PROCEEDINGS
OF THE 7th INTERNATIONAL CONFERENCE
ON MANUFACTURING SCIENCE AND EDUCATION
- MSE 2015 -

Organized by: “Lucian Blaga” University of Sibiu, Romania
Faculty of Engineering,
Department of Industrial Engineering and Management

With the support of:

The Manufacturing Engineering University Association (AUIF)
Academic Society of Management of Romania (SAMRO)

June 3-5, 2015
Sibiu, Romania
Contents

PROCESS ORCHESTRATION WITH MODULAR SOFTWARE APPLICATIONS ON INTELLIGENT FIELD DEVICES........... 6
A LOW BUDGET, REVERSE ENGINEERING SOLUTION FOR OBTAINING FUNCTIONAL PARTS............................ 7
AXIOMATIC DESIGN FUNCTIONAL INDEPENDENCE CONCEPT APPLIED IN CONCEPT SOLUTION SELECTION ...... 8
SETTING-UP OF A CUTTING FORCES MEASUREMENT SYSTEM ............................................................................. 8
FLEXIBLE CELLSYSTEM FOR GRINDING PROCESS OPTIMIZATION OF 40C130 THERMAL SPRAY COATING......... 9
OPTIMIZATION OF THE HUB FORK OF A CARDAN JOINT ................................................................................. 9
TENSILE TEST FOR ARBOFORM SAMPLES ........................................................................................................... 10
OPTIMIZATION OF BRAKING ENERGY RECUPERATION BY USING DRIVER DATA STATISTICS.......................... 11
CNC MACHINING OF THE COMPLEX COPPER ELECTRODES ......................................................................... 11
ASPECTS REGARDING PRODUCT LIFECYCLE MANAGEMENT OF MODELING FUNCTIONS OF AN INTELLIGENT DRILL TOOL ................................................................................................................. 12
A SELF-ORGANIZING APPROACH FOR MIXED-MODEL MANUFACTURING BASED ON AUTONOMOUS ENTITIES ...... 12
SELECTION OF CUTTING INSERTS FOR ALUMINUM ALLOYS MACHINING BY USING MCDM METHOD .......... 13
MULTI-CRITERIA ASSESSMENT OF PROCESS PERFORMANCE CHARACTERISTICS IN CO₂ LASER CUTTING OF MILD STEEL .................................................................................................................. 14
RIGHTPOLLEX: FROM PATENT TO STARTUP ......................................................................................................... 15
TOOL ELECTRODE WEAR AT WIRE ELECTRICAL DISCHARGE MACHINING ....................................................... 15
CONFIGURATION MANAGEMENT BY DOLCE UPPER-LEVEL ONTOLOGY .......................................................... 16
MATERIAL FLOW MANAGEMENT FOR PROCESSING PLASTIC WASTE AND TONER DUST ............................ 17
THE MANAGEMENT OF INTELLECTUAL PROPERTY IN A ROMANIAN STATE UNIVERSITY WHERE RESEARCH REPRESENTS A STRENGTH ........................................................................................................... 18
DESIGN AND DYNAMIC ANALYSIS OF GRIPPER FOR THE KUKA KR6 ROBOT ........................................... 18
IMPORTANCE AND ROLE OF COMPETENCE IN PROFESSIONAL CAREER OF PRODUCT DEVELOP ENGINEERS ...... 19
MODELLING OF THE HEAT TRANSFER IN THE PROCESS OF JOINING BY VULCANISATION OF CONVEYOR BELTS ... 19
MODEL OF A RESEARCH AND DESIGN CENTER ............................................................................................... 20
APPLICATION OF LEAN PRINCIPLES TO OPTIMIZE PRODUCTION. CASE STUDY CONNECTORS DEPARTMENT OF THE HARTING COMPANY ....................................................................................................... 20
SOME CONSIDERATION ON KNOWLEDGE MANAGEMENT IMPLICATION ON ORGANIZATION’S COMPETITIVENESS ................................................................. 22
NEURAL NETWORKS USED IN THE EVALUATION OF POWER QUALITY ................................................................. 23
IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM FOR IRRADIATION PROCESSING SERVICES ............................................................... 23
LEAN INFORMATION MANAGEMENT: CRITERIA FOR SELECTING KEY PERFORMANCE INDICATORS AT SHOP FLOOR ......................................................... 24
IMPROVING FOOD RADIOACTIVITY MONITORING PROCESS IN THE LABORATORY OF THE NUCLEAR RADIATION HYGIENE FROM SIBIU PUBLIC HEALTH DEPARTMENT .................................................................................. 24
A CASE STUDY ON GAGE R&R IN AUTOMOTIVE INDUSTRY .................................................................................. 25
INTELLECTUAL PROPERTY MANAGEMENT IMPLEMENTED IN INDUSTRIAL COMPANIES ................................................................. 25
EVALUATION MODEL FOR SUCCESS FACTORS IN LARGE INDUSTRIAL PROJECTS ................................................................. 26
PSYCHOLOGICAL RISKS MANAGEMENT ON LEAN MANUFACTURING SYSTEM .................................................................................. 27
PRACTICAL ISSUES, AND FUTURE TRENDS IN PRODUCTION ORGANIZATION OF TIRE INDUSTRY ................................................................. 27
HOW TO FACE GLOBALIZATION CHALLENGES THROUGH INTERNATIONAL PROJECT MANAGEMENT ................................................................. 28
VIRTUAL TEAMS MANAGEMENT IN GLOBAL INTERNATIONAL PROJECTS ................................................................. 28
INCREASING PERFORMANCE MANAGEMENT THROUGH DATA VISUALIZATION .................................................................................. 29
EMPLOYMENT RELATIONS IN INDUSTRIAL ENTERPRISES .................................................................................. 29
CHARACTERISTICS OF THE ROMANIAN FOB EXPORTS DURING THE PERIOD 01.01.-31.12.2014 ........................................................................ 30
CHARACTERISTICS OF THE ROMANIAN CIF IMPORTS DURING THE PERIOD 01.01.-31.12.2014 ........................................................................ 30
SUSTAINABILITY EVOLVING ROLE IN BUSINESS MANAGEMENT .................................................................................. 31
ASPECTS OF THE COOPERATION BETWEEN THE LOGISTICS PROVIDERS AND CUSTOMERS WITHIN THE ROMANIAN MARKET .................................................................................. 31
RISK MANAGEMENT IN SME’S-BASIC MANAGEMENT TECHNIQUE IN PROJECT’S IMPLEMENTATION ................................................................. 32
INFORMATION SECURITY MANAGEMENT - PART OF THE INTEGRATED MANAGEMENT SYSTEM .................................................................................. 33
FROM GIS DATABASE TO SPATIAL DATA WAREHOUSE .................................................................................. 33
MODELLING OF MANUFACTURING PROCESSES WITH MEMBRANES .................................................................................. 34
TESTING THE PERFORMANCE OF A SINGLE-PHASE AUTOTRANSFORMER ON MATLAB/SIMULINK .................................................................................. 35
TRANSMISSION TECHNIQUES FOR VAMOS GSM IN DOWNLINK .................................................................................. 35
Electric Floor Heating Systems in CEECs .................................................................................. 36
HIGHER TECHNICAL EDUCATION - RESEARCH VS. EDUCATION. TECHNIQUE OF TEACHING, BETWEEN CLASSICAL AND MODERN .................................................................................. 37
IN-FACTORY LEARNING – QUALIFICATION FOR THE FACTORY OF THE FUTURE .................................................................................. 38
USING THEATRIC PEDAGOGY TO DEVELOP SOCIAL AND EMOTIONAL SKILLS IN ORDER TO IMPROVE EMPLOYABILITY OF ENGINEERING STUDENTS .......................................................... 38

METHODOLOGICAL ASPECTS REGARDING THE ORGANIZATIONAL STRESS ANALYSIS .............................................. 39

MODELLING A SUSTAINABLE INTEGRATED MANAGEMENT SYSTEM FOR UNIVERSITIES .................................. 40

PARTICULARITIES OF IMPLEMENTING A SUSTAINABLE MANAGEMENT SYSTEM IN UNIVERSITIES .................... 40

A CONCEPTUAL APPROACH FOR THE SUSTAINABLE UNIVERSITY ........................................................................... 41

EXPERIMENTAL MEASUREMENTS AND EVALUATION OF INDOOR MICROCLIMATE CONDITIONS .............................. 42

OPTIMISATION OF SUN TRACKING POSITIONING SYSTEM SCHEDULE FOR SOLAR ENERGY FARMS .................. 42

POLYURETHANE MATRIX NANOCOMPOSITES USED TO OBTAIN ANTI-SLIP, ANTI-WEAR AND FIRE-RESISTANT FLOORS FOR PUBLIC INSTITUTIONS, CIVIL AND INDUSTRIAL BUILDINGS ................................................................. 43

DETERMINATION OF HEAT LOAD BY WET BULB GLOBE TEMPERATURE ............................................................. 44

IN WORKING ENVIRONMENT .................................................................................................................................. 44

TIME SERIES SPACE PHASE QUALITATIVE ANALYSIS AND A POSSIBLE APPLICATION ............................................. 44

ANALYSIS OF THE BEHAVIOUR OF SOME BINDING SYSTEMS FOR LOCAL PROTECTION AGAINST PLASMA NITRIDING ..................................................................................................................................... 45

STUDY OF CATALYSTS USED FOR OXIDIZING CARBON MONOXIDE AND HYDROCARBONS IN INDUSTRIAL EXHAUST GASES ................................................................................................................. 46

SAFETY MANAGEMENT OF WASTE WATER TREATMENT PLANTS ................................................................................. 47

INTEGRATING RISK ANALYSIS WITH SAFETY DIAGNOSTIC IN COMPLEX INDUSTRIAL SYSTEMS: MODELING HAZARD .................................................................................................................................................. 48

PSYCHOSOCIAL RISKS GENERATED BY ASSETS SPECIFIC DESIGN SOFTWARE ................................................................. 48

OPERATIONAL CATEGORIZATION AND CLASSIFICATION OF THE MALEVOLENT ACTS FOR THEIR INTEGRATION IN THE RISK ASSESSMENT PROCESS OF THE MAJOR ACCIDENTS ....................................................... 49

HEALTH AND SAFETY IN MAINTENANCE ACTIVITIES ........................................................................................................ 50

ASSESSMENT OF OCCURRING RISK OF MAJOR INDUSTRIAL ACCIDENTS WITH TAKING IN VIEW OF MALEVOLENCE ACTIONS .................................................................................................................................. 50

OPERATIONALIZATION OF THE PROFESSIONAL RISKS ASSESSMENT ACTIVITY ...................................................... 51

INNOVATIVE TECHNOLOGY FOR TESTING OF PROTECTIVE GLOVES SPECIFIC PERFORMANCES ............................. 52

INVESTIGATION OF THE CAUSES WHICH LED TO THE OCCURRENCE OF A FIRE IN A GAS DESULPHURISATION INSTALLATION – CASE STUDY – .......................................................................................................................... 53

PHYSICAL TRAINING METHODS FOR MINE RESCUERS IN 2015 ...................................................................................... 54

SAFETY IMPROVEMENT SOLUTIONS IN COAL MINES USING GIS .................................................................................. 55

THE IMPACT OF OCCUPATIONAL HAZARDS IN WORKPLACES - MAINTENANCE, A MAIN TARGET FOR ENSURING THE SAFETY OF WORKING EQUIPMENT ..................................................................................................................... 55
AIR CONTAMINATION WITH FUNGALS IN MUSEUM.............................................................................................................. 56
NOISE AS A RISK FACTOR IN THE PREPARATION OF USEFUL MINERAL SUBSTANCES ............................................. 57
THE CONTRIBUTIONS TO THE STUDY OF CARBON MONOXIDE POLLUTION DUE TO CAR TRAFFIC IN A DENSELY POPULATED AREA......................................................................................................................... 57
ASPECTS CONCERNING THE RULES AND THE INVESTIGATION OF TRAFFIC ACCIDENTS AS WORK ACCIDENTS ...... 58
THE OBJECTIVE IDENTIFICATION OF HAZARDS – THE ESSENTIAL CONDITION TO A REAL EVALUATION OF OCCUPATIONAL INJURIES AND ILLNESSES’ RISKS ................................................................................................................................. 58
ABSTRACTS

Design, Technological Equipment and Systems, Virtual Manufacturing

PROCESS ORCHESTRATION WITH MODULAR SOFTWARE APPLICATIONS ON INTELLIGENT FIELD DEVICES

Marius ORFGEN
German Research Center for Artificial Intelligence (DFKI) GmbH,
Kaiserslautern, Germany, Marius.Orfgen@dfki.de

Mathias SCHMITT
German Research Center for Artificial Intelligence (DFKI) GmbH,
Kaiserslautern, Germany, Marius.Orfgen@dfki.de

Abstract: The method developed by the DFKI-IFS for extending the functionality of intelligent field devices through the use of reloadable software applications (so-called Apps) is to be further augmented with a methodology and communication concept for process orchestration. The concept allows individual Apps from different manufacturers to decentrally share information. This way of communicating forms the basis for the dynamic orchestration of Apps to complete processes, in that it allows the actions of one App (e.g. detecting a component part with a sensor App) to trigger reactions in other Apps (e.g. triggering the processing of that component part). A holistic methodology and its implementation as a configuration tool allows one to model the information flow between Apps, as well as automatically introduce it into physical production hardware via available interfaces provided by the Field Device Middleware. Consequently, configuring industrial facilities is made simpler, resulting in shorter changeover and shutdown times.

