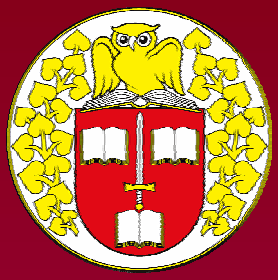
THE ACADEMY OF THE ARMED FORCES
OF GENERAL MILAN RASTISLAV ŠTEFÁNIK



ABSTRACTS
STUDENTS SCIENTIFIC CONFERENCE

Liptovský Mikuláš, Slovak Republic
May 22, 2008

C O N T E N T S

ELECTRONICAL ENGINEERING

INFORMATICS

ROBOTICS

MECHANICAL ENGINEERING

MANAGEMENT

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HUMANITIES AND SOCIAL SCIENCES AND SPORTS SCIENCE

SECURITY STUDIES

ELECTRONICAL ENGINEERING

SATELLITE RADIO AND TELEVISION BROADCASTING

Lukáš BORTNÍK

Consultant: Jozef Jakub

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The Digital Video Broadcasting Project (DVB) is a consortium of over 270 broadcasters, manufacturers, network operators, software developers and others committed to designing open technical standards for the global delivery of digital television and data services. This system is designed, of all things, to provide direct-to-home multi-programme TV services in the Broadcast Satellite Services (BSS) and Fixed Satellite Services (FSS) bands and is addressed to consumer integrated receiver decoders as well as collective antenna systems. The exploitation of the multiplex flexibility allows the use of the transmission capacity for a variety of TV service configurations. The use of flexible and advanced error protection techniques, based on the concatenation of Reed-Solomon and convolutional codes, allows optimum adaptation to different satellite transponder characteristics, i.e. bandwidth and power, providing high service quality and availability with small receiving antennas or transmitting terminals. DVB-S is used in both MCPC and SCPC modes for broadcast network feeds, as well as for direct broadcast satellite services. The transport stream delivered by DVB-S is mandated as MPEG-2. In this context, due to their wide and uniform coverage, satellites can provide an ideal medium for the provision of triple play services (voice, video and data) to remote areas not covered by terrestrial infrastructures.

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GSM TELEPHONE REMOTE CONTROL

Tomáš BOŽIK

Consultant: Peter Siebert

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There is decription of GSM mobile site history and using mobile phone GSM for distance control in this work. It has been choosen and made one example, which parameters, functions and use are descripted in civil and military field.

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TEMPERATURE DETECTOR WITH PIR SENZOR

Branislav BUMBÁL

Consultant: Pavol Polák

The Academy of the Armed Forces of General Milan Rastislav Štefánik

Active sensors have very important post at measuring basic physical quantity and security techniques at the present time. Purpose of work was design and structure temperature detecting modul with active PIR sensor. This structural modul have many ways of usege. For example, it can be used as a fast fire-alarm, security system intrusion detection, system on open doors (automatic doors) or temperature gate. Structural modul is only a part of my bachelor work, which will be completed by adding a gas detector with remote transmission.

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THE PROPOSAL AUDIO FREQUENCY OSCILLATOR WITH ITS REALISATION

Tomáš ČIŽMÁR

Consultant: Ľubomír Andráš

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This work represents an proposal audio frequency oscillator. The work is divided into three parts, whereas in the first part, there is presented basic theory of oscilating a describing requirements imposing for audio oscillator. V second part is realization audio frequency oscillator offset with transistor BC 549 and using program MULTYSIM realization calculations the oscillator. The last part describing action measurement on oscilator a include examplary certificate of measurement atributies oscillator. The metods are reduced because the works is designate as educational instrument for subject Theoria circuits.

INFORMATION VISUALIZATION SYSTEM FOR USE IN PASSENGER AIRCRAFT FLIGHT DECK SIMULATOR

Pawel DEBSKI

Consultant: Zdzislaw Rochala

Military University of Technology Warszaw, Poland

Nowadays modern aviation takes even more advantages of miscellaneous simulators in process of flight crew and staff training. Present abstract concerns construction of Boeing 737 Next Generation passenger aircraft flight simulator for scientific – research and didactic purposes. Main object of 5th year students' two year work was to ascertain whether it is possible to reconstruct, in Military Academy of Technology experimental conditions, a modern aircraft's flight deck, providing visual resemblance with real aircraft cockpit interior and functional similarity to equipment mounted in real airliners.

In this paper main emphasize has been put on describing proposed solution for flight simulator Glass Cockpit model. This element is a part of flight simulator, nevertheless can be treated as an autonomous system which can be used independently without interaction with functional elements belonging to flight deck simulator interior.

The way of technologically advanced flight simulator equipment was revealed from the first stage of gathering information to, finally, successive programming and powering up. Furthermore the paper can be treated as a guideline on what sort of knowledge at all construction stages is necessary to succeed.

Authors, in subsequent chapters, have reviewed exemplary technical means which meet projects requirements but are open for general use. The work was divided into separate issues, which relate to multiple unassisted solutions, which put together into practice, will form a complex data visualization system ready to use in flight simulator.

First to discus was selection of essential software that will prepare computers to assignments related with widely comprehended data visualization. As long as it is needed to display wide range of images (aircraft surroundings on the one hand and screens of electronic flight instruments system on the other hand), specialized software is a must. In this paper, authors presented a choice of computer programs which will realize these tasks. Another important type of software is programistic environment which enables to build interactive virtual models of real aircraft pieces of equipment and allows to control them by external manipulations via provided interface.

Secondly to consider was system equipment base. Since, in presented solution, are used multiple liquid crystal matrices to display images of digital flight data visualization system, there is a need of use matched to them video converters, which are provided to prepare video signals generated by computer video cards to form accepted by LCD displays control electronic.

Finally some future development predictions have been revealed

MEASURING WITH LRL MODEL 550-SS MICROWAWE TRAINING KIT

Matúš GLINDA

Consultant: Arnošt Hykel

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Everyone today is affected by microwaves. You may not realize it, but each day your life is made better by man's ability to utilize microwaves. When you make a telephone call across the country or watch television from your arm chair, microwaves help you. Satellites circling the earth are exchanging information millions of times every day through microwave transmission. Communications, health care, national security, alarm systems, the police officer clocking the speed of your car, all require microwave technology. Try to imagine an air traffic system today without radar, or the weather man attempting to predict tomorrow's forecast without this developing science. Microwaves have existed since the beginning of the universe, yet only in this half century has Man learned to harness them for his use. This phenomenon has created many new jobs and an extensive need for technicians and engineers. From my work, you will learn some of the important principles and techniques of microwave measuring.

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IMPLEMENTATION OF SOFTCORE DUAL PROCESSOR SYSTEM WITH PRECISE TIME-TO-DIGITAL CONVERTER IN FPGA

Maciej GOŁASZEWSKI

Consultant: Tadeusz Sondej

Military University of Technology Warszaw, Poland

FPGA chips are often used to realize precise time-to-digital converts. Today FPGA devices offer sufficient logic resources to implement also complex multiprocessor based SoC. System-on-a-Chip (SoC) refers to the integration of all electronic system components onto a single chip. SoC usually contains one or more processors, peripherals and often embadded memory.

This paper presents issues of designing and implementation FPGA-based multiprocessor systems. Practical example consist two softcore processors NIOS II from Altera. Developed system is meant to control precise time-to-digital converter. The processor first controls timer counter and performs statistical computation. The second runs a server providing communication and supervision of the system via Internet. Shared memory from FPGA resources is used to interchange data between processrs. The time-to-digital converter provides a mean resolution of about 78 ps and accuracy below 100 ps.

