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BOOK OF ABSTRACT

CONSTANŢA, 05 APRILIE 2019

SECTION I

MECHANICAL ENGINEERING STUDENTS SESION

- 1 -

Tehnologii privind amenajarea și montarea cablurilor la bordul navelor
Technology used to create and fit cables on board ships

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Abstract In the shipbuilding industry when it comes to safety, nothing is left to chance. When striving to protect life and assets, it is required to maintain the tightness of the bulkheads. This can be done with the help of installing fully functional sealing solutions.

The cable and pipe transits will be installed in key areas including the engine room, power generators and external lighting. These are an important factor to secure high safety standards. Modular-based cable and pipe seals, is offering sealing technology that simplifies ship retrofits and upgrades.

To ensure safety on board, the system seals for transits will provide protection against risk factors such as fire, water, pressure, gas, vibrations, electromagnetic interference (EMI), electromagnetic pulses (EMP) and explosion.

Keywords: *safety, cable, seal, transits, installation*

- 2 -

Analiza procesului tehnologic de fabricare a tubulaturilor navale
Analysis of technological processes specific to naval pipelines

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Abstract: In this paper it is presented the construction and installation of piping system and also a description of the isometry drawings. These operations are difficult to mechanize and automate, assuming a large amount of adjustment. The specific value of the pipework reaches about 8-12% of the workload in a ship's construction. A feature of piping installations is that they fall under the category of shipboard reinforcement work and depend on the ship's construction and finishing stage.

***Keywords*:** *piping system, isometry, cutting, bending, pipe classes, fittings.*

- 3 -

Studiul funcţionării şi operării drăgilor absorbant - refulante
The study of the work method and operation of the trailing suction hopper dredgers

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Abstract The trailing suction hopper dredger (TSHD) is a ship that excavates sand and sediment from the bottom while sailing. This dredger plays a crucial role in large-scale land reclamation projects. This vessel is extremely specialised and require special attention for design, construction and operation. In this paper work, a systematic methodology is developed to evaluate the dreging work method and the operating mode of the TSHD.

Keywords**:** *trailing suction hopper dredger,work method, operation mode.*

- 4 -

Colectarea și reciclarea deșeurilor marine cu ajutorul navelor specifice
Marine Waste Collection and Recycling by Specific Ships

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Abstract Waste collection and recycling is becoming a growing challenge for the Maritime Authorities. That's why we chose to debated his subject being determined by these verity and magnitude of the pollution. Although the problem is frequently approached, the percentage of pollution increases from year to year. Oil pollution and some removal of pollutants may affect different types of aquatic habitats in various ways. In this paper we chose to present method of waste collection with specific ships. Port pollution relates to water, soil and the atmosphere contamination. This is due to specific port activities such as maneuvers and operation of ships, to washing of oil tankers especially. The recycling term reflects the concern over what surrounds us. It is essential to take care of our environment.

Keywords**:** *pollution, waste, recycling, port, environment, sea*

Utilizarea softwarelor în proiectarea elicelor navale
Types of software used in the design of naval propeller

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Abstract In this paper, I present methods and the importance to draw and simulate a naval propeller in software.Marine propellers design requirements are, nowadays, always more pressing.Not only maximum efficiency but also comfort and environmental demands and regulations have to be satisfied.

Today the design and construction process of a naval propeller, with special formal and performance characteristics, involves a number of operators that has been increasing considerably in recent decades, and can be correlated with its dimensional and typological growth. At the same time we are witnessing a new design approach, where the possibility given by the computer contribution to represent processes and results becomes crucial.

The design procedure of a propeller is not well defined. Generally, one must first decide on the number of blades, which may be based on experience or could be an arbitrary number, for starting its design and the analysis iteration process.

Keywords**:** *propeller, PropCad, CAESES, design, software*

Asigurarea stabilității navei pe timpul operării
Ensure ship stability during operation

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Abstract The concept of hydrostatics and stability can be deemed as one of the most important areas of focus in ship design and operation, not only to ensure the safety of the ship, cargo, crew and passengers, but also to enable proper conditions for completion of all the processes on a ship. Guaranteeing a sufficient level of safety from the point of view of stability is typically considered to be a matter of design. To execute in a correct and efficient way all the freight operations has a vital importance; otherwise, any deviation from the normal course is extremely dangerous, leads even to unwanted effects. In this respect, the scope of this paper is to highlight such/this type of operation and come up with suggestive examples, that show the risk of a mistaken operation. The aim is to study the variation of the shear forces and bending moments; those curves must be below the required limit.

