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CUPRINS

INGINERIE NAVALĂ ŞI NAVIGAŢIE – ŞTIINŢE NAUTICE

BIROUL SECŢIUNII
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1. Modes in the Maritime Transportation System – A Functional Approach to Debit Vulnerability

Author: Adrian-Gabriel ALEXANDRU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor:
Abstract: Maritime transportation system is essential for world trade. In this presentation the maritime transport system is regarded as a transfer mechanism; a technical system that it serves its purpose by relocating goods for dependents. Understanding the key functions and capacities are prerequites for the ability to move goods, whose loss is failure ways, it allows the creation of a „business continuity plan" for maritime transport system.

2. Role of Hydro meteorological Factors in Conducting Mine Countermeasures Actions

Author: Andrei ANDRIEȘ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor. conf. univ. Dr. ing. Dinu ATODIRESEI
Abstract: This paper aim is to identify hydro meteorological parameters that could hinder mine countermeasures actions and to examine their impact in conducting such activities. This

thesis is based on real-life experience and the main objective is to determine a set of measures in order to mitigate the negative impact of hydro meteorological parameters and to assure the best practices in this kind of environment.

3. T22 Ship Management on Maritime Security Imposition
Author: Georgian Cosmin ANGHEL, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA
Abstract: Maritime security is an umbrella term informed by security agendas to classify issues in the maritime domain that are often related to national security, marine environment, economic development, and human security. The concept of maritime security is transformative and has evolved from a narrow perspective of national naval power projection towards a "Buzzword" that incorporates many interconnected sub-fields. The definition of the term maritime security depends greatly on the organization (e.g. governmental, non-governmental, intergovernmental, or intergovernmental) using it. The sea is a central space for maritime security and has been widely understood as a "stage for geopolitical power projection, interstate warfare or militarized disputes, as a source of specific threats such as piracy, or as a connector between states that enables various phenomena from colonialism to globalization". Romania has participated in Operation "Sea Guardian" since 2019 through the T22 frigate "King Ferdinand", the ship being part of the package of forces made available to NATO, thus resuming the participation of naval forces in missions in the Mediterranean after degradation security situation in the Black Sea, following the annexation of the Crimea by the Russian Federation.

4. Naval Communications Inside of a Type ATALANTA LEADTHROUGH Naval Group

Author: Mihail ANTON, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: Naval mines are the cheapest way of naval warfare that can immensely delay an opponent during an operation. In this paper a will try to firstly define what mine warfare really is and more important what it implies. Moreover I will define the lead through concept and operation and what is the importance of this kind of operation not only for the Navy ships but also for the merchant marine vessels. Also in this paper I will try to talk about the types of naval communication that can be used during the lead through maneuvering of a Atalanta naval group.

5. The Impact of The Sea Water Freezing Phenomenon on Military Operations on the Romania's Black Sea's Shore

Author: Robert-Vlad BADIU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cdor conf. univ. Dr. ing Dinu ATODIRESEI

Abstract: The purpose of this paper is to emphasize the importance of studying the ice regime at the Black Sea, as there are not many studies made on the Black Sea's water freezing phenomena. Based on the few studies made in this domain, which include satellite images of the main parameters which determine optimal condition for sea ice formation, periodic measurements and observations of the ice evolution along the past decades, we have analyzed their results and drawn some conclusions regarded to the negative influence of these rare but very important phenomena on the main military activities executed on the Romanian's Black Sea's shore by different naval, air and special units forces.

6. Planning a Hydrographical Research Mission With the Hydrographic Sensors on Board the Hydrographic Maritime Vessel "Cpt. Cdor Al. CĂTUNEANU"

Author: Eugen Lucian BEZERGHEANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing Dinu ATODIRESEI

Abstract: This paper describes how to plan and execute a hydrographic research operation with a specialized ship of the Romanian Naval Forces. These operations have the role of collecting data on the nature of the seabed, currents, salinity as well as the elements of propagation of the speed of sound in water at different depths.