This paper also discuss issue task synchronization and memry sharing in multiprocessor systems. Important problems of multiprocessors software designing and debugging ale described. Special Java application for PC computers that remote control and present results of time measurements is described additionally.

MEASUREMENT MODULE WITH THE MICROCONTROLLER

Marek JANTOŠ

Consultant: Jozef Puttera

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The paper deals with an design and realization of the measurement system using an microcontroller AT89C51 produced by the Atmel company. An ATMEL 8-bit microcontrollers are typical product being used for measurement and automation purposes for more than 10 years. A measurement system enables a connection of 8-bit Analog to Digital converter ADC0804 through which measurement uses to convert analog value of the input voltage to digital value which is send to microcontroller AT89C51. Measured values are displayed on the seven segment display BQ-M512RD which consists of four modules.

The main part of the work has been connected with a Assembler programming whose aim is to get code with a modular structure dedicated to teaching purposes in subject the Digital signal processing being offered in bachelor degree study in the Armed Forces Academy og the gen. M. R. Stefanik in Liptovsky Mikulas. Both parts a measurement module and an Assembler code as well are mutually supportive and using them in teaching process will bring a higher quality in education.

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PHOTOVOLTAIC SYSTEM WITH MAXIMUM POWER TRECKER

Martin KACZUR

Consultant: Jan Leuchter

University of Defence Brno, Czech Republic

This project is about photovoltaic tasks and problems about DC/DC convertors which were worked up separately in my last works. Photovoltaic system has a low effectivity that is why we try optimise effectivity of this systems. Project with maximum power trecker is one of the possible solutions. This element supports monitoring of power from photovoltaic system to electrical appliance. In this way we can make use of photovoltaic potential. Size of the generated voltage and current of photovoltaic system is dependent on intensity of sunshine and it follows that total power is capacity as sunshine and temperature of photocell. We use SEPIC convertor in this system, which works in current mode for optimal set of charging current to storage battery. The supercapacitor improve flexibility of system for using variety of electrical appliances.

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LABORATORY MEASUREMENTS IN RADIOLOCATION

Slavomír KLÁRIK

Consultant: Ján Ochodnický

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This work presents a short manual for microwaves measuring on laboratory set. It occupies with physical laws in discipline of electromagnetic oscillations and waves. The students may verify physical laws, for example diffraction of microwaves, interference of microwaves or polarization of microwaves. The work includes the set-up describe and experimental results, graphs and tables with measured values.

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MEASUREMENT MODULE WITH THE AVR MICROCONTROLLER

Ján KRIVÝ

Consultant: Jozef Puttera

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The paper deals with an application of the measurement system using an AVR microcontroller ATmega 2560 produced by the Atmel company. An AVR microcontrollers in general offer very usefull funcionality based on the RISC architecture which enables an effective programming in C language (but not only). A measurement system uses a professional kit containing such interfaces as an analog to digital 10 bits converter, RS 232, LCD display, dot display and so on. The main part of the work has been connected with a C programming whose aim is to get code with a modular structure dedicated to teaching purposes in subject the Digital signal processing being offered in bachelor degree study in the Armed Forces Academy of the gen. M. R. Stefanik in Liptovsky Mikulas. Both parts a measurement module and a C code as well are mutually supportive and using them in teaching process will bring a higher quality in education.

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[1] SOUKUP , V., ROZEHNAL, Z.: Jednočipové mikropočítače. ČVUT Praha 1992.
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DVB-T IN SLOVAK REPUBLIC

Zdena KRIŽKOVÁ

Consultant: Peter Siebert

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This work treats about basic aims and strategy of conversion from analog to digital television broadcasting including the legislative process in Slovak republic. It aims to show problems and perspectives of digital television broadcasting in Slovak republic.

Bibliography:

[1] VÍT, V.: Televizní technika-přenosové barevné soustavy. BEN, Praha 1997, ISBN 80-86056-04-X.
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READING – TRACING A/D CONVERTER

František NOVOTNÝ

Consultant: Milan Ostrovský

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This work treats of the proceeding axioms of various analog-to-digital converters. The next part of the work describes inventing and making of measuring instrument for tracing and counting A/D converter's verification too.

The designed converter can work in four modes of action for counting converter and in three modes of action for tracing converter. It can work in manual or automatic mode and in single-shot or cyclical mode for counting converters and only in cyclical mode for tracing converters. The converter enables to watch the course of its compensation characteristic in steps on the oscilloscope as well as in binary code through the LED diodes that are connected on its binary outputs. It enables the students to measure the period of conversion and makes the converter characteristic of converters.

ELECTROMAGNETIC COMPATIBILITY

Štefan OROSZ

Consultant: Mikuláš Šostronek

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This work dwells on electromagnetic compatibility, its structuring and basic terms. The work is aimed at theoretical knowledges and attainments in the sphere of electromagnetic compatibility. This work should serve as a help or aid, therefore it should serve as an educational material in the future.

Bibliography:

[1] GOEDBLOED, J.: Electromagnetic Compatibility, Prentice Hall 1992, Hertfordshire, ISBN 0-13-249293-8.
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GENERATIONS OF THE MOBILE NETWORKS

Michal SOLČANSKÝ

Consultant: Peter Siebert

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The essential idea is not to give the reader the punctual information about technologies mentioned before, but the work is concentrated to create an electronic presentation to education purpose.

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INFORMATICS

SOME ASPECTS REGARDING HIGH ALTITUDE LONG ENDURANCE UNMANNED AIR VEHICLES

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The application and use of very innovative high altitude long endurance (4-6 months) stratospheric UAV is quite advantageous to enhance technological know-how in the area of Mediterranean Sea surveillance for locating illegal immigration at the EU borders, Traffic Monitoring, Environmental Surveillance, etc. A small number of UAVs could be positioned along all the Mediterranean sea border to have an electronically border control. The proposed innovative concept platform is based on solar powered UAV (Heliplat® Helios Platform). The vehicle should climb to 18-20 km by taking advantage of direct sun radiation and maintaining, thereafter, a level flight. Electrical energy not required for propulsion and payload operation is pumped back into the fuel cells energy storage system and, during the night, the platform would maintain the altitude by the fuel cell energy; the geostationary position would be maintained by a level turning flight.

The main advantage of this type of UAV is that this is less expensive than other manned aircraft used for the borders surveillance; a Total Life Cycle Cost of 800-900 €/flight hour has been obtained for a Solar Powered high altitude long endurance UAV, much lower when compared to the cost of other solutions (i.e. for ATR42MP about 6-8.000€/flight hour). Furthermore this system guarantees less climb and descend events, which is important when considering interference with the civil/commercial air traffic. Other high-medium altitude UAV configuration for border surveillance has a very limited endurance (24-36 hours) that would drastically increase any potential collision risk with civil aviation traffic and highly increasing the Total Life Cycle Cost.

Two platforms configurations were designed: HeliPlat® and SHAMPO (Solar HALE Aircraft Multi Payload & Operation), considering the requirements constraints derived from the complex mission scenario. A Multi Disciplinary Optimization (MDO) computer program has been developed for carrying out the platforms design including high aerodynamic performances, the complete internal subsystem requirements in terms of necessary volume/weight/power, the low-weight high structural performances also considering aeroelastic behaviour. Wide use of high modulus CFRP has been made in designing the structure to minimize airframe weight while increasing the flexure stiffness.

THE PROGRAMMING METHOD CALLED BACKTRACKING

Zoltán CSANDA

Consultant: Ľubomír Dedera

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The aim of this work is to introduce principles of the programming method called Backtracking and to show how these principles can be utilized for solving the Sudoku puzzle. Backtracking is a type of algorithm that is a refinement of the brute force search method. In backtracking multiple solutions can be eliminated without being explicitly examined by utilizing specific properties of the problem. It can be a strategy for finding solutions to constraint satisfaction problems. The reader can find some problems which can be solved with this method, like the problem of 8 queens or the horse on the chessboard. In the third chapter it is explained how the program for solving the Sudoku puzzle works.