Keywords**:** *shear forces, bending moments, stability, trim, cargo*

SECTION II

MANAGEMENT AND INDUSTRIAL ENGINEERING STUDENTS SESION

- 7 -

Aliaje cu proprietăți magnetice speciale. Magneți AL NI CO
Alloys with special magnetic properties. Magnets AL NI CO

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Abstract AlNiCo magnets are those magnets that mainly contain Aluminum, Nickel and Cobalt, which also have iron, copper and titanium additions. The term "AlNiCo" magnets derive from the symbols of the three main metals: Aluminum, Cobalt and Nickel.

Advantages of AlNiCo magnets: Mechanical resistance to high temperatures (AlNiCo magnets can be used up to 525 ° C), resistance to corrosion of acids and solvents, relatively high residual energies and high residual induction.

Disadvantages of AlNiCo magnets: increased frailty, very low machinability.

***Keywords*:** *magnets, alloys, magnetic characteristics, magnetic flux, magnetic axis.*

- 8 -

Utilizarea materialor supraconductoare pentru trenurile MAGLEV
Use of superconducting material for MAGLEV trains

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Abstract The paper presents some theoretical considerations regarding the superconducting materials characteristics. Also, the paper presents the main technologies of Maglev trains function that uses superconducting materials.

***Keywords*:** *materiale supraconductoare, efect Meissner, trenuri Maglev*.

Magneți cu NEODIM
Magnets with Neodymium

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Abstract The neodymium-iron-boron magnet (Nd_2 $Fe_{14}B$), also known as neodymium magnet or supermagnet, is one of the permanent magnets containing a rare earth metal that exceeds the coercive force and magnetic induction of any known magnet so far.

Neodymium magnets are relatively new, they were developed in the mid-1980s, and today they can be found in many modern applications, ranging from fridge magnets to wind turbines.

Keywords**:** *magnet, neodymium, corrosion, magnetic induction, coercive force*.

INVAR
INVAR

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Abstract The damage is an iron-based alloy (64%) and nickel (36%), which may contain some chromium additions to improve certain properties. It was discovered in 1896 by Swiss physicist Charles Edouard Guillaume, who received the Nobel Prize for Physics in 1920 for his research on iron-nickel alloys.

The main characteristic of the invar is represented by a low expansion at high temperature exposure. When we analyze a piece from a dimensional point of view we will refer to two coefficients: the thermal expansion coefficient: the thermal expansion coefficient α and the coefficient of temperature of the modulus of elasticity β.

Keywords**:** *invariants, alloys, thermal coefficient of expansion, temperature coefficient, modulus of elasticity*.

SECTION III

MARINE AND NAVAL ENGINEERING STUDENTS SESION

- 11 -

Tehnici avansate de prevenire a incendiului la bordul navei
Advanced fire prevention techniques on board of the ship

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Abstract In this article we are presenting the modern techniques of safety from ships, especially oil tankers. The purpose of this research aims to show a panoramic vision of the most important safety systems we usually meet in oil tankers. The first part of this research involves a description of inert gas system and a thorough description of all safety systems/mechanisms we meet in an oil tanker for the prevention of over and underpressure.

Inert gas is produced on board of mainly crude of oil carriers, gas carriers and Chemical carriers, and in Bulk carriers by using either a flue gas system or by burning Marine Diesel Oil in a dedicated inert gas generator, or produced clean Nitrogen by an dedicated Nitrogen Generator.

Inert gas keeps the oxygen content of the tank atmosphere below 8%, this making any air/hydrocarbon gas mixture in the tank too lean to ignite. Inert gas is most important during discharging of cargo on tankers and during the ballast voyage when more cargo and/or hydrocarbon vapor is likely to be present in the tank atmosphere.

