ISSN 2457-144X
ISSN-L 2457-144X

SEA - CONF 2016
2nd INTERNATIONAL CONFERENCE

Constanta,
May 12th – 14th, 2016

Book of Abstracts

„Mircea cel Batran“ Publishing House
Constanta, 2016

“MIRCEA CEL BATRAN” NAVAL ACADEMY

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I. MILITARY SCIENCES

SECTION COMMITTEE:
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CONFERENCE ROOM: LI-125

1. POSITIONING OF THE BULGARIAN NAVY IN THE MARITIME CRITICAL INFRASTRUCTURE PROTECTION SYSTEM

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Angel VALCHEV[2]
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[2]CDR, BG NAVY HQ
Abstract: *Analyzing the security threat could be conclude that the situation should be kept under close and continuous control through early warning and readiness for adequate response to the dynamic changes; otherwise the regional stability could be seriously endangered. Against the current environment, an assessment of the national maritime critical infrastructure risk level is to be made and, if necessary, measures to manage the risk shall be undertaken. Building the maritime critical infrastructure protection system should be based on the public and private efforts and should be focused toward the utilization of the identified threats. The role of the actors should be specified based on their function and responsibilities in the framework of the security system and the conceptual and legal constructions involved in the critical infrastructure protection system.*
Keywords: *maritime security, threats, critical infrastructures, protection, Navy tasks, harbour.*

2. UNMANNED AERIAL VEHICLES IN THE NAVY: ITS BENEFITS

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Abstract: *Military investment in UAV research, systems, and applied technologies is increasing, and potential uses for UAVs in civil and military*

operations are in development. These developments, along with growing scientific interest in UAVs, are fueling commercial interest in the unmanned market. The growing enthusiasm for UAVs is not unfounded. The vehicles offer a unique range of features, most notably ultra-long endurance and high-risk mission acceptance, which cannot be reasonably performed by manned aircraft. Coupled with advances in automation and sensor technologies, and the potential for costs savings, it is understandable that interest in and demand for UAVs is on the rise. Organizations like the Navy have all the benefits to accompany the technological evolution that every day surprises and surpasses us. An introduction or technological evolution that this kind of organizations has already begun to implement is the autonomous vehicles as a mean to an end. This paper describes and lists the advantages of the introduction of Unmanned Aerial Vehicles in an organization like the navy and also the missions that such robots can perform and optimize.
Keywords: *UAV, Navy, missions, benefits.*

3. THE INTERACTION BETWEEN EXPLOSIVE DETONATION, MARINE MINE WALL AND WATER

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Abstract: *In this paper we made a theoretical study on the transfer of the shock wave generated by the detonation of an explosive charge in to the water and we established a procedure which in necessary in order to evaluate the effects produced on underwater objects and ships hulls.*
Keywords: *detonation, marine mine, shock wave, detonation products.*

4. MARITIME SPATIAL PLANNING IN THE INTEREST OF PROTECTION

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Abstract: *The providing of activities in the sea areas is associated with ensuring security environment and safety. Much of the safety activities are serving security purposes. The vice versa is also possible and the activities could be complementary. Therefore, this requires examining the system of safety as composed of two complementary components.*
Keywords: *maritime spatial planning, maritime security and safety, environmental protection.*

5. THE SPECIFICITY OF COURT JUDGMENTS IN CASES APPEALED TO THE HCCJ WITH MILITARY FROM THE NAVY

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Ionel BOSTAN[3]
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Abstract: *This study focuses on a brief analysis on those court cases in the jurisdictional phase, dealt with by the administrative court, within the High Court of Cassation and Justice of Romania (HCCJ). Obviously, as already made evident by the topic of our paper, we have dealt with those cases involving military personnel - petty officers, warrant officers, officers of various ranks and positions - from the Romanian Navy. In the few pages at our disposal, we focused on the reasons for the actions in the respective courts, on the procedural framework, on the arguments used in appeals, on the motivation for maintaining a court decision, on the modification or cancellation of the judicial decisions appealed to the HCCJ.*
Keywords: *restructuring units/military positions, military discharge, put at disposal, attributing costs/damages.*

6. BIOMIMETIC CONTROL OF AUTONOMOUS UNDERWATER VEHICLES: A MODELLING ALGORITHM FOR COMPUTING THE CURRENT SWAY

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Abstract: *The sway produced by the sea currents on autonomous underwater vehicles (AUV) is an unpredictable variable that impedes them to follow a straight course, as desired. In order to correct these errors, the authors previously proposed a biomimetic approach of control, by determining the influences of sea currents through an array of pressure sensors on both sides of the AUV, resembling a fish's lateral line. The values of the incidences and intensities of the current pushing the AUV can be measured by the lateral line array as differences in the pressures of two corresponding points on both sides of the AUV. Subsequently, the micro-controller in charge with motion control has to correct the disturbed trajectory after analyzing the input error. This paper describes an algorithm for transforming the pressure differences from the sensors to empirical mathematical equations that can describe the current parameters, thus allowing the controller to command the proper corrective action to the propulsion motors.*
Keywords: *AUV, biomimetic, current, sway, controller.*

7. SOME SPECIFICS OF REDUCING THE IED RISK IN OFFSHORE SECURITY ENVIRONMENT

Valentin S. VASILEV[1]
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Abstract: *Improvised Explosive Devices (IED) undoubtedly pose significant threat to all spectrums of offshore constructions. It is necessary, security of offshore industry to be prepared to withstand against harmful impacts caused in asymmetric way - unclearly defined motivation during selection of targets and usage of improvised devices in order to materialize damage. Effects are more than undesirable such as having an effect on moral of personnel or economic status of company. Oil spills should be considered as main objective or, at least, as an imminent aftereffect realized by IED-attack.*
Keywords: *counter-IED efforts, critical vulnerability, maritime security, offshore industry, risk management.*

II. NAVIGATION AND NAVAL TRANSPORT

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Lieutenant Lecturer Eng., PhD Sergiu LUPU
Captain (N) Eng. Dinu-Vasile ATODIRESEI
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1. HUMAN ERROR-THE MAIN FACTOR IN MARINE ACCIDENTS

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Abstract: *Modern ships are equipped with technologically advanced systems that are presumably infailible. Yet, marine accidents still occur and the number of casualties is alarmingly high. Not even the state of the art systems used to improve the new ships' operation have reduced the number of incidents and accidents on sea. The main factor that induces the present situation is the human factor. Not being a machine, a human cannot be programmed to follow the perfect path in every situation. Moreover, taking in consideration the variety of elements able to interfere with human work onboard ship, it is practically impossible to have a rule or regulation for each state that can occur. The present paper highlights the importance of human error in the maritime field and underlines problems related to maritime crew.*
Keywords: *marine accidents, human factor, communication, inter-cultural*

2. COMMUNICATION PROBLEMS IN A MIXED CREW ENVIRONMENT

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Abstract: *Shipping has become a highly international and multicultural industry due to a globalised labour market of seafarers. About two thirds of the world`s merchant fleets, Horck (2005) are manned by a mixed crew,*

which may include two to three different nationalities. The common language used on board ship is English. So the crewmembers must have a good command of this language. 80% of all maritime accidents are, according to incident reports, caused by human error i.e. negligence, fatigue, incompetence or communication breakdown. Another factor that may affect the safety of crew and cargo is the cultural differences within the mixed nationality crews which, if not appeased in time, may lead to very serious conflicts. This paper proposes to overview some maritime incident reports, to analyse the causes and suggest some ways of improving the professional relationship among multinational crew members. A questionnaire, which we intend to use as a research tool, will be provided and explained.

Keywords: *multicultural safety communication breakdown*

3. MODELLING OF HYDRO-METEOROLOGICAL PARAMETERS USING SPOS SOFTWARE IN ORDER TO OPTIMIZE NAVIGATIONAL ROUTES

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Abstract: *The purpose of this paper is to analyze the advantages of adjusting the navigational routes not only based on geographical hazards but also according to hydro-meteorological parameters with the purpose of creating a route with maximum efficiency. The Ship Performance*

Optimization System (SPOS) used by vessels is one of the best onboard weather routing systems. In a competitive market such as the one today, it is essential to use such software so that the ship's route can be optimized, taking into account sea conditions such as waves, current and swell, wind and other weather elements. Other benefits include a decreased risk of environmental pollution caused by ships unprepared for certain adverse weather conditions.

Keywords: *Hydro-meteorological parameters, SPOS, Ship Performance, meteorology, route optimization, meteorological software.*

4. ASSESSMENT OF THE WIND POTENTIAL FOR THE NORTH-WESTERN AREA OF THE BLACK SEA BY INTERPRETING DATA RECORDED BY METEOROLOGICAL SATELLITES AND METEOROLOGICAL COSTAL STATIONS AND THE EXPLOITATION OF THIS INFORMATION BY VESSELS ENGAGED ON COASTAL ROUTES

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Abstract: *The subject of this paper is to assess the wind potential for the north-western area of the Black Sea based on satellite recorded data supplied by "ASCAT" (Advanced SCATterometer) and from meteorological costal stations for the purpose of utilizing this data onboard commercial ships in order to efficiently produce renewable energy. The evaluation of the benefits obtained by capitalizing wind power, thus producing renewable energy using contemporary technical solutions already existing within the maritime industry, has been achieved by comparing energy production costs*

between onboard diesel generators and wind turbines across various types of ships.

Keywords: *ASCAT, Advanced SCATterometer, renewable energy, meteorological data analysis, wind energy.*

5. AN APPROACH TO WAVE ENERGY CONVERTER APPLICATIONS ON TURKEY AND THEIR ELECTRICITY GENERATION CAPACITY

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Abstract: *Increasing the amount of research on renewable wave energy in Turkey has been getting crucial recently to reduce its energy dependence on exhaustible natural energy resources. The purpose of this study is to determine the electrical energy potential obtainable from the wave energy converters in Turkey. Firstly, different type of wave energy conversion systems have been investigated and as a result of the review, the Oscillating Water Column (OWC) is considered to be most effective energy converter due to a suitable power generation system. The scope of the study is to evaluate and compare the wave energy potential between different regions of Turkey by using available wind and wave data. Five different coastal regions selected along the coastline of Black and Mediterranean Sea and Iğneada is considered to be most effective region because of their highest wavelength. In addition, OWC is modeled as a system using the pressed air in a column and it is mathematically described as a difference in pressure and expressed by the Bernoulli equation. General equations of motion of a system subject to forced oscillation are derived, and then, the components of the damping coefficient are investigated by using the optimization theory. After that, the theory developed in the previous part has been applied to*

Iğneada Region in Black Sea. It is finally shown that how much electricity needs to be met by using OWC system.

Keywords: *Wave energy; Renewable energy; Wave energy converters; Turkey; Black Sea; Iğneada; Analysis of energy generation*

6. RENEWABLE ENERGY OPTIONS AND AN ASSESSMENT OF WIND-BASED PROPULSION SYSTEMS FOR SMALL CRAFTS

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Abstract: *Increasing fuel prices and strong environmental concerns have changed the competitive landscape of the shipping industry today. The conventional propellers are still commonly used for marine propulsion, but the alternative propulsion systems become more prevalent, their advantages do as well. Because the environmental regulations for shipping are getting stricter, the marine propulsion systems based on renewable energy have recently received a large amount of attention. General strategies for reducing the small crafts dependence on oil for transportation include reducing energy use on the propulsion systems. In this respect, wind-assisted propulsion systems offer considerable options for introducing renewable power into shipping. The wind assisted systems generate thrust from the wind and thereby reduce dependence on fossil fuel and main engine operation. In this paper, alternative propulsion systems such as kite-assisted propulsion, Flettner rotor, and wind turbine systems and their applications to the small crafts have been investigated. Moreover, the working principles of each system have been analyzed in detail and compared in terms of their advantages. A detailed description of the systems had been explained how to obtain the daily energy to be needed and usage in yacht by harnessing renewable energy from the wind.*

Keywords: *Renewable Energy Sources, Wind Energy, Wind-Assisted Propulsion, Kite-Assisted System, Small Craft*

7. MARITIME TRAFFIC IN THE ROMANIAN HARBOURS

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Cosmin KATONA[2]
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Abstract: *This paper aims to address the issues of shipping in Constantza port in the light of new economic developments and its active role in achieving world trade. The paper is an analysis of the traffic of ships that entered/left/moved in recent years in Constanta. While ships, river vessels and companies are developing very quickly thanks to modern technology, administration and port services are marked by the inertia in terms of technological and organizational updating. Indeed, the creation and development of port facilities should take into account the transported cargo but, in order to have a beneficial success, a strategy to maintain a balance in the commercial market must be developed. Due to the free zone status, international trade has grown rapidly at the intersection of intermodal transport, the statistics showing that the volume of goods transported by sea increased almost 5 times in the last 40 years and for the next 20 years it requires a doubling.*
Keywords: *maritime transport, ship traffic, cargo, Constantza.*

8. THE SECURITY AND SAFETY OF MARITIME NAVIGATION THROUGH ROMANIAN MARITIME HARBORS

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Andrei POCORA[2]
Romeo BOȘNEAGU[1]
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Abstract: *In changing times the design and build of ships has altered and the needs of the professional sailor must be adapted to meet the requirements of these modern times. The practical seaman must adapt alongside a developing hi-tech industry and be able to improve when the need arises. The increasing of the capacity of commercial ships produced a depth boundary of many ports and harbors. Constanta harbor along with the two satellite harbors, Midia and Mangalia, is at the crossroads of trade routes linking landlocked country markets of Central and Eastern Europe in the Transcaucasus region, Central Asia and the Far East. The security and safety of navigation in the western Black Sea is in the care of civil and military departments with clearly defined prerogatives. Romanian Naval Authority through Constanta Vessel Traffic Service (VTS) supervises the coordination and control of navigation in roadstead and maritime docks by providing navigation guidance with seven lighthouses, one radio-marker, three entrance lights, three flashers and four fog signals. This paper aims to present how the safety and security in maritime navigation on the Romanian borders and new improvements is currently assured by using an autonomous underwater vehicle (AUV). Thus, such a device could be used to monitor the seabed, to determine the hydro-acoustic diver fingerprint, underwater vehicles and surface vessels.*

9. LIGHT POLLUTION IN CONSTANTA – A CASE STUDY

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Abstract: *Light pollution, also known as luminous pollution or photo pollution, is the result of inefficient, misdirected or excessive artificial light and can cause a series of problems. Being a side effect of industrial civilization, its sources include urban lightening, advertising LED panels, streetlights, mainly all sorts of artificial illumination. The main consequences of light pollution include energy waste, security problems, health problems, disruption of ecosystems and negative effects on astronomy. More artificial light means an increased sky glow, thus fewer stars are visible on the night sky. Being a real threat to our ecosystem, various organizations started monitoring light pollution and began researching different ways to reduce its impact on Earth. The worldwide*

light pollution map is still in a continuous developing state and from that point of view Romania could have a great potential to carry out new maps for the young astronomical associations. Starting with 2015 "Mircea cel Batran" Naval Academy is endowed with a Sky Quality Meter, a professional tool used to measure light pollution. Various measurements were taken on site with this tool, and a database was created. This paper is a case study on light pollution in Constanta city and aims to find the best places for astronomical observations.
Keywords: *light pollution, astronomy, sky quality, artificial light.*

10. THE IMPACT OF A SOLAR ECLIPSE ON A PHOTOVOLTAIC PANEL

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Abstract: *As seen from Earth, a solar eclipse occurs when the Moon passes between the Sun and Earth. The Moon can partially or fully block the Sun, resulting in a full or partial solar eclipse. This phenomenon can only occur when the Sun and Moon are in conjunction as seen from Earth. On 20 March 2015 a solar eclipse was visible across Europe. The path of totality crossed the North Atlantic Ocean and could be best seen from the Faroe Islands and Svalbard Archipelago. In Romania the covered surface of the Sun varied from 55%, in the north-west of the country, to 40% in the south-east. The reduction of solar radiation directly affected photovoltaic panels and the energy they produced. This paper aims to present the impact of the Solar Eclipse on a 10W photovoltaic panel, MP-010WP model, installed in "Mircea cel Batran" Naval Academy. The data acquisition was made using LabView and USB 6008 module.*
Keywords: *light pollution, astronomy, sky quality, artificial light.*

11. SEAKEEPING ANALYSIS OF SEMISUBMERSIBLES IN IRREGULAR WAVES

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Abstract: *Advancement in computer simulated fluid flow and development of hardware resources lead to better simulation in sea keeping analysis. Based on response in regular waves defined by RAO values presented for a three column semisubmersible, the present work will define sea keeping parameters for semisubmersible with two degrees of freedom: heave and pitch. All work will present actual response for different irregular waves. The presented work is valuable for emerging offshore energy converters and oil and gas energy systems and is based on ANSYS CFX simulations for wave response.*
Keywords: *Semisubmersible; wave response; irregular waves, Ansys CFX.*

12. RESEARCH ON HEAVE PLATE EFFECT ON VERTICAL COLUMN MOTION

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Abstract: *Difficulties in 3D models simulation related to large number of cells and nodes lead to higher hardware requirements and large sets of equations for solving VoF model in CFX solver. To simplify the computational load we will use only one column vertical cross section because the vertical motion will determine effect of heave plates due to increased additional mass. Simplified Computational Fluid Dynamics (CFD) lead to fast simulation results and realistic vertical motion analysis. The column is fitted with heave plate and during the vertical motion simulation the angle of incidence between free surface and column will be modified as a set parameter. Based on Ansys CFX software and VoF method the column will be submerged in saltwater and released with an excess of buoyancy equivalent to 0,4 meters movement of COG. Graphical results are presented for simulated situations and all results show.*
Keywords: *heave plate; wave response, vertical motion, Ansys VoF.*