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SPECIAL IMPULSE CIRCUITS – AUTHORING LANGUAGE

Henrieta DEÁKOVÁ

Consultant: Milan Ostrovský

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This work represents an authoring language for special impulse circuits with regard to the maintenance of operational educational literacy of students in the given section.

The work is divided into three parts, whereas in the first part, there is presented an extract from electronic scripts of the worked problematic, in the second part are introduced theoretical analysis and bases. Finally, the third part describes the concrete authoring language for special impulse circuits altogether with instructions for use and characteristics into details.

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SPECIAL IMPULSE CIRCUITS – AUTHORING LANGUAGE

Stanislava GAŽOVOVÁ

Consultant: Ľuboš Antoška

The Academy of the Armed Forces of General Milan Rastislav Štefánik

In the work is presented computing program to solve circuits with loop current method:

- Computing program solves three basic problem:
- setting parameters for calculation of circuit in the matrix form,
- calculation loop current and branches current
- check computed values.

Setting parameters circuit for calculation exact from operator all theoretically knowledge of circuit. Program executes only time - consuming mathematical operations by the problem being solved circuit.

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MODELING OF THE ENERGETIC RELATIONSHIPS IN RADIOLOCATION

Jozef KARABINOŠ

Consultant: Ján Ochodnický

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This work clarifies basics of radiolocation and describes energetic relationships in radiolocation. There is theoretical introduction into radiolocation and describing of basic radiolocation equations in the first part of work. Second part describes algorithm and work of program which is final practical product of this work.

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THE FUTURE'S ADVANCED AIR TRAFFIC SYSTEM (VDL MODE 4)"

Tamás KÁROLYI

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In my project I summarized today's aeronautical system from the view of both an air traffic controller and a pilot, and introduce the new technology called VDL Mode 4 and highlight the main improvements this technology holds.

My project reviews the technologies which are used today in air traffic such as ground based radar technologies, communication measures, navigation measures. These equipments served well the air traffic, but they are starting to show their drawbacks, which are more and more outstanding as the air traffic continues to grow every year. Researches have begun in the last decades to create a technology capable of handling this increased traffic and eventually replace the current system we use.

VDL Mode 4 is a multi purpose data link which is capable of transferring different kind of data between users without an expensive ground infrastructure.

This data can be weather or traffic information, ATC clearances and position reports from other aircrafts. Everybody, who is equipped with the adequate technology, can access this data, whether he or she is a pilot, a controller or a technician driving an airport vehicle. Every participant in the air traffic will have more data about the current situation, thus improving safety.

VDL Mode 4 improves airborne situational awareness, provide navigational aid and surface movement guidance, offer airborne collision avoidance and landing aid with a single technology which can be accessible to every participant in the air traffic.

The goal of my project is to introduce this new technology, highlight its benefits and compare it to the one we currently use.

THE MATHEMATICAL MODEL OF SAW - FILTER

Olena KHOTENKO

Consultant: Iryna Khotenko, Oleg Petrishev

National Technical University of Ukraine „Kiev Politechnical Institute“

The importance of filters on surface acoustic waves (SAW) is hard to be exaggerated. They are used in almost all modern communication systems (Radio-Ethernet, mobile communications, television, satellite communications etc.), radiolocation, electronic equipment for military purposes etc. Their work is based on selective receiving and transmitting of acoustic waves that are propagating along the surface of piezoelectric base. Mobile phones may consist of more than six microelectronic SAW-filters which are almost 20% of their costs.

Nowadays problem is the lack of adequate mathematical model of those devices that could in most accurate way describe all processes that take place during the work of SAW-filter to have an opportunity to develop filters with parameters that are specified in advance. It also could give us capability to create Computer-Aided Design (CAD) of those filters which could decrease time and financial outlay of their design.

The mathematical model of interdigital transducer (IDT) in the mode of excitation of SAW is built. Frequency characteristics of a single electrode, a pair of electrodes, a multielectrode IDT, a split and a polyphase electrode and also an expression for amplitude multipliers for Rayleigh waves were found. The given model of excitation of SAW reflects qualitive and quantitive characteristics of the process in the most fully way

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THE MODELING OF PASSIVE INTERFERENCES FOR PULSE RADAR STATIONS WHICH IS BASED ON PROCESSES OF AUTOREGRESSION OF ANY RANK

Dmitro LIVITSKIY

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There is not enough information, which is connected with the modeling of untypical random processes, in the famous literature. Typical processes make easier a resolution but they not enough describe all veriety of radiotechnic processes. The real passive interferences have a composite form of spectrums and correlation functions. That's why typical processes don't completely describe the real passive interferences. Thus, the aim of this work is to wide the class of models of passive interferences. It can be attained only when we use untypical, normal, random processes with settled spectrum and correlation properties.

There are not any easy methods to transform properties of passive interferences to correlation succession. That's why the chooseing procedure of untypical correlation succession is indefinite. On this basis the task of the work is to substantiate the algorithm of modeling of untypical passive interferences with "positive" correlation succession. It is appeared such as autoregressive processes of any rank with settled form of spectrum of interferences.

The algorithm of modeling of autoregressive passive interferences is used on the stage of the interference immunity systems developing. And the main destination of this algorithm is to estimate the effectiveness of these systems.

THE METOD FOR DETERMINATION OF THE DIRECTION BLOW OF FACILITIES OF AIR ATTACK ON OPERATIVE DIRECTION

Orel Vyacheslav

Kharkiv Air Force University, Ukraine

There is not enough information, which is connected with the modeling of untypical random processes, in the famous literature. Typical processes make easier a resolution but they not enough describe all veriety of radiotechnic processes. The real passive interferences have a composite form of spectrums and correlation functions. That's why typical processes don't completely describe the real passive interferences. Thus, the aim of this work is to wide the class of models of passive interferences. It can be attained only when we use untypical, normal, random processes with settled spectrum and correlation properties.

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THE SOFTWARE PROGRAM SOLUTION OF RADIO STATIONS INFORMATION SYSTEM

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Consultant: Miroslav Ďulík

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The aim of this work is database application, which could enable simple work with large extent of today used but also with new radio communication radio facilities. The utilization of this program is simple; it suggests installed the Microsoft Access product. It enables to retrieve parameters of saved stations. In the case of necessity it is possible to widen the count of the item of database about additional parameters of stations. The function “Search according to parameters” allows quick detection of stations with reference to the type and also the values of parameters. All the saved and searched data can be printed by printer. The number of saved stations is in practice limited only to the memory content of PC hard disc.

This treated database application is practically usable in the process of communication planning but also in lessons, where is possible simply and with pictures use saved data about radio stations.

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DIGITAL ATLAS OF THE CZECH REPUBLIC IN ARCGLOBE

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The primary goal of my work is to design digital atlas of the Czech republic in environment of ArcGlobe module, which is a part of the geographic information system ArcGIS 9.2. This module makes it possible to display and work with geographic data on the Earth´s globe surface. For this work I had to select and prepare competent geographic data and maps basis: digital models of terrain (DMT), digital models of relief (DMR) and raster equivalents of topographic maps (RETM) in the concrete. In the ArcCatalog application, which is a part of geographic system ArcGIS 9.2 I have projected file geodatabase. These data I have imported to the geodatabase. On the basis of this data created project of the atlas in this environment. I have set this project for the most effective using. I have tested capabilities of function using of the ArcGlobe application. The second part of my work is to preview work with my project and to present possibilities of using not only in the Army of Czech republic, but in the civilian sector too (prediction of the floods, planing axis of movement, analyses of visibility, etc.). For presentation of results I have made exemplary animations.