Key words: Cyber-physical systems, Middleware, Process Engineering, Usability
A LOW BUDGET, REVERSE ENGINEERING SOLUTION FOR OBTAINING
FUNCTIONAL PARTS

Radu Emanuil PETRUSE
Lucian Blaga University of Sibiu, Romania, radu.petruse@ulbsibiu.ro

Brandon JOHNSON
Howard University, USA, brandonpjohnson93@yahoo.com

Ioan BONDREA
Lucian Blaga University of Sibiu, Romania, ioan.bondrea@ulbsibiu.ro

Abstract: The purpose of research in reverse engineering is to discover the practicality of fabricating damaged plastic parts using a simple low budget solution, composed by a 3D printer and a 3D scanner. More specifically, the study has been motivated by a car steering wheel component that was damaged and no longer serviceable. Using reverse engineering methods that include: 3D part scanning to an electronic model, computer aided design, and 3D printing using thermoplastics we have replicated the damaged part. Using these methods, the new, resulted, part was now optimized and it replaced the original steering component. This research creates opportunity for low cost solutions to building functional parts for many engineering issues.

Keywords: Reverse Engineering, 3D Printing, Functional Parts
AXIOMATIC DESIGN FUNCTIONAL INDEPENDENCE CONCEPT APPLIED IN CONCEPT SOLUTION SELECTION

Felicia Veronica BANCIU
Universitatea Politehnica din Timişoara, Centrul de Cercetare Inginerie Integrată, Timişoara, Romania, felicia.banciu@upt.ro

Abstract: The paper’s aim is to analyze from an axiomatic design point of view two possible concepts of transforming the circular uniform motion into alternative reciprocating motion – mechanisms used for a jigsaw. For this analyze are used the axiomatic design rules and guidance applied to concepts and movement equations in order to see what kind of design coupling result (uncoupled, decoupled). This functional independence analyze, using the axiomatic design rules, is an overview of the evaluation concepts and also a useful preliminary means for choosing solutions that can be complementary to other conceptual design approaches.

Keywords: conceptual design, functional requirements, concept analysis.

SETTING-UP OF A CUTTING FORCES MEASUREMENT SYSTEM

Cristian-Gheorghe TURC
Faculty of Mechanical Engineering, Department of Materials and Manufacturing Engineering, Politehnica University of Timişoara, Romania, cristian.turc@upt.ro

George BELGIU
Faculty of Management in Production and Transportation, Department of Management, Politehnica University of Timişoara, Romania, george.belgiu@upt.ro

Felicia Veronica BANCIU
Faculty of Mechanical Engineering, Department of Materials and Manufacturing Engineering, Politehnica University of Timişoara, Romania, felicia.banciu@upt.ro

Abstract: The paper is focused in the field of cutting forces measurement by modern sensors and data acquisition systems. It is presented the measurement chain with its components. Thus, there are presented the piezoelectric sensors that are commonly used in modern cutting forces dynamometers construction, as well as some typical topologies. The measurement system includes a data acquisition system that allows the real time data acquisition during the cutting process. The proposed cutting force measurement system can be used in the measurement of three orthogonal forces in milling processes, as well as the measurement of the torque in drilling processes.

Key words: cutting force, measurement, sensor, data acquisition
FLEXIBLE CELLSYSTEM FOR GRINDING PROCESS OPTIMIZATION OF 40C130 THERMAL SPRAY COATING

Mihaiela ILIESCU
Romanian Academy, Institute of Solid Mechanics, Bucharest, Romania, iomi@clicknet.ro

Cristian SPIRLEANU
Romanian Academy, Institute of Solid Mechanics, Bucharest, Romania, cristi_spirleanu@yahoo.com

Luige VLADAREANU
Robotics and Mechatronics Department, Romanian Academy, Institute of Solid Mechanics, Bucharest, Romania, luigiv2007@yahoo.com.sg

Abstract: Thermal spraying technique was invented almost 100 years ago, but due to its important benefits has been continuously developed since then. This paper is aimed at presenting aspects of optimization the grinding process of 40C130 thermal spayed coatings. Research goals involve applied statistic methods, such as design of experiments and regression analysis joint with the virtual projection method, known as Vladareanu-Munteanu method, for design and develop a real-time control system. As result, required surface roughness, Ra parameter, would be efficiently achieved by optimized grinding process.

Key words: thermal spray, grinding, optimization, control system

OPTIMIZATION OF THE HUB FORK OF A CARDAN JOINT

Eugen AVRIGEAN
Faculty of Engineering, Department MEI, "Lucian Blaga" University, Sibiu, Romania, eugen.avrigean@ulbsibiu.ro

Abstract: The present research aims to analyze a component of the cardanic transmission, the hub fork, from a theoretical point of view, by using the analytical calculation, and also from an experimental perspective, trying to simulate the functioning of the specific part within the assembly of the cardanic transmission. The real strains are applied (similar to those in practice) for the operation of the cardanic transmission of a Dacia vehicle.

Key words: static, cardanic transmission, tensions, optimization.
TENSILE TEST FOR ARBOFORM SAMPLES

Simona PLAVANESCU (MAZURCHEVICI)
Faculty of Machine Manufacturing and Industrial Management /Department of Machine Manufacturing Technology, “Gheorghe Asachi” Technical University, Iasi, Romania, simona0nikoleta@yahoo.com

Fabrizio QUADRINI
Department of Industrial Engineering, “Tor Vergata” University, Rome, Italy fabrizio.quadrini@uniroma2.it

Dumitru NEDELCU
Faculty of Machine Manufacturing and Industrial Management /Department of Machine Manufacturing Technology, “Gheorghe Asachi” Technical University, Iasi, Romania, nedelcu1967@yahoo.com

Abstract: Petroleum-based plastic materials constitute a major environmental problem due to their low biodegradability and accumulation in various environments. Therefore, searching for novel biodegradable plastics is received particular attention. Our studied material, “Liquid wood” produced from lignin, natural fibres and natural additives, is completely biodegradable in natural environment, in normal conditions. This paper presents the behaviour of Arboform and Arboform reinforced with Aramidic Fibers tensile test analysis. Experimental data show that the tensile strength reached an average value of 15.8 MPa, the modulus of elasticity after tests is 3513.3MPA for Arboform and for the reinforcement the tensile strength is 23.625MPa, the modulus of elasticity after tests is 3411.5MPA, the materials present a brittle behaviour. The high mechanical properties of newly developed material, better than of other ordinary plastics, recommend it as a potential environment-friendly substituent for synthetic plastics, which are present in all fields of activity.

Key words: Arboform, reinforcement, tensile strength, Young modulus
OPTIMIZATION OF BRAKING ENERGY RECUPERATION BY USING DRIVER DATA STATISTICS

Ioan BONDREA
Lucian Blaga University, ioan.bondrea@ulbsibiu.ro

Lucian Eugen ROȘCA
Lucian Blaga University, lucian.rosca.@ulbsibiu.ro

Abstract: Fuel efficiency hybrid vehicles and full electric vehicles are using braking energy recuperation technology to increase the autonomy as much as possible. Efficiency of braking energy recuperation can be highly dependent on the driving style, vehicle speed during braking events or level deceleration requested by the driver. Therefore this paper propose an analysis to detect the range of interest for braking energy recuperation based on classification of the type of braking events, vehicle speed and deceleration. To reach this goal a long-term capture data collection from a fleet of serial production vehicles driven in normal everyday use, is used as input to describe vehicle dynamics. The results of this study reveal important new data on braking events patterns which contributes to the development of hybrid braking systems by covering the lack of data available regarding braking by using generators.

Key words: Regenerative Braking, Hybrid Electric Vehicle, Kinetic energy recuperation

CNC MACHINING OF THE COMPLEX COPPER ELECTRODES

Ioan Alexandru POPAN
Faculty of Machine Building/Department of Manufacturing Engineering, "Technical University of Cluj-Napoca", Romania, ioan.popan@tcm.utcluj.ro

Nicolae BALC
Faculty of Machine Building/Department of Manufacturing Engineering, "Technical University of Cluj-Napoca", Romania, nicolae.balc@tcm.utcluj.ro

Alina POPAN
Faculty of Machine Building/Department of Manufacturing Engineering, "Technical University of Cluj-Napoca", Romania, ioan.popan@tcm.utcluj.ro

Abstract: This paper presents the machining process of the complex copper electrodes. Machining of the complex shapes in copper is difficult because this material is soft and sticky. This research presents the main steps for processing those copper electrodes at a high dimensional accuracy and a good surface quality. Special tooling solutions are required for this machining process and optimal process parameters have been found for the accurate CNC equipment, using smart CAD/CAM software.

Key words: CAD/CAM, CNC machining, 3D complex copper electrodes
ASPECTS REGARDING PRODUCT LIFECYCLE MANAGEMENT OF MODELING FUNCTIONS OF AN INTELLIGENT DRILL TOOL

Gheorghe Alin DAVID
"Lucian Blaga" University of Sibiu, Faculty of Engineering, Machine and Manufacturing Systems Department,
alin.david@ulbsibiu.ro

Paul Dan BRÎNDAȘU
"Lucian Blaga" University of Sibiu, Faculty of Engineering, Machine and Manufacturing Systems Department,
dan.brindasu@ulbsibiu.ro

Livia Dana BEJU
"Lucian Blaga" University of Sibiu, Faculty of Engineering, Machine and Manufacturing Systems Department,
livia.beju@ulbsibiu.ro

Abstract: This paper presents the main stages of a product lifecycle management concept applied for an intelligent cutting tool, more precisely a drill tool. We propose a new approach for finding optimal and efficient solutions to implement the most required functions of drilling tools and also choose the optimal variant for modeling functions of intelligent cutting tools.

Keywords: PLM, lifecycle, drill tool, function, requirement, models, optimal solution, TRIZ, creative design.

A SELF-ORGANIZING APPROACH FOR MIXED-MODEL MANUFACTURING BASED ON AUTONOMOUS ENTITIES

Rareș Lucian MARIN
Continental Automotive Systems S.R.L., Sibiu, Romania, rares.marin@ulbsibiu.ro

Paul Dan Brîndașu
"Lucian Blaga" University of Sibiu, Faculty of Engineering, Machine and Manufacturing Systems Department,
dan.brindasu@ulbsibiu.ro

Abstract: Decentralized autonomous entities are desired to be implemented in the production systems to fully function in the future, not only to close the gap between the high computer power, high communication capabilities and the way goods are produced nowadays, but also because of the advantages they bring. In the last years, mass production and build to stock (BTO) turned out to be defectuous because of the customer needs that changed dramatically towards customized products and short order lead times. Practically mass production is heading towards mass customization nowadays, raising problems of managing high complexity of options. The complexity increases even more if it is taken into consideration that some customers are more demanding than others, wanting their products to be prioritized in the production process. This paper will present a manufacturing system concept that takes advantage of smart products and cyber-physical systems to achieve high flexibility and agility towards prioritization.

Keywords: self-organizing system, mixed-model, prioritization, customization, intelligent manufacturing systems.
SELECTION OF CUTTING INSERTS FOR ALUMINUM ALLOYS MACHINING BY USING MCDM METHOD

Miloš MADIĆ
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, madic@masfak.ni.ac.rs

Miroslav RADOVANOVIĆ
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, mirado@masfak.ni.ac.rs

Dušan PETKOVIĆ
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, dulep@masfak.ni.ac.rs

Bogdan NEDIĆ
Faculty of Engineering / Department for production engineering, University of Kragujevac, Kragujevac, Serbia, nedic@kg.ac.rs

Abstract: Machining of aluminum and its alloys requires the use of cutting tools with special geometry and material. Since there exists a number of cutting tools for aluminum machining, each with unique characteristics, selection of the most appropriate cutting tool for a given application is a very complex task which can be viewed as a multi-criteria decision making (MCDM) problem. This paper is focused on multi-criteria analysis of VCGT cutting inserts for aluminum alloys turning by applying recently developed MCDM method, i.e. weighted aggregated sum product assessment (WASPAS) method. The MCDM model was defined using the available catalogue data from cutting tool manufacturers.