7. Route Analysis Rotterdam-Las Palmas of an Oil Tanker 50000 TDW, Cargo Carrying Fuel Oil

Author: Laurențiu-Claudiu BOSTAN, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing Dinu ATODIRESEI

Abstract: The project includes information regarding the goods, their classification in the IMDG code, information regarding the loading and unloading ports and the conditions imposed for loading and unloading the goods, in the respective ports.

8. Tow and Be Towed

Author: Ilie-Alexandru BUCĂTĂRIȚA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA

Abstract: "Although most towing is performed by ships that have been specifically designed and built for this purpose, emergency towing is sometimes accomplished by ships other than tugs. This concept is referred to as "tow-and-be-towed" or "emergency ship-to-ship towing." In an emergency, any ship

can tow the same type of ship or from similar class, with each ship providing half the towline. Ships not specifically equipped for towing can fashion a temporary towline from anchor chains, wire straps, mooring lines, or combinations of these items."[1]
In this paper I will examine the necessary equipment, the stages of the towing maneuver and the management of the crew members that have a role in towing on board of a minesweeper type of ship.

9. The Influence of Piracy on the Maritime Industry
Author: Radu-Constantin CASIADE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU
Abstract: Approximately 80% of world trade currently travels by sea, representing around 93,000 merchant vessels, 1.25 million seafarers, and almost six billion tons of cargo. Merchant ships are still confronted in many parts of the world with the threat of violent attacks by armed robbers, both at sea and while in port or at anchor. Disturbingly, many of the attacks involve firearms, and a growing number of seafarers are murdered each year. There is also growing evidence that some attacks are linked to organized crime and that many of the perpetrators are professionally trained. The aim of this paper is to highlight the threat that piracy represents to the maritime industry, including the changes and the costs that are required in order to overcome this constant danger.

10. The Ship's Commander: Manger or Leader
Author: Vili-Vasile CIULINĂ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. CLC Andrian-Sirojea MIHEI

Abstract: This paper intends to draw a conclusion based on real arguments about how a ship commander must lead his crew in order to streamline the operations carried out on the ship. It also aims to show the pros and cons of both the leader and the manager thus managing to make a correlation between the 2 cases. It is clear that a ship commander must know how to be a good leader but also a good manager. This paper hopes to provide the answer to the question "At what point does the commander have to be a leader and when should he be a manager?" All this in one place will draw a conclusion on how the commander has to apply the 2 styles of leading the ship and the crew trying to show which style is most effective and when.

11. The Study of Navigation in the Black Sea, in Case of Positioning Errors

Author: Adrian-Florin CIUŞANU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: Global positioning systems have undergone a continuous and rapid development in recent years, leading to the improvement and development of applications in different fields of activity. Currently, global positioning systems are widely used, having significant civilian and military applications. Maritime transport is an area in which the positioning elements are of particular importance, being indispensable in monitoring the trips and determining the position of the ship. It should be noted that these systems are not entirely perfect. The systems cannot provide 100% global coverage simultaneously, while there are still areas where position determination accuracy is lower. At the same time, these systems may be vulnerable to certain devices built specifically for the purpose of affecting their operation. The purpose of this topic is to understand the working of these

global positioning systems, the causes that lead to errors, as well as the study on navigation in the Black Sea in case of these errors.

12. Safety Management on Board for Bulk Carrier Ships
Author: Andrei CIUTACU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Conf. univ. Dr. Romeo BOŞNEAGU
Abstract: The safety management system (SMS) is an organized system planned and implemented by the shipping companies to ensure safety of the ship and marine environment. SMS is an important aspect of the International safety management (ISM) code and it details all the important policies, practices, and procedures that are to be followed in order to ensure safe functioning of ships at the sea. All commercial vessels are required to establish safe ship management procedures. SMS forms one of the important parts of the ISM code. The safety management system (SMS) therefore ensures that each and every ship comply with the mandatory safety rules and regulations, and follow the codes, guidelines, and standards recommended by the IMO, classification societies, and concerned maritime organizations.