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MODELING OF THE RADIATION PATTERNS OF WIRED ANTENNAS

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This work is concerned with modeling of radiation patterns of some types of wired antennas. There are also described methods of plotting the radiation pattern in cartesian, polar and spherical coordinates. Main aim of this work is created program for modeling a radiation patterns due to entered parameters.

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QUALITY OF SERVICE IN WIFI AND WIMAX NETWORKS

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Consultant: Martin Marko, Jana Staroňová

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Two promising wireless technologies nowadays are wireless metropolitan area network (WMAN) and wireless local area network (WLAN).In this paper I analyze a quality of service in wireless networks, especially in Wifi and WiMax.

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MULTIMEDIA COMPLEX EDUCATIONAL-TRAINING PROGRAM FOR PREPARATION RADIO ELECTRONIC SYSTEMS SPECIALISTS

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In the conditions of global development of technical, economic and informative industries of world society, which is accompanied by rapid introduction of achievements of modern science and technology, the sharp increase of volume of various information is marked, that is used in the process of preparation of modern specialists. It stipulates the necessity of rise of efficiency of the educational time use as by listeners so by scientific-pedagogical workers. In such a case it is necessary to apply new methods of teaching, that the substantial economy of time is provided, forces and facilities at mastering of information volume which grows continuously. One of such methods is the method of the program-automated teaching which stipulates application of universal and specialized software in the educational process.

The presented program provides conducting of the individual teaching, control questioning and evaluation of listeners in the automated mode on computers, by development and subsequent use of test tasks with possibility of the use of texts, graphic, videos and audio the materials of the known formats. The inefficient charges of time during studying diminish thus, conditions for independent work of listeners, individualizations of educational process at working off material, and possibility of self-control are created.

A software product is executed on principle of «client-server». Structurally it consists of three programs: programs of administrator, editor of tests and program of testing. The program is maked in high level programming language of Borland C++ Builder with the use of technology MIDAS (multi-tired distributed application service suite) which provides creation of multi level additions databases. Application of this architecture allows quickly to develop simple in accompaniment and installation, reliable, distributed data base, which is an advantage.

The most actuality of software product development and introduction in an educational process acquires in the point of view of the European forms and standards education realization.

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ROBOTICS

PATH FOLLOWER

Drahomir BITAROVSKÝ

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LEGO MINDSTORMS NXT kit comes with a collection of motors and sensors. Sensors detect a change in a condition. The condition could be a change in a light level, a change in volume, or a maybe a change in position. The sensors is simply watching the changes in its condition.

Rotation sensor is built into the NXT motors, so don`t go looking for an actual NXT Rotation sensor by itself. The NXT watches the states of the two interrupters to determine which direction the sensor is rotating, and increments or decrements a counter accordingly.

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NXT EXTERNAL SENSORS

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Lego launched tha MINDSTORMS NXT in the fall of 2006. NXT programmable brick has a 32-bit microprocessor, four inputs, three outputs, Bluetooth communications, a speaker, and a 100x64 LCD display. Also, the NXT includes three powerful motors with built-in rotation sensors. The graphical programming language, NXT-G, is simple but complete enough to be usable.

Sensors provide feedback to a system telling it where i tis or how it`s doing. The NXT has several types of sensors designed specifically for it, and backward compatibility to the old RCX sensors. All the sensors are wall documented by LEGO, but we`ll provide additional characteristics and show the internal construction of the sensors.

The NXT comes with five basic types of sensors: Touch, Light, Sound, Ultrasonic, and Rotation. The NXT Rotation Sensor is conveniently built into its motor so shaft position and speed are always available to NXT programs.

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LINEFOLLOWER

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Linefollower is electronic controlled autonomous mobile robot, which can travel the whole defined path in a certain time.

The background of the path is white with dark (black) navigation line on it (width 15 +/- 1 mm). Total length of the path is not more than 20 meters. The smallest radius of curves used in the path will be 10 cm. Total rising of the path won't exceed 3 cm; maximal rising or declining is 5%.

Like in the real life, there can be random obstacles in the path (interrupted navigation line, obstacle on the line, illumination changes and other).

To successfully pass defined path is up to competitor what electrical solution he does. There are no limits given on sensor types, robot speed etc.

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MINI-CLASS SUMO ROBOT

Marián BULLO

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The robot's body is made of galvanized metal, because it is hard and light. The shape of the body is specially designed so that the robot can push enemies off the ring or they would at least slide down the sloping sides of the body.

To detect the edge of the ring, three infrared sensors CNY70 are used. Two are in the back, behind the wheels, the last one is in the front.

Detection of an enemy is done by ultrasonic detector, which is in the front side of the robot. The robot is controlled by the microcontroller ATMega8 with a 4 Mhz external crystal, which gives the microcontroller sufficient computational capacity.

The movements of the robot consist of the set of basic manoeuvres, such as „go straight“, „turn left“, etc. The main algorithm evaluates the current state of sensors and selects the most appropriate movement.

AUTONOMOUS ROBOT WITH THE COMPONENTS OF THE COGNITIVE PARCEPTION

Pavol PAVLÍK

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This work analyze the possibilities of the robot utilization, types of the most common sensors for orientation of the robot in the space and illustrate the application of the sensors in the practical show.

The product from this work is a model of the autonomous robot, which is able to orientate itself in the workplace and it try to solve the basic assignments. The designed robot took a part in the national competitions of the robots: Robotchallenge 2008 in Vienna and Istrobot 2008 in Bratislava.

Instead of competition the work describe one of the possibilities of the electric-mechanic solution for the MiniSumo category. In addition to condition of the competition it is necessary to perform the measurement and weight criteria's. However, the main task is the obstacle recognition and movement in the closed area.

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MECHANICAL ENGINEERING

CAMOUFLAGING PAINT SYSTEMS FOR THE INFRARED SPECTRUM

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The development in infrared technologies caused the necessity to make effort to develop the camouflaging of military techniques in the infrared spectrum. There is lot of possibilities how to reduce the thermal radiation and make harder to discover the military troops. One of these possibilities is the usage of camouflaging paint systems. This paper was made to analyze contemporary state of camouflaging paint systems which are used or could be possibly used in the conditions of the Slovak Armed Forces.

THERMO DIAGNOSTICS AND ITS UTILIZATION IN PRACTISE

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One of many definitions of diagnostics is that diagnostics is a prevention of the origin of failure and of “wear and tear”. A part of diagnostics is young, developing science – thermo diagnostics. The general goal of this paper is to discuss the thermo diagnostics and the potential of utilization this science in diagnosing the armoured vehicles. In this paper are shown several ways of usage the thermo camera to diagnosing the hybrid motor of BMP and the Slovak armoured wheeled vehicle Aligátor.

ANAYLSIS OF VIBRATION RESOURCES IN MOBILE TECHNICS

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Oscillations (vibrations and pulsations) are very sensitive indicators of technical condition, stress and funkcionality of a machine. This problem is related mostly to shafts, crankshafts, cam mechanisms imbalanced rotating parts and mainly bearings. These vibrations can be used for complete diagnosing of technical condition of a machine, in our case a specific engine and dampers. The time flow of vibrations, which we will obtain, should be transformed into the frequency area, which means replacement of vibration with its frequency elements. This operation is called the frequency analysis. In this paper I assign to measurement of potency of engine vibrations on Skoda Fabia and on hybrid engine from AFV 2.

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POSSIBILITY OF OBSERVATION OF MICROSTRUCTURE HYPOEUTECTOID STEEL BY LIGHT MICROSCOPE.