Key words: aluminum alloys, machining, turning, multi-criteria decision making, WASPAS method
MULTI-CRITERIA ASSESSMENT OF PROCESS PERFORMANCE CHARACTERISTICS IN CO$_2$ LASER CUTTING OF MILD STEEL

Miloš MADIĆ
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, madic@masfak.ni.ac.rs

Miroslav RADOVANOVIC
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, mirado@masfak.ni.ac.rs

Dušan PETKOVIĆ
Faculty of Mechanical Engineering in Niš / Department for Production, IT and Management, University of Niš, Niš, Serbia, dulep@masfak.ni.ac.rs

Bogdan NEDIĆ
Faculty of Engineering / Department for production engineering, University of Kragujevac, Kragujevac, Serbia, nedic@kg.ac.rs

Abstract: Determination of laser cutting conditions for simultaneous improvement of different performance characteristics is of great practical importance. In this study an approach for multi-criteria assessment of process performance characteristics in CO$_2$ laser cutting of mild steel was presented. Laser cutting experiment was conducted based on Taguchi’s L$_9$ experimental design by varying the laser power, cutting speed, assist gas pressure and focus position at three levels. Multi-criteria assessment was performed by using the weighted aggregated sum product assessment (WASPAS) method while considering kerf width, dross, surface roughness, material removal rate and assist gas consumption as assessment criteria.

Key words: CO$_2$ laser cutting, mild steel, multi-criteria assessment, WASPAS method
RIGHTPOLLEX: FROM PATENT TO STARTUP

Monica LEBA
Computer and Electrical Engineering Department, University of Petrosani, Petrosani, Romania,
monicaleba@yahoo.com

Andreea Cristina IONICA
Department of Management, University of Petrosani, Petrosani, Romania, andreeaionica2000@yahoo.com

Remus DOBRA
Computer and Electrical Engineering Department, University of Petrosani, Petrosani, Romania,
dobraremus@yahoo.com

Abstract: RightPollex is an innovative product patented and developed by a multidisciplinary team from the University of Petrosani. The paper presents not only the idea and implementation possibilities of this patent, but also the current stage on the path towards the development of startups, an initiative of our university together with a private investor. The result of this initiative is JV Sensor Ventures that supports several startups.

Keywords: innovation, biometric, research

TOOL ELECTRODE WEAR AT WIRE ELECTRICAL DISCHARGE MACHINING

Oana DODUN
Faculty of Machine Manufacturing and Industrial Management/Department of Machine Manufacturing Technology, "Gheorghe Asachi" Technical University of Iaşi, Romania, oanad@tcm.tuiasi.ro

Laurenţiu SLĂTINEANU
Faculty of Machine Manufacturing and Industrial Management/Department of Machine Manufacturing Technology, "Gheorghe Asachi" Technical University of Iaşi, Romania, slati@tcm.tuiasi.ro

Margareta COTEĂŢĂ
Faculty of Machine Manufacturing and Industrial Management/Department of Machine Manufacturing Technology, "Gheorghe Asachi" Technical University of Iaşi, Romania, mcoteata@tcm.tuiasi.ro

Gheorghe NAGÎŢ
Faculty of Machine Manufacturing and Industrial Management/Department of Machine Manufacturing Technology, “Gheorghe Asachi” Technical University of Iaşi, Romania, nagit@tcm.tuiasi.ro

Abstract: The wire electrical discharge machining is a machining method in which the pulse electrical discharges developed between workpiece and travelling wire tool electrode are used in order to detach parts having complex ruled surfaces in plate type workpieces. The problem of evaluation of wire tool electrode wear was considered. A theoretical analysis of phenomena developed in work zone during wire electrical discharge machining process was developed. An experimental research in accordance with the rules valid in the case of a factorial experiment with six independent variables at two levels was designed and materialized. Power type empirical mathematical models were determined by mathematical processing of the experimental results, in order to highlight the
influence exerted by workpiece thickness, pulse on time, pulse off time, wire tensioning force and current intensity and travelling speed on the wire tool electrode wear.

Keywords: wire electrical discharge machining, wire tool electrode wear, influence factors, experimental research, empirical mathematical models.

CONFIGURATION MANAGEMENT BY DOLCE UPPER-LEVEL ONTOLOGY

Dragoș ILIESCU
POLITEHNICA Universitaty of Bucharest, Facultatea de Ingineria și Managementul Sistemelor Tehnologice, dragosiliescu2005@gmail.com

Manuela-Roxana DJMĂRESCU
POLITEHNICA Universitaty of Bucharest, Facultatea de Ingineria și Managementul Sistemelor Tehnologice, manuela-d@live.com

Marian GHEORGHE
POLITEHNICA Universitaty of Bucharest, Facultatea de Ingineria și Managementul Sistemelor Tehnologice, marian.gheorghe@upb.ro

Abstract: The product development process requires progress of the processes and activities within the Product Lifecycle Management by adding improvements to its components. This paperwork presents the results achieved in the field of Configuration Management by the use of the product, versions and variants informational models, ontological foundation axioms conferring soundness to the obtained results. Clarification on the identity of product master identification represents the achievements of this work, contributions being made to Configuration Management concept. Functionality to be fulfilled by the object that the end user expects – the product, and qualities to be inherited by it, define the two viewpoints presented in the work: the client and the manufacturer viewpoints product definition, along with versions and variants identification criteria.

Keywords:: product, product development, configuration management, upper-level ontology, DOLCE.
MATERIAL FLOW MANAGEMENT FOR PROCESSING PLASTIC WASTE AND TONER DUST

Cicerone Laurenţiu POPA
Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems
Department, University Politehnica of Bucharest, Romania, laur.popa79@gmail.com

Costel Emil COTEŢ
Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems
Department, University Politehnica of Bucharest, Romania, costelemilcotet@gmail.com

Simona Gheorghiţa ŢAŞCÎM (DUMITRESCU)
Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems
Department, University Politehnica of Bucharest, Romania, simonadumitrescu12@gmail.com

STOICA Cristian Eugen
Faculty of Engineering and Management of Technological Systems, Machines and Manufacturing Systems
Department, University POLITEHNICA of Bucharest, Romania, cristian.stoica@radacini.ro

Abstract: The paper presents a method for recycling plastic waste and toner powder in the production of asphalt mixtures. In this way, we suggest the adaptation of an existing installation for the production of asphalt mixtures to dedicated technology that of recycling plastic waste and of toner dust. To determine which configuration ensures productivity of the installation, a preliminary architecture was modelled for the simulation of material flows. In the process of installation modelling and in order to set up structural elements in the software application Witness 14 it has been taken into consideration the fact that the material flows from the system are hybrid material flows. Taking into account this aspect, a number of simplifying assumptions have been applied in order to establish a correspondence between hybrid material flows and material flows with discrete values. Considering the fact that the presented installation is a mobile installation with a production capacity of 10 tons/hour.

Key words: simulation, recycling technological flow, plastic waste, asphalt mixture, waste toner dust.
THE MANAGEMENT OF INTELLECTUAL PROPERTY IN A ROMANIAN STATE UNIVERSITY WHERE RESEARCH REPRESENTS A STRENGTH

Aurel Mihail ȚÎȚU
Faculty of Engineering, "Lucian Blaga" University of Sibiu, Sibiu, Romania, mihail.titu@ulbsibiu.ro

Constantin OPREAN
Faculty of Engineering, "Lucian Blaga" University of Sibiu, Sibiu, Romania, constantin.oprean@ulbsibiu.ro

Andreea Simina RĂULEA
Faculty of Engineering, "Lucian Blaga" University of Sibiu, Sibiu, Romania, andreea.raulea@ulbsibiu.ro

Abstract: The transition to the knowledge-based economy and society requires adaptation to constant change that implies intellectual property as a multidimensional concept that continually leaves its mark on generations contributing to their well-being in obvious and undeniable ways. The main objective of this article was to assess the present level of the management of intellectual property in a state university in Romania displaying their strengths and weaknesses. The overall objective of the work is to analyze the state of the art in a Romanian state university in order to find solutions to the current problems that the Romanian scientific environment is facing. The conclusions drawn in the study converge in directions and proposals for improving the way in which the intellectual property is regarded and its management in the state universities of Romania.

Key words: management, intellectual property, intellectual property protection, quality management, intellectual property valorisation.

DESIGN AND DYNAMIC ANALYSIS OF GRIPPER FOR THE KUKA KR6 ROBOT

Cristian VILAU
Technical University of Cluj-Napoca, Departament of Manufacturing Engineering, cristian.vilau@tcm.utcluj.ro

Nicolae BALC
Technical University of Cluj-Napoca, Departament of Manufacturing Engineering, nicolae.balc@tcm.utcluj.ro

Dan LEORDEAN
Technical University of Cluj-Napoca, Departament of Manufacturing Engineering, dan.leordean@tcm.utcluj.ro

Abstract: The paper presents a new design of a clamping device for a KUKA robot, together with a complex analyses of the dynamic behaviour of the new gripper. Creo parametric software package was used both for 3D modelling of the new gripper and for static and dynamic analyses. The rack-pinion mechanism comes within the quadrangle mechanism with 4 joints, to provide the parallel movements of the jaws of the gripper. The KUKA working conditions were assumed, in order to estimate the minimum gripping force, to ensure the proper clamping, up to the maximum rotating angle of the robot arm. Also, the maximum acceleration and velocity of the part were estimated, using the Creo-Parametric software package.

Key words: Gripper, dynamic analysis, PTC Creo, Kuka robot.
IMPORTANCE AND ROLE OF COMPETENCE IN PROFESSIONAL CAREER OF PRODUCT DEVELOP ENGINEERS

Aleksandar MILTENOVIĆ
Faculty of Mechanical Engineering, Department for design, development and engineering, University of Niš, Serbia, aleksandar.miltenovic@masfak.ni.ac.rs

Milan BANIĆ
Faculty of Mechanical Engineering, Department for design, development and engineering, University of Niš, Serbia, milan.banic@outlook.com

Vojislav MILTENOVIĆ
University of Niš, Serbia, vojamiltenovic@yahoo.com

Abstract: Product development is a creative task where is systematically created a new product, which makes possible to firms to offer attractive, innovative and market oriented products. In conditions of fierce competition and saturated markets, companies that do not innovate are stagnating and disappear from the market. Innovation is therefore every intervention which can reduce production costs, enables optimum utilization of available human, energy and material resources, improve product quality, improve the placement, which leads to an increase in competitiveness. A prerequisite for fulfillment of the above-mentioned tasks is that the companies have engineers with the appropriate competencies, which are able to, through creativity, innovation and fascinating technique of creating new or improving existing products and lunch it on the market. The paper discusses the role and importance of the competences that are necessary for a successful professional career of product development engineers.

Key words: competence, product development, innovations, professional career

MODELLING OF THE HEAT TRANSFER IN THE PROCESS OF JOINING BY VULCANISATION OF CONVEYOR BELTS

Dan DOBROTĂ
Constantin Brancusi University of Târgu Jiu Department of Systems Engineering and Management Technology, Târgu Jiu, Romania, ddan@utgjiu.ro

Valentin PETRESCU
"Lucian Blaga" University of Sibiu, Faculty of Engineering/Department of Industrial Engineering and Management, Sibiu, Romania, valentin.petrescu@ulbsibiu.ro

Abstract: The problem of heat transfer in the process of joining by vulcanization of conveyor belts has a special importance given the fact that an homogeneity of the temperature in the area of the joining of the rubber belt ensures an homogeneity of the mechanical properties. The analysis presented in the paper targeted the determination of a modelling that would reflect the manner of transferring the heat from the heating plate of the vulcanization installation so that the optimal vulcanization temperature of the rubber and an adequate adherence between rubber and insertion can be reached. Also, there has been realised a calculus programme
that would allow the obtaining of the modelling of the heat transfer during the vulcanization of the conveyor belts. The targeted conveyor belt vulcanization installation was a DSLQ installation, which is very often used in practice and uses electric current to work.

**Key words:** modelling, heat transfer, vulcanisation, rubber

---

**MODEL OF A RESEARCH AND DESIGN CENTER**

Liliana Georgeta POPESCU  
"Lucian Blaga" University of Sibiu, Faculty of Engineering/Department of Industrial Engineering and Management, Sibiu, Romania, liliana.popescu@ulbsibiu.ro

Paul Dan BRÎNDAȘU  
"Lucian Blaga" University of Sibiu, Faculty of Engineering/Department of Industrial Engineering and Management, Sibiu, Romania, dan.brindasu@ulbsibiu.ro

**Abstract:** The paper presents the methods and overall results that improve the activity of a classic research center. After having detailed the processes and procedures within research centers, has developed a model using IDEF0 methodology by abstracting the initial model. The result is a pragmatic one that starts from a theoretical vision of ideal processes that can be developed through a classic research center.