13. COMPARISON BETWEEN FORMULAS OF MAXIMUM SHIP SQUAT

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Abstract: *Ship squat is a combined effect of ship's draft and trim increase due to ship motion in limited navigation conditions. Over time, researchers conducted tests on models and ships to find a mathematical formula that can define squat. Various forms of calculating squat can be found in the literature. Among those most commonly used are of Barrass, Millward, Eryuzlu or ICORELS. This paper presents a comparison between the squat formulas to see the differences between them and which one provides the most satisfactory results. In this respect a cargo ship at different speeds was considered as a model for maximum squat calculations in canal navigation conditions.*
Keywords: *ship squat, formula, channel configuration, cargo ship.*

14. DETERMINATION OF RELEVANT FEATURES OF A SCALE MODEL FOR A 55 000 DWT BULK CARRIER NECESSARY TO STUDY THE SHIP MANEUVERABILITY

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Abstract: *The study method of a ship behavior based on practical tests on scale models is widely used both leading scientists and engineers, architects and researchers in the naval field. In this paper we propose to determine the parameters of a cargo handling characteristics relevant to study the 55,000 dwt bulk carrier using a scale model. Scientific background for practical experimentation of this techniques necessary to built a scale model ship consists in applying the principles of similarity or "similitude". The scale model achieved by applying the laws of similarity must allow, through approximations available in certain circumstances, finding relevant parameters needed to simplify and solve the Navier-Stokes equations. These parameters are necessary for modeling the interaction between hull of the real ship and the fluid motion.*
Keywords: *ship, similarity, similitude, modeling, manoeuvring.*

15. THE STUDY OF SHIPS BEHAVIOR DURING PORT MANEUVERING WITH TUGS

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Abstract: *Most of the time, during the turning, the motion of the ship is not a perfect circle because there are several forces acting on the ship and these forces change continuously. In this paper we study the real motion of the ship when a transverse force is applied by a tug at the different points of the moving or stationary ship. The pivot point is useful by seafarers to visualise the rotation of a ship during its combined rotation/translation movement. It is the result of all forces acting on the ship and its position changes continuously during the ship's displacement, depending on the forces involved. The centre of drift is the point at which the resultant of all hydrodynamic forces acts: underwater resistance, lift and drag as a function of speed and drift angle. The underwater resistance force exists both for pure headway or sternway motion and for all lateral motions. It induces flow velocities below and beside the hull. On a real turning circle the heading is not completely constant as it undergoes small variations due to small changes in the forces acting on the ship: local variations in water depth, variations in distance from the shore line, local currents or wind gusts.*
Keywords: *ship behavior, tug, manoeuvring, pivot point*

III. MECHANICAL ENGINEERING SCIENCES

SECTION COMMITTEE:
Professor, PhD. Eng. Beazit ALI
Professor, PhD. Eng. Anastase PRUIU
CONFERENCE ROOM: EP-26

1. METHOD FOR OBTAINING THE CHARACTERISTICS OF WINGS

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Abstract: *This scientific work presents the way in which the small, and very small span wings can be obtained starting from the great span wings and using the two scales of the similarity theory. Basing on two scales model it can transcribe from model at nature the coefficients* c_x, c_y *and lengthening* λ *of Gottingen - 612 profile.*
Keywords: *similarity theory, span, model wing, distort ratio, elongation.*

2. ALTERNATIVE FUELS FOR THE MARINE MARKET

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Abstract: *The shipping industry is facing challenges to reduce exhaust gas emissions and greenhouse gases in particular, carbon dioxide from ships engaged in international trading. The main regulatory body, International Maritime Organization (IMO) and national environmental agencies of many countries have issued regulations that drastically reduce emissions coming from marine sources. Of particular note are regulations in Emissions Control Areas (ECAs) such as the North American ECA, which came into being in 2012, and the SOx Emission Control Areas (SECAs), which have been in effect in the Baltic Sea and North Sea and English Channel since 2006 and 2007, respectively. These new requirements will force ship owners and managers to look into other possibilities like using alternative fuels.*
Keywords: *gas emission, distilled fuel, biodiesel.*

3. ABOUT THE MAINTENANCE OF THE HEAT FLOW EXCHANGERS FROM ENERGETICALLY NAVAL SYSTEMS

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Ion-Adrian GÎRBĂ[2]
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Abstract: *The paper presents the main activities of maintenance that ensures the operating characteristics of the fluid used to transfer energy flows. Through their adequate treatment and maintain quality exchanger surfaces energy flows through periodic cleaning with or without disassembly.*

Keywords: *heat exchanger, fouling, overall heat exchanger temperature, corrosion.*

4. ABOUT THE STUDY OF ENERGY'S FLOW FROM ENERGETICALLY NAVAL SYSTEMS

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Abstract: *In this paper are analyzed energy's flows in energetically naval systems and their correlation with the effective power of thermal machines. The possibilities for secondary energy flows recovering and their impact on the marine environment with possibilities to reduce pollution.*

5. MODELING OF THE DRAWING PROCESS PARAMETERS USING EXPERIMENTAL DATA - THE CASE A PIECE OF STEEL

Aurelia CHIOIBAS[1]
[1]Lecturer PhD, "Mircea cel Batran" Naval Academy, Constanta

Abstract: *This modeling is accomplished through surfaces responses method. The proposed method considers the links between process parameters and corresponding responses as surfaces in the dimensional space of variables. In this method the independent variables are varied simultaneously, taking a limited number of values considered in the experiment, called levels. This enables the highlighting interactions between independent variables, which contributes to more accurately determine the global optimum. Although the independent variables are varied simultaneously, their main effects and higher order and their interactions*

can be determined separately so that it can establish order and exclude those variables influence without significant influence.

6. WAYS TO MEASURE CERTAIN SPECIFIC PARAMETERS DRAWING PROCESS

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Abstract: *For proper conduct of thin sheet metal drawing process it is necessary to know the size and variation work force during the power stroke. One method of measuring forces involves using transducers resistive strain gauge, which is based on the property of electrical conductors to electrical resistance change lengthening or shortening to them. The principle of this method consists in measuring the variation in resistance of an electrical conductor insulated and fixed to a metal spring which acts on the external force which causes elastic deformation as the work piece and the conductor. At the force variation, varying the electrical resistance of the conductor, through calibration can establish a link between the force acting and intensity variation of voltage or a current that flows through the conductor that can be conveniently measured by means of electrical measurement. Dynamometric sensing device used to measure the deformation force needed.*

7. CORROSION RATE OF STEELS DX51D AND S220GD IN DIFFERENT CORROSION ENVIRONMENT

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Abstract: *Corrosion in the marine environment is an important issue because the costs causes by marine corrosion increased year upon year. It is necessary a correctly approach to materials selection, protection and corrosion control to reduce this burden of wasted materials, wasted energy*

and wasted money. Many different types of corrosion attack can be observed to structures, ships and other equipment used in sea water service. Shipping containers are exposed to various corrosive mediums like as airborne salt, industrial pollutants, rain and saltwater. Transport damage during loading onto and unloading off trucks, train beds and ships breaches the paint coating which further contributes to corrosion. The result is shortened container life and high costs for container repair or replacement. The paper intends to evaluate, by gravimetric method, the corrosion rate and corrosion penetration rate of two types of carbon steel DX51D and S220GD. Carbon steel DX51D and hot-dip galvanized steel S220GD are used in marine and industrial applications for buildings cargo vessels, container ships and oil tankers. For testing it was used different corrosive environments: 5% NaOH solution; 5% HCL solution and 0.5M NaCl solution. The samples were immersed in 400mL of testing solution for exposure period of 28 days. Periodically at 3 days, 7 days, 14 days, 21 days and 28 days was measured de mass loss and evaluate the corrosion rate and corrosion stability coefficient. The steel DX51D was stable in 5% NaOH solution for 28 days, the values of corrosion stability coefficient was 7 after 3 days and 6 after 28 days of immersion in corrosive medium. In 5% HCL solution steels DX51D and S220GD was completely corroded in 21 days with a corrosion stability coefficient equal with 9 for 7 days and 8 for 21 days of immersion in corrosive solution. It was observed a good resistance for 3 days in 0.5M NaCl solution with a corrosion stability coefficient equal with 5, but after that stability of the steel decrease in time and corrosion stability coefficient increase at 6. For steel S220GD it was found a corrosion stability coefficient equal with 6 after 21 days of immersion and 5 after 28 days of immersion in 5% NaOH solution. In 0.5M NaCl solution the corrosion stability coefficient at steel S220GD was 6 for all period tested.
Keywords: *DX51D carbon steel, S220GD hot-dip galvanized steel, corrosion environment, corrosion rate, corrosion stability coefficient.*

8. THE MANAGERIAL BENEFITS AND LIMITATIONS OF BIODIESEL USAGE IN MARITIME TRANSPORTATION

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Abstract: *The global economy development has not only positive effects but also negative consequences, in terms of air pollution with a major impact against the climate change and human health. This fact stimulated the intensification of research endeavours to identify and develop new options for sustainable energy supply and further for reducing the dependence on fossil fuels, as considered the major air pollutants globally. Among the non-polluting fuels, the currently biodiesel second generation becomes a viable solution in order to develop an alternative sustainable source of fueling. Even if this type of fuel has been implemented and approved as viable for land and air transportation meanings, the maritime transportation sector is still reluctant in implementing this new fuel on board to commercial vessels. In this article were approached the major advantages of using biodiesel powered engines, being detailed the technical, operational and legal solutions to eliminate the current reserve in adopting this innovative cleaner fuel on maritime transportation practice.*
Keywords: *Maritime transports, Biodiesel, Gas emissions, Sustainable transports.*

9. STUDY ON THE CARBON MONOXYDE AND HC EMISSIONS GENERATED BY THE DIRECT INJECTION DIESEL ENGINES, RUNNING WITH BIODIESEL

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Abstract: *Currently, the research results on the use of mixtures of biofuels with fossil fuels to power diesel engines are controversial in terms of reducing emissions of CO and HC which are contained in the exhaust gases of diesel engines. The diversity of the results is due to possibly different type of biodiesel used, the type of engine on which the tests were carried out and the methods and conditions for obtaining these results. Therefore, researches on regular diesel - biodiesel mixtures in various ratio is still a matter of study. In this regard, we conducted a laboratory study on a 4-stroke diesel engine, by using different mixtures (10, 15, 20, 25, 30, 40 and 50%) of diesel with biodiesel made from rapeseed oil. The study results reveals that the CO and HC emissions will decrease within creasing load.*

Also, the HC emissions and CO emissions when using mixtures of 10% and 15% are lower than the same emissions produced when the engine is powered with diesel.
Keywords: *emissions, biodiesel, mixture, engine.*

10. ANALYSIS OF THE ACOUSTIC BEHAVIOR OF MULTILAYER PANELS WITH PERFORATED SHEET METAL FAÇADE ELEMENT AS COMPARED TO THE OUTSIDE NOISE

Alina-Elena CREȚU[1]
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Abstract: *This project is a study about covering both structural and economical requirements in order to enhance the utility and pleasure of a perforated metal façade. Optimizes the use of the elements of the multilayer panels and are part of the facade of many buildings, based on the criterion of sound absorption of these multilayer boards which use perforated sheet mainly for esthetic reasons and thermal.*

11. THE IMPACT OF ARTIFICIAL LIGHTING ON THE CREW OF THE MARITIME TRANSPORT SHIPS

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Abstract: *The work presents the complex influences of the activity program on the crew of the maritime transport ships from the point of view of the fragmentation during the day, as well as the fact that the technical personnel has mainly indoor activities which require artificial light, and thus causing the biological rhythm and the circadian cycles to lose correlation.*
Keywords: *ship crew, circadian cycles, natural light.*

12. POSSIBLE LOW TECH NATURAL ILLUMINATION TECHNOLOGY ON-BOARD MARITIME VESSELS

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Abstract: *The paper treats a range of multiple solutions and possibilities of improving the ambient on board vessels by using Low tech technology*
Keywords: *Illumination solutions, deck lights, LOW TECH.*

13. OBSERVATIONS RELATED TO THE DESIGN AND OPERATION OF AN ARTICULATED RUDDER

Dumitru DASCĂLU[1]
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Abstract: *Work shows a complex analysis of the effects of bearing mounting a naval articulated rudder*
Keywords: *articulated rudder, wear, bearings.*

14. THE INFLUENCE OF FINISHING PARAMETERS OF ANTI-FRICTION LAYERS BY FINPLAST ON BEHAVIOR AT THE IMPACT

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Abstract: *FINPLAST is original proceedings propose for finishing antifriction surfaces of sledding bearings. FINPLAST is an original method proposed for anti-friction surface finish of the sliding bearings. The process extends cold plastic deformation technology, for finishing antifriction surfaces of the sliding bearings. In this paper presents the results of the evaluation of the state of stresses and strains obtained by simulation using the finite element method.*
Keywords: *FINPLAST, finishing, antifriction, surfaces, cold plastic deformation.*

15. TRANSIENT AND STEADY – STATE RESPONSES FOR THE SHIP ROLLING MOTION WITH MULTIPLE SCALES LINDSTEDT POINCARE METHOD

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Abstract: *In order to study the dynamic behavior of ships it is imperative to take into account the inherent nonlinearity of large – amplitude motions. Of the six motions of the ship, the roll oscillation is the most critical because it can lead to the capsizing. Among the models used in the literature to simulate a rolling ship we selected in this paper that one derived by Kan and Taguchi. The governing equation of motion contains a soft cubic term in the restoring moment, a linear damping and a single harmonic excitation forcing term. Exploiting the advantages of a new perturbation technique called Multiple Scales Lindstedt Poincare method, we succeeded to obtain the transient and steady – state responses both for primary resonance and the non-resonant case. The analytical solutions provided by the new method were found to be in excellent or, at least, in decent agreement with numerical simulations, depending on the magnitude of external excitation amplitude.*
Keywords: *Nonlinear roll, perturbation technique, primary resonance.*

16. IMPLEMENTATION OF A MACHINE LEARNING ALGORITHM IN AN AUTONOMOUS SAILBOAT

Pedro Castro FERNANDES[1]
Mario Monteiro MARQUES[1]
Victor LOBO[1]
[1]CINAV – Escola Naval

Abstract: *The Sea always pumped up human's curiosity. We have been exploring it since the beginning of time. It had always an important role in the society since we make use of it in several activities like collecting resources, dispatching merchandise or just for recreating activities. The number of ships crossing the oceans is incredible high, and there are a lot of illegal activities. A robotic sailing boat is a complex system. It has several parts that come together in a specific order to achieve the goal of sailing. The important sensors are the wind meter, the compass and the GPS sensor,*

but, this project, as also other sensors like a SD card reader sensor and a 433Mhs trans-receiver. This sensors describes the environment. This paper presents an online machine learning agent developed to control a small scale sail autonomous sail boat. Implement this is a big challenge, as we are running our project into an Arduino mega, clocking at the speed of 16 Mhz. Design this agent is complex, because, sailing depends on a lot of variables, and we have restricted processing capacity. In this paper we describe the variables that we used to construct the different matrix and how they become usable information to the boat successfully sail.
Keywords: *Sailboat, autonomous, Machine Learning.*

17. ABOUT THE MAINTENANCE OF THE RADIAL AND AXIAL SHAFT BEARINGS FROM PROPULSION PLANT WITH GAS AND STEAM TURBINES

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Dorin-Silviu BANU[2]
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Abstract: *The paper presents the main rules imposed by classification societies for design the shaft for propulsion plant with gas and steam turbines. It also analyzes the main maintenance activities to ensure their safe operation.*
Keywords: *turbine, bearing, maintenance, vibration.*

18. CYLINDER AND SYSTEM LUBRICATING OILS

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Abstract: *Increased thermal efficiency, savings in the fuel consumption and the possibility to burn low quality fuels conducted to an intense development of marine engines in past 20 years, this progress being emphasized by the increased combustion pressures and better combustion properties. These improvements represent a continuous challenge for lubricating oil manufacturers: the rise in combustion temperatures and pressures is making difficult to preserve the oil film in critical areas and the longer strokes of the piston leads to issues of spreading the oil. Adding here the new type of engines using gas or biofuel which requires different types of lubricating oils. Therefore, the success of new generation of engines will depend on lubricating oils quality.*
Keywords: *antioxidant additives, lubricating oil, detergent, emulsification.*

19. A TECHNOLOGICAL ASSESSMENT OF THE WAVE ENERGY CONVERTERS

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Abstract: *Global demand for energy increases annually, at the same time as the demand for carbon-free, sulphur-free and NO_x-free energy resources grows considerably. This is manifested in the research for newer sources like biomass and shale gas as well as the renewable energy resources like solar, wind, geothermal and hydraulic energy. Wave energy is also a form of renewable energy which has not fully been exploited technically and economically. However, it is beyond doubt that the demand for wave energy*

will soon increase as fossil energy resources are depleted and environmental concerns gain more importance. The electrical energy to be supplied to the grid shall be produced from the wave energy whose conversion can basically be carried out by three classes of systems:

1. *Systems that exploit the motions or shape deformations of their mechanisms involved,*
2. *Systems that exploit the weight of the seawater stored in a reservoir or the changes of water pressure by the oscillations of wave height,*
3. *Systems that convert the wave motions into air flow.*

This study is aimed for a general survey of the systems and classification of the wave energy converters based on their types and functionality, as well as investigating their state-of-the-art.