***Keywords*:** *tanker, safety, inert gas system, prevention, tank atmosphere*

- 12 -

Studiul sistemelor active cu aripioare retractabile utilizate la navele pasager
The study of active systems with retractable fins used in passenger ships

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Abstract In this paper, I have presented the study of active systems with retractable fins used in passenger ships. The problem of stabilizing ships against the different motions in a seaway has been studied for many years and is not at the present completely solved even though great advances have been made in the military and commercial construction of ships. In commercial shipbuilding, stabilization of motions is important especially in passenger ships and the main reason is to provide passenger comfort. Aboard military ships, it is also important because it can improve the performance of search radar, sonar, weapon systems, crew's efficiency and some other routine tasks. Theoretically, a ship floating on the surface of quiet or disturbed water may be considered as a rigid body performing oscillations that constitute the motions of the ship.

***Keywords*:** *stabilizing ships, weapon systems, retractable fins*

- 13 -

Tendințe moderne pentru propulsia remorcherelor maritime și fluviale
Modern trends for propulsion of sea and river tugs

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Abstract This paper presents modern trends for propulsion of sea and river tugs. Tugs have evolved over time, gaining specific peculiarities and have been specializing in towing maneuvers on rivers, canals, docks, harbors, outdoors, estuaries and the sea. Depending on the propulsion system and propeller position, I will present an example of a propeller that combines propulsion and steering in a single drive. Today, Voith Schneider Propellers are in use all over the world wherever precise, safe and efficient maneuvering is of the essence.

***Keywords*:** *tugs, propulsion system, propeller position, steering, efficient maneuvering*

- 14 -

Analiza stabilizatoarelor active utilizate la bordul navei
The studies of active stabilizers used of board of the ship

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Abstract: The article presents **t**he problem of stabilizing ships against the different of roll motions. The problem been studied for many years and is not at the present completely solved even though great advances have been made in the military and commercial construction of ships. The stabilizer of roll motion can be improved using tank stabilizer. Generally, these tanks can be divided into passive and active tanks. The most used method of against anti-rolling movement is with the help of active stabilizers, or fin stabilizers.

***Keywords*:** *tank, roll motion, active tanks, fin stabilizers, tank stabilizers*.

- 15 -

Consideraţii privind tehnologiile avansate de tratare si separare a apelor uzate de la bordul navei
Considerations on Advanced Wastewater Treatment and Sewage Technology on-board

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Abstract The impact of sewage on marine environment is a concern. Sea water can be polluted by pathogens, nutrients, detergents, pesticides and heavy metals.. These sea water are shared by community for recreation, swimming and food production, the environmental and health risks are high. Improperly treated sewage on-board can harm ecosystem. Most of the vessels has an sewage treatment system, which is designed to remove pollutants from sewage water before releasing it from the vessel to the sea. Primary sewage treatment is a relatively physical process that mainly removes solids. Secondary sewage treatment using bacteria to decomposes organic matters, and final chlorination is used for sterilization of effluent before it is released to environment. The potential pollutants remaining after secondary sewage treatment include heavy metals, nutrients and non-biodegradable organic chemicals. “Advanced sewage treatment” is a generally term covering treatment designed to remove any of these substances. A variety of types of Advanced Waistwater Treatment Systems are available. Some are better proven than others and some are more complex and expensive, depend on their size and design.

Keywords**:** *sewage, sewage treatment, advanced sewage treatment system, nutrients*

- 16 -

Influența squat-ului asupra rezistenței la înaintare a navei
Squat effect in Reduction Drag

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Abstract Over last decade, there has been observed a steady increase in ship size, particularly oil tankers, container carriers, RO - RO ships or LNG carriers. Regarding the dimensions of the canals or rivers frequented by these ships usually do not increase at the same pace. A moving vessel continuously displaces and accelerates a significant amount of water, which, according to Bernoulli's principle, leads to a drop in pressure around the ship. This phenomenon is called squat. The squat effect causes an increase in ship’s draught, trim and reduction of underkeel clearance. It is caused by the relative movement of the ship’s hull through the surrounding body of shallow water. The main target of this presentation is to increase the importance of specified phenomenon.