Miroslav LITVIK

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Realization and technological treatment of materials are pointed lead to influence their structure which is primary responsible for their attributes. Deeping of knowledge between structure and attributes is heart of progress of all area of material research. Metallography is discipline interested by structure of solid metal materials, their attributes and their diagnostic. Light microscopy is part of practical metallography, their object of study is observation and also photo documentation of result. The purpose of work is point out to possibility of modern light microscope for investigating and rating of structure of hypoeutectoid steel in bright and dark area, in polarized area, with differential-interference contrast and treatment of picture by computer. Hypoeutectoid steel enables to point at all structure parts of carbon steel in different frames of reference. It gives possibility to understand structure parts, their characteristic shapes, size of grains(phases), characteristic colour, different colour contrast, impurities in structure and by knowledge of characteristic shapes of structure we can determine relatively exactly chemical consistion of carbon steel. The work documented these facts by pictures that are acquireded by digital camera.

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INFLUENCE OF D-GUN SPRAYING CONDITIONS ON THE QUALITY OF FEAL INTERMETALLIC COATINGS

Arkadiusz POPŁAWSKI

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The aim of this paper is to present generalized the results of research of the application of detonation gun spraying process (D-gun) for produced of Fe-Al intermetallic coatings with self decomposing FeAl intermetllic powders deposition on 1045 steel. A number of D-gun experiments has been carried out with significantly changed operational spraying parameters (the volume of the working gas, fuel gas, distance and the frequency of spraying) which define the process energy level directly influencing the quality of the coating. On the basis of the initial results the choice of the process parameters has been made to obtain the most advantageous set of geometric and physical-mechanical properties of the coating material. The metallurgical quality of the coatings was considered by taking into account the grain morphology, inhomogeneity of chemical content and phase structure, as well as cohesive porosity in the coating volume. It was found that the D-gun sprayed coatings, in all cases are built with flat lamellar splats resulting from the powder particles which are D-gun transformed in their plasticity and geometry. A significant result of the optimisation of D-gun spraying parameters is the lack of signs of melting of the material (even in microareas) while the geometry of the subsequently deposited grains is considerably changed and the adhesivity and cohesion of the layers proves to be high. This has been considered as an undeniable proof of high plasticity of the GDS formed Fe-Al intermetallic coating.

DIAGNOSTIC OPTIONS OF BRAKE FLUIDS AND THEIR INFLUENCE OVER TRAFFIC SAFETY

Michal SOVA

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High speed, more cars on streets and higher standarts in car protection. That are the main reasons of higher standarts in brake systems and brake fluids in these systems too. Modern brake fluids are made from glycol components, and thei are Hygroscopic. And that is problem. Brake fluid have to have high boiling point to work well. And water lowers boiling point. More water = lower efficiency = longer brake distance.How to know, when you have to change your brake fluid? Use laboratory methodt (long time, high cost), or use operative diagnostic device.

Objectiv of this work was: wich devices (MAHA BFT 2000, ALB 1100, CASTROL V.L.I., AQUA 12, REFRAKTOMETR a KONDUKTOMETR TESTO) are servisable for civil and army servis conditions. Regarding costruction, cost and mainly precision of their messuring

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INTELLIGENT MATERIALS IN MILITARY TECHNIQUE

Ionuț-Cristian SUCIU

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Science and material technology have made amazing discoveries concerning designing and manufacturing electrical circuits, machines and structures using standard materials that don't have particular properties. This paper presents the possibilities of utilization of intelligent materials. These materials represent a new frontier in engineering on which will be based the development of new types of materials in the narrow future.

MANAGEMENT

THE CREATIVITY OF THE MANAGERS IN THE ARMED FORCES OF THE SLOVAK REPUBLIC

Ingrid BARANTALOVÁ

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In this paper I deal with creativity of students attending Military Academy in Liptovský Mikuláš, creative power, barriers and predjudices of creativity. I point at reason why creativity is so low, I try to find problem, why students are not more active during the lessons. I got answers to my questions in questionnaire, which helped me to see „creativity problems“ more dear.

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TALENT MANAGEMENT – CHALLENGE FOR PRESENT ORGANIZATION

Małgorzata ĆWIKLICZ, Renata OMILIANOWICZ

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The lack of qualified workers' states serious threat in development of firm. Talented workers who are thin good doubtless make up supply which gain over and bear in firm. In day of globalization and the general computerization pane and easy access to information about traction offers of work is possible, not only from country, but also from abroad. One of most attractive solutions of this problem is talents management, conception gaining in last summers more and more larger popularity as well as making up for the organization, which are determined on achievement of success huge challenge.

In the article we would like to present the creature of management the talent, Talent – definition, the process of talents management, the stages of talent management and obstacle in stopping Talent.

The talents management, though more and more popular, it seems to be however the abstract from philosophy and the strategy of organization. However value, which brings into organization, the larger, the more engaged, prepared and managers are convinced to it and the more open and natural is process of talent management.

THE POSSIBILITIES OF IMPLEMENTATION OF KNOWLEDGE MANAGEMENT INTO THE MILITARY ORGANIZATIONS

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Consultant: Lubomír Belan

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This paper deals with knowledge management and possibilities of its implementation into military organizations. Its main aim is to define the specifics by which the military knowledge scene abounds and to suggest on their basis the possible concepts of implementing the elements of knowledge management into the military scene. The content of the first chapter are the specific components of knowledge management in the military. They resulted on the base of many theoretical, but mostly practical basics. The most important resource of the first chapter is the model of the military knowledge preparation. The second chapter is focused on a short - term special course of knowledge management for the professional soldiers and employees of the defence department. In this part of the paper are described the basic course attributes, the graduate's profile and the characteristics of the particular themes which are the content of the course.

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IDENTIFICATION OF RISKS AND RISKS ANALYSIS CONNECTED WITH THE PROCESS OF OUTSOURCING

Martina KRISTEKOVÁ

Consultant: Soňa Jirásková

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The topic of work is the identification and risk analysis connected with the process of outsourcing. The work concerns with the risks of outsourcing, especially with the identification of risks and risks analysis. There are described the potentional risks of the process of outsourcing in the armed forces of Slovak republic and possible qualitative method which could be used in risks analysis. There are possible conclusions which could be applied in the organisation.

COMPETENCIES OF THE MANAGER

Lucia MACHAJDÍKOVÁ

Consultant: Mária Petrufová

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The article deals with the term „competence“, key competence and bearing in mind the very frequent use of terms „ability, skill, competence, besides their definitions it explains their mutual relations.

In the next part we would like to present the importance of the key competencies, structure and systems of the key competencies

It is important to emphasize, that competencies are important assumption of permanetal growth of performance. The propose of this article is to underline connection between the fields of key competencies and military learning, to be created one entity, which could be the guarantee of the quality of the education system.

PUBLIC RELATIONS

Lucia MALIŇAKOVÁ

Consultant: Mária Petrufová

The Academy of the Armed Forces of General Milan Rastislav Štefánik

In my work I solve the problem of public relations, their development and movement from the past to present. I also focused my attention to the meaning the function and goals of PR. By the means of survey I found out how PR are apprehended among student of AOS and what are their chances in the enviroment of OS SR.