Keywords: *Wave energy, wave converter, type of converter, assessment of converter.*

20. THEORETICAL AND PRACTICAL CONTRIBUTIONS REGARDING AUTOMATIC CONTROL OF FLUVIAL NAVES EQUILIBRIUM STABILIZATION AND OPTIMAL NAVES OR AERONAVES REGARDING MAXIMAL PROPULSION OR RESISTANCE

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Abstract: *The first part of the paper deals with cruise, cargo or underwater naves equilibrium stabilization in case of rolling perturbations. The stabilization conditions are determined by using a hydro-pneumatic automate regulator. Oscillations damping is achieved with a hydro-pneumatic compensator, by using the water tanks that the naves are equipped with. In the second part of the paper is effectively determined the design of the profiles from naval or aerodynamic systems, the goal being the obtaining of maximal propulsion or resistance. The inverse problems method solves the bow problem, as well as the optimal design problems for*

the sail or flaps naves to get maximal propulsion. The optimal profiles for extreme resistance or lift force of aircrafts or wind turbines are determined as well.
Keywords: *optimal control, control function, extreme principle of Pontreaguine, absolute stability, inverse problem method.*

21. CONSIDERATIONS REGARDING THE SHEAR STRESS DEVELOPED ON A 2000X100X4MM PLATE DURING THE IMPACT WITH A 6.2KG CYLINDRICAL BODY

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Abstract: *This article belongs to a series of papers which are covering a complex study regarding the impact of a 6.2kg cylindrical body on a 2000x1000x4mm plate using the software based on finite element theory.*
Keywords: *shear stress, impact body, energy impact, distortion*

22. CONSIDERATIONS REGARDING THE VON_MISES STRESS DEVELOPED ON A 2000X100X4MM PLATE DURING THE IMPACT WITH A 6.2KG CYLINDRICAL BODY

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Abstract: *This article is illustrating several studies and analysis regarding the impact on a steel plate. The von Misses stress of 2000 x 1000 x 4mm steel plate is particularly emphasized.*
Keywords: *vonMises stress, impact body, energy impact, distortion.*

23. DEVELOPING AND MODELING A NEW E-LOTTERY SYSTEM USING ANONYMOUS SIGNATURES

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Abstract: *In traditional lottery systems, the players choose some numbers on a ticket enroll it to the lottery organizer and pay an amount of money for it. But this perspective offers no guarantee to the players that the lottery organizer doesn't manipulate the number selection in order to pay the least. This suspicion could be avoided if the lottery organizer didn't know the numbers selected by the players before the draw. Such a system is possible to be realized by using anonymous signatures, but the design should also guarantee that forging lottery tickets after the moment of the draw or claim of a different ticket is not possible. This paper will propose and analyze a model in order to fulfill all requirement described before, using several cryptographic primitives.*
Keywords: *e-lottery, anonymity, anonymous signing, encryption.*

24. SOOT AND NITROGEN OXIDE EMISSIONS ON THE SHIPS ENGINES

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Abstract: *Current international policy initiatives by the International Maritime Organization (IMO) to reduce emissions from ship propulsion systems (NO_x and SO_x, primarily) mark the first efforts to define a framework to address this issue. Oxides of nitrogen (NO_x) emissions from ship engines are significant on a global level. Marine sourced emissions have significant impact on air quality on land. The challenge is to control NOx emissions without increasing fuel consumption and smoke. Introducing water into the combustion chamber the temperature of burning is reduced due to the vaporations process. There are two ways to introduce water. The first way is through air intake, using humidification and the latter way is by water/fuel emulsion.*
Keywords: *Soot, nitrogen oxide, reduction, water.*

25. POWER LOSS REDUCTION OF THE MAGNETO HYDRO DYNAMIC NAVAL TRUSTER

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Abstract: *The magneto hydro dynamic naval thruster has a pipe, parallel with ship axis and isolated walls. A pair of electrods creates an electric current through sea water. The electric current is perpendicular on pipe axis. A magnetic field is applied, perpendicular in the pipe, near electrodes. A Laplace force will evacuate the sea water through a nozzle when the magnetic field will interact with the current. The ship is propulsed by the*

reactive force. The electrods have a boundary effect. Some of electric current is dispersed outside the electrods. This dispersed current in not under magnetic field action anymore. The dispersed current increases the power loss through Joule effect. The intensity of dispersed currents can be reduced using an isolated restrictive blade, parallel with pipe axis.
Keywords: *electric loss, seawater, sunder water.*

26. CONSIDERATIONS REGARDING THE STRUCTURAL RESPONSE OF A 10000X500X100MM PILE DURING PILE DRIVING WITH A 450KG RAM, FALLING FROM 1M HEIGHT

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Abstract: *Piles are used when the building soil don't have enough strength cu support the structure. One of the pilling methods is to drive the pile. In fact, a vertical pile is hit with a ram. This method is a very good one, because the soil around the pile is compressed and the structure bed is strengthened that way. The negative aspect of this method is the pile is solicited in other ways than it was design. In this paper are presented the results of a dynamic FEM analysis for a 10000x500x100mm pile when it is hit by a 450kg ram, falling from 1m height.*
Keywords: *FEM, Structural analysis, pile driving.*

27. CONSIDERATIONS REGARDING THE STRUCTURAL RESPONSE OF A 10000X500X100MM PILE DURING PILE DRIVING WITH A 450KG RAM, FALLING FROM 2M HEIGHT

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Abstract: *Piles are used when the building soil don't have enough strength cu support the structure. One of the pilling methods is to drive the pile. In fact, a vertical pile is hit with a ram. This method is a very good one, because the soil around the pile is compressed and the structure bed is strengthened that way. The negative aspect of this method is the pile is solicited in other ways than it was design. In this paper are presented the results of an dynamic FEM analysis for a 10000x500x100mm pile when it is hit by a 450kg ram, falling from 2m height.*
Keywords: *FEM, Structural analysis, pile driving.*

28. CONSIDERATION UPON FIXED ANTI - ROLLING PASSIVE SYSTEMS

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Abstract: *Anti - rolling Passive Systems, are that systems which has no separate source of power and no special control system like the Bilge keel, anti – rolling tanks (passive), fixed fins and passive moving weight system. For a ship roll motion has the highest amplitude at resonance (this motion is known as synchronous rolling). From the research done, the best thing to reduce this movement is increasing damping. There are many ways to reduce roll motions and the best known is equipping the vessel with bilge keels. If ship require more control, there are methods such as anti-roll tanks and fins. Tanks have the advantage of functioning when the ship is not underway. The use of tanks with liquid free surfaces for reducing roll motion of ships is an old idea. Many researchers have studied the design of anti-roll tanks. However, most of the past effort has concentrated on studying the performance of anti-roll tanks in damping the roll motion of the ship.*
Keywords: *roll motion, tanks, passive, fin, keel.*

29. CONSIDERATIONS ON THE CALCULATION OF THE MAIN CHARACTERISTICS OF THE SHIP SEAKEEPING

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Abstract: *The motion of a ship or floating structure is important for determining of the dynamic load on the crew/passengers, structural materials and equipment, and cargo. In this paper we propose to determine the parameters that influence heaving and pitching amplitude relevant to study the 97,000 dwt bulk carrier. With equations based on regression analysis can be estimated amplitude values for various degrees of sea agitation and for various loading situations of the ship. The results are useful for determining additional loads induced both structural elements and the components of equipment and installations on board ships.*
Keywords: *heaving, pitching, regression analysis.*

30. CONSIDERATIONS REGARDING THE NORMAL STRESS (X AXIS) DEVELOPED ON A 2000X100X4MM PLATE DURING THE IMPACT WITH A 6.2KG CYLINDRICAL BODY

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Ionut-Cristian SCURTU[3]
Daniel MARASESCU[4]
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[4] PhD attendee "Mircea cel Batran" Naval Academy, Marine Engineering and Naval Weapons Department

Abstract: *This article belongs to a series of papers covering a complex study regarding the impact of a 6.2kg cylindrical body on a 2000x1000x4mm plate using the software based on finite element theory.*
Keywords: *normal stress, impact body, energy impact, distortion.*

31. GOOD PRACTICE EXAMPLE: DESIGNING 100KN DELTA EYE PLATE

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Abstract: *This article presents the steps carried for the design process of a 100KN delta eye plate, which is a simple but important element used in different setups for offshore installation, by using CAD/CAE methods applied on ANSYS 12.1 Workbench.*
Keywords: *CAD/CAE, shear stress, distortion.*

32. GUI INTERFACE TO PERFORM FUNCTIONAL CALCULATION OF THE SHALE SHAKER, CLEANING ELEMENT OF THE SYSTEM OF DRILLING MUD

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Ioana Gabriela STAN[3]
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Abstract: *This paper describes the execution and usage methodology offered by MATLAB facilities, by designing a GUI graphical interface used to calculate the dimensional elements of V belt transmission and the perturbing force necessary to achieve the vibratory motion. The paper also covers all stages of spring calculation, as well as cinematic calculation notions concerning the perturbing system.*
Keywords: *GUI graphical interface, shale shaker, drilling mud.*

33. THE INFLUENCE OF GEOMETRIC ELEMENTS OF THE HYDROCYCLONE ON THE EFFICIENCY OF CLEANING THE DRILLING MUD

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Abstract: *The paper presents the algorithm for establishing the tangential, axial and radial velocities of particle cuttings from the drilling mud while the mud passes through a cyclone. The paper also includes a comparative analysis of speed values depending on the geometry of the hydro-cyclones and provides examples for various constructive types. Hydro cyclone geometry correlated with feed rate and the characteristics of the cleaning mixture influence the efficiency of the cleaning process.*

34. EXPERIMENTAL INVESTIGATION FOR FAULT DISGNOSIS BASED ON FFT AND WAVELET TRASFORM

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Abstract: *Belts are components of the mechanical systems of rotation commonly used for mechanical power transmission and changes in rotational speeds in the shafts. Various failures of the drive belts (foot shear, tooth wear, hollowed teeth, back cracks) are common in rotating machines and can cause economic losses. To increase efficiency, reliability and safety of the machines the use of new fault diagnosis techniques of belts, identification and classification is required. In this paper Fast Fourier Transform (FFT) and Wavelet transform complementary methods are used for fault monitoring of drive belts, analyzing in this way the limitations and advantages of using these methods. Experimental investigations for the fault diagnosis of drive belts are made using experimental platform and Bruel & Kjaer equipment for measuring vibration and PULSE and MATLAB software for recorded signal processing. The results were analyzed and presented*
Keywords: *fault diagnosis, drive belts, Fast Fourier Transform, Wavelet Transform.*

35. VIBRATION ANALYSIS FOR DETECTION AND LOCALIZATION THE FAULTS OF ROTATING MACHINERY USING WAVELET TECHINIQUES

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Abstract: *Vulnerable and critical mechanical systems are bearings and drive belts. Signal analysis of vibration highlights the changes in root mean square, the frequency spectrum (frequencies and amplitudes) in the time-frequency (Short Time Fourier Transform and Wavelet Transform), being the most used method for faults diagnosis and location of rotating machinery. This article presents the results of an experimental study applied on a diagnostic platform of rotating machinery through three Wavelet methods: (Discrete Wavelet Transform -DWT, Continuous Wavelet Transform -CWT, Wavelet Packet Transform-WPT) with different mother wavelet. Wavelet Transform is used to decompose the original signal into sub-frequency band signals in order to obtain multiple data series at different resolutions and to identify faults appearing in the complex rotation systems. This paper investigates the use of different mother wavelet functions for drive belts and bearing fault diagnosis. The results demonstrate the possibility of using different mother wavelets in rotary systems diagnosis detecting and locating in this way the faults in bearings and drive belts.*
Keywords: *bearings, drive belts, Discrete Wavelet Transform, Continuous Wavelet Transform, Wavelet Packet Transform, mother wavelets.*

36. ABOUT THE STUDY OF THE THERMAL STRESS FOR NAVAL SYSTEMS

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Abstract: *In this paper are presented and analyzed the effects of thermal expansion on gas evacuation piping from naval power plants and technical protection possibilities to prevent structures from deformations; also are analyzed the possibilities for the use of thermal expansion for tightening the main screws for power plant propulsion.*
Keywords: *compensating pipe, linear temperature expansion coefficient, overall heat exchanger temperature, thermal stress.*

37. ABOUT THE STUDY OF REQUESTS BUCKLING VERIFICATION OF THE ELEMENTS OF POWER PLANT PROPULSION

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Daniel MARASESCU[2]
Dorin Silviu BANU[3]
Ion Adrian GIRBA[4]
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Abstract: *On study based of requests from the power propulsion plant, the authors develop in this paper a study of buckling heat engine piston rod at the head of the cross, the strut rod and shaft intermediaries for power propulsion plant.*

38. STUDIES REGARDING THE STRUCTURAL RESPONSE OF A 2000X100X4MM PLATE AFTER THE IMPACT WITH A 6.2KG CYLINDRICAL BODY CONSIDERING THE EQUIVALENT STRESS

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Abstract: *The present article is included in a wider series of studies which were developed by the development team; the initial premises of the article consists in an impact analysis of a 6.2kg cylindrical body with velocity of 5 m/s on a 2000x1000x4mm plate, by using dedicated software which applies the finite element theory.*
Keywords: *vonMises stress, impact body, energy impact, distortion*

39. STUDIES REGARDING THE STRUCTURAL RESPONSE OF A 2000X100X4MM PLATE AFTER THE IMPACT WITH A 6.2KG CYLINDRICAL BODY CONSIDERING THE EQUIVALENT STRESS, WITH IMPACT SPEED 10M/S

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Abstract: *This article is included in a series of reports which are covering a complex study on the impact of a 6.2kg cylindrical body which is moving with a velocity of 10 m/s, on a 2000x1000x4mm plate, by applying the Finite Element Method, on Ansys Worbench 12.1 for "Mircea cel Batran" CAD / CAE laboratory.*
Keywords: *vonMises stress, impact body, energy impact, distortion.*

40. A SYSTEM TO MAKE USE OF EXISTING BREAKWATERS AS OVERTOPPING WAVE ENERGY CONVERTERS

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Abstract: *The main purpose of building breakwaters is to produce safe havens for ships and boats in rough seas. The general architecture for a breakwater is a wall with a trapezoidal-shaped cross section extending parallel to the shoreline. As the waves from the open sea approach, they are encountered by the so-called slope and revetment of the breakwater, where the wave is broken and its energy is dissipated and/or reflected back. However, the ever-increasing attractiveness of the utilization of waves as energy sources, paralleling to the increasing monetary and environmental costs of energy, has led the authors to consider the vast amounts of this otherwise dissipated energy into useful electrical energy. A wave energy conversion concept, which can be classified as an "overtopping" wave energy converter was conceived, where the open sea-facing (revetment) side of the breakwater is fitted by a water collecting channel at a suitable height above the calm water level, running alongside the breakwater. The channel leads the collected water to a powerhouse containing a low head turbine (or a set of such turbines) discharging it to the calm water of the inner harbour. Power obtained from these turbines can be converted to electrical energy. In this study, an estimation of the volume of water collected by the channel and the energy production for a proposed breakwater - power station system for a typical rough weather shall be made. It is deemed that the feasibility of this system is comparable to and even higher than the other wave energy conversion systems since it does not require additional facilities and power supply lines to be built due to its proximity to the existing energy transmission lines, except for the addition of new features/installations to the existing breakwaters.*

Keywords: *Wave energy, breakwater, runup height, wave overtopping converter.*

41. ULTRACAPACITORS FOR TORPEDO PROPULSION

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Abstract: *Ultracapacitors are electrochemical devices that are able to supply high time rates of energy and have the advantages of having virtually infinite charge-discharge cycles and are fast charging. Those properties have made them attractive for the storage of intermittent energy. Their main drawback so far has been considered their lower energy storage capacities. However, in the last few years, breakthroughs in efforts to improve their energy capacities have been achieved mainly by the use of carbon nanotube technology and carbon aerogel materials. Propulsion systems of torpedoes launched from both surface and submarine ships have to provide high powers for higher speeds, have to have a sufficient supply of energy to achieve higher ranges, have to be re-useable and be serviceable onboard, as well as being silent and free from exhaust gas signature, if possible. Those requirements has lead the authors to consider ultracapacitors as sources for torpedo propulsion- able to supply higher powers, re-useable for exercises, rechargeable onboard the ship, silent and free from exhaust gas. Higher ranges are achievable by the allocation of the space saved from the air supply/fuel storage requirements and the replacement of heat engine by the more compact electric motor for ultracapacitor banks. It is deemed that the ultracapacitors of the near future shall also be feasible alternatives for Aluminum-Silveroxide torpedo batteries since they are rechargeable. A parametric analysis involving the comparison of the proposed system by an existing hypothetical 21 inch (533 mm) torpedo propelled by a heat engine running on the Otto fuel.*
Keywords: *Ultracapacitor, Nanotechnology, Torpedo propulsion, Otto fuel, Aluminum-Silveroxide battery*

42. COMPRESSION STAGE NUMERICAL ANALYSIS OF A MARINE ENGINE

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Abstract: *The primary goal of engine design is to maximize each efficiency factor, in order to extract the most power from the least amount of fuel. In terms of fluid dynamics, the volumetric and combustion efficiency are dependent on the fluid dynamics in the engine manifolds and cylinders. Cold flow analysis involves modeling the airflow in the transient engine cycle without reactions. The goal is to capture the mixture formation process by accurately accounting for the interaction of moving geometry with the fluid dynamics of the induction process. The changing characteristics of the air flow jet that tumbles into the cylinder with swirl via intake valves and the exhaust jet through the exhaust valves as they open and close can be determined, along with the turbulence production from swirl and tumble due to compression and squish. The target of this paper was to show how, by using the reverse engineering techniques, one may replicate and simulate the functioning conditions and parameters of an existing marine engine. The departing information were rather scarce in terms of real processes taking place in the compression stage, but at the end we managed to have a full picture of the main parameters evolution during the compression inside this existing marine engine.*
Keywords: *Compression Simulation; Marine Engines; Finite Volume Analysis.*