Keywords**:** *squat effect, canals, ship, underkeel, shallow water, RO-RO, block coefficient.*

- 17 -

Unele soluții constructive privind siguranța corpului navei
Some constructive solutions to the ship's safety

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Abstract The ship is equipped with rescue means in accordance with international regulations and norms (SOLAS, LSA) and in accordance with the requirements of the Naval Classification Registers which have taken over some of the regulations. In this paper we present the concept of a ship's vitality system, which allows the vessel's body to be maintained on the floating line, under the conditions of flooding several compartments of the ship. The idea of this type of system arose as a result of the analysis of the ship's inflection devices with compressed air. The authors only summarize the presentation of the concept, and in the future to detail and deepen this ship's vitality system.

Keywords: *ship, life jacket, tank, SOLAS, ship's safety, vitality, float line.*

- 18 -

Analiza manevrabilității navei dotate cu sistem integrat de propulsie si guvernare
Ship maneuverability analysis endowed with the integrated propulsion and governance system

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Abstract In this paper we are discussing the governing system that has to ensure the observation of the ship's way or the change of direction, by applying (in command) vertical moments of rotation that act simultaneously with the axial force that makes the propulsion of the ship. In the normal sailing regime, the ability of the ship to maintain its sailing direction is essential. Maintaining the initial trajectory is related to the concept of stable equilibrium. A body is in a stable balance if it returns to its original equilibrium position after discontinuing the action of disturbing factors. Otherwise, the steering wheel or automatic pile must apply trajectory corrections.

Keywords**:** *governing system, propulsion of the ship, direction, moments of rotation*

SECTION IV

DEBUTANT-ENGINEERS RESEARCHERS STUDENTS SESION

- 19 -

Business Intelligence
Business Intelligence

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Abstract Business Inteligence (BI) comprimes the strategies and technologies used by enterprises for the data analysis of business information. Business Intelligence technologies provide historical current and predictive views of business operation. Common functions of business inteligence technologies include reporting, online analytical processing, analystics, data mining, process mining, business performance management beachmarketing, text mining predictive analystics and perscriptive analystics [1].

Big Data is a field that treats of ways to analyze, systematically extract information from, or otherwise deal with data sets that are too large or complex to be dealt with by traditional data-processing application software. Data with many cases offer greater statical power, while data with higher false discovery rate [2].

***Keywords*:** *Business Intelligence, Big Data, Analyze, Technologies*

- 20 -

Proiectarea și dezvoltarea unei stații meteorologice
The design and development of a weather station

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Abstract Climate change is one of the most important factors that can affect the quality of human life and the activity of the population in general. Current means of collecting meteorological data are quite limited and are represented by extremely expensive weather stations, a feature that can make monitoring inadequate due to the financial inconveniences generated by the cost of these equipment. In this paper was proposed and developed a hardware module based on Arduino UNO development board, and on different sensors, whose cost is reduced and which measures meteorological parameters such as: air temperature, atmospheric pressure, humidity, and speed and direction of the wind. It sends through the thread information recorded to a graphical interface running on a PC, which is very easy to use. The application graphically displays current weather conditions and records them in a format accessible by MS Excel. The rationale behind this program is to monitor and record meteorological parameters in order to use them to make weather forecasts. It can be very useful for air navigation, maritime navigation and, in general, for weather forecasting.

***Keywords*:** *stație meteorologică, date meteorologice, placa de dezvoltare Arduino UNO, senzori*

SECTION V

THE PREAMBLE OF ENGINEERING STUDENTS SESION

- 21 -

Dezvoltarea Industriei 4.0
Industry Development 4.0

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Abstract, Industry 4.0 is a significant transformation of all industrial production by unifying digital technologies and the Internet with conventional industry. The views are divided on the use of the terms of revolution or evolution.

Technological exponential advances, manifested through processing power, storage capacity and the multitude of developed applications have made industry evolve to this level.

From an economic point of view, Industry 4.0 represents a chance for relaunching, re-engineering production and evolving business models for services and products, and from a political and social point of view it is intended to reindustrialize Europe for sustainable development.

***Keywords*:** *data analysis, design, manufacturing, exploitation, digitization, computerization, innovation.*

- 22 -

Platformă de laborator pentru studiul circuitelor basculante cu tranzistoare bipolare
Laboratory platform for the study of dump circuits with bipolar transistors

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Abstract Bipolar circuits are characterized first determining the existence of condition, including rapid tansitions occur movable processe.Movable processe can be stable and unstable.In stable state the processe can be indefinitely in the absence of a command signal.In unstable condition, the circuit remain a limited time after overturning in the other state, without the intervention of an external signal.