**Key words:** planning process, research center, modeling, IDEF0

---

**APPLICATION OF LEAN PRINCIPLES TO OPTIMIZE PRODUCTION. CASE STUDY-CONNECTORS DEPARTMENT OF THE HARTING COMPANY**

Marinela INŢĂ  
"Lucian Blaga" University of Sibiu, Faculty of Engineering/Department of Industrial Engineering and Management, Sibiu, Romania, marinela.inta@ulbsibiu.ro

Achim MUNTEAN  
"Lucian Blaga" University of Sibiu, Faculty of Engineering/Department of Industrial Engineering and Management, Sibiu, Romania, achim.muntean@ulbsibiu.ro

**Abstract:** This paper comes as a necessity in the current context of industrial production as the growing requirements appear related to saving space and production time, respectively, increased production, which leads to a rise in profits. The desire to increase the financial benefit is present in all activities, but mainly in industrial applications. Most companies with both with Romanian and foreign capital aimed expansion, profitable growth. In Sibiu there is a continuous increase in foreign investors, especially from Germany seeking a cheap labor but with skills and adequate training. They aim at expanding their plants or production increase with smaller cost, hence the increased interest for continuous improvement methods. The work is so important not only from a theoretical standpoint, but also their successful implementation.
The process of continuous improvement shown in this study was done on multinational HARTING Manufacturing Romania SCS which aims to bring new lines currently without new areas for transmutation. The solution was found to be urgent and provisional one, following in the near future to complete construction of the new buildings. This need led to in-depth study of methods for continuous improvement in an attempt to find the optimal solution. This was not the only challenge the most difficult step was its implementation because of discontent and criticism by production employees. Another problem to be solved is related to changing supply system since the release the stocks and their preservation in production until fulfillment orders brought company's losses. The study basically bring solve the two major problems of HARTING and is a model for other similar situations, thus proving the importance of these methods not only theoretically but also practically.

**Key words:** lean production, continuous improvement methods, Arena software
SOME CONSIDERATION ON KNOWLEDGE MANAGEMENT IMPLICATION ON ORGANIZATION’S COMPETITIVENESS

Anca DRAGHICI
Faculty of Management in Production and Transportation / Department of Management, Politehnica University of Timisoara, Romania, anca.draghici@upt.ro

Marius Areta CIORTAN
Faculty of Management in Production and Transportation / Department of Management, Politehnica University of Timisoara, Romania, ciortan_marius_a@yahoo.com

FLOREA Claudia
Faculty of Management in Production and Transportation / Department of Management, Politehnica University of Timisoara, Romania, florae.claudia@gmail.com

Abstract: The research described in this paper has been focused on two objectives: to debate the knowledge management’s active role for organizations competitive advantage and to describe information technology’s capabilities in leveraging the knowledge worker’s competencies. For the purposes of this article, competitive advantage is perceived as a strength that provides a market advantage relative to a competitor. Often competitive advantage is related to the core competencies of the organisation, which are frequently based on implicit know-how or tacit knowledge. This intangible, unstructured knowledge is difficult to manage; consequently management has ignored it when designing business strategy. However, the increased competitive pressures of the post-industrial global economy and the exponential advances in computing power have increased management’s interest in knowledge as a sustainable source of competitive advantage.

Keywords: knowledge management, knowledge life-cycle, competitiveness
NEURAL NETWORKS USED IN THE EVALUATION OF POWER QUALITY

Sorin Dan VOLOSCIUC
Faculty of Engineering, Department of Computer Science and Electrical Engineering,
Lucian Blaga University of Sibiu, Romania, sorinvolo@yahoo.com

DRAGOSIN Monica
FDEE Electrica Distribution Transilvania South, SDEE Sibiu, Romania, monica.dragosin@electricats.ro

Abstract: Monitoring the quality indicators at the interface nodes between the distribution operator and the industrial users is extremely important in order to provide the electric power quality standard level. The power quality has a significant effect on the economic indicators of the distribution network and represents an essential parameter in order to evaluate the performances of the network.

The first part of the paper aims to identify some disruptive consumers in the system and the simultaneous measurement of the consumers in order to highlight the effects of the disturbances on the network and on the other consumers of the powers in the system.

In the second part of this paper, a program for classifying the data recorded, as result of the monitoring of the power quality is developed.

Final part contains conclusion a proposal for some measures in order to align all the quality indicators within the permissible values.

Key words: power quality, electromagnetic disturbance, quality indicators, monitoring power quality, neural network

IMPLEMENTATION OF QUALITY MANAGEMENT SYSTEM FOR IRRADIATION PROCESSING SERVICES

Ion-Bogdan LUNGU
Centre of Technological Irradiations - IRASM, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering – NIPNE-HH, Magurele, Romania, ion.lungu@nipne.ro

Maria-Mihaela MANEA
Centre of Technological Irradiations - IRASM, Horia Hulubei National Institute for R&D in Physics and Nuclear Engineering – NIPNE-HH, Magurele, Romania, mmanea@nipne.ro

Abstract: In today's market, due to an increasing competitiveness, quality management has set itself as an indispensable tool and a reference point for every business. It is ultimately focused on customer satisfaction which is a stringent factor for every business. Implementing and maintaining a QMS is a rather difficult, time consuming and expensive process which must be done with respect of many factors. The aim of this paper is to present a case study for implementing QMS ISO 9001 in a gamma irradiation treatment service provider. The research goals are the identification of key benefits, reasons, advantages, disadvantages, drawbacks etc for a
successful QMS implementation and use. Finally, the expected results focus on creating a general framework for implementing an efficient QMS plan that can be easily adapted to other kind of services and markets.

Key words: quality management system, implementation, radiation processing, customer satisfaction

LEAN INFORMATION MANAGEMENT: CRITERIA FOR SELECTING KEY PERFORMANCE INDICATORS AT SHOP FLOOR

Maria Virginia IUGA
SC Marquardt SCS Sibiu, Ph.D. Student, Faculty of Engineering/ Department of Engineering and Management, “Lucian Blaga” University, Sibiu, Romania, virginia.iuga@gmail.com

KIFOR Claudiu Vasile
Faculty of Engineering/ Department of Engineering and Management, “Lucian Blaga” University, Sibiu, Romania, claudiu.kifor@ulbsibiu.ro

ROSCA Liviu-Ion
Faculty of Engineering/ Department of Engineering and Management “Lucian Blaga” University, Sibiu, Romania, liviu.rosca@ulbsibiu.ro

Abstract: Most successful organizations worldwide use key performance indicators as an important part of their corporate strategy in order to forecast, measure and plan their businesses. Performance metrics vary in their purpose, definition and content. Therefore, the way organizations select what they think are the optimal indicators for their businesses varies from company to company, sometimes even from department to department. This study aims to answer the question of what is the most suitable way to define and select key performance indicators. More than that, it identifies the right criteria to select key performance indicators at shop floor level. This paper contributes to prior research by analysing and comparing previously researched selection criteria and proposes an original six-criteria-model, which caters towards choosing the most adequate KPIs. Furthermore, the authors take the research a step further by further steps to closed research gaps within this field of study.

Key words: KPI, lean manufacturing, shop floor, performance, waste
IMPROVING FOOD RADIOACTIVITY MONITORING PROCESS IN THE LABORATORY OF THE NUCLEAR RADIATION HYGIENE FROM SIBIU PUBLIC HEALTH DEPARTMENT

Mihai-Victor ZERBES  
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, mihai.zerbes@ulbsibiu.ro

Cecilia-Ionela ŞUTOIANU  
Laboratory of the Nuclear Radiation Hygiene from Sibiu Public Health Department, Sibiu, Romania, tceciiaionela@yahoo.com

Abstract: In this paper, the authors highlight the main problems faced by the Laboratory of the Nuclear Radiation Hygiene from Sibiu Public Health Department and propose a improvement methodology for its using the DMAIC model. The authors also present the effects produced from these problems or they can produce if not properly resolved. Effects, which affect or may affect both food manufacturers and final consumers through the negative influence on the businesses and on the public health.

Key words: public health, food, nuclear radiation, improving, DMAIC

A CASE STUDY ON GAGE R&R IN AUTOMOTIVE INDUSTRY

Carmen SIMION  
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, carmen.simion@ulbsibiu.ro

Abstract: In quality improvement projects it is a standard practice to assess the reliability of measurements before doing any analyses. A very important aspect of the quality of a measurement procedure is its measurement variation, that should be small compared to the product variation or compared to the specification interval. Usually, to assess any measurement system (gage) used in the production environment, many companies use Repeatability & Reproducibility (R&R) studies. Such analyses allow to estimate the contribution of variation attributable to the measurement system itself. If these estimates indicate that the recorded measurements may be unreliable, this may impact all subsequent analyses, e.g. control charts, capability analyses, etc. It is the aim of this paper to address such issues by the use of discussion and to present an example done in a major local automotive company. Minitab software was used to study the precision of the analyzed measurement system.

Key words: measurement systems analysis, precision, repeatability, reproducibility
INTELLECTUAL PROPERTY MANAGEMENT IMPLEMENTED IN INDUSTRIAL COMPANIES

Ramona PAKOCS
Faculty of Technological Engineering and Industrial Management/Department of Manufacturing Engineering, "Transilvania" University, Brașov, Romania, e-mail: ramona.pakocs@unitbv.ro

Nouraş Barbu LUPULESCU
Faculty of Technological Engineering and Industrial Management/Department of Manufacturing Engineering, "Transilvania" University, Brașov, Romania, e-mail: nouras@unitbv.ro

Abstract: This article is a theoretical research on the ways an intellectual property management can be implemented in industrial companies. 12 steps were proposed for implementing the IPMS, strategies for companies generating an embryonic industry were studied, and then through a multi-criteria analysis an IP management strategy was proposed in order to capitalize own inventions and innovations for making products.

Key words: performance, analysis, implementation, protection, control.

EVALUATION MODEL FOR SUCCESS FACTORS IN LARGE INDUSTRIAL PROJECTS

Frank RENNUNG
Politehnica University Department of Management Timisoara, Romania, frank.rennung@gmail.com

Cristina BORCA
Politehnica University Department of Management Timisoara, Romania, cristina_borca1@yahoo.com

Caius LUMINOSU
Politehnica University Department of Management Timisoara, Romania

Anca DRAGHICI
Politehnica University Department of Management Timisoara, Romania

Abstract: The aim of the paper is the design of an evaluation model of how different success factors of outsourcing with success factors of M & A projects. Both directions of research are interdisciplinary areas of science. Using a survey of experts from both disciplines, a study is conducted and typical problems are considered in these large-scale projects according to their importance. This typical problems in large-scale projects are identified based on an analysis of recent studies and scientific statements. The result of the papers is the valuation model, pointing out the results of the study and analysis of the results in different dimensions. The result allows an assessment of the degree of coverage of both disciplines and closes this gap.

Key words: project management, success factors, M&A projects, Outsourcing projects
PSYCHOLOGICAL RISKS MANAGEMENT ON LEAN MANUFACTURING SYSTEM

Bianca CIRJALIU
Faculty of Management in production and transports/Department of engineering and management, “Politehnica” University, Timisoara, Romania, cirjaliu.bianca@yahoo.com

Hugo WEINSCHROTT
Faculty of Management in production and transports/Department of engineering and management, “Politehnica” University, Timisoara, Romania, hw@bfk.ro

Anca DRAGHICI
Faculty of Management in production and transports/Department of engineering and management, “Politehnica” University, Timisoara, Romania, anca.draghici@upt.ro

Abstract: Recent researches show that one of the most important occupational risk in an organization is psychological risk. More and more organizations take care of the human resources in order to decrease the psychological risks and disorders. In the lean manufacturing area the adaptation is the first step. Any kind of change has a psychological risk, is a stressful factor. This paper aims to identify and why not, try to eliminate the factors linked to psychological risks of the human resources on the lean manufacturing system. The role of an efficient psychological risk management is to increase the lean manufacturing system, to have an unstressed and a better vision and performance in any organization. Furthermore, the paper will present the part of the advantageous lean manufacturing system, in order to encourage this kind of improvement.

Keywords: human resources, lean manufacturing system, psychological risk management, stressful factor

PRACTICAL ISSUES, AND FUTURE TRENDS IN PRODUCTION ORGANIZATION OF TIRE INDUSTRY

Daniela Angela BUZOIANU
Faculty of Economics/Department of Business Administration/”Petroleum-Gas “University, Ploiesti, Romania, danielabuzoianu@yahoo.com

Abstract: This paper aims, analyzing tire manufacturing process, to make a picture of the transformations that took place after 1990 until now. The objective of the study is to anticipate future evolution of the company, in the current economic context, based on developments in the organization of the production process, and other departments.

Keywords: production, organization, trends, strategy, values.
HOW TO FACE GLOBALIZATION CHALLENGES THROUGH INTERNATIONAL PROJECT MANAGEMENT

Iulia DUMITRĂȘCU
Sales& Business Development, Company: ND Pharma&Biotech (ND Trading SLU), Valencia, Spain,
dumitrascu.iulia@gmail.com

Dănuț Dumitru DUMITRĂȘCU
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, dan.dumitrascu@ulbsibiu.ro

Abstract: This article aims to highlight changes occurring into the projects, following the increasing globalization of recent decades, in order to emphasize the need to adapt traditional project management structure.

The importance of field research stems from the fact that due to globalization, many of the projects implemented by the organizations become international. Therefore it is necessary to know the specific characteristics and understand the implications of such projects, so that organizations become able to choose the most appropriate and effective way to manage them.