43. POLLUTANT EMISSION NUMERICAL ANALYSIS OF A MARINE ENGINE

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Abstract: *The energies produced by the diesel engines of strong power are largely used in marine propulsion because of their favorable reliability and their significant output. However, the increasingly constraining legislations, aimed at limiting the pollutant emissions from the exhaust gas produced by these engines, tend to call into question their supremacy. The analysis of the pollutant emissions and their reduction in the exhaust gas of the slow turbocharged marine diesel engine using ANSYS 15 constitutes the principal objective of this study. To address problems of global air pollution due to the pollutant emission from fuel oil engine combustion, it is necessary to understand the mechanisms by which pollutants are produced in combustion processes. In the present work, an experimental and numerical study is carried out on a unit of real use aboard a car ferry ship. A numerical model based on a detailed chemical kinetics scheme is used to calculate the*

emissions of NOx, SOx and Sooth in an internal combustion engine model for the same characteristics of the real unit. The combustion process parameters based on the numerical model might now be optimized in order to decrease the pollutant emissions in order to meet the IMO regulations.
Keywords: *Combustion Simulation; Marine Engines; Finite Volume Analysis, Pollutant Emissions*

44. STUDY OF A FLAMMABLE FLUID PASSING THROUGH A MIXING T-JUNCTION BY USING THE ANSYS FLUID STRUCTURE INTERACTION CAPABILITIES

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Abstract: *The pipelines used to transport oil and others chemical products must be made with good materials that support high tensions and are resistant to corrosion. In the literature various researches about the behavior of the fluid through the tee junction has been found. Some of these works are related to effects of the fluctuation of temperature in the pipe. The purpose of this article is to study the Fluid Structure Interaction of a heated flammable fluid (C10H22-Decane component of gasoline in gaseous phase) passing through a T-Junction where the cold fluid (20^0C) is mixing with the warm fluid (90^0C). The software to be used is ANSYS 16. The problem of mixing different temperatures of a certain fluid into a T-Junction and the study of the effects of fluid pressure and fluid temperatures on the stress distribution of the structure is by no means an easy problem to solve. The ANSYS capabilities of treating such Fluid Structure Interaction problems with different interconnected modules is instead making this problem a trivial problem to solve. The T-Joint under scrutiny is performing well in terms of structural safety as demonstrated inside this paper.*
Keywords: *Flammable Fluid; T-Junction; CFD, Fluid Structure Interaction*

IV. ELECTRICAL ENGINEERING SCIENCES

SECTION COMMITTEE:
Captain Professor, PhD. Eng. Vasile DOBREF
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CONFERENCE ROOM: LI-P6

1. INTERCONNECTING NETWORKS WITH DIFFERENT LEVELS OF SECURITY – A PRESENT NATO PROBLEM

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Abstract: *A situation often met in the Romanian Armed Forces in recent years is the need for interconnecting two networks (domains) with different levels of classification. Considering that the Romanian armed troops are involved in numerous missions with NATO partners, solutions, already implemented across the organization, are considered to be applied in domestic systems, also. This paper presents the solutions adopted by NATO in order to solve the problem of cross-domains interconnections. We present the maturity level reached by these solutions and the possibility of implementing these solutions in the Romanian Armed Forces, with or without specific adaptation to our own rules and regulations. The goal is to use a NATO already proved solution to our national classified networks.*
Keywords: *Informatics, Networks, Interconnection, Communications.*

2. NUMERICAL MODELLING OF DC ELECTRICAL DRIVE USED IN NAVAL STEERING GEAR

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Abstract: *The steering gear of a ship is an important system used for controlling speed and angle of a propeller. The purpose of the article is to present the speed regulation of DC motor (increase and decrease speed) used for the ship steering gear system.*
Keywords: *speed regulation; steering gear system.*

3. THE STEADY-STATE SIMULINK MODEL OF THREE-PHASE AC ASYNCHRONOUS MOTOR USED ONBOARD A SHIP

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Abstract: *A ship plant consisting in a three-phase AC asynchronous motor is well known onboard a ship. The steady-state numerical model helps to study the transitory phenomena's regarding power supply network.*
Keywords: *asynchronous motor; numerical model.*

4. FURTHER DEVELOPMENTS OF MULTI-PURPOSE UNDERWATER DATA COLLECTION DEVICES DEPLOYED WITH REMOTELY OPERATED VEHICLES

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Abstract: *This paper is following further development of the common framework model for multi-purpose underwater data collection devices focusing on second generation of simulation techniques VMAX2.0 on Perry-Slingsby ROV simulator. It is addressing physics-based simulation differences and their impact on the previous research for deployment challenges of underwater sensor networks called "Safe-Nets" by using Remotely Operated Vehicles (ROV) in the Black Sea area.*
Keywords: *Remotely Operated Vehicles, ROV, simulation, testing, object modeling, underwater component.*

5. RESURFACING OLD DATA COMPRESSION & ENCRYPTION ALGORITHMS FOR EXTRA SECURITY SHELL

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Abstract: *This paper presents a short history of data compression and encryption technologies starting with World War I and their possible value today by resurfacing old and forgotten algorithms as an increased security shell possibility for modern data files storage. It focuses on a case study using available internet tools as of 2016 and emphasizes on the results which relieve a blind eye over old and dusty data compression and encryption algorithms following data encapsulation, therefore showing the possibility of adding easily an extra security layer to any contemporary cutting-edge data protection method.*
Keywords: *data compression, archive, security, data protection, encryption algorithms.*

6. A GREED AND SELF-POWERED LIFE RAFT FOR SEAFARERS

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Abstract: *The renewable energy systems are widely use, starting with powering the NASA's satellites and ending with standalone water pumping systems. There are grid connected and off grid renewable energy systems, from the level of GW power to the level of a few KW installed power. This article presents an idea which tries to implement the renewable energy*

systems where is more applicable, where there is a desperate need for electric energy and this one is definitely missing. An application of this kind is the implementation of PV modules on board of life rafts. A simulation in PVsyst of a self-powered life raft is presented.
Keywords: *Life raft, photovoltaic, PVsyst, PV simulation.*

7. A METHOD TO ACQUIRE AND PROCESS THE ANALOG RADAR SIGNAL

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Abstract: *In our days the RADAR systems are essential to navigation for maritime, aeronautical and terrestrial applications. Basic RADAR systems were developed using analog components and some of this RADARs are still functioning due there good performances and redundancy; a very good example is found onboard of military vessels. Because in our days the RADAR systems are digital and because these RADARs need to work in the same network with the analog RADARs, this fact conducts to a much debated research theme: to realize a RADAR extractor which will make the analog RADARs compatible with digital ones.*
Keywords: *LabView, Radar extractor, data acquisition and processing.*

8. IMPLEMENTATION PHOTOVOLTAIC PANELS IN LIGHTING SYSTEM OF A SHIP

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Abstract: *The possibility of using other sources of electricity than conventional one, on board vessels, is a highly actual subject. In this respect, this paper presents a simulation on the development of a proper photovoltaic panels configuration used for the lighting system of the ship, with 42kW installed average power.*
Keywords: *photovoltaic panels; lighting system.*

9. CHARACTERISTICS ANALYSIS, IN DYNAMIC CONDITIONS, FOR THE SHIP POWER OPERATING SYSTEM

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Abstract: *The analysis is based on a naval power with synchronous generator and consumers of various powers. The paper presents a systemic approach to naval power systems based on mathematical models of specific generators and consumers.*
Keywords: *electric power system, synchronous generator, mathematical models, the shock load.*

10. THE QUALITY FACTOR OF THE NAVAL M.H.D PROPULSION SYSTEM

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Abstract: *A naval propulsion magnetohydrodynamic (M.H.D.) induction is actually a linear induction machine that uses seawater as induced. In seawater occurs an interaction between a magnetic field induced by the progressive currents, resulting an electromagnetic force. This force causes the movement of water, which is discharged from the vessel through a nozzle, thus creating a reactive propellant. Such a propulsion system eliminates the propeller and its annexes reducing energy losses associated with the rotation of water, noise and cavitation.*
Keywords: *magnetohydrodinamic; propulsion system; magnetic force.*

11. HIGH POWER APPLICATIONS OF ELECTROMAGNETIC DEVICES

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Abstract: *For the next generation, conventional weapon will touch the best performance limits and will became more and more what in what more an important part plans of improvement systems of weapon to the future. Physical laws that govern electromagnetic propulsion of guns, enabling them higher speeds than those of conventional arms projectiles. This is substantially benefit electromagnetic weapons - using electricity as energy for an electromagnetic weapons.*
Keywords: *electromagnetic weapons; rails, gun.*

12. USING COTS COMPONENTS IN MILITARY COMMUNICATIONS SYSTEMS - TESTING AND EVALUATION

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Acknowledgement: *This paper has been financially supported by a grant of the Romanian National Authority for Science Research, CNDI-UEFISCDI, project number 197/2012.*
Abstract: *The civilian/commercial market in the field of communications and information has nowadays a fulminate evolution. This evolution is based on satisfying the increasing need of a public that is already familiarised with the advantages of the modern technology. The avalanche of the innovations released on the market created also the necessity for*

interoperability between different providers. This is mainly because the evolution tends to be unitary. Consequently, there emerged manufactures specialised in certain components that can be integrated in different personalised systems. Furthermore, the laws enforced in UE and not only imposed a series of standards helping the interoperability. Those standards define certain technical performances for different products. These imposed performances together with the more performing modern technology made these commercial products (Commercial Of The Shelf – COTS) more and more attractive for the military, especially in the field of communications and information. This paper will present the possibilities of using COTS' products as part of complex military communications systems. Testing and evaluation of such components aims for maintaining the tactical and technical characteristics of the system while using commercial equipments. As a case study, we will follow the use of small components as FPGA to larger systems as a Satellite. All those regarded through the process of testing and evaluation in order to obtain not only a fail resistant system but also a technical superior one.

Keywords: *Informatics, Testing-and-evaluation, Communications, Space as critical infrastructure*

13. A NEW APPROACH RELATED TO THE CORONA DISCHARGE SURVEILLANCE

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Abstract: *The paper presents a new solution used to detect the Corona discharge, based on the data fusion from two CCD (charge coupled device) image sensors used in UV and visible spectrum. The potential of the method comes from the fact that the Corona discharge is generated by a very intense electrical field, which ionizes the surrounding air and generates a discharge light, detectable with both CCD sensors, in UV and visible spectrum. Actually, the image of the Corona discharge is passing from the same lens, and using a beam splitter is directed to the two CCD sensors. The UV and visible images are further processed, the fusion of the obtained results leading to the exact positioning of the Corona discharge in the scanned area of interest. The optical detection system is integrated in an Unmanned Aerial Vehicle (UAV), which, together with the telemetry data*

(global coordinates, speed, attitude angles, …), transmits to the Ground Control Station (GCS) the data acquired by the sensors installed on board, the most important being the video streams in various spectra, depending on the specifics of each developed mission. Further, the data are real time transferred to a Ground Mission Analysis System (GMAS) which realize the processing. In the paper are successively exposed: the operational concept of the Corona discharge detection by using CCD image sensors, the architecture of the developed optical detection system, and the mechanism used in the image data processing for location and evaluation of Corona discharge.

Keywords: *Corona discharge, aerial surveillance, image sensors, data fusion.*

14. AUTONOMOUS AERIAL SURVEILLANCE SYSTEM MOVEMENT MONITORING BY USING STRAP-DOWN INERTIAL TECHNIQUES

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Abstract: *The paper presents an inertial navigation algorithm used for an Unmanned Aerial Vehicle (UAV) boarding an optical detection system for the detection of the Corona discharge in high voltage power lines. The developed algorithm may be used both on real time positioning, but also in the debriefing process after the flight test, when the inflight acquired acceleration and angular speed data are processed together with the captured video streams, received by the Ground Mission Analysis System (GMAS). The integrated system was developed in a research project aiming the reduction of the losses in the transport of strategic interest utilities by using an advanced monitoring system based on IT&C infrastructure and autonomous aerial surveillance. In the paper are successively shown: 1) a short description of the research project; 2) the architecture of the strap-down inertial navigator and the associated mathematical model; 3) the software implementation of the navigator for the debriefing process, and 4) some positioning evaluation results based on the developed navigation algorithm.*

Keywords: *autonomous aerial surveillance, flight test data analysis, strap-down inertial navigation, mathematical model, software implementation.*

15. LEAST SQUARES ESTIMATION OF ROUND CONVEX MIRROR IMAGE DISTORTION FOR INDOOR LOCALIZATION IN ROBOT SWARMS

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Abstract: *The current paper deals with the polynomial estimation of deformations induced by convex mirrors in panoramic vision systems. In most situations, the deformations are either unknown or hard to compute using an embedded system mounted on a robot platform. With a polynomial estimation each position (azimuth and elevation) of a robot or artifact in a robot swarm arena can be computed using pixel distances as inputs. The polynomial estimation is obtained using a calibration template designed for this purpose.*
Keywords: *robotics, robot swarm, robot vision, localization.*

16. TACTICAL DATA LINK - FROM LINK 1 TO LINK 22

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Abstract: *Tactical data links (TDL) are elements of C4ISR system, which provide a continuous data exchange in (nearly) real time about space, ground, air, surface and subsurface platforms including allied, neutral and foe units data. The main scope of TDL is to provide the operation monitoring capability (for commander) and to send particular commands and data (for subordinates), being one of the basic components of network centric warfare concept implementation. A TDL uses data link standards in order to provide communication via radio waves or cable to transmit, relay and receive tactical encrypted data. This paper aims to outline a comparison between the main TDL standards and their capabilities.*
Keywords: *tactical data link, Link 1, Link 11, Link 16, Link 22.*

17. EFFECTS OF LOW FREQUENCY ELECTROMAGNETIC FIELD ON THE HUMAN BODY

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Abstract: *International standardization institutions, which play an important role in assessing the effects of the field and determining the need to take protective measures for the human factor, developed safety standards on human exposure to electromagnetic field, differentiated for electric and magnetic fields of low frequency (near fields), as well as to electromagnetic radiation fields (far fields). Until recently, many studies has shown that the main harmful effect on the human body was produced by high frequency electromagnetic field, but in recent years, more and more information also reveals that the serious damage can be caused by low frequency electric and magnetic fields. These low-frequency electromagnetic fields interact with human tissue causing harmful effects,*

the degree of destruction depending on factors such as: intensity, frequency, energy field level and duration of exposure.
Keywords: *protective measures; near field.*

18. DATA ACQUISITION AND ANALYSIS OF LOW FREQUENCY ELECTROMAGNETIC FIELD

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Abstract: *In recent years more and more studies have shown that, the low frequency field strength (particularly magnetic, 50 / 60Hz) are a major risk factor; according to some specialists - even more important as the radiation field. As a result, the personnel serving equipment and facilities such as: electric generators, synchronous, the motors, the inverters or power transformers is subjected continually to intense fields, in their vicinity, with possible harmful effects in the long term by affecting metabolism cell, respectively, the biological mechanisms. Therefore, finding new methods and tools for measurement and analysis of low frequency electromagnetic fields may lead to improved standards for exposure limits of the human body.*
Keywords: *power density; exposure limits; spectrum analyzer.*

19. QUANTITATIVE ASSESSMENT OF THE EFFECTS OF ELECTROMAGNETIC FIELDS ON THE CREW OF A SHIP ACCORDING TO THE LEGISLATIVE NORMS

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Abstract: *Because of the low emitting power of radio stations present on ships, for the specific range of emitting frequencies, parameters such as radiated power density and electric field intensities meet both European and American safety standards (EN 60215: 1989/A2: 1994 Safety Requirements for Radio Transmitting Equipment, En 50371 and FCC's Rule Parts 1. 1310, 2.1091 şi 2.1093).The paper presents the limits of the field strength and power density for controlled and uncontrolled environments, for crew exposure, and the limits of field intensities and peak power density.*
Keywords: *electromagnetic field, legislative rules, current density, specific absorption rate (SAR).*

20. ELECTRIC AND MAGNETIC FIELD MEASUREMENTS FROM A SHIP FOUND IN THE PORT AREA

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Abstract: *In order to conduct electromagnetic field measurements on board a ship four different locations have been used: the upper deck; the aft; the*

*command point- exterior; the navigating bridge - inside. Within each location measurements were performed with different stations located in broadcasting, on different frequency ranges and operating modes (AM - amplitude modulation and FM - frequency modulation), depending on the available sensors. The measurements made on the ship targeted the following frequency ranges: 88-200 MHz, 200-2500 MHz. Measurements carried out on the vessel gaved data on: the electric field E [V/m], for different frequency ranges; the electric field [dBμV/m]; rate exposure; ER: E2/L2; field strength limit, L [V/m]; measurement error, ER * 1000 [‰]; electromagnetic power flux density, PD (or S) [μW/cm2]; total field strength (RMS) [V/m]; maximum single [V/m].*

Keywords: *electric field, magnetic field measurements, exposure rate, flux density*

21. ASSESSMENT OF THE IMPACT OF THE NATIONAL GRID AND OF THE MAINTENANCE PERIODS ON THE OPTIMIZATION OF THE WIND TURBINE OPERATION

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Abstract: *The upsurge in the value of wind energy in Romania may have occurred due to a constructive development of wind turbines, their dimensions and the increase in their number of units in wind farms. The modern design of large wind turbines, corroborated with an appropriate wind speed leads to a significant production of green energy. In order to obtain a greater amount of energy, modern turbines are fitted with many devices which are exploited by high-tech electronic circuits. Instruments of remote detection, measurement devices and control processes of the main measurement systems are based on various types of electronic apparatus. These appliances are very sensitive to tension variation caused by abnormal conditions of turbine operation and by the national electrical grid which the wind farm is connected to. The paper aims at providing an assessment of a*

wind farm registers as well as a set of methods meant to overcome such obstacles related to designing large wind turbines. Similarly, the paper offers a classification of the various types of abnormalities that appear in the installation connected to the electric grid, such as a sudden power cut, unplugging or tension variation. The difficulty of such an impact is to be determined for every type of disorder associated to electronic glitches occurring in wind turbines.
Key words: *wind turbines, solar energy, electronic apparatus, electric grids*

