Downtime learning – a way to increase the effectiveness of the learning process?

Jan Válek - Petr Sládek

Contemporary mobile technologies and changing behavior of human society, increasingly dependent on the Internet connection, open the question whether it is not necessary to offer new teaching methods. Smartphones or tablets enable us to support learning process outside the school in the student's downtime. The research study gives us basic elements and orientation of the downtime learning.



Dubnica Institute of Technology in Dubnica nad Váhom, Slovakia

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International Society for Engineering Pedagogy – IGIP

Information Society for Engineering and Education

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Institute of Technology and Business in České Budějovice
Czech Republic

PROGRAMME

the 11th International Scientific Conference

SCHOLA 2015

NEW APPROACHES TO ENGINEERING PEDAGOGY

10. 12. 2015

10:00 – 10:30

Registration of participants

10:30

Opening ceremony

10:30 – 12:00

Plenary talks:

Mag. Gerhard Brandhofer / Peter Großböck, MA

INVERTED CLASSROOM MODEL AS A CHANCE TO ENHANCE DIDACTICS AND COMPUTER LITERACY. POSSIBILITIES AND LIMITATIONS IN INITIATING A PROFESSIONALIZATION PROCESS IN AN INDUCTION PHASE.

DI Dr. Wilhelm König

QUALITY ASSURANCE ON ENGINEERING EDUCATION

doc. Ing. Soňa Rusnáková, Ph.D.

THE IMPORTANCE OF TECHNICAL EXPERIMENT IN THE TEACHING PROCESS. EDUCATION IN HIGHLY PROGRESSIVE MATERIALS AND TECHNOLOGIES.

Mgr. Juraj Miština, PhD.

TEACHING ENGINEERING STUDENTS TO COMMUNICATE EFFECTIVELY

12:00 – 13:00

Lunch

13:00 – 15:00

Sections

Section 1

13:00 – 15:00

Petrová Gabriela - Kozárová Nina

CONCEPTUAL MAPPING FROM THE POINT OF VIEW OF THE DEVELOPMENT OF LEARNING PROCESS EFFECTIVENESS

Hrazdilová Bočková Kateřina - Vaníčková Radka

CREATION OF EDUCATIONAL CASE STUDIES FOR MANAGEMENT EDUCATION AT DUBNICA TECHNOLOGY INSTITUTE

Depešová Jana - Tomková Viera

THE EDUCATION OF STUDENTS OF THE ACADEMIC DISCIPLINE OF SAFETY AND HEALTHCARE WITH THE SUPPORT OF INFORMATIONAL AND COMMUNICATIONAL TECHNOLOGIES

Dobrovská Dana - Andres Pavel

ENHANCING ACADEMIC READINESS OF MATURE-AGE STUDENTS FOR DISTANT UNIVERSITY STUDY

Chmelíková Gabriela

DOCTORAL STUDENTS AND NECESSARY ACADEMIC SKILLS

Válek Jan - Sládek Petr

DOWNTIME LEARNING – A WAY TO INCREASE THE EFFECTIVENESS OF THE LEARNING PROCESS?

Gabrhelová Gabriela - Andrejčák Imrich - Smoligová Jana

THE PROPOSAL OF BEHAVIOR STRATEGY RELATED TO DEMANDING SOCIAL SITUATIONS IN MANAGEMENT OF SECONDARY SCHOOL WITH THE USE OF INNOVATIVE PREDICTIVE SOFTWARE TOOLS. THE QUALITY OF THE TEACHING PROCESS.

Džubáková Martina - Kopták Michal

TRAINING WITHIN INDUSTRY

Stoffová Veronika - Štrbo Milan

THE SAFETY ANALYSIS FOR THE SAFETY-CRITICAL PROCESSES

15:00 – 15:30

Coffee break

15:30 – 18:00

Hejj Andreas

EDUCATION FOR TOLERANCE. MASTERING GLOBAL CHALLENGES.

Tomková Viera - Depešová Jana - Lukáčová Danka

COMPARISON OF THE RESULTS FROM THE ANALYSIS OF TEACHING ELEMENTARY SCHOOL STUDENTS IN THE FIELD OF SAFETY AND HEALTHCARE IN SLOVAK AND CZECH REPUBLIC

Pecina Pavel - Sládek Petr

DIDACTICS OF TECHNICAL SUBJECTS AT SECONDARY SCHOOLS IN CZECH REPUBLIC - DEVELOPMENT, STATE AND PERSPECTIVES

Jurková Jitka

STUDENT ATTITUDES TOWARD TEACHING MATHEMATICS AT THE MASARYK INSTITUTE OF ADVANCED STUDIES IN PRAGUE

Ambrozy Marián

EDIFYING ROLE OF PHILOSOPHY IN EDUCATION

Buchner Josef

THE INVERTED CLASSROOM MODEL IN TECHNOLOGY AND ENGINEERING EDUCATION:
TEACHING “REAL---WORLD“ SKILLS TO SOLVE “REAL---WORLD“ PROBLEMS