13. Sound Propagation Paths
Author: Teodor Daniel ENE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA
Abstract: The speed of sound in the sea is influenced by temperature, pressure and salinity. Temperature is the most important of these environmental factors and therefore the thermal structure of water is of significant tactical importance in underwater detection of submarines. The tracing out of sound propagation paths is governed by Snell's law. This paperwork has the aim to define the sound propagation paths

through water: direct path, surface duct, half channel, sound channel, bottom bounce and convergence zone. It is important to understand the sound propagation paths in order to improve the accuracy of submarine detection.

14. Type T22 Ship's Management for Replenishment at Sea with Fuel

Author: Ștefana-Mihaela FARCAȘ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA

Abstract: Replenishment at sea (RAS) is the fuel transfer method, between two vessels, underway, in general, one of them being a fuel tank. If for commercial vessels, the replenishment at sea method is not very practical or useful, for military ships, we can say that we are already talking about an operational necessity. Used since 1870, when the Royal Navy used coal refueling to extend the deployment period of ships at sea and thus having a strategic advantage, refueling at sea is a true asset of military ships, allowing them to continue to be deployed in various areas of strategic and operational importance, without being constrained by the autonomy of the ships. Replenishment at sea is a method of refueling, as necessary and useful, as risky in terms of safety. I mention here the dynamics of the forces that intervene between two underway vessels, the effects created by them, as well as the possible danger resulting from the transfer of fuel at a much higher pressure than the refueling stations at the dock. At the present moment, in Romanian Navy, only the type T22 ship are NATO equipped for replenishment at sea, in addition to the other navies, in which almost every ship is NATO certified for refueling at sea. The purpose of the present paper is to present, analyze and compare the methods of refueling at sea of a type 22 T ship, depending on the weather, speed and ship performing the delivery, the compatibility requirements

according to the delivery ship, as well as the management of the activities on board to perform this special maneuver in safety conditions.

15. Ship Working in Narrow Areas. LPG Ship Manoeuvring for Houston Channel Transit

Author: Marian-Alexandru LUNGOCI, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA

Abstract: Narrow space maneuver subjects the ship to effects that can reduce its nautical qualities and cause accidents if not considered in early and controlled time. It is important that they are discussed by the watch team before maneuvers in narrow spaces and then with the pilot. Companies offer procedures that need to be taken into account in order to prevent and in time to prevent possible effects that may affect navigation. These procedures must be followed and are implemented in the elaboration phase of the passage plan and in the preparation phase of the ship for maneuver.

16. Safety Management in the Bunkering of Military Ships

Author: Cristian LUNGU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. CLC Andrian-Sirojea MIHEI

Abstract: Every vessel needs bunkers. Some are run by fuel oil, others by gas oil, and some need both for their machinery. In addition, vessels need lubricating oils and hydraulic oils. The oils are normally taken on from barges or shore connections through hoses. Seamen know these things. They know how to plan the bunkering operation, how to follow the routines set out in the vessel's safety programe. They know how to calculate their need for bunkers and how to order. They know how to hook up the bunker barge and how to connect the hoses to their

manifolds. And they know how to monitor the bunkering operations. And yet, bunkering accidents do happen. A system needs to be developed which makes it possible to bunker in port or at sea under safe circumstances. In this conditions it is necessary for the safety of the seamen, environment and ship to implement a rigorous safety management system for the bunkering of military ships.

17. Study on the Safety of Navigation for the Transit through the Dam of Naval Mines at the Entrance/Exit of the Port. Study Case, Port of Constanta

Author: Ion Adrian MATEIAȘI, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: This paper presents the ways in which commercial vessels can safely cross, from navigation point of view, the dam of naval mines in the Port of Constanta. Mining is one of the branches of the anti-submarine fight and is defined by specialists as the use of marine mines both strategically and tactically. As regards the security of foreign or own vessels which the Romanian Naval Forces allows the transit through the access steps used by the state or through specific areas through which access can be made to the national ports, these ships will follow exactly the indications of the military ships that conduct these operations, in most cases the military vessels being represented by the minesweepers.