V. MANAGEMENT AND ECONOMICS ENGINEERING

SECTION COMMITTEE:
Lieutenant Colonel Associate Professor PhD, Catalin POPA
Lieutenant Commander Lecturer, PhD, Filip NISTOR
CONFERENCE ROOM: CP-07

1. EXTRACTION AND CHARACTERIZATION OF CHITOSAN FROM LOCAL MARINE RESOURCES

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Abstract: *This paper presents the chemical extraction of two marine polysaccharides (chitin and chitosan) from one of the crustacean species of Romanian Black Sea waters. The characterization of these polysaccharides were studied through optical microscopy and FT-IR/ATR spectroscopy. The spectra samples were compared with those of chitin and chitosan standards and results showed the presence of chitin and chitosan in the studied samples.*
Keywords: *chitin, chitosan, crustacean species, chemical extraction, FT-IR/ATR.*

2. QUALITY MONITORING IN LOGISTICS ACTIVITIES THROUGH INTERNET OF THINGS TECHNOLOGY

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Abstract: *Modern companies depend on their logistics in order to maintain their purchase-inventory-sales chain to the desired level of performance (i.e. profitability). Many past situations demonstrate that errors, inefficiencies and disruptions in this chain can cause companies to miss opportunities, loose profitability, and even go bankrupt. An important factor to high quality logistics is the quality and availability of information about key processes. Internet of Things (IoT) technology allows companies to gather real-time information on processes, people and equipment, and to integrate it in their own informational systems. This paper discusses the use of IoT technology to monitor logistics activities in order provide support data for performance assessments.*
Keywords: *Internet of Things, Logistics, Performance*

3. PRACTICAL ASPECTS ON AUTOMATIC GENERATION OF UNIVERSITY TIMETABLES. A CASE STUDY

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Abstract: *The problem of automatic generation of university timetables have been widely discussed in the literature, with many general solutions being proposed, from simple heuristics to advanced hybrid algorithms. These algorithms perform well on various test cases, but when they are applied to an instance of the problem specific for an organization, one has to define or adapt the instance constraints to the particularities of that organization. This is required for various reasons like algorithm runtime or timetable acceptance from the university staff. In this paper we present a case study on generating the timetable of the "Mircea cel Batran" Naval Academy.*
Keywords: *timetable, genetic algorithm, constraints satisfaction problem*

4. THE PERSONALITY OF THE NAVAL LEADER - A STRUCTURED COMPLEX

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Abstract: *The study aims to analyze the personality of the navy leader from the perspective of a hyper-complex, probabilistic, open system, highly influenced by their profession and the specific of their activities at sea. We have tried to capture as much as possible, the relations of interaction, the inter-influence, compensation, and feedback placed among the components of personality. It also observes the way in which the personality system tends toward successive balancing and rebalancing under the influence of external disturbance stimuli. The study pleads for the growth of the leader through training, personal development, teamwork experience, interpersonal perceptions with minimal errors, both through well-being and through personal and professional efficiency; the paper also pleads for maximization of the effectiveness of naval leadership.*
Keywords: *personality, maturity, leadership naval systems approach*

5. NAVAL OPERATIONAL LEADERSHIP AND EMOTIONAL INTELLIGENCE

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Abstract: *The study aims to analyze the conceptual boundaries of the two concepts operational leadership and emotional intelligence in terms of their coincidence in understanding the opposition of the following terms: part – whole, proximate kind/type- specific difference, and their complementarity and integration into a mixed model of naval operational leadership, having as essential variable the emotional intelligence – a special skill of any leader. The findings of the theoretical and methodological analysis have major implications for the practical naval domain, i.e. for building excellence in leadership, for systematic training, so as to develop emotional intelligence, which would implicitly lead to increased safety and efficiency of the missions in the naval field.*
Keywords: *naval operational leadership, emotional intelligence, personality*

6. MATERIAL SELECTION IN MANUFACTURING HIGH SPEED NAVAL CRAFT USING MULTI-CRITERIA DECISION MAKING METHODS

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Abstract: *In this paper we apply a multi-criteria decision making method in order to establish which material is the best to be used when manufacturing high speed naval craft. It is well known that materials used in naval manufacturing process have to satisfy a lot of properties mechanical, economical, environmental and other, and that there are many materials which satisfy these demands. Their properties are sometimes contradictory, meaning that if a certain material responds very well to a part of criteria involved in the choice it doesn't satisfies as well the other. Besides that not all properties have the same importance for the desired goal and a difference between them must be considered. Multi-criteria decision making methods are used in order to make a hierarchy taking into account all materials important properties, and the relative importance between these. Different studies are considered in this paper by taking and not taking into account the economical aspect of the choice problem, and the different values for the importance coefficients.*
Keywords: *multi-criteria decision, material properties, high speed naval craft, shipbuilding materials.*

7. HUMAN FACTOR INFLUENCE ON THE RELATIONSHIP RISK - SAFETY IN THE MARITIME INDUSTRY

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Abstract: *It is a fact that organizations learn from the failures than successes. Maritime accident investigation reports reveal some information and lessons useful for practice. They may be required to substantiate the source of a set of measures useful for successfully managing and developing a safety management on a realistic basis. In present paper the authors reveal that the accident risk analysis by reliability theory. From this perspective, the authors propose a research and accident investigation methodology which establishes the genesis and the mechanism that caused the accident and the seriousness of the consequences.*
Keywords: *human factor, maritime casualties, risk, safety.*

8. THE TIME FACTOR IN MARITIME TRANSPORT AND PORT LOGISTICS ACTIVITIES

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Abstract: *Execution of the carriage contract requires compliance to all the conditions in it, by all those involved in the transport. Main obligations incumbent upon vessel, and obviously, to other transporters, who must provide transportation according to deadlines and safety. Contract compliance is certifying transport participants about their seriousness and an appropriate market quotation. Therefore, present work pragmatically sets schematics reference time associated to implementation of the carriage contract. Also, are demonstrated relationships established between maritime*

transport "players" and sequence of activities related to the operation of the vessel in port. The authors propose a set of concepts and terms whose utility is established to solve practical problems in this area of activity.
Keywords: *maritime transport, contract of carriage, reference time.*

9. INDICATORS APPLIED TO HIGHLIGHT THE VALORIZATION OF HUMAN CAPITAL SHIPPING

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Abstract: *In recent years, the shipping companies reconsidered their position regarding the importance of human capital because of the new trend in shipbuilding in conjunction with the enforcement of tighter regulations in shipping. Increasing profit of shipping companies was the result of valorization of human capital on board ships through acquirement of new skills and knowledge in accordance with technologies implemented on the new ships by training and development. Thus, identification of indicators that can be used to highlight the valorization of human capital in shipping is helpful. Measurement of indicators presented in this article can assist decision makers in identifying the best courses of action to improve human capital in shipping.*
Keywords: *human resources, indicators, valorization, shipping, human capital.*

10. THE SEAFARERS' HUMAN CAPITAL VARIABLES AND THE CREW PROFILE DYNAMIC ADJUSTMENT

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Abstract: *The human capital is one of the most valuable dimensions of the maritime transportation sector, considering the seaborne particularities in crossing countries, cultures and heterogeneous environments. The nowadays great competitiveness in this area of transportation services has encouraged many companies to pursue new ways to maintain a competitive advantage, valuing its human capital. Thus, in spite of the propensity for standardisation in field of human resources profile, the seafaring crews' management is still facing lots of issues in operational tasks' fulfilment onboard to maritime ships, due to individual misalignment within the collective framework of the on-board teams. As is presented in the article, the individual profile of a seafarer has to be precisely defined to be efficiently collectively integrated in the crew, but not only in professional matters, but also into a comprehensive manner, in order to support a proper adjustment of the individual seafarer behaviour to the group profile requirement, onboard to maritime vessels. STCW provisions is welcomed in establishing common standards for professional variable of the seafarers' individual profile, but is still missing to approach the organizational dimensions, apart to leadership skills or risk behaviour. But, as shown in the article below, for a recruitment agent and further, for the ship Master is important to find the suitable employee, not only in terms of professional knowledge, skills and abilities, but also in cultural or psycho-sociological individual dimensions, as to adjust the individual to the group profile, accordingly.*
Keywords: *Maritime transport, human resources, human capital, globalization, expats profile, new economy.*

11. CSR IMPLICATIONS IN THE DEVELOPMENT OF THE WELFARE STATE IN EUROPE

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Abstract: *The evolution of the welfare state in Europe has led to the shaping of social models with varying degrees of efficiency, amplifying the differences between the national systems of welfare. Corporate social responsibility can be viewed as a solution to the current crisis faced by the welfare state, proposing a convergence between governmental and private institutions approach in the country of each model. Drawing european social models in conjunction with elements of corporate social responsibility leads to the hypothesis that integrating CSR into the welfare state practice will conduct to the harmonization of the analyzed environment, taking into account the social impact, as well as financial indicators. This article is based on analyzing the particularities of the identified european social models linked to the CSR transformations in the last decades. The main hypothesis of the paper sustains the existing connection between the welfare state and CSR, following the impact of CSR actions on formal social models.*
Keywords: *european social model, corporate social responsibility, welfare state.*

12. SIMULATION BASED EMERGENCY RESPONSE TRAINING

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Abstract: *Advanced simulators are rapidly becoming educational and research necessities at maritime school, a tool that has come to replace time onboard ship, bring stakeholders together on research projects, and evaluating emergency situations. This particular paper suggests some possibilities simulation offers when maritime accidents and/or incidents have already occurred. Although proper simulation training provides an*

accessible introduction to background theories through the realistic operations of the simulator, at the same time it can provide a means of introducing students to applications regarding current crises. This paper will demonstrate how simulators (ship handling, communication, cargo handling, terminal, vessel traffic service and engine room) can, together with the Potential Incident Simulation Control and Evaluation System (PISCES II), form valuable tools for education, training and real situation response when major pollution at sea is a threat or already exists. In this particular case the very realistic scenario of an oil spill is created.
Keywords: *Marine Simulators, accidents, operational pollution, cargo handling, integration, backtracking.*

VI. SCIENCES (HUMANITIES, MATHEMATICS, INFORMATICS, FOREIGN LAGUAGES AND OTHERS)

SECTION COMMITTEE:
Associate professor Delia LUNGU
Associate professor Alina BALAGIU
Associate professor Camelia CIOBANU
CONFERENCE ROOM: C-AM1, C-AM2

1. SPECIFIC PURPOSE LANGUAGE ABILITY. PARTICULARIZATION ON BUSINESS ENGLISH

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Abstract: *Specific purpose language ability is quite a complex concept which takes into consideration the relationship between language ability in general and specific background knowledge. This constitutes a very important issue as language is learned in communicative contexts and in turn, those contexts should affect the nature of the language acquired. The interaction between language knowledge and specific purpose content knowledge blended with the authenticity of task are the clearest defining features in testing LSP (language for specific purpose). In general purpose language testing, the factor of background knowledge is usually seen as a variable, while in LSP testing the background knowledge is a necessity and an important part of the concept of specific purpose language ability. Business English is part of ESP (English for specific purpose); therefore it also requires specific language ability and a little bit of knowledge in the respective domain. Specific purpose background knowledge related to academic or professional contexts and the ability to perform in a specific purpose language are important parts in LSP testing.*
Keywords: *LSP, ESP, language ability, background knowledge*

2. TEACHING MARITIME ENGLISH WITH DOODLES

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Abstract: *When it comes to acquiring new, specialized vocabulary like the lexis of Maritime English, it is well-nigh impossible to assert that this is a piece of cake. As a general rule, students of Maritime English get easily bored when being taught new words belonging to the maritime environment. Thus, any method which is liable to get them more motivated and appealed to the act of learning useful words is more than appropriate. Consequently, doodling comes in very handy as a learning tool given the fact that anybody makes use of it as a gesture of visual thinking. The present paper aims at presenting some very useful internet-based tools which students of Maritime English may employ in order to bring the verbal classroom to the visual classroom enhancing thereby their chance of becoming proficient in Maritime English.*
Keywords: *doodling, mind-mapping, visual thinking, mnemonic techniques, liminal thinking*

3. WAYS TO STRENGTHEN THE COMMON EUROPEAN POLICY REGARDING MIGRATION AND ASYLUM

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Abstract: *The paper addresses a topical issue that the European Union is facing, namely migration, which has become one of the most controversial phenomena, often associated with illegal activities, organized crime, terrorism or social and cultural tensions.*
The aggravation of this phenomenon during 2015 has determined the effective management of the migration and asylum domains at Union level to be a primary objective for the current European executive (2014-2019). With May 2015, the European Commission adopted a new European Agenda on Migration, through which the EU proposes immediate action to meet current challenges of migration, and also medium and long-term

initiatives to be taken in order to provide structural solutions for a better management of migration in all its aspects.
At the moment, the European Union and, therefore, all member states must rapidly find solutions for the refugees who reached the continent. This generates further debate at European level to find the most efficient ways to strengthen the common policy regarding migration and asylum.
Keywords: *migration, European policy, refugee, asylum, international protection*

4. PROMOTING AN ACTIVE LIFESTYLE TROUGH IMPROVE THE PHYSICAL WELLNESS

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Abstract: *The current life style, temptations and negative factors affecting the quality of life determined the decrease of the physical activity level among population, especially among children and young people, which may have major long-term adverse effects on health and job performance. Changing mindsets and behaviors for an active and healthy lifestyle should be the main goal of any current and future societies. A permanent personal concern was identifying ways to promote a healthy and active lifestyle by identifying motivation and preferences for practicing physical exercise in relation to combating the negative effects induced by the health risk factors. The effects of physical activity programs to improve the physical wellness are manifold as they provide "good atmosphere, create, start and develop new friendships "si" in addition to sport fields, there are professional people who have the duty to maximize the health, fitness, wellbeing and the social and professional capacities. Research on sanogenous and social impact of physical activity programs offer many opportunities for future research that will contribute to changing mentalities regarding the importance and the role of motric recreational sports activities on individual's wellness. Implementation and diversification the ways to improve the physical wellness will contribute to increasing the attractiveness and motivation of participants and will help to promote an active and health lifestyle.*
Keywords: *physical wellness, active lifestyle, fitness, wellbeing, heath*

5. SOCIAL IMPLICATIONS OF PROMOTING SPORT FOR ALL

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Abstract: *The European model of sport for all include social and cultural objectives grouped in five components: educative function, public health function, social function, cultural function, recreational function. Aims: Our concerns in the field of sport for all and recreational activities for the promotion of active lifestyles are long and they aim connection between scientific and practical spheres. In this respect optimization of all sport – specific activities with focus on streamlining the management process led me to approach this topic mainly in terms of its topicality in European trends in the field. A number of international organizations, such as the European Sport for All Charter, the International Charter of Physical Education and Sport, TAFISA and the Sport for All Commission of the International Olympic Committee, have given various definitions of Sport for All. Although there are some slight differences in the focus and terminologies in the definitions, the organizations all recognize the national responsibility to ensure that every citizen has equal right to participate in sports and PA, and the stakeholders concerned, including the government and non-government agencies, play important roles in achieving the provision of sports and PA participation. Sport for all target creating opportunities and favorable environments through effective collaboration between government and non-governmental stakeholders in order to allow free participation in physical activities and sports for all categories of the population, without any discrimination.*
Keywords: *sport for all, europe trends, stakeholders, physical activity*

6. ANTI-HUMAN TRAFFICKING AMONG YOUNG PEOPLE

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Abstract: *After signing the UN Protocol on trafficking in 2000, some countries agreed that this phenomenon is a specific crime. The UN Protocol on Trafficking has led to an increase in the number of countries, from Europe and others from all over the world, that have introduced the category of "human trafficking" as a separate offense in their criminal codes. The situation observed in the recent years is a constant increase in the number of victims of trafficking. Even more alarming is that although recognized, limit it is a difficult process. Many experts from different government and non-profit organizations share the same opinion that today the law has not been complied and taken to traffic from many young people trapped by the social and economic situation. In a number of regulations (European and national) are aimed at preventing human trafficking. There are national and local structures that carry out activities for preventing and combating human trafficking and protecting victims. Contributing to raising awareness of young people have implemented projects and conducted campaigns at national and local level. There are a variety of public areas of action in the prevention of human trafficking committed by local commissions to combat trafficking. An attempt has been made in order to gather all the information from events held locally and implemented projects in 2014.*
Keywords: *human traffic, government institutions, NGOs, prevention, young people, the Law on combating human traffic, the fight against human trafficking activities, protection policy*

7. SOCIAL SERVICES FOR THE REHABILITATION OF VICTIMS OF TRAFFICKING

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Abstract: *The difficult socio-economic situation in Bulgaria is an occasion and young people to be involved in activities that are attractive and lucrative, yet violent and exploitative. In order to find a better life they are forced to work in poor conditions at home and abroad, with minimal or no pay, enticed with promises of work in a pleasant atmosphere and high reward. In the process of searching for new ways of getting good income, young people are becoming victims of trafficking. In some reports of*

institutions and governments in the recent years have seen an increasing trend in trafficking victims. There are few cases in which victims without identity documents with threats to their lives and the lives of loved ones, manipulated, blackmailed and coerced manage to leave "trap which caught." Specialists believe that in many countries there are no guarantees provided to victims of re-trafficking. A number of NGOs, which do not have a sovereign status, has a contribution to resolve this problem. By using this material has made an attempt to show the types of services used by victims of trafficking; displayed direction in which develops new structures in the country in developing policies related to the processes of protection, assistance and reintegration of victims of trafficking.