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PARTICIPATION OF THE SLOVAK'S ARMED FORCES IN THE PEACE OPERATIONS

Andrea RAPČANOVÁ

Consultant: Pavel Bučka

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The aim of this paper is to characterized existence of the Slovak Republic's Armed Forces in peace support missions. I want to express their essence and last not least point out importance activity of Slovak soldiers abroad with orientation for the future. Thesis is divided into six chapters. In the first one I deal with the sequence at send out Slovak soldiers outside of the Slovak republic in the name of Security and Defense Strategy of 2005. In the following one I express legally aspects of commit troops in the peace support operations. In the third one I occupy criterions for selection of staff in foreign mission. In the fourth part I devote their preparation for service abroad in the Slovak Republic. In the next one part I direct priorities of the Slovak Republic in the year 2008. In this part I deal with identified problems, aspects and their solution. Finally, in the last part I portray perspective activity of Slovak troops in the international crisis management, I focus on retrospection and future activities of the Armed Forces of the Slovak Republic.

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EMPLOYEES RELATIONSHIPS AS A PART OF A IMPROVEMENT OF THE WORKING LIFE

Lenka TÓTHOVÁ

Consultant: Jaroslav Nekoranec

The Academy of the Armed Forces of General Milan Rastislav Štefánik

Employees´relationships play very important role in the system of the control of the organisation. As a part from the most important function of the personal management these relationships determine the key elements as a productivity of the organisation, competitiveness and whole prosperity of the organisation. In the employees´relationships there are included relationships between employer and employee. These relationships influents the culture of the organisation by the significant way. The employees´relationships are very important for a definition of the loyalty and a devotion of the employers to the organisation.

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EXPLOITATION OF THE THEORY OF GAMES IN DICISION PROCESSES

Bibiána ZEMKOVÁ

Consultant: Pavel Bučka

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The aim of this paper is to describe decision processes, rather exploitation of the theory of games in decision making processes. In the first part I will analyze solution of conflict and types of games in decision processes. Second part describes the war game and creating the war game model. The main intention is possible exploitation of the theory of games in military decision processes.

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OUTPLACEMENTAS AN INSEPARABLE PART OF PERSONAL MANAGEMENT

Lenka ZVALOVÁ

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The Academy of the Armed Forces of General Milan Rastislav Štefánik

The topic of the work is Outplacement as an inseparable part of personal management.

The work deals with the substantial function of personal management, which deals with the allocation and dismissing of staff on the ground of redundance in the process of transformation of the organization.

The task of managers as well as personal managers in advanced organizations is to solve this demanding, and for the staff members complicated, situation as sensitive as possible. One option is the application of the ouplacement program, which enables re-employment, and finding new employment possibilities, of dismissed staff members of the organization. It is a mark of an advanced organizational culture and image of the organization, as it is a form of care for employees, in the process of dismissing them from the organization, undetermined by law. This way of solving the problem with dismissed staff has historical roots from the time The Second World War was over, and many war old-timers (veterans), of The Armed Forces, were dismissed, and there was need to deal with the spare manpower.

Organizations began to apply this form of solution in the 60-ies of the 20th century. This way of re-employment is partially possible to apply at restructuralization of The Armed Forces in Slovak republic.

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ECONOMICS AND LOGISTICS

EFFICIENCY PROBLEMS OF ENVIROMENTAL INVESTMENT

Gabriel BARÁK

Consultant: Milota Kustrová

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The aim of my work was to explain methods used to measure the efficiency of enviromental investments. I have specified terms used in the field of investments intended for enviromental protection. In my work I have shown particular methods concerning the evaluation of the efficiency of enviromental investements and analyzed their advantages and disadvantages in various enviromental projects. I explained singular methods and analysis of quatification of the efect from implementation of enviromental projects.

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THE METHODS OF RANKING OF SUPLIER IN AQUISITION PROCESS IN ARMED FORCES OF SLOVAK REPUBLIC

Michal HALAS

Consultant: Soňa Jirásková

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This work is focused on Methods of ranking of suplier in aquisition process in Armed forces of Slovak republic.

In first part this work is about theoretical matters, decision process and about aquisition process which is provided in Armed forces.

In second part treat about concrete methods of ranking in decision process, and this methods can by also used in ranking of suplier.

As attachmentt will be presented model of ranking suplier of light armed vehicles for Slovak armed forces. This part is supported with computer model which is also attachment of this papper.

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THE TASK AND IMPORTANCE OF COMMUNICATION MIX FOR THE COMPANY

Juraj JAKUBEC

Consultant: Viera Frianová

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The topic of the work is The task and importance of communication mix for the company. The work deals with communication strategy, policy and with the tools of communication mix in marketing-oriented company. Promotion or communication mix is sub-element of marketing mix.

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ADVANTAGES AND DISADVANTAGES OF JOINING EMU FOR SLOVAKIA

Vladislav KOVÁČ

Consultant: Viera Frianová

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This paper deals with advantages and disadvantages of euro adoption for Slovak Republik. My paper consists of 3 main parts. In the first part I´m explaining the history and evolution of European monetary union, the reasons of establishment and main followed goals. The second part deals with fullfilment of Maastricht kriteria. The third and main part explains advantages and disadvanages of join of European monetary union. It´s divided to parts: direct and indirect advantages, costs, risks, doubts and disadvantages related to euro and part about effects on citizens, enterprises and public administration. The end of paper will be supplemented with graphs, diagrams and pictures of new slovak euro coins.

THE FACILITIES OF THE CZECH REPUBLIC AS A HOST NATION IN SUPPORTING NATO´S MILITARY TRAININGS AND OPERATIONS

Zdeňka LAPÁČKOVÁ

Consultant: Miroslav Cempírek

University of Defence Brno, Czech Republic

This work deals with The facilities of the Czech republic as a host nation in supporting NATO´s military trainings and operations. The aim of the work is to compile a teatise on the principles of host nation support using the newest NATO approaches and standards related to this issue. The first chapter defines the principles of host ation support. The second part describes the roles of logistic specialist on particular command level in the host nation support process. The last chapter names the main tasks of the host nation supportralization.

MANAGEMENT OF LOGISTICS IN THE SYSTEM IN ARMED FORCES OF SLOVAK REPUBLIC

Jozef LIPTÁK

Consultant: Miroslav Školník

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This bachelor thesis deals with management of logistics in the system of OS SR. The work is concentrated on management of company`s logistics, in short I wrote about logistics in army unit. In chapters I pointed out the changes which reform of OS SR brought. The work is devided into 4 chapters. In the first chapter the basic terms are defined. In the second chapter I mentioned functionaries who fall into company`s logistics. The third chapter is about logistic services and material provision, there are also mentioned obligations of company`s functionaries in logistic are. In the last chapter I focused on logistics control in company. This part is also about routine of funcionarz who is responsible for logistics in company, tasks of logistics and solving of current problems of logistics

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PREPARATION OF BEGINNING LOGISTICS MANAGER IN THE ARMED FORCES OF SLOVAK REPUBLIC

Katarína PINKOŠOVÁ

Consultant: Miroslav Školník

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The paper solves a current problem of preparation of a beginning logistic manager-officer in The Armed Forces of Slovak Republic. It is based on the history of preparation of logistics functionaries on formed Military Academy and briefly discusses the possibilities of this preparation in the present framework of Bachelor study on The Academy of the Armed Force of General Milan Rastislav Štefánik. The core of the paper presents a suggestion of possible contents of The Special Entering Officer Course designed for graduates of Bachelor study on The Academy of the Armed Force, who are interested in an official career in the field of logistics in The Armed Forces. The proposed design of the contents meets the requirements for logistics manager appointed by General Staff of The Armed Forces of Slovak Republic. The results of this paper can b used for on-coming of The Special Entering Officer Course in The Academy of the Armed Forces of General Milan Rastislav Štefánik for the year 2008.