The aim of the article is to identify a new and more flexible approach of project management, through which organizations can meet the challenges of globalization, increasing the success rate of the projects implemented. The research procedure used to achieve this objective, is represented, mainly, by the bibliographic research. As a result of this research we proposed an adaptive diamond structure to analyze international projects management.

Key words: globalization, international-global projects, project management, technological innovation.

VIRTUAL TEAMS MANAGEMENT IN GLOBAL INTERNATIONAL PROJECTS

Iulia DUMITRĂȘCU
Sales& Business Development, Company: ND Pharma&Biotech (ND Trading SLU), Valencia, Spain,
dumitrascu.iulia@gmail.com

DUMITRĂȘCU Dănuț Dumitru
Faculty of Engineering/ Department of Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, dan.dumitrascu@ulbsibiu.ro

Abstract: This article aims to highlight the changes taking place within project teams, following the increasing globalization phenomenon of recent decades, in order to emphasize the need for adapting strategies, communication tools and management techniques in order to amplify virtual team’s advantages.

The field research relevance stems from the fact that due to globalization, many of the projects implemented by the organizations become international, so the use of virtual teams becomes a necessity. Therefore, it requires knowing the advantages and understanding the disadvantages of using virtual teams, so that organizations can be able to manage them effectively, to avoid mistakes that can lead to projects failure.
The research procedure is represented mainly by bibliographic research. Also, the authors present a case study that examines how the most powerful global retail brand - Amazon - takes advantage of virtual teams.

Key words: virtual teams, globalization, global-international projects, project management.

INCREASING PERFORMANCE MANAGEMENT THROUGH DATA VISUALIZATION

Oana DUMITRĂȘCU
Faculty of Economics, Department of Management, Marketing and Business Administration, “Lucian Blaga” University, Sibiu, Romania, oana.dumitrascu@ulbsibiu.ro

HILA Constantin-Manuel
The KPI Institute, Sibiu, Romania, manuel.hila@gmail.com

Abstract: This paper aims to analyse the importance of data visualization in an organization’s performance management framework. Data visualization should transmit information in the most efficient way, with the main purpose of truthfully reveal the data in a quick, accurate, empowering and long-lasting manner. Representative visual representations can easily summarize and communicate data to others, making even the most abundant and complicated sets of data understandable. The research has been accomplished using the methodology of bibliographic study using various secondary sources. The study focuses on presenting best practices of data visualization in order to reach a holistic view of the subject and its positive impact on performance management.

Key words: performance management, data visualization, background data standardization, visual representations

EMPLOYMENT RELATIONS IN INDUSTRIAL ENTERPRISES

Octavian NEGOITA
FAIMA, POLITEHNICA University of Bucharest, Romania, octav.negoita@gmail.com

Anca Alexandra PURCAREA
FAIMA, POLITEHNICA University of Bucharest, Romania, apurcarea@gmail.com

Olivia Doina NEGOITA
FAIMA, POLITEHNICA University of Bucharest, Romania, negoita.olivia@gmail.com

Abstract: Entreprises are basic socio-economic systems - which include a variety of interacting subsystems. One of these subsystems is the human resources subsystem. Managing this subsystem means, in the actual economic conditions in Romania, a complex approach focused on the enterprises’ performance and the employee’s needs. The authors conducted a research on Romanian industrial companies studying labor relations and their implications for company performance. The study established as objectives: analyze the existing employment relations in Romanian industrial enterprises; measure the degree of involvement and motivation of workers involved in actions designed to increase the performance of the enterprise. The Economic and organizational performance can be obtained if the activities are well planned and organised and the teams are continously
relevant aspects of motivation at work refers to moral and material incentives that employees receive, how they run their professional activities to make them valuable, responsibilities and the way they choose to work.

Key words: employment relations, economic performance, involvement, motivation.

CHARACTERISTICS OF THE ROMANIAN FOB EXPORTS DURING THE PERIOD
01.01.-31.12.2014

Wiegand Helmut FLEISCHER
Faculty of Engineering/Department for Industrial Engineering and Management,
Lucian Blaga University, Sibiu, Romania, wiegand.fleischer@ulbsibiu.ro

Abstract: The aim of this paper is to analyze the Romanian FOB exports during the period 01.01.-31.12.2014. My research goal is to identify the most important section of FOB exports during the analyzed period and the main structural modifications in evolution of the Romanian exports. The expected results are to know the most important export section of the Combined Nomenclature, the structural modification in evolution of these industries and the most important partner countries.

Key words: exports, structural modifications, export partner countries

CHARACTERISTICS OF THE ROMANIAN CIF IMPORTS DURING THE PERIOD
01.01.-31.12.2014

Wiegand Helmut FLEISCHER
Faculty of Engineering/Department for Industrial Engineering and Management,
Lucian Blaga University, Sibiu, Romania, wiegand.fleischer@ulbsibiu.ro

Abstract: The aim of this paper is to analyze the Romanian CIF imports during the period 01.01.-31.12.2014. My research goal is to identify the most important section of CIF imports during the analyzed period and the main structural modifications in evolution of the Romanian imports. The expected results are to know the most important import section of the Combined Nomenclature, the structural modification in evolution of these industries and the most important partner countries.

Key words: imports, structural modifications, import partner countries
SUSTAINABILITY EVOLVING ROLE IN BUSINESS MANAGEMENT

Mihaela ROTARU
Faculty of Engineering, Department IIM, "Lucian Blaga" University, Sibiu, Romania, mihaela.rotaru@ulbsibiu.ro

Abstract: The present research aims to incorporate the sustainability related risks into an existing health and safety risk management evaluation. Sustainability has become a business strategy for shareholders and society so the author proposes the implementation of a standard in work related risk evaluation. The 4P concept will determine a more up to date and practical risk evaluation.

Key words: sustainability, business strategy, health and safety optimization.

ASPECTS OF THE COOPERATION BETWEEN THE LOGISTICS PROVIDERS AND CUSTOMERS WITHIN THE ROMANIAN MARKET

Dan MIRICESCU
Faculty of Engineering /Industrial Engineering and Management Department, "Lucian Blaga" University of Sibiu, Romania, dan.miricescu@ulbsibiu.ro

Thomas MOSER
Regional Manager South-East/CIS, Gebrüder Weiss, Wien, Austria
Faculty of Economics, "Lucian Blaga" University of Sibiu, Romania, thomas_moser1@aon.at

Abstract: Within this study we tried to identify the level of satisfaction of the partners of a provider of integrated logistics services, the way it operates on the market in Romania, as well as a series of elements that lie at the confluence of the basic activities of the company and the marketing activities, the global image of the brand, brand reputation and the associations made by customers with certain elements used for promotion. The brief analysis of the results of this study provides a fairly accurate picture of the whole logistics market in Romania. This can easily extrapolate the results of this research to other market actors as well. We note that the Romanian logistics market develops long-term partnerships, the main still being transport services, mainly by road or more extensive partnerships of the 3PL type. The logistics services level largely depends on these consecrated elements: timeliness, consistency, competence, adaptability and flexibility of services, upon customer request. The main arguments for choosing a logistics partner have in view the price – quality ration and the experience of the service provider.

Key words: logistics, customer satisfaction, level of logistics services
RISK MANAGEMENT IN SME’s-BASIC MANAGEMENT TECHNIQUE IN PROJECT’S IMPLEMENTATION

Daniela POPA
Faculty of Engineering, Department Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, daniela.popa@ulbsibiu.ro

Dan MIRICESCÜ
Faculty Faculty of Engineering, Department Industrial Engineering and Management, "Lucian Blaga" University, Sibiu, Romania, dan.miricescu@ulbsibiu.ro

Viorica FALOBA
Faculty of Economic Sciences, "Lucian Blaga" University, Sibiu, Romania, viorica.faloba@ulbsibiu.ro

Abstract: Small and medium enterprises by their activities and actions of development represent a significant factor in any country’s economy. For this reason it is considered necessary to determine the SMEs’ capacity to identify and manage potential risks that could adversely affect their process of development and which could generate less performant effects in the economic and social environment. The purpose of the paper is to identify the types of risk that might occur in the projects developed so far, the elements on which managers can take into consideration in order to identify potential risks, to identify the responsible employees of risk management and their methods use for dealing with them. The research results showed that the stakeholders of the analyzed SMEs are capable to identify and manage potential risks, which proves that they have the ability to efficiently implement projects whose results could determine the increase of the organizational performance if they identify the best opportunities of the environment.

Keywords: risk, performance, SMEs.
INFORMATION SECURITY MANAGEMENT - PART OF THE INTEGRATED MANAGEMENT SYSTEM

Constantin Adrian MANEA
Faculty of Electrical Engineering and Computer Science/Department of Automation and Information Technology, "Transilvania" University, Brașov, Romania, a.c.manea@unitbv.ro

Abstract: The international management standards allow their integrated approach, thereby combining aspects of particular importance to the activity of any organization, from the quality management systems or the environmental management of the information security systems or the business continuity management systems. Although there is no national or international regulation, nor a defined standard for the Integrated Management System, the need to implement an integrated system occurs within the organization, which feels the opportunity to integrate the management components into a cohesive system, in agreement with the purpose and mission publicly stated. The issues relating to information security in the organization, from the perspective of the management system, raise serious questions to any organization in the current context of electronic information, reason for which we consider not only appropriate but necessary to promote and implement an Integrated Management System: Quality - Environment - Health and Operational Security - Information Security.

Key words: international standard, management system, information security, control, integrated

FROM GIS DATABASE TO SPATIAL DATA WAREHOUSE

Sorin BORZA
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, sorin.borza@gmail.com

Abstract: Systems to assist decision-oriented data are the result of technology tailored to achieve the following objectives: storage of large volumes of historical data collected in organizations (dataware), operate their repositories with online analytical processing performed (OLAP).

In addition to technical support, decision making process involves a cognitive support, provided by the human component, considered part of the system to assist decision. Data warehouse architecture and tools provides executive leadership by systematically understanding and use of data in making strategic decisions. The research described in this paper combine a geographical information system (GIS) with a database management system, to determinate near optimal storage location in Data Warehouse. This paper present shortly a case study at the Sibiu area in Romania. The problems are further complicated by the fact that many storage facilities and many production facilities are involved in a relatively large geographical area. We used the Intergraph Geomedia Professional GIS software for spatial data and Oracle Warehouse Builder for our Data Warehouse. The first section provides an introduction to the field of spatial databases and data warehouses by presenting some
definitions of this notion, characteristics and objectives. Section two presents specific data models for data warehouses, which are diagrams showing the design used in data warehouse and also presents concepts of cube, dimension hierarchies and OLAP operations. The third, is the design scheme of a data warehouse, followed by building the data warehouse using Oracle Warehouse Builder 10g, analyzing all the steps needed for this. We define a geographical data cube. In the fourth section we discuss about query language for retrieving data stored in data warehouse. Here, the fact table attributes consist of measures and a spatial measure is seen as geometry or function.

Key Words: database, spatial, warehouse, data marts, cube

MODELLING OF MANUFACTURING PROCESSES WITH MEMBRANES

Daniel Cristian CRĂCIUNEAN
SC SoftLine SRL, Sibiu, Romania, daniel@sln.ro

Vasile CRĂCIUNEAN
Faculty of Engineering, Computer & Electrical Engineering Department, “Lucian Blaga” University, Sibiu, Romania, vasile.craciunean@ulbsibiu.ro

Abstract: The current objectives to increase the standards of quality and efficiency in manufacturing processes can be achieved only through the best combination of inputs, independent of spatial distance between them. This paper proposes modelling production processes based on membrane structures introduced in [4]. Inspired from biochemistry, membrane computation [4] is based on the concept of membrane represented in its formalism by the mathematical concept of multiset. The manufacturing process is the evolution of a super cell system from its initial state according to the given actions of aggregation. In this paper we consider that the atomic production unit of the process is the action. The actions and the resources on which the actions are produced, are distributed in a virtual network of companies working together. The destination of the output resources is specified by corresponding output events.

Key words: membrane structure, super-cell, action of aggregation, aggregation system of actions with membrane.
TESTING THE PERFORMANCE OF A SINGLE-PHASE AUTOTRANSFORMER ON MATLAB/SIMULINK

Mihai Gheorghe PANU
Faculty of Engineering, Department of Computer Science and Electrical Engineering, "Lucian Blaga" University, Sibiu, Romania, mihai.panu@ulbsibiu.ro

Alina Cristina VIOREL
Faculty of Engineering /Department of Computer Science and Electrical Engineering, "Lucian Blaga" University, Sibiu, Romania, alina.viorel@ulbsibiu.ro

Abstract: This paper presents a virtual laboratory for testing a single-phase autotransformer using MATLAB Simulink environment. The model is implemented according to a practical laboratory used at electric machines’ discipline for the undergraduate level in electrical engineering. The model presented herein is a copy of a practical experiment for an autotransformer made in the test laboratory. The rating of the autotransformer is taken to be 2 kVA, 230/0÷230 V, and it was set at a transformer ratio of 1.5. The used model is a linear one and run for a pure resistive load test. In the same time, it was aimed the simulation accuracy as it was used a linear model, neglecting the magnetic saturation effect.