Keywords: *young people, victims of trafficking, victims of re-trafficking,Social services for the rehabilitation, NCC*

8. TYPES OF WRITTE NEVALUATION FOR ESP AND SCORE ANALYSIS (A CASE STUDY)

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Abstract: *The paper is a case study based on the hypothesis that the students' scores at written evaluations during a semester should be the same, as long as they are based on the same knowledge the students from different groups gathered. The number of English classes is the same and the subject has been taught in the same manner for all the groups. The analysis is done on groups in the first and second year of study.*

Keywords: *evaluation, ESP, methodology*

9. HOW TO USE THE ORDINARY MATHEMATICAL MODELS IN THE MILITARY FIELD

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Abstract: *This article's aim is to provide quick solutions in the case of military operations, more precisely it will be emphasized the fact that we can use mathematical algorithms of graph theory to determine the optimal length of roads in a mission. Specifically, the Elementary Algorithm (of Bellman) in the area of military operations in Iraq is used to determine the shortest route between two cities, Al Faw (a port situated in the south of Iraq) and Dahuk (in the north part of the country), through the capital, Baghdad. This is necessary for transporting troops and military equipment in specific areas. To achieve this, the map of Iraq is figured as a graph, the targeted cities are the vertices of the graph and are named as numbers (from 1 to 28), and distances between cities are the arcs of the graph (values, capacities – in this case are kilometers). The distances between cities and the country map are updated.*
Keywords: *graph, optimal length, minimum length*

10. THE ORGANIZATION OF THE THIRD INTERNATIONAL PETROLEUM CONGRESS IN BUCHAREST, 1907

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Abstract: *The history of this congress began in 1900, when in Paris there was organized the first International Petroleum Congress. Due to the success registered by the Romanian delegation there, it was decided that the second congress to be held in Romania. The idea was welcome in the oil field, but politicians were rather reserved. In 1903, the political circles refused organizing the congress. As a result, the second International Petroleum Congress was held in 1905 in Belgium. The performance of the Romanian delegation was also excellent, so it was decided that the next*

congress to be held in Romania. If in 1906 the preparations went rather slowly, at the beginning of 1907 they accelerated. The Programme of the Congress (August 22 - September 2 1907) was complex and included both scientific papers and documentary visits, as the ones to the city of Constanţa, to Constanţa port and to oil facilities in the area. The Romanian Maritime Service also provided the opportunity for the participants to visit Constantinople. It was an exceptional event at which 30 nations were represented.
Keywords: *congress, petroleum, Bucharest, 1907*

11. ACCOUNT OR SERVICE HIJACKING IN CLOUD COMPUTING

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Abstract: *Account or service hijacking remains a serious security threat in the cloud services. Account hijacking occurs when a criminal obtains your personal data information and uses it to take over your accounts (bank account, e-mail account or social media account). Often, the account hijacker uses one or more methods to obtain your personal data, for example the attackers use phishing by fake e-mail message or fake web page to stool the credential data, frequently the attackers use malicious software – Spyware for collecting username, password or bank data, and forwards that information to the fraudster. Fortunately, there are some measures you can take to protect yourself, and I tried in this article to describe the best protection methods against hijacking attacks*

12. A NEW MODELING PERSPECTIVE ON VOCAL TRACT

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Abstract: *The paper will discuss about a new perspective regarding the modeling process of the vocal tract. Our approach is more technological, trying to combine some fundamental characteristics of biometrics in order to create a vocal profile analysis for different corpus of recordings. A comparison between Mel Frequency Cepstral Coefficients (MFCCs) and Long-term Formant Distributions (LTFDs) will be presented with the goal to see as output some similar information. The output will be used in order to create a report with the characterization of the voice, which could be used in a forensic context.*
Keywords: *security, UML, integrity, software analysis*

13. $(h,\varphi)_\varepsilon$ – OPTIMALITY CONDITIONS FOR MULTI-OBJECTIVE FRACTIONAL SEMI-INFINITE PROGRAMMING WITH UNIFORM K- (Fb,p) CONVEXITY

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Abstract: *Base on algebraic operation introduced by Ben Tal [A. Ben Tal, On generalized means and generalized convex functions, J. Optim. Theory Appl. 21 (1977) 1–13] and a new generalized pseudo-operation with one parameter of the following form:* $x \oplus_\varepsilon y = h^{-1}\left(h(x)+\varepsilon h(y)\right)$*,where h is an n vector-valued continuous function, defined on a subset H of* R^n *and possessing an inverse function* h^{-1}*,* ε *is a arbitrary but fixed positive real number, the nonsmooth generalized convex functions called uniform* $K-(F_b,\rho)-$*convex function, uniform* $K-(F_b,\rho)-$*pseudoconvex function, uniform* $K-(F_b,\rho)-$*quasiconvex function are defined in sense of* $(h,\varphi)_\varepsilon$*. The nonsmooth multi-objective fractional semi-infinite programming involving these generalized convex functions is researched, and some sufficient optimality conditions are obtained.*

Keywords: *Nonsmooth, multi-objective fractional semi-infinite programming, optimality conditios, uniform* $(h,\varphi)_{\varepsilon}-K-(F_b,\rho)-$ *convex function*

14. $(\mathrm{h},\varphi)_{\varepsilon}-$ OPTIMALITY CONDITIONS FOR LOCALLY LIPSCHITZ GENERALIZED B-VEX SEMI-INFINITE PROGRAMMING

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Veronica CORNACIU[2]
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Abstract: *In this paper, by using* $(h,\varphi)-$ *generalized directional derivative and* $(h,\varphi)-$ *generalized gradient, the class of B-vex,* (ρ,B,η)*-invex, pseudo* (B,η)*-invex, and quasi* (B,η)*-invex functions for differentiable functions is extended to the class of generalized* $(h,\varphi)-$ *B-vex,* $(h,\varphi)-(\rho,B,\eta)-$*invex, pseudo* $(h,\varphi)-(B,\eta)-$*invex, and quasi* $(h,\varphi)-(B,\eta)-$*invex functions for locally Lipschitz functions. The sufficient optimality conditions are obtained for semi-infinite programming problems which involving those functions.*
Keywords: $(h,\varphi)-$ *generalized directional derivative,* $(h,\varphi)-$ *generalized gradient, locally Lipschitz function, generalized* $(h,\varphi)-$ *B-vex*

15. THE INVOLVMENT OF AD-HOC NETWORKS IN ROBOTS COORDINATION FOR SWARM ROBOTS

Narcis COSTIUC[1]
[1]Military Techical Academy

Abstract: *This paper is written to bring into view the characteristics of Ad hoc networks and their involvement in robots coordination. Choosing Ad hoc networks as a method of communication for Swarm Robots implicates*

the development of algorithms for keeping a safe connection between the robots inside a swarm. The paper is going to present a few problems of high importance in robots coordination in conjunction with Ad hoc networks. There will also be presented methods to avoid the problems for future practical implementation.

16. PEOPLE, PROCESS AND TECHNOLOGY; A BLEND TO INCREASE AN ORGANIZATION SECURITY POSTURE

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Abstract: *Few would argue that enterprises have increasingly become dependent on IT to facilitate business operations. In today's knowledge-driven economy, information is critical to an enterprise's ability not only to survive, but also to thrive. Experienced business leaders know that information deserves at least the same level of protection as any other asset, and have made information security managers a common addition to the organization chart. Organizations lose proprietary information daily due to hackers, insiders, or business partners. Most organizations think that this issue can be addressed with technology alone, but that is not realistic. This article will try to demonstrate that focusing holistically on people, processes, and technology can reduce the impact of data loss. People can be trained to recognize threats such as phishing and social engineering. Processes can address the issue through policies and procedures. Technology can be implemented to monitor and prevent attacks against the environment.*

17. SIEM (SECURITY INFORMATION AND EVENT MANAGEMENT SOLUTIONS) IMPLEMENTATIONS IN PRIVATE OR PUBLIC CLOUDS

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Abstract: *The underlying principle of a SIEM system is that relevant data about an enterprise's security is produced in multiple locations and being able to look at all the data from a single point of view makes it easier to spot trends and see patterns that are out of the ordinary. Today's security threats*

are dynamic in nature and exploits are constantly evolving. Attackers grow evermore organized, precise and persistent and have access to various automated tools that can trigger very sophisticated attacks. As threats and security events evolve, SIEM vendors and the information security community must work together to build relevant and actionable business analytics into their systems. By continuously improving recommendations and the controls to support those recommendations, SIEM products can become true information security hubs that not only automate audits, but also provide proactive means to protect the organization. SIEM technologies for centralization and consolidation of an organizations security data will continue to be important investments for organizations wanting to accurately respond to threats and ultimately improve their risk and compliance postures. In the field of computer security, security information and event management (SIEM) software products and services combine security information management (SIM) and security event management (SEM). They provide real-time analysis of security alerts generated by network hardware and applications.

18. PROVIDING FINANCIAL SUPPORT FOR THE NATIONAL DEFENSE SYSTEM IN THE CURRENT GEOPOLITICAL CONTEXT

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Abstract: *This paper highlights the most important aspects, seen mainly from an economic and financial perspective, of the correlation between the needs of the national defense system with the possibilities conferred by the development stage of our country, considering that Romania is a member of NATO, with certain commitments in this regard. Obviously, based on the recent Political Agreement on increasing funding for national defense, we consider that the support for military expenditure should be much stronger, given the risks of the current regional geopolitical space, generating instability and insecurity. Thus, after a period when the Romanian Army funding parameters were relatively modest, we highlight that the allocations in question are going to be based on a distribution of approx. 2% of the GDP (period 2017-2027), a vital issue in ensuring the support and development of procurement programs - with equipment and combat technology - and military staff training. The study of the literature has strengthened our belief, expressed herein, that the respective percentage may be increased, depending on the security needs and obligations that Romania can assume, targeting – ultimately –a greater increase in the operational capability of the Army.*
Keywords: *public spending, military logistics/ procurement, remuneration/ pay, missions/operations*

19. LABOR RELATIONS OF THE PEASANTS UPON THE CLOSURE OF THE COMMUNITY TYPE ORGANIZATION DURING THE 15-16 CENTURIES

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Abstract: *The right of displacement and release of neighboring states that during the sixteenth century, the peasants maintain their personal liberty. Although since the late fifteenth century the tax on cereals called the "bucket out" was introduced, which sought to prevent displacement of peasants, in principle they were free, maintaining their right to resettlement until the reign of Michael the Brave. The fact that, especially in the second half of the sixteenth century, the congregation, which in the fifteenth century was still quite strong, begins to unravel, is attested by the increasing category of the poor within, whose rights over the land are increasingly more spoiled; they even leave the community losing any rights over ancestral land. In legal terms, emerged from the community, they are free*

men and women, but deprived of their land. So that, practicing craftsmanship and trade, which lead to establishing themselves in the cities, attract significant changes in peasant life of this period.
Keywords: *commodity relations, enslavement, redemption, working relations*

20. AN FPGA-BASED CLOUD STORAGE GATEWAY

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Abstract: *Cloud storage solutions are known for their scalability, stability and easy integration. However, many companies choose classical, self-maintained storage because it can be directly controlled, in terms of physical security. With the overall long-term cost in mind, the balance shifts in favor of storage as a service, provided by a cloud infrastructure. In order to meet the security requirements of sensitive data, a gateway that bridges a company's internal storage endpoints with an external resource provider can solve the security issues. This device would be able to interact with existing interfaces and provide a controlled link with remote cloud storage services. The paper proposes such a solution, based on FPGA technology that will provide seamless access and encryption for data that is stored off-premises.*
Keywords: *cloud storage, cloud gateway*

21. AUTOMATED FPGA FIRMWARE MANAGEMENT IN HPC CLUSTERS

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Abstract: *FPGA-based accelerators are increasingly deployed on cluster and grid systems due to their highly flexible architecture. Given the generic nature of a high performance computing system, the firmware and software running on the FPGAs changes dynamically, according to the specifications requested by the launched application. Along with performance monitoring, this reconfiguration process can be automated in order to decrease idle-times on computing nodes and to have a centralized view of the system. Such an architecture would be centered around a client-server model in which the computing nodes run the client component, along with the batch agent. The server component would be located anywhere in the cluster as long as it has the appropriate permission to interact with the batch server. The paper explores the possibility of integrating this reconfiguration model with an existing batch system, without major changes in the way users operate the cluster.*
Keywords: *FPGA, cluster, batch system, firmware management*

22. SECURITY CONCERNS ON THE ADOPTION OF SOFTWARE CONTAINERS

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Abstract: *In this paper we provide an overview of the present security concerns on the adoption of software containers by enterprise organizations. The proven benefits of containers such as application scalability and faster time to market can be overshadowed by security issues. Although the container design is considered secure, the detection and mitigation of vulnerabilities should be part of a strong security strategy in the development of an application.*
Keywords: *Containers, Security, Enterprise adoption, Application deployment*

23. HONEYPOT SYSTEM BASED ON SOFTWARE CONTAINERS

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Abstract: *In this paper we explore aspects of building a honeypot system using software containers. Despite their advantages, organizations see honeypots as too complex from a deployment and management perspective. As software containers gain popularity these issues can be addressed using light containers hosted on cloud infrastructures.*
Keywords: *Honeypot, Software containers, Cloud, Automation*

24. AUTHENTICATION - THREATS AND COUNTERMEASURES

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Abstract: *When it comes to cyber security, one of the most sensitive issues is the user's credentials. Obtaining a user's password is the easiest way for a hacker to gain control of a system or stealing personal information. Nowadays more and more services tend to be online from stores, courses, bank transactions to ways of socializing. For all of this we need a user account and password to authenticate. Using a different password for each account can become tedious so we tend to use simple and short passwords in order to retain them, but with increasing number of accounts we arrive at the same result by using the same password namely for all online resources to which we have access. This is the first step of becoming an easy target to get hacked. This paper aims to outline some methods of increasing security when it comes to authentication*
Keywords: *authentication, security, cyber defence, cybersecurity*

25. CHEMICAL AND STRUCTURAL CHARACTERIZATION OF $ZN_{2-X}CO_XSIO_4$ (X=0.5) SOLID SOLUTIONS TYPE SYNTHESIZED BY TWO UNCONVENTIONAL METHODS (SOL-GEL METHOD AND PECHINI METHOD)

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Abstract: *$Zn_{2-x}Co_xSiO_4$ (x=0.5) nano-particles were successfully synthesized at a low temperature of 900°C both by Pechini method and sol-gel method with starting materials of $Zn(CH_3COO)_2 \cdot 2H_2O$, $Co(CH_3COO)_2 \cdot 4H_2O$ and $Si(OCH_2CH_3)_4$. The structural characterization of the precursors and derived synthesized oxide powders is done by X-ray diffraction (XRD), Fourier transform infrared spectroscopy (FTIR), thermal analysis (TG-DTG) and electron microscopy (SEM, EDX and TEM) studies. The effect of heat-treating temperature on the crystallinity of the $Zn_{2-x}Co_xSiO_4$ (x=0.5) was investigated. Combined the XRD data and the strong FTIR peaks as signed to Zn-O and Si-O vibration indicate the formation of $Zn_{2-x}Co_xSiO_4$ (x=0.5) phase at a temperature of 900°C. Also the nano-crystals size distribution for sol-gel process was studied and the main diameter of nanoparticles was about 15nm.*
Keywords: *sol-gel · Pechini · $Zn_{2-x}Co_xSiO_4$ · nano-crystals*

26. THE USE OF AMINO ACIDS BEFORE EFFORT

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Abstract: *The present paper is based on the requisite that the administering of amino acids to students participating in the National Contest of Chemistry leads to increased attention before important competitions as such. The paper briefly presents the role of attention and memory in obtaining good results in competitions as a consequence of administering effort sustaining substances.*
Keywords: *amino acids, ergo genetic substances*

27. A COMPARATIVE STUDY OF ENCRYPTION ALGORITHMS ON LAYER 3 VIRTUAL PRIVATE NETWORK (VPN)

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Abstract: *If we have established a connection between two devices over the Internet, in order to be sure that the connection is secure, we use VPN. But how sure we are that during packet transmission we can prevent eavesdropping? The answear is encryption. That is why we add confidentiality and data integrity, so that no third-party can alterate or manipulate the data along the path. One of the most important requirements for VPN are Data Encryption and Key Management but we have to consider that a high level of encryption means a slower VPN connection, and a lower level of encryption, a faster one. In this paper, we present how performance of VPN is influenced by choosing different encryption algorithms and try to achieve a good balance between security and performance.*
Index Terms: *VPN, Network, Security, Information Theory, Encryption*

28. CRITICAL INFRASTRUCTURE DEPENDENCY ON SPACE SYSTEMS

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The work was supported by a grant of the Romanian National Authority for Scientific Research, CNDI-UEFISCDI, project number 197/2012.

Abstract: *Space systems are enablers of key applications which have become critical for the functioning of the infrastructure system-of-systems, especially from the perspective of risk governance efforts and CI protection. Rapid innovation in space system cost, accessibility and applications has engendered various degrees of dependence on them. The critical dependencies are not evenly distributed throughout geographic areas, industries, infrastructure systems or national territory, even throughout the European Union. As for the critical aspect of dependencies, in which such interrelations lead to new vulnerabilities and the risk of cascading disruptions in complex systems, the greater emphasis on space systems has served to mitigate certain risks while encouraging others. Even in areas where space services remain a fact of tomorrow and criticality has not been achieved, it is the nature of interdependent critical infrastructures to enable propagation of space system disruption risk from areas which are, indeed, heavy users of space systems. Ultimately, the incentives for the use of space services are too great for the potential risks to deter usage, and it falls to responsible stakeholders (governments, providers, consumers, technical authorities and international organizations) to create the legislative and organizational framework and instruments for identifying and addressing the risks generated by the growing dependence on space systems.*
Keywords: *critical infrastructures, space systems, dependence, risk governance, complex systems*

29. DELIBERATE THREATS TO CRITICAL SPACE INFRASTRUCTURE – ASAT AND THE STRATEGIC CONTEXT

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The work was supported by a grant of the Romanian National Authority for Scientific Research, CNDI-UEFISCDI, project number 197/2012.