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POSSIBILITIES OF SIMULATION OF ECONOMIC INDICATORS IN THE INSTANCE OF SPECIAL TRAINING OF RECONNAISSANCE UNITS IN THE CZECH ARMY

Roman ŠKUTA

Consultant: Luboš Štancl

University of Defence Brno, Czech Republic

This work in three chapters deals with possibilities of increase of efficiency in provision of defence by the Czech Army (ACR). It focuses on problems of economic analysis in special training of Reconnaissance unit in the Czech Army, whose structure is analysed in the first chapter. In the second chapter are defined concepts like process management, costs, expenses and the process of simulation. The third chapter deals with particular costs, which occur in chosen parts of special training process (tactical, medical, topographic and gunnery training) and focuses on concrete problems with recommended solution in the conclusion.

The aim of this work is to point out the possibilities of increase of economy, effecienncy and expediency in planning and decision making within available human, material and financial resources in departmnt within the Ministry of Defence of the Czech Republic. These possibilities are demonstrated on the model application of chosen economic instruments of the cost evaluation of special training. The concrete aim is to simulate chosen economic indicators of special training process on applied model and to choose between various cost alternatives.

MARKETING MIX OF CHOOSEN ORGANIZATION

Anna TEPLICKÁ

Concultant: Viera Spodniaková

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Text of the paper is on defining marketing mix (The 4 P's of Marketing). Marketing decisions generally fall into the following four controllable categories: product, price, place (distribution) and promotion. The term "product" refers to tangible, physical products as well as services. Price is paid for that product or service. It should be reasonable, so customers have interest to buy product or pay for service. Distribution is about getting the products to the customer. In case of organizations I am writing about, it is about place, where the organization is situated. In the context of the marketing mix, promotion represents the various aspects of marketing communication, that is, the communication of information about the product with the goal of generating a positive customer response. In the practical part, I'm comparing organizations, two aqua parks and two firms offering accommodation.

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CONTROLLING AND HIS INSTRUMENTS IN PUBLIC SECTOR

Kamila ZAVADILOVÁ

Consultant: Blanka Jiráňová

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This thesis is focused on application of controlling in specific conditions of public sector and also on controlling instruments which gain ground in the process of monitoring observance of his goals.

HUMANITIES AND SOCIAL SCIENCES AND SPORTS SCIENCE

DISCIPLINARY POWER AND DISCIPLINARY RESPONSIBILITY BASED ON THE NEEDS OF THE ARMED FORCES

Richard BABUĽÁK

Consultant: Ondrej Kredatus

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This paper is focused on the recent disciplinary power of the commanders in the Slovak Armed Forces, but mainly on the disciplinary power of the section commanders, platoon commanders and the company commanders. In the beginig of the paper the author is decribing the development of the disciplinary power of the commanders since year 1993 and he is analyzing the recent state. The second chapter describes the „disciplinary law“ in Austrian, French and USA army. The final chapter detailed analyzis the results from the survey, which was made in Slovak Armed Forces, to collect valuable information from the commanders. And in the end the author offers some solutions and conception about the future development of the disciplinary power in the Slovak Armed Forces.

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THE ROLE OF MEASURING EQUIPMENT IN IMPROVING THE ENDURANCE OF CADETS

Renáta BARCÍKOVÁ

Consultant: Dušan Litva

The Academy of the Armed Forces of General Milan Rastislav Štefánik

Physical training department takes care of fitness of students which is provided during physical education lessons as well as summer and winter training camps. We do not improve only endurance, strength, dexterity and swimming but also special abilities such as climbing, marching, assault course and self-defence.

This work concentrates on improving endurance as it is necessary for all professional soldiers. Students are examined from Physical education lessons twice a year and they have to fulfil certain limits. However nowadays, fitness can be measured more accurately than just according to kilometres run and a time measured. Heart rate is a reliable value for measuring fitness. Nowadays, technological development enables us measure pulse rate easily and accurately thanks to special Heart Rate Monitors. According to the results of physical performance, we can analyse the physical progress of our students which can be compared with students from foreign countries.

The aim of this work is to mention advantages of this technology which is available also at Academy of Armed Forces. As a comparison we used the data measured during lessons, trainings of well-trained students and the professional performance during Armed Forces championships.

In our school we work with three main Heart Rate Monitors: Polar S625X, Polar AXN500 and Garmin Forerunner 305. Polar tools accurately measure the intensity and exertion level which can be analysed in a computer. Forerunner 305 includes a high sensitivity GPS receiver that can analyse the received data on a map via computer.

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STATISTIC ANALYSIS OF QUALITY PARAMETERS OF COLLEGE BOARDS USED ON AAF

Branislav BUMBÁL, Ivana SAVINCOVÁ

Consultant: Ferdinand Chovanec

The Academy of the Armed Forces of General Milan Rastislav Štefánik

This project deals with the statisic analysis of mathematics and foreign language test used on college boards for the Academy of Armed Forces in Liptovský Mikuláš in the year 2007. While determinig the quality of the tests following parameters were investigated:

- The difficulty of the tests and test items.
- The reliability of the tests.
- The comparability of test variants.
- The correlation between the mathematics and foreign language results.

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DECREASE OF THE CONTRACTS SOLDIERS FLUCTUACION IN THE ASPECT OF MOTIVATION

Attila CSÓKA

Zrínyi Miklós National Defence University, Hungary

To train a civilian candidate to contracted soldier costs time, effort and money. Soldiers have the possibility to leave the armed forces when the contract has ended- even earlier, causing temporary gap both in the personnel and the technical sphere at the served subunit.

My aim is to create a picture about the leave-stay motivation factors, including the financial, medical, psychological ones. I am going to search, discuss, and suggest possible solutions to increase the soldiers sense of competition, honor, elite-consciousness. These increased factors lead to higher level work, on the other hand decrease the discontentment, accordingly the fluctuacion.

COMPARISON OF DISCIPLINARY AUTHORITY AND DISCIPLINARY RESPONSIBILITY SINCE CZECHOSLOVAKIAN ARMY UNTIL PRESENT ARMED FORCES OF THE SLOVAK REPUBLIC

Dagmara DEKANOVÁ

Consultant: Ondrej Kredatus

The Academy of the Armed Forces of General Milan Rastislav Štefánik

Nowadays disciplinary authority and disciplinary responsibility, extents of which are designated in law, belong to the basic attributes of consolidation military discipline in the armed forces. The main goal I want to achieve is to find out differences between exercising of disciplinary authority and disciplinary responsibility in the present and in the past, especially in the period of the origin of independent Slovak republic. The main part of the work is made up by objective schedule of three military service laws issued in years 1959, 1997 and 2005. According to knowledge, I gained by work processing, I have come to the conclusion that the disciplinary authority and disciplinary responsibility are not sufficient and the legal regulations would by needed in the future.

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LEVEL PHYSICAL ABILITY AND MOTIONAL PERFORMANCE THE STUDENTS' 1. CLASS

Jana KUBÍKOVÁ, Michal LEHOTSKÝ

Consultant: Vladimír Paulík

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The aim of this work is to find out level of body robustness and motional performance of students of first class of bechelor study, who accede this school and consider changes in index of our interest during the first semester. This work use results incoming measures of anthropometric a functional index of selected student of first class, entering testing of motional performance and evaluation of motional performance at the end of the semester.

SELF-EDUCATION

Marek ŠTÍTIK

Consultant: Jozef Kudlička

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The emphasis of the paper is put on education and self-education as considerable aspects that strongly affect the way of developement of every single man and his personality.

It briefly defines dialectics in the relationships between personality and education, education and self-education, their conditionality in the process of personality developement. The author analyzes contentual aspects of self-education as well as several methods of self-education. Moreover it points out the importance of self-education in human life, like an unique cognitive and molding process in education system. The self-education represents a lawful feature of personality developement, that is brought into effect on a certain level of this developement, and its efficency is dependent on the interest of every idividiual in self-improvement.