Key words: single-phase autotransformer, Simulation, Virtual tests, Virtual laboratory.

TRANSMISSION TECHNIQUES FOR VAMOS GSM IN DOWNLINK

Bianca ENACHE
Faculty of Electronics and Telecommunications, Department Communications, "Politehnica" University, Timisoara, Romania, enache.biancaemilia@gmail.com

Abstract: In this paper is presented a study of the transmission techniques for Vamos GSM. Are presented the advantages and disadvantages. The study was performed for the second generation: GSM (Global System for Mobile Communications). In order to observe the performance of the BTS equipment was performed a study of the DARP (Downlink Advanced Receiver Performance) techniques and OSC (Orthogonal Sub Channel) influence.

Key words: Vamos, GSM, modulation, OSC, technique
ELECTRIC FLOOR HEATING SYSTEMS IN CEECs

Gabriel Păun
Universitatea Ecologica din Bucuresti, Bucuresti, Romania, abipaun@yahoo.com

Abstract: We can state that the CEECs Electric Floor Heating market size is somewhere between €35m and €40m, with Devi leading with an estimated 30% share of this market, followed by Elektra and Fenix with an estimated share of 15% each. We can also estimate that the indoor systems market size sits at around the €15m mark and the outdoor systems market size at around €20m. With just a few exceptions almost all systems are sold in combination with temperature controllers produced by other manufacturers, and clearly OJ Electronics almost has a monopoly of the market, in particular for the outdoor systems controllers. The common feeling in most of the CEECs is that the market, although it has suffered some degree of contraction between 2009 and 2011, is now growing at an average rate of 15 to 20% y-o-y.

Key words: Defrost and Snow Melting Systems Warmup
Academic Education and Management

HIGHER TECHNICAL EDUCATION - RESEARCH VS. EDUCATION. TECHNIQUE OF TEACHING, BETWEEN CLASSICAL AND MODERN

Eugen PĂMÎNTAS
Mechanical Faculty, Materials and Manufacturing Engineering, Politehnica University, Timisoara, Romania, eugen.pamintas@upt.ro

Abstract: The results, not at all encouraging the graduates and the growing gap between the requirements of the employers and the graduate knowledge base bring us some questions and the look for the most appropriate answers. Of them, the work stops at two, namely: higher technical education prepares engineers, research scientists, or both, respectively, the teaching methods in engineering education today are appropriate? In search of answers and solving problems arising from questions shall be made an analysis of the educational process and master's degree. The analysis is based both on documents and facts generally known, but also the authors' own teaching experience. Conclusions are warning signals for improving the training of engineers and master of technical education but also to reform education in proper selection and training support staff for research.

Key words: selection of graduates, researcher, engineer, teaching techniques
IN-FACTORY LEARNING – QUALIFICATION FOR THE FACTORY OF THE FUTURE

Fabian QUINT
Innovative Factory Systems, German Research Center for Artificial Intelligence DFKI, Kaiserslautern, Germany, fabian.quint@dfki.de

Katharina MURA
Innovative Factory Systems, German Research Center for Artificial Intelligence DFKI, Kaiserslautern, Germany, katharina.mura@dfki.de

Dominic GORECKY
Innovative Factory Systems, German Research Center for Artificial Intelligence DFKI, Kaiserslautern, Germany, dominic.gorecky@dfki.de

Abstract: The Industry 4.0 vision anticipates that internet technologies will find their way into future factories replacing traditional components by dynamic and intelligent cyber-physical systems (CPS) that combine the physical objects with their digital representation. Reducing the gap between the real and digital world makes the factory environment more flexible, more adaptive, but also more complex for the human workers. Future workers require interdisciplinary competencies from engineering, information technology, and computer science in order to understand and manage the diverse interrelations between physical objects and their digital counterpart. This paper proposes a mixed-reality based learning environment, which combines physical objects and visualisation of digital content via Augmented Reality. It uses reality-based interaction in order to make the dynamic interrelations between real and digital factory visible and tangible. We argue that our learning system does not work as a stand-alone solution, but should fit into existing academic and advanced training curricula.

Key words: Training Systems, Advanced Interaction, Digital Factory, Factory of the Future, Virtual Reality, Industry 4.0

USING THEATRIC PEDAGOGY TO DEVELOP SOCIAL AND EMOTIONAL SKILLS IN ORDER TO IMPROVE EMPLOYABILITY OF ENGINEERING STUDENTS

Alina PERTEA
Department of Didactic Personal Training, “Lucian Blaga” University, Sibiu, Romania, e-mail: alinaperteamaria@gmail.com

Valentin GRECU
Faculty of Engineering, Department of industrial engineering and management, “Lucian Blaga” University, Sibiu, Romania, e-mail: valentin.greco@ulbsibiu.ro

Abstract: This research is the result of intense concerns about the role of theater in society beyond the theater show, from the creative process of analysis and introspective psychological insight, to the side effects of theater as a form of expression of the individual, and reception, assimilation and processing of theatrical codes and messages. The paper focuses therefore on theatric pedagogy, the forming tools and the size of the theater, and its value as a means and as a didactic factor for personality stimulation and development, both in terms of form
and content. To this end, there are presented both theoretical perspectives and an exploratory study, which aims to verify the applicability, usefulness and effectiveness of theatric pedagogy means as an additional training method to facilitate the integration of graduates in employment and a successful professional collaboration, in an industry mainly in the field of real profile.

**Key words:** education, theatric pedagogy, active learning, skills for employability.

**METHODOLOGICAL ASPECTS REGARDING THE ORGANIZATIONAL STRESS ANALYSIS**

**Sabina IRIMIE**  
*Faculty of Mining, Department of Management, Environmental Engineering and Geology, University of Petroșani, Petroșani, Romania, sabina.irimie@gmail.com*

**Luminița Doina PRICOPE (MUNTEAN)**  
*Faculty of Mining, University of Petroșani, Petroșani, Romania, munteanluminita1966@gmail.com*

**PRICOPE Sorin**  
*Faculty of Mining, University of Petroșani, Petroșani, Romania, pricopesorin@yahoo.com*

**IRIMIE Sabin Ioan**  
*Faculty of Mining, University of Petroșani, Petroșani, Romania, nibas8511@yahoo.com*

**Abstract:** This work presents a research of methodology in occupational stress analyse in the educational field, as a part of a larger study. The objectives of the work are in finding accents in existence of significant relations between stressors and effects, meaning the differences between the indicators of occupational stress to teaching staff in primary and gymnasium school, taking notice of each specific condition: the institution as an entity, the working comunity, the discipline he/she is teaching others, the geographic and administrative district (urban/rural) and the quantification of stress level.

**Key words:** organizational stress, educational field, security and health risc
MODELLING A SUSTAINABLE INTEGRATED MANAGEMENT SYSTEM FOR UNIVERSITIES

Radu Vasile PASCU
“Lucian Blaga” University, Sibiu, Romania, radu.pascu@ulbsibiu.ro

Abstract: The debate on the concept of sustainable development are gaining more dimensions in the universities. Sustainability is not a new theme in higher education. Identifying new approaches, methods and means of implementing the concept is more intensive in the actual context. Integration of various management systems in a university is a viable approach to cost reduction, efficient utilization of resources, and greater motivation of employees, and better compliance to social obligations and stakeholders requirements. If at the integrated management system is added a sustainability component, the resulted system can help the transition to the sustainable university. In this paper the Sustainable Integrated Management Systems (SIMS) are viewed as a step in this direction.

Key words: Integrated management systems, sustainable university, system modeling.

PARTICULARITIES OF IMPLEMENTING A SUSTAINABLE MANAGEMENT SYSTEM IN UNIVERSITIES

Radu Vasile PASCU
“Lucian Blaga” University, Sibiu, Romania, radu.pascu@ulbsibiu.ro

Abstract: In this paper the author presents the particularities of the implementation of a sustainable management system in universities as he first step for the transition to a sustainable university. These particularities regards: the systemic approach and the process mining that leads to increase the efficiency of activities, sensitizes the personnel and provides a structure for the sustainable development of the university; the project management approach to better understand the interactions between the internal processes and the customer and stakeholders requests, and to assure a correct work flow for the management system functionality; an effective knowledge management and the application of the quality assurance principles and techniques. This integrated approach involves significant change in culture and values, organizational structures and reward systems in a university.

Key words: words: integrated management system, sustainability, knowledge management, project management
A CONCEPTUAL APPROACH FOR THE SUSTAINABLE UNIVERSITY

Radu Vasile PASCU
“Lucian Blaga” University, Sibiu, Romania

Abstract: The implementation of the sustainable university various models requires major efforts by key members of the academic institutions. Some universities have amended their mission statements to incorporate sustainability concerns. Others have created environmental policies to foster education for sustainability while others aim their efforts in outreach, research, or sustainability on campus operations, but none of the universities, has accomplishes all the phases in order to be full complaint with the sustainable university title. In a certain way, it represents an acknowledgement that it can no longer be assumed that to incorporate sustainability into a higher education institution is an easy and direct task. In this paper, the author present some aspects regarding the concept of the sustainable university and sustainable education.

Key words: sustainable education, sustainable universities
EXPERIMENTAL MEASUREMENTS AND EVALUATION OF INDOOR MICROCLIMATE CONDITIONS

Ružena KRALIKOVÁ
Faculty of Mechanical Engineering, Department of Process and Environmental Engineering, Technical University of Košice, Košice, Slovakia, ruzena.kralikova@tuke.sk

Hana SOKOLOVÁ
Faculty of Mechanical Engineering, Department of Process and Environmental Engineering, Technical University of Košice, Košice, Slovakia

Abstract: The paper deals with monitoring of workplace where technological equipment produces heat during hot summer days. The thermo-hygric microclimate measurement took place during daily work shift, and was carried out at 5 chosen measuring points. Since there was radiation heat presented in workplace and workers worked at different places, the thermal environment was classified as a heterogeneous and unstationary area. The measurement, result processing and interpretation was carried out according to the valid legislation of Slovak Republic.

Key words: environment, thermo-hygric microclimate, measuring, evaluation.

OPTIMISATION OF SUN TRACKING POSITIONING SYSTEM SCHEDULE FOR SOLAR ENERGY FARMS

Cristin BIGAN
Faculty of Management and Environmental Engineering, Department Engineering Sciences, “Ecological” University, Bucharest, Romania, e-mail: cbigan@yahoo.com

Valentin PANDURU
Faculty of Management and Environmental Engineering, Department Engineering Sciences, “Ecological” University, Bucharest, Romania, e-mail: vali_panduru@yahoo.com

Abstract: Sun energy farms develop as a powerful option of renewable energy solution. Besides issues as placement region or area selection, technical problems of National or Local Grid integration and policies, the choice of fixed position panels of solar cells is often applied due to the lack of trust in automatic sun tracking option. This paper deals with providing the optimal energy saving schedule for a daily operation of a sun tracking positioning.

Key words: sun tracking positioning, optimisation, modelling, simulation, Matlab.
POLYURETHANE MATRIX NANOCOMPOSITES USED TO OBTAIN ANTI-SLIP, ANTI-WEAR AND FIRE-RESISTANT FLOORS FOR PUBLIC INSTITUTIONS, CIVIL AND INDUSTRIAL BUILDINGS

Laurentiu MARIN  
Faculty of Real Sciences, Department of Physical and Engineering Sciences, Balti, Moldova,  
andree_marr@yahoo.co.uk

Topala PAVEL  
Faculty of Real Sciences, Department of Physical and Engineering Sciences, AlecuRusso Balti State University,  
Balti, Moldova, pavel.topala@gmail.com

Catalina Daniela MARIN  
National Institute for Research and Development in Chemistry and Petrochemistry, Polymer Department,  
Bucharest, Romania, marin8catalina@yahoo.com

Teodor SANDU  
National Institute for Research and Development in Chemistry and Petrochemistry, Polymer Department,  
Bucharest, Romania, sandu_m_teo@yahoo.com

Abstract: Research and development activities presented were aimed at obtaining a nanocomposite polyurethane matrix with special anti-wear, anti-slip and fire-resistant properties. Research and development works were materialized by obtaining polyurethane nanocomposite matrix, by its physico-chemical modification in order to give the desired technological properties and by characterization of the obtained material. Polyurethane nanocomposite matrix was obtained by reacting a PETOL 3 type polyetherpolyol (having a molecular weight of 5000 UAM) with a diisocyanate under well-established reaction conditions. Target specific technological properties were obtained by physical and chemical modification of polyurethane nanocomposite matrix. The final result was getting a pellicle material based on modified nanocomposite polyurethane, with anti-wear, anti-slip and fire-resistant properties, compatible with most substrates encountered in civil and industrial construction: wood, concrete, metal.