Abstract: *Space systems are critical enablers of a wide range of applications utilized by a global range of consumers. The provision of critical space services is vulnerable to, among other things, deliberate interruptions through anti-satellite weaponry and means. The intrinsic characteristics of space systems make them both very efficient and very hard to replace, such as limited weight, the high cost of replacement and the low number of assets. Deliberate human threats to space critical infrastructures are many, varied and highly efficient, stemming also from legitimate technologies for protection that can be modified to become efficient anti-satellite weapons. In addition to the technical details, a few issues stand out. The first is that deliberately targeting satellites lends itself to a form of MAD logic (mutually assured destruction), which limits the willingness of states to do it for fear of reprisal or being themselves affected, due to interdependencies. The second is that certain forms of anti-satellite weaponry have become accessible to non-state actors, who do not respond to traditional deterrence and for whom jamming, cyber-attacks and other forms of weaponry are cost effective and efficient means of incurring huge damage with no immediate loss of life (which is an important political consideration). The third is that vulnerability also extends to military users, whose systems should, theoretically, be better shielded, more resilient and afforded more redundancy. In practice, those systems are not enough and, in the case of the US, more than 90% of military communications are routed through civilian systems. This has given rise to interesting new approaches and insights towards US vulnerability, highlighted by a number of high profile military exercises. Now, the US military speaks of "fog of electrons", space as an Achilles' heel, critical dependence of drones and smart weaponry on space infrastructures, the equalizing effect of space system targeting on American military superiority etc. These trends are also important for other countries to note.*

Keywords: *space systems vulnerability, ASAT weaponry, deterrence logic, non-state actors, military users*

30. ETHICS AND PROFESSIONALISM IN SPORTS MANAGEMENT ACTIVITIES

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Abstract: *Defining the elements pertaining to the scale and diversity of sports activities, the specificity and complexity of the Organization, management, and evaluation of the results.*
Keywords: *Ethics, professionalism, performance, management, sport activities*

31. OPTIMIZATION OF SELECTION CRITERIA AND OF THE MEANS OF GUIDANCE OF SWIMMING ATHLETS

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Abstract: *This paper aims to summarize some aspects that define the specificity of sports activity in the swimming discipline in terms of the rules and criteria governing the sports selection for performance swimming. The perfection of training the athlete is highly influenced by technicians who must assume with responsibility this "holy" mission of modeling and development of the athlete in the context of high performance sport industrialization. Selection in sport is a complex, directed, which aims to highlight those young kids with high potential, and under the influence of methodological and scientific training, lead to great performance. This complex system meets all the criteria, selection rules in the concept of*

"selection model"/"constitutional biotype" characterized by certain physical, motor and behavior qualities specific to each branch of sport. As a key factor in obtaining sports performance, the selection process has a continuous character and depends on the interface of several factors: social, economic, cultural, biological, methodical, and technical.
Keywords: *selection, sports, performance, criteria*

32. DEVELOPMENT FUNCTIONS OF DISCUSSION METHODS IN TEACHING THE SUBJECT "MANAND SOCIETY"

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Abstract: *The topic of developing functions Discussion methods specified interest. The report examines unless their nature and characteristics, but also with what they contribute to the development of the educational process today. Nowadays, public attitudes and expectations related to improving the quality of knowledge, skills and competences to be acquired in school. The emphasis has shifted from reproduction ready knowledge to master the skills of self-perception, learning and reinforcement. The question for discussion methods of educational process is one of the topical problems of modern didactics and school practice. In didactics-methodical literature in recent years on this subject are devoted numerous publications. Special attention is paid to questions about their essence, their place in the educational process for developing and educational functions, their typology principles of forming the discussion methods, etc., as a developing educational environment in the short format they are presented in this publication.*
Keywords: *discussion methods, teaching, development, training students, developing educational environment*

33. REFLECTIVE CHARACTERISTICS OF INTERACTIVE EDUCATIONAL ENVIRONMENTIN ELEMENTARY SCHOOL

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Abstract: *Interactive teaching methods are topical issue discussed at international and national level. Directly or indirectly, it is reflected in the work and recommendations of various European institutions, national strategies and programs. The problem of application of interactive teaching methods in school practice is extremely topical because through the mare formed so necessary for modern man skills to generate ideas, formulate and verify hypotheses, discussion, decision. Proven methods are appropriate to pursue a quality learning process in the initial stage of education and fully comply with both the public demand for the formation of creative individuals and the need for socialization and particularly the communication of each student. Interactive methods are in line with the age of the students in this periods ince the middle childhood is a time of intense mental and physical development of children.*
Keywords: *interactive methods, developing educational environment, reflexivity*

34. IQ FOR SCHOOL OR EQ FOR LIFE?

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Abstract: *Success has always been related to intelligence and therefore employers are looking both for people with a high IQ and EQ. While our intellect helps us to solve problems or to process information, the emotional intelligence allows us to be more creative and use our emotions to resolve our problems. So how can individuals identify what motivates them to reach success? Should they be capable of controlling their emotional energies or just release them? The purpose of the herby paper is to identify the emotional and general intelligence role (EQ and IQ) in academic success and not only because it is supposed quite often that the academic success is related to emotional intelligence level, so that the persons with higher level of emotional intelligence are characterized with a higher motivation to be successful.*
Keywords: *IQ, EQ, education, tests, success*

35. LEVEL OF AWARENESS OF REPUBLIC BULGARIA'S POPULATION FOR TREATMENT OF ISCHEMIC STROKE VIA THROMBOLYSIS

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Abstract: *The stroke is a socially significant disease that is characterized with high levels of morbidity and mortality, causing severe disability worldwide. It is the second most significant cause of death among the people in the western world, falling back only to the heart diseases and preceding the cancer, as it causes 10% of the mortal cases in the world. Since 2009 the Bulgarian association of neurosonology and cerebral hemodynamics (BANCH) organizes different initiatives of training doctors to conduct a thrombolytic treatment to acute ischemic stroke(AIS). The intravenous thrombolysis has not been established as a leading differential treatment of AIS in Bulgaria, and the thrombolytic therapy is still not well developed in Bulgaria. The support of national and local institutions is crucial for insuring and guarantee for a proper stroke treatment. Efforts are necessary for adequate financing of the health facilities, as well as professional preparation of the human resource, and training the population via creating an integrated national strategy for its application and control, which can underlie as a state politics in healthcare at optimal usage of public-private partnership.*
Keywords: *ischemic stroke, thrombolysis, Actilyse®, stroke unit*

36. NEW PERSPECTIVES IN THE METRIC THEORY OF CONTINUED FRACTION EXPANSION RELATED TO FIBONACCI TYPE SEQUENCES

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Abstract: *A survey of the metric theory of the continued fraction expansions related to random Fibonacci Type sequences discussed by Sebe and Lascu is given. The limit properties of these expansions have been studied. A Wirsing-type approach to the Perron-Frobenius operator of the generalized Gauss map under its invariant measure allows us to get close to the optimal convergence rate. Actually, we obtain upper and lower bounds of the convergence rate which provide a near-optimal solution to the Gauss-Kuzmin-Lévy problem for these expansions.*
Keywords: *continued fractions, random Fibonacci-type sequences, Perron-Frobenius operator, random system with complete connections, Gauss-Kuzmin-Lévy problem*

37. PROVIDING FINANCIAL SUPPORT FOR THE NATIONAL DEFENSE SYSTEM IN THE CURRENT GEOPOLITICAL CONTEXT

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Abstract: *This paper highlights the most important aspects, seen mainly from an economic and financial perspective, of the correlation between the needs of the national defense system with the possibilities conferred by the development stage of our country, considering that Romania is a NATO member, with certain commitments in this regard. Obviously, based on the recent Political Agreement on increasing national defense funding, we consider that the support for military expenditure should be much stronger, given the risks of the current regional geopolitical space, generating instability and insecurity. Thus, after a period when the Romanian Army funding parameters were relatively modest, we highlight that the allocations in question are going to be based on a distribution of approx. 2% of the GDP (period 2017-2027), a vital issue in ensuring the support and development of procurement programs - with equipment and combat technology - and military staff training. The study of the literature has strengthened our belief, expressed herein, that the respective percentage may be increased, depending on the security needs and obligations that Romania can assume, targeting – ultimately – a greater increase in the operational capability of the Army.*
Keywords: *public spending, military logistics/ procurement, remuneration/ pay, missions/operations*

38. FOCUS ON THE USE OF A MARITIME ENGLISH VISUAL DICTIONARY IN ESP CLASSES

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Abstract: *Whether in paper or online formats, dictionaries are more than just collections of words, and used properly, they could lead towards the development of learners' autonomy. Once students are taught how to use them effectively, there are hundreds of hours of self-guided study. Dictionaries can constitute an ideal way of enriching students' vocabulary due to the fact that they generate an extremely varied collection of communicative activities, ranging from basic dictionary use to vocabulary and reading skills. This paper aims to put forward 10 dictionary activities tapping an in-house material (the Online Maritime English Visual Dictionary) as an effective means of boosting students' specialist vocabulary.*
Keywords: *online dictionary, Maritime English, language skills, materials development*

39. PRACTICE DOESN'T MAKE PERFECT; PERFECT PRACTICE MAKES PERFECT

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Abstract: *Much has been discussed about the importance of writing a lesson plan; nevertheless, this topic will never be obsolete and good teachers will always consider the subject as an important issue in their teaching career. There are teachers who believe that writing a lesson plan is important just for young teachers who need to have a clear idea about what they are going to do in class, while writing a lesson plan by experienced teachers is a waste of time as they already have taught the subject lots of times and know exactly what they have to do about any topic. It has also been stated that not all planned lessons are excellent ones and not all unplanned lessons are a disaster, but even a bad lesson will be less bad if planned, and even a great*

lesson can be greater with a plan. The aim of this paper is to discuss the importance of writing lesson plans by analyzing the benefits of a good lesson plan and their impact on teachers' development. The topic is also part of a series of sessions presented in teacher training seminars in which the authors have participated as trainers.
Keywords: *good versus poor lesson plan, common mistakes, teachers, students*

40. AUTOMATIC REGULATION AND OPTIMAL CONTROL REGARDING FLUVIAL OR SPATIAL NAVES EQUILIBRIUM STABILIZATION

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Abstract: *The first part of the paper deals with cruise, cargo or underwater naves equilibrium stabilization in case of rolling perturbations. The stabilization conditions are determined by using a hydro-pneumatic automate regulator. Oscillations damping is achieved with a hydro-pneumatic compensator, by using the water tanks that the naves are equipped with. The second part of the paper deals with automatic stabilization of rockets, submarines or satellites dynamics. This stabilization is based on relay-type automatic regulators, by using the minimal time criterion for optimal control with the Pontreagiune extremal principle. In this study, the state variables are the rotation angles and the control function has 2 components, which are appearing because of lateral rolling perturbations. Finaly, numeric-analytical l studies are approached, and the results are graphically presented.*
Keywords: *optimal control, control function, extreme principle of Pontreaguine, absolute stability.*
MSC2010: 34H05, 49K35, 93C15, 93C73, 93D10

41. TIME-FREQUENCY ANALYSIS AND GENERALIZED ENTROPY MEASURES

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Abstract: *In the context of time-frequency analysis, different entropy measures have been used to quantify the signal complexity and its information content. Also, using entropy measures, the performance of different time-frequency distributions was assessed, leading to the design of kernels based on entropy minimization. The paper investigates some generalized entropy measures and their possible applications in the estimation of the signal information content and complexity.*
Keywords: *Nonstationary signals, time-frequency distributions, information measures, generalized entropies*

42. GENETIC GENERATION OF INTERNET OF THINGS OVERLAY NETWORK INFRASTRUCTURE

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Abstract: *The Internet of Things now represents one of the biggest technology wave in information and communication technology domain. In such a network, the communication parameters are critical and, for improving its potential, the utilization of an overlay network infrastructure is the clue. This paper proposes a genetic generation of such a network topology, based on existent parameters of communication infrastructure and taking in consideration the quality of services demands*

43. THE SEA IN OLD ENGLISH LITERATURE

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Abstract: *The sea has been a constant presence in English literature: from Shakespeare to Coleridge and to Conrad, authors have included representations of this complex body of water in a variety of works covering the majority of genres. This should not come as a surprise to any reader, considering England's geographical position and the way this influenced its history and its cultural makeup in general. Following the tradition of archetypal criticism, we chose to trace the representations of the sea back to their origins and focus on the earliest remaining texts from Old English Literature in search of prevalent symbolic values, as well as their connection to Anglo-Saxon ethos.*
Keywords: *sea, archetype, Old English*

44. SOFTWARE SECURITY TECHNIQUES: RISKS AND CHALLENGES

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Abstract: *Because of the increasing number of applications that are working on-line, software security has become an important aspect for software development process. The paper will present the main mechanisms and features on which we have to stop when we are designing and implementing a software application, such as sensitive information, execution of the program, and different ways of analyzing static and dynamic code. We will explain two attacks techniques (analysis and tampering) that could occur on the program and we will demonstrate how we can exploit some vulnerable points of access in the software application. Based on the two types of attacks we will discuss about obfuscation techniques and perturbated functions as a new approach to obfuscation and diversity.*
Keywords: *software security, obfuscation, perturbated functions, client-server, attacks*

45. ENHANCING UML WITH SECURITY

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Abstract: *Unified Modeling Language (UML) is very used in different companies and industries where the process of software analysis plays an important role. Still, the UML has different lacks, such as formal, explicit, support for access control. The security represents an important issue over which we have to stop when designing the access control into the application. In this paper we will discuss about a new approach for expressing security-relevant information that can be mapped in the UML diagrams, such as sequence diagrams, class diagrams and state diagrams. New diagrams that already have been proposed will be shown and presented in a practical manner, such role-based, discretionary and mandatory access controls. The intent of the paper is to give the designers with a set of security and integrity features. Only the necessary features are selected for the application that is designed and furthermore implemented.*
Keywords: *security, UML, integrity, software analysis*

46. ABOUT ISSUES AND THREATS FOR CLOUD COMPUTING

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Abstract: *In the last few years, cloud computing has become more and more popular among small, middle and large companies because of more reasons. It provides different types of services, such as software applications, platforms and even infrastructures, through abstraction and virtualization, fact that brings to the companies many benefits. One of them is cost reduction because they do not need to buy servers, software products or licenses any more, and they pay just as they consume. On the other hand, the users are freed of the maintenance or upgrading, because this task become the responsibility of the cloud providers. Even if it is very powerful,*

still, cloud computing has some lacks. For example the security of the data: when the data are transmitted through systems which are not under the control of the user, the risk that data to be compromised is increased, especially the services inherit the vulnerabilities of the technology transformed in that service. In general, in providing of cloud computing services are involved third parties, fact that complicates the keeping of secured data. In this paper, we will identify and analyze the main issues of cloud computing and we will present the existing solutions to this issues.
Keywords: *cloud computing, security, services, software*

47. MACHINE LEARNING TECHNIQUES USED IN BIG DATA

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Abstract: *The classical tools used in data analysis are not enough in order to benefit of all advantages of big data. The amount of information is too large for a complete investigation, and the possible connections and relations between data could be missed, because it is difficult or even impossible to verify all assumption over the information. Machine learning is a great solution in order to find concealed correlations or relationships between data, because it runs at scale machine and works very well with large data sets. The more data we have, the more the machine learning algorithm is useful, because it "learns" from the existing data and applies the found rules on new entries. In this paper, we present some machine learning algorithms and techniques used in big data.*
Keywords: *Big Data, machine learning, supervised learning, unsupervised learning*

48. BIOMETRIC MULTI-FACTOR AUTHENTICATION SCHEME IN CLOUD COMPUTING

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Abstract: *The biometric Multi-Factor authentication represents the next generation computing authentication infrastructure. This paper proposes a novel multi-factor authentication scheme based on biometrics concepts. Biometrics is a process used to identify or authenticate an individual's identity using any of a series of physical or behavior characteristics. Interconnecting biometric technologies with cloud infrastructure improves speed, secure communication, scalability, identity and access management, reliability, automation.*
Keywords: *biometric, Cloud computing, security, authentication methods, authorized user*

49. EXPERT SYSTEMS RUNNING ACROSS MULTIPLE CLOUDS. A SUSTAINABLE PERSPECTIVE

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Abstract: *An expert system running across multiple clouds takes cloud computing to the next level of innovation. It emulates the decision-making ability of a human expert. Organizations have workloads running in many cloud locations, therefore applications become complex combinations of interconnected software components. The organizational strategies include sustainable approaches for resource management. Expert systems, through Cloud computing, provide alternative resources, reliable services and minimum costs. This paper concentrates on an innovative expert system that manages the cloud infrastructure.*
Keywords: *Cloud, expert systems, security, sustainable perspective, innovation, efficient costs, IDS*

50. DEFECT IDENTIFICATION OF MOVING PARTS OF A MECHANICAL INSTALLATION USING CORRELATION BETWEEN VIBRATION AND NOISE

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Abstract: *Cracks due to fatigue or imperfections from manufacturing are common defects for the moving parts of an installation. In this paper, the authors measure the vibrations and noise of a scale model to determine the defects of bearings and other moving parts. Usually, these defects are identified by means of vibration analysis. Here, the authors use noise analysis and correlation between noise and vibration to locate the faults. Finally, conclusions are made regarding which method is more efficient.*
Keywords: *defect, vibration, noise, correlation*

51. ANALYSIS OF NOISE AND VIBRATION PRODUCED BY THE EQUIPMENT IN THE REEFER LABORATORY

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Abstract: *This paper presents the results of the measurements made in the Reefer simulator from the Naval Academy „Mircea cel Batran". The*

vibrations of the equipment were measured using accelerometers mounted in key positions and after that, a correlation between vibration levels in these positions was made. The noise produced in the laboratory was evaluated to determine its influence over the performance of the students during simulations.
Keywords: *Reefer, vibration, noise, correlation*