Keywords: *movable circuits, transistors, bipolar transistors, electrical signal, stable and unstable processe.*

- 23 -

Sursa stabilizată de tensiune 0-20 V, 1-3 A
Stabilized voltage source 0-20 V, 1-3 A

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Abstract Study of DC voltage supply circuits is important for future military sailors as onboard ships are more modern equipment supplied with DC voltage. A specialized integrated circuit is LM 723, wich is offen used in such an arrangement of electronic circuit is presented in this publication.

Keywords*: electrical circuit, power source, electrical resistance, electrical power, resistor*

- 24 -

Digitalizare și informatizare
Digitization and Computerization

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Abstract Hello everyone! Now, we are ready to introduce you in our project about computerization and digitization, two subjects which are very actual and interesting in our times. The digitization represents the evolution of technology in time. We all know that technology has evolved in time, and year by year the technology is evolving more and more. The Internet is the technological support of digitization, and we will also talk about it and his evolution in time, because the internet represents the beginning of digitization.
The definition of computerization is very simple, it is about using computer science to solve problems in this domain. In our country, the computerization is not very well developed but in a few years time it will raise up. We are here to offer you incredible information about these two subjects and we hope to attract you. We decided to talk about them because these two subjects represent the future, our future, and they will make our lives much easier than now. We do not have much to say for now but you will be impressed by our project soon.

Keywords: *computerization, digitization, future technology, Internet, computer science*

- 25 -

Atlantida
The Atlantis

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Abstract, The sunken city of Atlantis have always been considered a myth, but people never gave up hope in finding it. This legendary city appeared in multiple books, animations and films, also being present in the famous book „Twenty Thousand Leagues Under the Sea", by Jules Verne. There are thousands of theories concerning Atlantis and people believe it's location is in different places of earth, places where significant changes happened in history. From the Ancient Egypt to the dark ages, every story has it's own description that, in the end, has this city and nation as it's core.

***Keywords*:** *Atlantis, City, Jules Verne, Ancient Egypt, Theories, Myths, Legends*

- 26 -

Interconexiuni Lună-Pământ
Earth-Moon interconnections

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Abstract In this paper work, we propose an analysis of Earth-Moon interconnections. Starting from the Big-Bang theory of universe creation, the authors find that by chemical point of view, the Moon and Earth are alike. This project contains a variety of curiosities related to them. This way, a multitude of myths and legends that relate to the evident bonds between these special bodies. We see the similarities of physical and mechanical principles of these two, of course, talking about two different gravity forces. And last but not least, the authors repeat a series of conspiracy theories based on, for example, the arriving of mankind on Moon or the consideration of the artificial appearance of the natural satellite of Earth.

***Keywords*:** *Moon, Earth, gravity, mechanical laws, conspiracy theories, myths, legends.*

- 27 -

Dansul, artă sau ştiinţă
Dance, art or science

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Abstract Sportive Dance is a perfect combination of art and sports, it enhances the musical sense in harmony wing movement and partner synchronization. Besides the physical benefits brought by the dance, it is observed the important contribution for psychical development. For example, the subtraction, addition, multiplying and division specifically to mathematics are similar to the dance moves, step after step that forms the choreography. Other similarities between science and dance are the musical measure data, accent, tempo with mathematical references, and the balance and stability referring to physics. No matter the used dance style, there will forever be a direct connection between the exact science, art and dance.

***Keywords*:** *sportive dance, exact science, mathematics, physics, art, dance style, accent, tempo, musical measure*

- 28 -

Imaginea unui inginer in viziunea elevilor din ciclul primar
Image of an engineer among the primary school students

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Abstract Inflow of young learned community into the field of pure engineering research has been declined throughout the world including Romania. The initial attitude and the understanding of the nature of scientific endeavors and the people associated with them have a great role in determining the choice of engineering as career. How children perceive the engineers can indicate how they perceive the nature of science. The present study finds the images of an engineer among the primary level students through a projective technique to identify any stereotypical perceptions. The study also indicates their understanding of the nature of science and suggests modifications in the science curriculum.

***Keywords*:** *assess the impact, learning outcomes, teaching strategies.*