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NUN-VERBAL COMUNICATION

Dominika VOJTAŠKOVÁ

Consultant: Mária Martinská

The Academy of the Armed Forces of General Milan Rastislav Štefánik

While writing this schoolwork, we draw out from specialist literature, dealing with nun-verbal communication.

Our goal was to ralize more deeply our own non-verbal signals, and show people communicate with each other through body-language. Here, we orientated on the realm of non-verbal communicaton and on the development of communication skills in everyday interpersonal communication. The schoolwork consists of two major chapters. The theoretical part contains a definition of the term communication, where we briefly approached the types of communication. In the empiric part, we familiarize with non-verbal communication and its types, where we took the liberty of dealing mainly with body-language and it's components.This schoolwork helps to mediate better the understanding of communication with other people, it helps to understand better others, and mainly oneself.

The schoolwork contains a rich picture insent.

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SECURITY STUDIES

INFORMATION LOSS CHANNELS AND METHODS OF IT'S PROTECTION (APPLICATION TO THE RESQUE SFAFF EQUIPMENT, MINISTRY OF EMERGENCIES, UKRAINE)

Volodymyr IEFREMOV

Consultant: Anzhela V. Piatova

National Technical University of Ukraine "Kiev Politechnical Institute"

The material deals with the methods of Life and Activity Protection for the Resque teams while using the special equipment which can be characterized by the information loses. The ways of information loss in computer systems, information laser output, telephone lines listening, apartments etc. are being analysed. Some staff protecting methods are offered herein.

Some hardwares will be presented: by one it is possible to withdraw information, and by other to prevent unauthorized penetrations to one or another resources.

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APPLICATION OF WAVELET-DECOMPOSITION FOR INCREASING THE EXPEDIENCY OF RECOGNITION OF THE SOURCES OF ACOUSTIC EXCITEMENTS

Alexander Valerievich Ignatko

Consultant: Victor Vasilievich Strinda

Zhitomir, Ukraine

Practice of processing the geophysical information by technical means of Geophysical Monitoring Acoustic System (GMAS) of Ukrainian National Space Agency Special Control Center proves that modern algorithms of recognition of sources of excitement (SE) are not always effective for insufficient expediency of making corresponding decisions. Hence the development of the method of operative recognition of SE in the condition of lack of time is important and actual task to be solved.

The possibility of application in the process of signal recognition the wavelet-image of the signal is shown in the paper. The method of choice of the basic wavelet function by finding extreme values of corresponding functionals is outlined. It is shown, that the necessity of optimization of choice of basic wavelet function is determined by the fact that this function determines the efficiency of wavelet-image processing of definite acoustic signal.

The analysis of dependence of duration of recognition on the signal length and number of standard signals is made. The data of the researches of standard signals on corresponding classes of geophysical excitements are presented.

It is proved, that the application of the mentioned method in the process of recognition of corresponding classes of SE will considerably decrease computing costs and as a result it will increase the expediency of decision making. The programming realization of the offered method of operative recognition of SE in the adjacent area is created by the means of the system of computer mathematics MatLAB 6.5.

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THE ANALYSIS OF THE CONFLICT OF THE CONTEMPORARY WORLD
ANALÝZA KONFLIKTOV SÚČASNÉHO SVETA

Henrich KELEMEN

Consultant: Ladislav Hofreiter

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The aim of this work is analysing of modern world conflicts and try to find effective ways of its solving and preceding them.

This question interested me because of my opinion that in armed forces and in whole society we don't spend enough time and instruments to study conflicts that could enable effective prevention and to inhibit formation of destructive conflicts.

In this work I wanted to show some ways of classification of conflicts, their structure, dynamics and ways of their solving. I wanted to show possible causes of conflict formation on actual examples and I wanted to suggest some kinds of their solving.

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COMPENSATION PROCEEDINGS IN THE SLOVAK ARMED FORCES

Martina KOSTELANSKÁ

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The bachelor thesis contains the documents and selected problems related to compensation proceedings in the Slovak Armed Forces, when dealing with damages and losses to the government property. The thesis, however, does not deal with compensation proceedings related to other areas, such as injuries. The thesis is focused on possible solutions of these issues based on the changes our armed forces have undergone in the last 50 years. It is divided into three parts, which systematically deal with compensation proceedings. The first part is focused on the legal regulations regarding compensation proceedings based on the development and legislative changes. The second part deals with the liability issues. The third part is focused on the direct application of compensation proceedings. The bachelor thesis was elaborated as the comprehensive material aimed at understanding the issues of compensation proceedings – settlement of damage claims in the Slovak Armed Forces.

THE MAIN PROBLEMS OF ECOPHILOSOPHY

Maroš KÖVER

Consultant: Jozef Kudlička

The Academy of the Armed Forces of General Milan Rastislav Štefánik

The author's main purpose in this work is to inform about the basic problems of ecophilosophy, the relation between nature and mankind and about the embarrassments of permanent development. The human race rapidly rises up, but this increasing feature has a devastating influence to nature and also to us, humans because we are part of this fragile system.

The motivation comes out from author's individual interest of this topic. To inform the people and bring the problems of the future, that is not so far away from us, in their minds is also very important aim of this work.

I hope the reader will have a good time when reading this work and become more aware of ecophilosophy, the relation nature-mankind and of course of his own impact to environment.

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EDUCATION FOR SAFETY IN NATIONAL AND INTERNATIONAL ASPECT

Anna NOWICKA-OSUCH

Consultant: Marzena Piotrowska-Trybull

Polish National Defence University, Poland

The article is about the Polish and international dimension of education for safety. In Polish defensive education system the article is about the preparation people already from elementary school and high-school to academically level by students' military training and by the higher military education in military school.

In international dimension of education for safety it is about all kinds of projects connected with membership of Poland as well as the individual states to NATO and about people education who would have to realize ideals of integrated Europe on every level of their life. It is also about neighborly co-operation by creating friendly relations with neighbors of Poland as well as co-operation with them in creating border and regional conditions is the essential resources of building the national safety. Mostly article is connected with such terms, as: defensive preparation, defensive upbringing and defensive education, or else like general self-defense.

POSITIVE ASPECTS OF THE CONFLICT

Ioana-Mădălina RAȚIU

Consultant: Laurian Gherman

Air Force Academy Brashov, Romania

The paper aims to highlight the ambivalent character of the conflict in all its shapes. The theoretical approach of the presented problem from a sociological and psycho pedagogical perspective is followed by applications and exemplifications of the phenomenon inside the military system. In this context, the paper underlines the significant role played by the platoon commander as an educator. Within the framework of a class/group of students he enjoys effective instruments to create educational conflicts as well as to eliminate the destabilizing conflicts.

DETERMINATION OF AIR CANNON'S FIRING ENVELOPE IN AIR COMBAT MANEUVERING

Aleš SVOBODA

Consultant: Miroslav Janošek

University of Defence Brno, Czech Republic

The contribution deals with determination of air cannon's firing envelope in air combat maneuvering. The curves of maximum range of effective fire, minimum distances for the break maneuver and the curves of constant G-load are calculated with the use of formulas, which have been derived in this contribution. The limitations of the fighter aircraft's fire control system are analysed and included in the calculations. Further, the influence of individual factors, which affect the shape of the firing envelope, especially the velocity of the fighter and the target, are analysed. Several actual firing envelopes of particular air cannons, fighters and targets are shown. The optimum distance for cannon fire application under given conditions is also calculated. The conclusion concentrates on the tactical advantages and drawbacks of cannon fire application from individual segments of the firing envelope, especially on the effect on the fire efficiency and on the maneuvering of the fighter and the target.

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