52. DATABASES ROLE CORRELATED WITH KNOWLEDGE TRANSFER BETWEEN ENTITIES OF A CLUSTER

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Abstract: *Knowledge transfer between organizations members of a regional cluster is influenced both by the complexity of the tasks, and the experience of user groups. The integration of knowledge (tacit, explicit and potential) in current activities of a trader involves the creation of an efficient use of specific databases. The issue of knowledge transfer can be analyzed from four perspectives: using cloud technologies (development of platforms for cloud applications is an important strategy, especially in activities within a geographically dispersed network); empowerment (granting freedom of each employee to contribute in the decision making process, in the power distribution according to his competence and in accordance with the objectives and culture of that organization); development and implementation of more efficient knowledge sharing procedures; analysis of the interdependence between quality and quantity of knowledge, its source and destination, such as modeling and simulation techniques, public administration management, knowledge management and that of management cooperation in strategic cluster alliances. The issue of knowledge sharing will be developed by means of a system based on an original interpretation of methods After Action Review and respectively SMART (Specific, Measurable, Assignable, Realistic, Time-related).*
Keywords: *cloud, databases, information, interdependence, knowledge transfer*

53. ENGLISH FOR NAVAL ARCHITECTURE PURPOSES (E.N.A.P.), ENGLISH FOR SHIPBUILDING PURPOSES (E.SB.P.) AND ENGLISH FOR MARITIME PURPOSES (E.M.P.) – A TERMINOLOGICALLY-RELATED TRIAD

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Abstract: *Most of the historical approaches to human civilization have ascertained water to have always played a vital role in the settlement, development and wealth of any community, providing many other facilities in addition to the necessary beverage complementing our daily bread. As a source of wealth, water has been of great help in the house building process, in gardens and courts for plants and animals or has incented people to spend their time fishing or lying in the sun, travelling or cruising, in all sorts of competitions. Locally, nationally and internationally, water has most of the times provided a wide variety of jobs which were beneficial both to the actively involved individuals and to the urban or rural areas they were part of. Few are the Romanian spots which are in a position similar to that of the town of Galati, where well-articulate institutions have trained professionals specialized in water-based jobs for over seventy-five years. In spite of the numerous facts related to water-dependent jobs, to (high) education opportunities ensured by this town or to the benefits that water may bring to any region wherever in this world, which could open a wide variety of topics of academic discussion, our approach is essentially focused on terminology. This approach is devised to make a few linguistic remarks which concern the three major specialist fields mentioned in the title. It opens a perspective embracing these three professional environments whose linking element is water, i.e. naval architecture, shipbuilding and finally, travelling at sea for touristic journeys or leisure, for commercial or military purposes. We consider these three domains to be tightly intertwined for they work with ships, the ultimate product of naval architects, shipbuilders and ship operators. As research has indicated it, from a strictly linguistic point of view, the three groups of specialists use a terminology consisting of shared elements as well as of field-specific words or syntagms. Since our view is exclusively terminological, the selected examples will be only terms, leaving aside syntagms, idioms or idiomatic structures, and clichés. The paper will present four sets of illustrations to support our identified lexical categories, thus proving that a textual analysis of such samples of language*

for specific purposes clearly indicates that the study of English for specific purposes has still a lot to offer.
Keywords: *highly specialized terms, jargon, specialized terms*

54. ONTOLOGY TOOL FOR KNOWLEDGE ACQUISITION IN A VIRTUALISED ICT INFRASTRUCTURE

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Abstract: *Nowadays, physical (hardware) environments virtualization has expanded rapidly, becoming an absolute necessity for IT infrastructure reconfiguration. The system virtualization and cloud computing are highly debated topics in the last 10 years which lead towards numerous strategies, sometimes quite different. IT Virtualization increases the levels of resources utilization. Due to load balancing of the available physical resources, by virtualization we increase their level of usage, without a proportional growth of costs, as in a normal extension of infrastructure. The research necessity is imposed by the rapid evolution of the information technology, which leads to finding new ways of organizing the hardware infrastructure, applications, as well as new ways of solving the operations, regardless their complexity. A big part of the infrastructure can become partially or totally virtualized and thus, the processes gain a dynamic and distributed character, while the static and hierarchical structures become more and more adaptable and flexible. Thus, for knowledge acquisition and structuring, we consider necessary the development of a peculiar ontology involving a common set of constraints and a conceptual environment, having as a main goal the relations between the information classes and modeling of knowledge. Having established the goal, i.e. defining an ontology of the IT infrastructure virtualization field, we will suggest a methodology necessary to classifying the virtualized systems, offering to the specialists' community a new model structured through the medium of the included layers, which allows capturing the relations between entities / services included in a layer, as well as the relations between the components of different layers. The virtualized IT environment, structured according to the proposed approach also allows us to deepen knowledge and understand the virtualization domain, its components and their relationships.*
Keywords: *Ontology, virtualised IT infrastructure, knowledge acquisition*

55. CREATIVE AND DYNAMIC REUSE OF THE RESOURCES INTO A COLLABORATIVE LEARNING ENVIRONMENT

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Abstract: *Computer assisted learning, e-learning, on-line learning, web based learning, virtual learning, open learning are different forms of educational ICT implication techniques, based on web, in a continuous increasing. Integration of technology (IT) into the university classrooms provides abilities to effectively communicate one student's ideas to communities who may have different background knowledge. A Collaborative and Learning Environment (CLE) platform, represents a Learning Management System, a Research Collaboration and Project Collaboration System and also an e-Portfolio Solution which creates an open academic environment in order to deliver Accessibility, Features, Tools and Functionality to the participants, in accordance with IMS Global Learning Consortium and other industry standards. The aim of this paper is to highlight the manner in which the formal communication, along with informal communication can contribute to student motivation to initiate his affective and intellectual resources (knowledge, skills, emotional management, etc.) in order to solve key-situations embodied in different learning tasks. At the level of the CLE Platform, the formal and informal communication participates in optimizing message reception, contributing to underlining the learning motivation, at obtaining proficiency and forming professional and transversal competences. Thus, between instructors and students there are developed partnership relations, which lead to increasing the student's learning motivation. In this sense, OCW and OER sites and also, the intercultural exchanges between participants fully contribute to the completion of MOOC Concept (Massive Open Online Courses).*
Keywords: *Collaborative Learning Environment (CLE), Learning Management System (LMS), e-Learning*

56. OCCUPATIONAL NOISE EXPOSURE – RISK FACTOR FOR SEAFERARS

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Abstract: *Introduction: Professional exposure to noise higher than 85 dB can lead to hearing diseases (hypoacusia, professional deafness through sound trauma) but, in the same time, also to diseases related to profession (high blood pressure, digestive diseases, neuroses). The measured values of sound intensity within vessel compartmens (engine room, main deck) are different with a higher level in the engine compartment (LEX, 8h = 85 dB(A)) Material and method: The survey concerns a batch of 90 navigators (deck and engine crew), selected according to the level of exposure to noise and length of service on the basis of an anamnestic questionnare that apllies to the persons exposed to noise and vibration.*
Keywords: *noise, seafarers, occupational noise, limit exposure level (LEX, 8h), hearing impairment*

57. INSTABILITIES IN THE SOLUTION OF AN ENGINEERING PROBLEM BY USING TAYLOR SERIES AND ALTERNATIVE APPROACHES

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Abstract: *Orthogonal functions and Taylor series, often used to represent an arbitrary time function, have recently been used to solve various problems of the dynamical systems. The main advantage of using orthogonal functions and Taylor series is that they reduce the dynamical system problems to those of solving a system of algebraic equations. The available sets of orthogonal functions can be divided into three classes. The first class includes sets of piecewise constant basis functions (e.g., block-pulse, Haar, Walsh, etc.). The second class consists of sets of orthogonal polynomials (e.g., Chebyshev, Laguerre, Legendre, etc.). The third class is the set of sine-cosine functions in the Fourier series. In recent years, the hybrid*

functions consisting of the combination of block-pulse functions with orthogonal polynomials have been shown to be a mathematical power tool for discretization of selected problems. In the present work, the Taylor series is used to demonstrate the instabilities in the numerical solution of a calculus of variations problem arising in engineering. To overcome this difficulty, we first use the Legendre polynomials and then the hybrid of block-pulse and Legendre polynomials. The numerical solutions are compared with available exact or approximate solutions in order to assess the accuracy of the proposed method

58. WATERMARKING PROTECTION FOR 3D IMAGES

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Abstract: *The 3D digital contents are increasing rapidly on the media market and games market but the techniques of copyright protection are still on the low level. The existing watermarking 3D models focused on the robustness against possible attacks to destroy the embedded watermarks, are using to hide copyright information. But a clear auto-protection able to embed a visible 3D watermarks into the original 3D image, but also capable to remove the watermark without 3D host image damage, is not yet presented in the specific scientific literature. Our proposed algorithm overlaps a removable watermark image over the 3D host, original image. It could be removed based on several parameters encrypted in a hide watermark. A 3D watermark is hiding, using surface curvatures, by segmentation of the regions over the given 3D triangular mesh. The watermark is embedded to the areas by statistically modulating the distance between each mesh vertex and the mass center of the mesh. The presented algorithm embeds a visible watermark in a 3D host image together with a hide encrypted message on the sender side and then, on the receiver side, extracts the parameters and decrypts them, in order to remove the visual watermark.*
Keywords: *3D images, visual watermark protection, copyright protection, hide watermark*

59. THE PROCESS OF LEXICAL COMPOSITION IN THE FORMATION OF THE ROMANIAN MARITIME TERMINOLOGY

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Abstract: *The present paper aims at describing different types of compound lexemes belonging to the Romanian maritime terminology. Composition or compounding is a word formation process very often associated with the specialized languages, where it has demonstrated great productivity. The result of composition is a new lexical unit that usually answers the need for designation of new technical and technological inventions. There is also a degree of motivation in creating compound terms in the field of science and technology, namely the tendency towards lexical economy, which means that communication becomes more concise and accurate. This aspect also stands out in the neological maritime terms obtained by means of this internal word formation process. The compound maritime terms do not comprise analyzable individual elements, but formations of unitary meaning (which can sometimes be very different from the components' meaning), consisting of two or more elements, which have lost their morphological and semantic individuality and have been re-established as autonomous lexical units.*
Keywords: *lexical composition, compound maritime terms, word formation*

60. LE CINEMA HITCHCOCKIEN – APPROCHE GÉNÉRALE

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Abstract: *Il est impossible de surestimer l'influence d'Alfred Hitchcock sur l'histoire du cinéma. Très populaire à la fois pour le public et parmi les critiques, sa carrière prolifique s'est étendue sur cinq décennies et a produit des dizaines de films, dont de nombreux qui sont considérés comme des classiques inestimables. Sans doute un des plus habiles réalisateurs du XXème siècle, Hitchcock a été reconnu comme le maître du suspense cinématographique, un créateur qui a exercé un «contrôle presque pavlovien» sur les émotions et les réactions de son public. Ces émotions et le plasir qui en découle sont acquis par le biais des techniques cinématographiques et des procédures subliminales qu' Hitchcock contrôlait si bien. Il pourrait vraiement captiver le public; c'est ainsi que sa capacité de manipuler les émotions des spectateurs est devenue légendaire. Dans cet*

article on va aborder la conception artistique d'Hitchcock vis-à-vis l'art cinématographique comme véhicule du plaisir resultant de l'émotion, du suspense, et, de manière explicite, de la structure du montage, en s'appuyant, tout d'abord, sur ses interviews et ses déclarations et secondairement sur la critique qui lui a été dédiée.
Mots-clé: *Alfred Hitchcock, cinéma, suspense, technique cinématographique*

61. ASSESSMENT OF APPLIED COMPETENCE AFTER USING VIDEO ALGORITHMS FOR INJECTION TECHNIQUE AMONG MEDICAL STUDENTS

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Abstract: *The report examines the creation of a new kind of educational resources - video algorithms for injection technique. Students from the Department of Health Care of the University of Ruse took part in the making of the videos. The video algorithms are based on the internet platform Youtube. Students are expressing considerable interest in them. The applied professional competence is assessed through specially designed protocols. The conclusion drawn from the study is that the video algorithms are positively accepted by the students. Through them the future medical personnel could acquire new interactive experience, develop their critical and analytical thinking and acquire new manipulative skills and professional competence.*
Keywords: *training, medical specialists, nurses, midwives, video algorithms, injection technique, professional competence, assessment of acquired skills*

62. CONSIDERATIONS ON PARTICULAR ASPECTS OF ENGINEERING LANGUAGE

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Abstract: *Beside the usual communication tools of engineering professionals, i.e. formulae, charts, drawings and the like, language is by far the greatest (sic!) means of conveying professional messages and ideas. Projects, memos and contracts depend not only on their contents as to the reactions and further development they trigger, but also on the linguistic manner in which they are brought forward. Clear and unequivocal phrasing and language are of utmost importance in contracts where any misunderstanding may lead to costly consequences and even more so in building specifications, operating and repair instructions! Engineers are usually less interested in linguistic issues. Nevertheless, they are the exponents of the paradox that they express themselves more clearly and accurately than humanities professionals. The engineering jargon is not made up entirely of symbols, formulae and equations. In order to reach the public sphere, one has to use everyday terms and concepts. Engineering terminology is characterized by specialized terms, certain forms of sentence structures and accuracy of expression. Texts are well structured and have a mainly descriptive nature. From the way texts are conceived and from terms and phrases used in texts at a particular time, one can draw conclusions about the prevailing conditions of the time and about the state of technology at that moment. Consequently, language is in every respect an eclectic phenomenon.*
Keywords: *language, engineering terminology, specialized vocabulary, communication*

63. ON SOME LINEAR AND POSITIVE OPERATORS ON SLOT

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Abstract: *The aim of this note is to discuss about the behaviour and the properties of some linear and positive operators on SLOT.*

64. LARYNGEAL COMPLICATIONS ASSOCIATED WITH GASTROESOPHAGEAL REFLUX DISEASE

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Abstract: *Aim of the study is to highlight the laryngeal pathology induced by the gastroesophageal reflux, frequently underdiagnosed in current medical practice, especially when it occurs in the absence of digestive associated symptoms. Early diagnosis followed by an appropriate treatment to evolutive stage of laryngeal lesions ensure their healing and/or prevent their progression to irreversible forms. Evaluation and ranking of diagnostic techniques and technologies useful in highlighting laryngeal lesions caused by gastroesophageal reflux disease, awareness mechanisms by which it can alter the functions of the larynx, especially phonation. Results consist in making a diagnosis protocol focused on each patient symptoms and one for assessment of response to therapy, especially for patients with laryngeal symptoms only. Methods of diagnosis and treatment are focused on recovery of phonation function using from current therapy resources to devise systems for voice reproduction in normal conditions when the larynx is irreversibly compromised.*

65. THE INTER-WAR ROMANIA'S FOREIGN POLITICS WITH THE COUNTRIES BORDERING THE BLACK SEA. THE CONTRIBUTION OF NICOLAE TITULESCU

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"Nowadays, nothing is local or even continental anymore, everything is global instead." Nicolae Titulescu

Abstract: *The first to intercede in support of reestablishing a peaceful climate after the First World War was the American president Woodrow*

Wilson, who, in 1919, proposed The Nations' Society Statute to be adopted. Romania was one of the founding members whose remarkable contribution is worth mentioning, Nicolae Titulescu himself holding the presidency of this organization. Foreign relations of Romania in the Balkans, and especially the ones with the countries bordering the Black Sea, were oriented towards creating a stable political space and an anti-revisionist front, as the Balkan area had been continuously affected and influenced by the alliances and confrontations between the countries in this geographical space.
Keywords: *Black Sea, Balkan, Foreign relations, national sovereignty*

66. INTERCONNECTING NETWORKS WITH DIFFERENT LEVELS OF SECURITY – A PRESENT NATO PROBLEM

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Abstract: *A situation often met in the Romanian Armed Forces in recent years is the need for interconnecting two networks (domains) with different levels of classification. Considering that the Romanian armed troops are involved in numerous missions with NATO partners, solutions, already implemented across the organization, are considered to be applied in domestic systems, also. This paper presents the solutions adopted by NATO in order to solve the problem of cross-domains interconnections. We present the maturity level reached by these solutions and the possibility of implementing these solutions in the Romanian Armed Forces, with or*

without specific adaptation to our own rules and regulations. The goal is to use a NATO already proved solution to our national classified networks.
Keywords: *Informatics, Networks, Interconnection, Communications*

67. ALGORITHM FOR DETERMINING THE MAXIMUM VALUE OF ALL SUBGRAPHS WITH k VERTICES

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Abstract: *In this paper we will prove how all subgraphs with k vertices and weighted edges of a graph can be generated and how can be computed the maximum value of all subgraphs with k vertices. The paper will include a written C++ program that implements the presented algorithm. Moreover, a use case scenario for this algorithm will be described.*
Keywords: *graph, subgraph, compute, algorithm, program*

68. ALGORITHM FOR DETERMINING THE MINIMUM VALUE OF ALL SUBGRAPHS WITH k VERTICES

Paul VASILIU[1]
[1]Lecturer PhD Eng. Department of Electrical Engineering and Electronics, „Mircea cel Batran" Naval Academy

Abstract: *In this paper we will prove how all subgraphs with k vertices and weighted edges of a graph can be generated and how can be computed the minimum value of all subgraphs with k vertices. The paper will include a written C++ program that implements the presented algorithm. Moreover, a use case scenario for this algorithm will be described.*
Keywords: *graph, subgraph, compute, algorithm, program*

69. SOME DIFFICULTIES IN LEARNING AND TEACHING MARITIME ENGLISH

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Abstract: *The intensifying need of good knowledge and skills of maritime English is one the characteristics in the global maritime field. With more and more multilingual and multicultural crews joining the seafarers' maritime community, their competence in maritime English has become a day to day concern. During this process of specialized English teaching we have observed there are some learning and teaching problems relating to the skills involved in the English language communication. Current problems of building students' motivation, developing learner autonomy and improving performance are addressed.*