Szőköl István - Nagy Melinda

THE QUALITY OF EDUCATION FOR THE DEVELOPMENT OF INFORMATION AND
COMMUNICATION COMPETENCIES OF TEACHERS

Pšenáková Ildikó - Stoffová Veronika

“COMPUTER SECURITY” AND ITS IMPORTANCE IN ENGINEER EDUCATION

Mironovová Emília

COLLABORATION OF LANGUAGE SECTION WITH SUBJECT-SPECIFIC DEPARTMENTS IN STU
MTF

Hurajová Ľudmila

CONTENT AND LANGUAGE – HOW TO INTEGRATE THEM ON TERTIARY LEVEL

Gabrhelová Gabriela - Porubčanová Dáša - Pasternáková Lenka

THE IMPORTANCE OF ACTIVING METHODS IN VOCATIONAL EDUCATION

Section 2

13:00 – 15:00

Šmejkalová Kateřina

PREVENTION OF RISK BEHAVIOUR IN TRANSPORT FOR THE ELDERLY

Hanuliaková Jana - Porubčanová Dáša

POSITIVE SCHOOL CLIMATE – THE CONDITION FOR HIGH-QUALITY EDUCATION

Šeben Zatková Tímea - Jedličková Ľubica

INFORMATION LITERACY AND COMMUNICATION SKILLS OF UNIVERSITY TEACHER

Podaril Martin - Kmec Ján - Kučerka Daniel

COMPUTER AIDED DESIGN SYSTEM AND ITS ACQUISITIONS FOR THE PROFESSIONAL
LITERACY OF STUDENTS

Dohnanská Monika - Lajčin Daniel

BY THE MEDIA AS A WAY OF STREAMLINING THE PROCESS OF EDUCATION IN SECONDARY
SCHOOLS

Hasajová Lívia - Korintušová Mária - Verbovanec Ľubomír

DISCOVERIES AND RESEARCH IN EDUCATIONAL PRACTICE ACTIVITIES. THE ACQUISITION OF KNOWLEDGE, PRACTICAL ACTIVITIES IN THE TEACHING UNIT.

Hrmo Filip

EDUCATION AS A DETERMINANT OF FINANCIAL LAW DEVELOPMENT

Hostovecký Marián - Čička Filip

DEVELOPMENT OF THE WEB-GAME-PORTAL FOCUSED ON SERIOUS GAMES FOR ELEMENTARY SCHOOL PUPILS

15:00 – 15:30

Coffee break

15:30 – 18:00

Hrmo Roman - Krištofiaková Lucia

ENGINEERING PEDAGOGY AND ITS ROLE IN QUALITY ASSURANCE IN HIGHER EDUCATION

Jurinová Jana

INSTRUCTION VIDEOS FOR PSYCHOMOTOR SKILLS DEVELOPMENT

Beňo Miroslav - Vadkertiová Andrea

OPEN SOURCE ALTERNATIVES AND APPLICATIONS FOR TECHNICAL AND VOCATIONAL TRAINING

Kmecová Iveta

INFORMATION LITERACY AND INFORMATION EDUCATION AT UNIVERSITIES

Jurča Robert - Petrucha Jindřich - Andrew Nephthine

TECHNICAL TRAINING FOR THE USE OF PROJECT-BASED TEACHING

18:30

Social dinner

11. 12. 2015

09:00 – 12:00

Adamovič Martin

THE IMPACT OF FAMILY AND SCHOOL COOPERATION ON THE QUALITY OF THE EDUCATION PROCESS FOR FORMATION OF PERSONALITY AND PERFORMANCE OF STUDENTS

Ižová Katarína - Polčáková Martina

THE QUALITY OF THE EDUCATION PROCESS IN THE CONTEXT OF TEACHING NOTES

Páleníčková Libuše

PERSPECTIVES OF TEACHING THE HUMANITIES AND SOCIAL SCIENCES AT TECHNICAL UNIVERSITIES

Bilčík Alexander

QUALITY IN WORK OF SPECIALIZED SUBJECTS TEACHERS

Kowalíková Petra - Papřoková Anna

INTERDISCIPLINARITY IN THEORY AND PRACTICE

Kučerka Daniel - Opekarová Ludmila - Hrmo Roman - Karková Monika

COMMUNICATION IN EDUCATIONAL PRACTICE

Hrušková Lenka - Brcková Jana - Forejtová Jana

ANALYSIS OF A SELECTED PROFESSIONAL TEXT IN A PROFESSIONAL SECONDARY SCHOOL TEXTBOOK