Key words: polyurethane, nanocomposite, antiwear, antislip, fire resistant
DETERMINATION OF HEAT LOAD BY WET BULB GLOBE TEMPERATURE

IN WORKING ENVIRONMENT

Ružena KRÁLIKOVÁ
Faculty of Mechanical Engineering, Department of Process and Environmental Engineering, Technical University of Košice, Košice, Slovakia, ruzena.kralikova@tuke.sk

Marieta MAĎORANOVÁ
Faculty of Mechanical Engineering/Department of Process and Environmental Engineering, Technical University of Košice, Košice, Slovakia, marieta.madoranova@student.tuke.sk

Abstract: Thermal load on people in general depends on the heat production in the human organism as a result of physical activity as well as environmental conditions which are affected by transfer of heat between human and the surrounding area. The resulting effect of metabolic exchanges which occur in work activities is the thermal load of organism. The paper deals with the evaluation of microclimatic conditions of the working environment of workers, who are exposed to the hot environment during their work.

Key words: working environment, microclimatic conditions, human, heat load

TIME SERIES SPACE PHASE QUALITATIVE ANALYSIS AND A POSSIBLE APPLICATION

Dan CHICEA
Faculty of Sciences, Department of Environmental Sciences, Physics, Physical Education and Sports, University “Lucian Blaga”, Sibiu, Romania, dan.chicea@ulbsibiu.ro

Silviu REI
Continental Automotive Systems SRL, Sibiu, Romania, silviu.rei@continental-corporation.com

Abstract: In a coherent light scattering experiment using a laser beam and a cuvette containing a suspension the interference field has a boiling speckle aspect. Using a detector and a data acquisition system a time series can be recorded. A possible definition for the space phase of a time series is defined. The distribution of the velocities and the trajectory in the phase space are analyzed both for computer simulated samples and for recordings on two suspensions that have the average particle size measured using Dynamic Light Scattering procedure. The results reveal that the distribution of the velocities and the trajectory in the phase space can be used in a qualitative way to characterize the average particle size in suspension.

Key words: time series, phase space, velocity distributions, suspensions
ANALYSIS OF THE BEHAVIOUR OF SOME BINDING SYSTEMS FOR LOCAL PROTECTION AGAINST PLASMA NITRIDING

Marius BIBU  
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, marius.bibu@ulbsibiu.ro

Cristian DEAC  
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, cristian.deac@ulbsibiu.ro

Alina GLIGOR  
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, alina.gligor@ulbsibiu.ro

Toderita NEMES  
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, toderita.nemes@ulbsibiu.ro

Abstract: Many parts used in the machines manufacturing industry need to present a high hardness value on certain areas and thus need to be subjected to heat treatments or thermochemical treatments such as plasma nitriding, while other areas can be left in their initial hardness state. Since applying plasma nitriding on all surfaces would be needlessly costly, it is necessary to apply a solution for the local protection of the areas that do not require hardening. The authors of the current paper, starting from their previous researches on elaborating special paints or pastes for the local protection of parts against the effects of plasma nitriding, are analysing in this paper the various types of materials that can be used as binding agents in the composition of such paints or pastes, from the point of view of their protection efficiency and their mechanical properties.

Key words: local protection, paste, plasma nitriding, binding system
STUDY OF CATALYSTS USED FOR OXIDIZING CARBON MONOXIDE AND HYDROCARBONS IN INDUSTRIAL EXHAUST GASES

Toderiţa NEMEŞ
Faculty of Engineering/Department of Industrial Engineering and Management, "Lucian Blaga" University of Sibiu, Sibiu, Romania, toderita.nemes@ulbsibiu.ro

Catalin NEMES
UniCredit Business Integrated Solutions GmbH, Viena, Austria, catalinnemes@gmail.com

Valentin PETRESCU
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University of Sibiu, Sibiu, Romania, valentin.petrescu@ulbsibiu.ro

Marius BIBU
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University of Sibiu, Sibiu, Romania, marius.bibu@ulbsibiu.ro

Abstract: Starting from the requirement of an ecological way to reduce emissions in the exhaust gases of thermal power plants, the current paper analyzes the manner of obtaining specific catalysts for oxidizing CO and HC using different support materials (carbon molecular sieve, alumina, zeolite) and metals with high catalytic activity (Cu, Co, Mg, Pd, Ni, Zr, Ti) and characterizes these from a physical-structural point of view. The physical-structural characterization of the prepared catalysts was done by X-ray diffraction, optical microscopy, electronic transmission microscopy, atomic adsorption, textural studies with mercury porosimetry. It was noticed that the presence of palladium considerably improves the reduction degree of copper and cobalt oxides, increases the degree of dispersion and decreases the metal crystal size in the support mass, besides its role as an active catalytic component. These improvements lead to an increase in the catalysts’ activity, aspect which will be considered in the next step of the research.

Key words: catalytic efficiency, catalytic reactor, catalysts, pollutant emissions, selective reduction
SAFETY MANAGEMENT OF WASTE WATER TREATMENT PLANTS

Vincenzo TORRETTA
Department of Biotechnologies and Life Sciences, University of Insubria, Varese, Italy,
vincenzo.torretta@uninsubria.it

RADA Elena Cristina
Department of Civil and Environmental Engineering, University of Trento, Trento, Italy, elena.rada@unitn.it

RAGAZZI Marco
Department of Civil and Environmental Engineering, University of Trento, Trento, Italy, marco.ragazzi@unitn.it

Abstract: The function of the wastewater treatment plants (WWTPs) is very important in terms of environmental and safety. However, such systems can pose risks source for human health and the environment, due to the use of chemicals and dangerous substances produced by the treatment process. The purpose of this study was to consider a real wastewater treatment plant having two phases of treatment particularly sensitive to the safety aspects: the accumulation of biogas produced by anaerobic digestion and the use of peracetic acid (PAA) for the disinfection of water. The objective is to find some helpful hints, in the design phase and especially in the management phase of the plants, in order to limit the risk to below the threshold of acceptability.

Key words: biogas, Peracetic acid, safety, WWTP
INTEGRATING RISK ANALYSIS WITH SAFETY DIAGNOSTIC IN COMPLEX INDUSTRIAL SYSTEMS: MODELING HAZARD

Lucian Ionel CIOCA
Faculty of Engineering, Department of Industrial Engineering and Management, "Lucian Blaga" University of Sibiu, Sibiu, Romania, lucian.cioca@ulbsibiu.ro

Roland Iosif MORARU
Faculty of Mines, Department of Mining, Surveying and Civil Engineering, University of Petroșani, Petroșani, Romania, roland_moraru@yahoo.com

Gabriel Bujor BĂBUȚ
Faculty of Mines, Department of Mining, Surveying and Civil Engineering, University of Petroșani, Petroșani, Romania, gabriel_babut@yahoo.com

Nicolae Stelian UNGUREANU
Faculty of Engineering – North University Centre of Baia Mare/Department of Engineering and Technology Management, Technical University of Cluj-Napoca, Baia Mare, Romania, Nicolae.Ungureanu@ubm.ro

Abstract: Admitting as known the instruments that lends itself to highlighting the causes – consequences relationships in an industrial plant, the purpose of this research is, on the one hand, to integrate these relationships in the safety diagnostic procedures and, on the other hand, to use these "consequences" to forecast future failures likely to occur within the technical system. In this context, the paper aims to study systemic hazard models to develop structural, functional and behavioural models, describing a complex industrial system.

Key words: risk analysis, safety diagnosis, industrial system, integration

PSYCHOSOCIAL RISKS GENERATED BY ASSETS SPECIFIC DESIGN SOFTWARE

Remus FURTUNĂ
Teritorial Labour Inspectorate Sibiu, remus.furtuna@itmsibiu.ro

Angela DOMNARIU
Teritorial Labour Inspectorate Sibiu, angela.dомнariu@itmsibiu.ro

Petru LAZĂR
SC Klein Consulting SRL, lazarpetricasb@yahoo.com

Abstract: The human activity concerning an occupation is resultant from the interaction between the psycho-biological, socio-cultural and organizational-occupational factors. Technological development, automation and computerization that are to be found in all the branches of activity, the level of speed in which things develop, as well as reaching their complexity, require less and less physical aptitudes and more cognitive qualifications. The person included in the work process is bound in most of the cases to come in line with the organizational-occupational situations that are specific to the demands of the job. The role of the programmer is essential in the process of execution of ordered softwares, thus the truly brilliant ideas can only come from well-rested minds, concentrated on their tasks. The actual requirements of the jobs, besides the high number of benefits and
opportunities, also create a series of psycho-social risks, which can increase the level of stress during work activity, especially for those who work under pressure.

**Key words:** occupational stress, design, psycho-social risks

**OPERATIONAL CATEGORIZATION AND CLASSIFICATION OF THE MALEVOLENT ACTS FOR THEIR INTEGRATION IN THE RISK ASSESSMENT PROCESS OF THE MAJOR ACCIDENTS**

Gabriel Bujor BĂBUŢ
Faculty of Mines/Department of Mining, Surveying and Civil Engineering, University of Petroşani, Petroşani, Romania, gabriel_babut@yahoo.com

Lucian Ionel CIOCA
Faculty of Engineering/Department of Industrial Engineering and Management, "Lucian Blaga" University of Sibiu, Sibiu, Romania, lucian.cioca@ulbsibiu.ro

Mihai POPESCU-STELEA
Faculty of Mines/Department of Mining, Surveying and Civil Engineering, University of Petroşani, Petroşani, Romania, popescusteleamihai@yahoo.ro

**Abstract:** Starting from the critical analysis of the speciality literature, this paper proposes to present an operational categorization and classification of the malevolent acts relevant within the industrial security field. There have been identified, described and classified several categories of malevolent acts, stating in each situation if it is about a direct cause or an indirect one of process of a major accident: the internal malevolent acts (deliberate destruction in order to obtain certain material gains, dissimulation of fraudulent acts or delicts, individual swerved behaviour intended to induce losses, dissimulation of a risky act, social conflicts) and the external malevolent acts (industrial espionage, embezzlement of communication systems, conflicts with neighbors, vandalism, theft, ruffianism, terrorism). Through the data and information provided, the paper aims to contribute to the integration of malevolent acts in the risk assessment process of major accidents occurrence.

**Key words:** malevolent act, risk, assessment, major accident
HEALTH AND SAFETY IN MAINTENANCE ACTIVITIES

Nicolae Stelian UNGUREANU
Faculty of Engineering, Department of Engineering and Management of Technology, Technical University of Cluj Napoca, North University Center of Baia Mare, Baia Mare, Romania, nicolae.ungureanu@cunbm.utcluj.ro

Dinu DARABA
Faculty of Engineering, Department of Engineering and Management of Technology, Technical University of Cluj Napoca, North University Center of Baia Mare, Baia Mare, Romania, daraba.dinu@cunbm.utcluj.ro

Roland Iosif MORARU
Department of Mining Engineering, Surveying and Civil Engineering, Faculty of Mining Engineering, University of Petrosani, Petrosani, Romania, roland_moraru@yahoo.com

Abstract: The paper examines some aspects of health and safety at work in maintenance activities. It was analysed the occurrence of accidents, statistically, in maintenance work. There have been identified a number of causes of accidents and there have been proposed some measures to reduce them.

Key words: maintenance, health, safety, management

ASSESSMENT OF OCCURRING RISK OF MAJOR INDUSTRIAL ACCIDENTS WITH TAKING IN VIEW OF MALEVOLENCE ACTIONS

Gabriel-Dragos VASILESCU
INCD INSEMEX Petrosani, Department from Industrial Safety, dragos.vasilescu@insemex.ro

Emilian GHICIOI
INCD INSEMEX Petrosani, Department from Industrial Safety, emilian.ghicioi@insemex.ro

Attila KOVACS
INCD INSEMEX Petrosani, Department from Industrial Safety, attilakovacspetrosani@yahoo.com

Daniela-Carmen RUS
INCD INSEMEX Petrosani, Department from Industrial Safety, dana.rus@insemex.ro

Edward GHEORGHIOSU
INCD INSEMEX Petrosani, Department from Industrial Safety, edward.gheorghiosu@insemex.ro

Ciprian JITEA
INCD INSEMEX Petrosani, Department from Industrial Safety, ciprian.jitea@insemex.ro

Abstract: The main objective of this paper is to develop the infrastructure of the risk assessment methodology of major accidents in terms of considering the acts of malevolence.

Key words: risk assessment, malevolence act, major industrial accident, safety
OPERATIONALIZATION OF THE PROFESSIONAL RISKS ASSESSMENT ACTIVITY

Victoria Larisa IVASCU  
Faculty of Management in Production and Transportation, Department of Management, Politehnica University of Timisoara, Romania, larisa.ivascu@upt.ro

Bianca CIRJALIU  
Faculty of Management in Production and Transportation, Department of Management, Politehnica University of Timisoara, Romania, cirjaliu.bianca@yahoo.com

Anca DRAGHICI  
Faculty of Management in Production and Transportation, Department of Management, Politehnica University of Timisoara, Romania, anca.draghici@upt.ro

Abstract: Professional risks assessment approach (integration of analysis and evaluation processes) is linked with the general concerns of nowadays companies for their employees’ health and safety assurances, in the context of organizations sustainable development. The paper presents an approach for the operationalization of the professional risk assessment activity in companies through the implementation and use of the OnRisk platform (this have been tested in some industrial companies). The short presentation of the relevant technical reports and statistics on OSH management at the European Union level underlines the need for the development of a professional risks assessment. Finally, there have been described the designed and developed OnRisk platform as a web platform together with some case studies that have validate the created tool.

Key words: interdisciplinary, risk assessment, Occupational Safety and Health (OSH), OnRisk platform
INNOVATIVE TECHNOLOGY FOR TESTING OF PROTECTIVE GLOVES SPECIFIC PERFORMANCES

Florin Adrian PĂUN
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, e-mail florin.pau@insemex.ro

Mihaela PĂRAIAN
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, e-mail mihaela.paraian@insemex.ro

Adrian JURCA
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, e-mail adrian.jurca@insemex.ro

Leonard LUPU
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, e-mail leonard.lupur@insemex.ro

Florina BERZAN MUNTEAN
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, e-mail florina.muntean@insemex.ro

Abstract: Presence of hazards along carrying on the work tasks by operators require making use of personal protective equipment, adequate from ensuring protection standpoint. Protecting workers against hazards implies the personal protective equipment to fulfill certain constructional and safety requirements which are very important for the level of protection that should be ensured. This paperwork aims at identifying the constructional and safety requirements for hand protection equipment, as well as the applicable test methods whose results would allow their farther characterization regarding the protection ensured. Innovative solutions are presented, regarding the test stand for determining the blade cut resistance of protective gloves.

Key words: personal protective equipment, protective gloves, mechanical risks, laboratory tests, explosive atmosphere.
INVESTIGATION OF THE CAUSES WHICH LED TO THE OCCURRENCE OF A FIRE IN A GAS DESULPHURISATION INSTALLATION – CASE STUDY –

Cristian TOMESCU  
National Institute for Research and Development in Mine Safety and Protection to Explosion - INSEMEX  
Petroşani, ROMANIA, insemex@insemex.ro

Constantin LUPU  
National Institute for Research and Development in Mine Safety and Protection to Explosion - INSEMEX  
Petroşani, ROMANIA, insemex@insemex.ro

Doru CIOCLEA  
National Institute for Research and Development in Mine Safety and Protection to Explosion - INSEMEX  
Petroşani, ROMANIA, insemex@insemex.ro

Vlad-Mihai PĂSCULESCU  
National Institute for Research and Development in Mine Safety and Protection to Explosion - INSEMEX  
Petroşani, ROMANIA, insemex@insemex.ro

Abstract: A hazardous incident occurred in the summer of 2011 within an industrial platform belonging to a thermal-power plant located in the south-western part of Romania. The event which affected the wet chimney of the gas desulphurisation installation was a fire, triggered at a height of 54 m. It was liquidated by the team for emergency situations, but there occurred important material losses. There weren’t any human losses. In order to elucidate the objective and subjective causes which led to the occurrence of this event, there were carried out researches, there were made assumptions, there were studied the ignition sources, there were carried out tests on work materials, whose modelling provided the mechanism of the fire, and their analyses provided the result of the investigations.

Key words: absorber, fire, flammable materials, gas desulphurisation, worker
PHYSICAL TRAINING METHODS FOR MINE RESCUERS IN 2015

Cristian COSTA  
Faculty of Science, Department of Social Science, University of Petrosani, Petrosani, Romania,  
cristyc73@yahoo.com

Lucian LUPU  
Faculty of Mining, Department of Mining, Surveying and Construction, University of Petrosani, Petrosani, Romania,  
lupu_lucian@yahoo.com

Eduard EDELHAUSER  
Faculty of Mining, Department of Management, University of Petrosani, Petrosani, Romania,  
edi1ro2001@yahoo.com

Abstract: We have studied physical mine rescue training programs and health-related and rescue-related fitness tasks during a mine rescue competition, made in China and Australia and on these basis we have design our own pre physical training method. We have stored the heart rate measured in bites per minute (bpm) during the 2012 year periodical training for 21 mine rescuers. We have designed a physical training procedure based on six training models: Body Building, Method of isometric efforts, Method of Interval Training, Volume variation method, Structured method for basic grip and release and Specific work method. Then we measured again during the 2014 year periodical training, the heart rate for the same mine rescuer having the physical training procedure performed before. We have notice that the trained person have now lower bpm, during the tests that could represent better performances during the rescue actions. Our research were made in the Laboratory for Risk-Rescue Operations of the INCD INSEMEX Petroșani, Romania.

Keywords: mine rescuer, training programs, physical training procedure, heart rate monitors, increase efficiency
SAFETY IMPROVEMENT SOLUTIONS IN COAL MINES USING GIS

Cristian COSTA
Faculty of Science, Department of Social Science, University of Petrosani, Petrosani, Romania,
cristyc73@yahoo.com

Lucian LUPU
Faculty of Mining, Department of Mining, Surveying and Construction, University of Petrosani, Petrosani,
Romania, lupu_lucian@yahoo.com

Eduard EDELHAUSER
Faculty of Mining, Department of Management, University of Petrosani, Petrosani, Romania,
edi1ro2001@yahoo.com

Abstract: Exploitation of coal from the Jiu Valley presents its own specific, in terms of coal mining deposit conditions, fact that required a continuous preoccupation for the monitoring of the work conditions, in order to ensure work-places safety. This paper intends to indicate a method of increasing the work environment safety using GIS technology, the analysis being completed at Lupeni Coal Mine, the largest Coal Mine in Jiu Valley, characterised by a low level of accidents that has taken place in there so far. It consists of an extension of accomplished studies in order to implement an intelligent dispatching system.

Key words: GIS, safety, coal mines

THE IMPACT OF OCCUPATIONAL HAZARDS IN WORKPLACES - MAINTENANCE, A MAIN TARGET FOR ENSURING THE SAFETY OF WORKING EQUIPMENT

Anca Elena ANTONOV
INCDPM “Alexandru Darabont”, Bucharest, Romania, aantonov@protectiamuncii.ro

Georgeta BUICA
INCDPM “Alexandru Darabont”, BucharestRomania, georgiana_buica@yahoo.com

Doru Costin DARABONT
INCDPM “Alexandru Darabont”, Bucharest, Romania, darabont_d@yahoo.com

Constantin BEIU
INCDPM “Alexandru Darabont”, Bucharest, Romania, costinbeiu01@gmail.com

Abstract: For use of work equipment having the economic performance and the highest level of safety, it must be ensured that it complies with the conditions set by the manufacturer in terms of putting into service, use and maintenance operations, ensuring appropriate technical and environmental requirements, including appropriate measures and means of protection. The research aimed to identify and analyze the occupational hazards associated to maintenance operations, in terms of the history of the adjustments, maintenance, cleaning and repair, including the case that occur after the incidents, capital repairs and upgrades. The results of the research consisted in the development of recommendations on the effective management of maintenance activities of
work equipment and a software model to enable an efficient management of maintenance, as a tool for occupational hazards in companies - premise for increasing the competitiveness of employers in the market economy.

Key words: safety, maintenance, work equipment, manufacturer, worker

AIR CONTAMINATION WITH FUNGALS IN MUSEUM

Iuliana SCARLAT
Faculty of Biology, University of Bucharest, Romania, The National Institute of Research and Development on Occupational Safety “Alexandru Darabont” Bucharest, Laboratory Chemical and Biological Risks Bucharest, Romania, scarlatpamela@yahoo.com

Maria HAIDUCU
The National Institute of Research and Development on Occupational Safety “Alexandru Darabont” Bucharest, Laboratory Chemical and Biological Risks Bucharest, Romania, mariahaiducu@yahoo.com

Ralucă STEPA
The National Institute of Research and Development on Occupational Safety “Alexandru Darabont” Bucharest, Leader of Laboratory Chemical and Biological Risks Bucharest, Romania, steparaluca@yahoo.com

Abstract: The aim of the studies was to determine the level and kind of fungal contamination of air in museum, deposits patrimony, restoration and conservation laboratories and their effects on health of workers. Microbiological air purity was measured with a SAS-100 Surface Air System impactor. The fungal contamination was observed in all 54 rooms where we made determinations. The highest levels of fungal were recorded at rooms with hygroscopic patrimony objects, eg carpets, chairs, upholstered chairs, books etc. The most species identified included under common allergens: Aspergillus, Penicillium, and Mucor. There fungal species belonging to the genus identified in this study, can trigger serious diseases museum workers, such as for example Aspergillus fumigatus, known allergies and toxic effects that may occur. In some places of the museum, occupational exposure limit values to fungi present in the air in the work environment, recommended by the specialized literature, have been overcome.

Key words: occupational exposure, allergenic fungi, museum
NOISE AS A RISK FACTOR IN THE PREPARATION OF USEFUL MINERAL SUBSTANCES

Alin IRIMIA
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, alin.irimia@insemex.ro

Sorin SIMION
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, sorin.simion@insemex.ro

Daniel PUPĂZAN
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, daniel.pupazan@insemex.ro

Angela CĂLĂMAR
National Institute for Research and Development in Mine Safety and Protection to Explosion – INSEMEX
Petroșani, Romania, angela.calamar@insemex.ro

Abstract: Noise from industrial activities is a major problem because of its noxious and its presence in all technological activities. The coal preparation activity from industry, in the presence of risks of exposure to noise, is affecting the health and safety of workers. Occupational hearing loss and deafness caused by exposure to noise at work are the most encountered illnesses occurring in the European Union. This paper examines the main sources of noise in coal preparation technological process and their effects on the human factor.

Key words: Noise, risk, occupational disease

THE CONTRIBUTIONS TO THE STUDY OF CARBON MONOXIDE POLLUTION DUE TO CAR TRAFFIC IN A DENSELY POPULATED AREA

Sorin BORZA
Engineering Faculty, “Lucian Blaga” University, Sibiu, Romania, sorin.borza@gmail.com

Abstract: Air quality monitoring is the most important environmental factor to be considered because it is the fastest way that helps pollutant transport into the environment. The development of human society has led to a negative anthropogenic and technogenic impact on air quality, resulting into a significant series of adverse effects on human health, flora, fauna and ecosystems in general. In this paper it is presented the research work performed to monitor carbon monoxide emissions from motor vehicles in traffic, in a densely populated area in Sibiu. Also, in the paper it is described, the research findings conducted in accordance with national and European legislation. In our research we used GIS software, Geomedia Professional.

Keywords: pollution, transportation, map, geographical information system, software
ASPECTS CONCERNING THE RULES AND THE INVESTIGATION OF TRAFFIC ACCIDENTS AS WORK ACCIDENTS

Lucian Ioan TARNU
Faculty of Engineering, Department IIM “Lucian Blaga” University, of Sibiu, Romania, lucian_tarnu@yahoo.com

Abstract: When Romania joined the European Union, it was imposed that the Romanian legislation in the field of the security and health at work be in line with the European one. The concept of health as it is defined by the International Body of Health, refers to a good physical, mental and social condition. The improvement of the activity of preventing the traffic accidents as work accidents must have as basis the correct and accurate evaluation of risks of getting injured. The goal of the activity of prevention and protection is to ensure the best working conditions, the prevention of accidents and occupational diseases and the adjustment to the scientific and technological progress. In the road transport sector, as in any other sector, it is very important to pay attention to working conditions to ensure a workforce motivated and well qualified. Some features make it a more difficult sector risk management than other sectors. However, if one takes into account how it works in practice this sector and the characteristics of drivers and how they work routinely, risks, dangers and threats can be managed efficiently and with great success.

Keywords: works accidents, traffic

THE OBJECTIVE IDENTIFICATION OF HAZARDS – THE ESSENTIAL CONDITION TO A REAL EVALUATION OF OCCUPATIONAL INJURIES AND ILLNESSES’ RISKS

Mihai-Adrian BERNEVIG-SAVA
Faculty of Material Science and Engineering, Material engineering department and industrial safety, Technical University „Gheorghe Asachi” from Iași, Iași, Romania, e-mail mihaibernevig@gmail.com

Nicoleta Monica LOHAN
Faculty of Material Science and Engineering, Material engineering department and industrial safety, Technical University „Gheorghe Asachi” from Iași, Iași, Romania

Constantin BACIU
Faculty of Material Science and Engineering, Material engineering department and industrial safety, Technical University „Gheorghe Asachi” from Iași, Iași, Romania

Costică BEJINARIU
Faculty of Material Science and Engineering, Material engineering department and industrial safety, Technical University „Gheorghe Asachi” from Iași, Iași, Romania

Abstract: The paper discuss about the process of hazards identification in order to evaluate occupational injuries and illnesses’ risks, a problem that has been debated in many publications by different specialists, but which has not been concretized as a framed step in a defined context, without permitting the evaluator or the evaluation team to introduce the subjectivism as an influence factor.

Key words: indentification, hazard, evaluation