18. Maritime Cyber Security

Author: Anca-Georgiana MEILĂ (MAFTEI), Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: Marine safety and security has been one of the main objectives of the International Maritime Organization (IMO) during the past years. The International Safety Management Code (ISM) and International Ship and Port Facility Security Code (ISPS) were created to ensure safety in the ship and harbor operations, as well as the working environment which includes personnel on shore and on board vessels. In today's world, security concerns are not limited to physical manifestations of crisis. Historically, once a ship left the port, it was isolated and the potential risks would only be a matter of human error or mechanical failure. With the introduction of infrastructure that enables communication with the shore facilities, ships entered a new and increasingly promising world: the digital era. Digitalization has transformed the industry and currently, the decision making process is highly affected by digital information that is collected along a voyage and transmitted to shore. However, this emerging opportunity for shipping does not come without challenges. Increased connectivity introduces new threats to the maritime environment; such are cyber threats that entail a high degree of uncertainty along with lack of understanding of the exposures. Only recently, in 2017, IMO along with other organizations issued guidelines and recommendations for protecting the Maritime infrastructure from cyber threats. As incidents become more frequent, the need for assessment of risk is vital to avoid irreparable damages to life at sea and to the environment.

19. A Study on Assistance Granted to Offshore Platforms in Romania's Zone of Interest in Case of Naval Catastrophes

Author: Cristina MITRICIOIU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: A naval catastrophe is an unexpected event, of grate proportions which ends tragically. The importance of safety on offshore drilling platforms should be brought up by the crew, as well as by all the responsible onshore management, in any case of emergency or casualty. The emergency situations managed accordingly can prevent a lot of damage caused by the situation itself. There are exact procedures which describe the best way of action when collating with a distress. The present project focuses on the information gathering the most important and frequent distress procedures used , the time response and intercession of naval and air forces and the actions taken by ship crew.

20. A Trial Application of FSA Methodology to the Hatchway Watertight Integrity of Bulk Carriers

Author: Alper-Gean NAZIF, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: Formal safety assessment (FSA) is a formal, structured and systematic methodology, aimed at enhancing maritime safety, including protection of life, property and marine environment, by using risk and cost–benefit assessments. For the application of this methodology to the rule-making process, the International Maritime Organization (IMO) presented the Interim Guidelines, which describe procedures of FSA and inputs/outputs of each procedure in detail. This paper basically deals with an application of FSA methodology according to the IMO's Interim Guidelines to the hatchway watertight integrity of bulk carriers, which was carried out as a cooperative research between Korean Register of Shipping and Seoul National University.

21. Study on International Regulations Regarding the Safety of Navigation in the use of Marine Mines

Author: George NEDELCU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: Nowadays, the freedom of movement regarding people and goods represent one of the fundamental values of the European Union. Safety and security are a required as a prior condition regarding the development of the maritime transportation system, offshore industry and prosperity for coastal states. Nowadays, the security and safety environment out of territorial waters of costal states is changing permanently its characteristics. Using naval mines demanding an adequate responsibility regarding the maritime security. It is necessary, the perception for laying off mines at sea to be situated impartially between international legislation and military morale inspired by civilization values, adequate to requirements of Geneva Conventions and United Nations Convention on the Law of the Sea (UNCLOS-82) in respect with human rights.

22. The use of AUV, ROV, AUV on Board Military Vessels in Maritime Surveillance

Author: Vasile NEDELCU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: The aim of this project is the detailed presentation of autonomous underwater vehicles, unmanned underwater vehicles or remotely operated underwater vehicles that are used on board military vessels. This type of technology is already being used by the armies of powerful states financially in monitoring and supervision actions of the maritime traffic in areas with heavy traffic, on important commercial routes and

not only, in search, detection and removal actions of the dangers of navigation located both on the surface of the water, in the drift and in the immersion, considerably reducing both the personnel involved and the time, very important and the resources consumed in the actions of supervision and insurance of the maritime security.

23. The Use of Fault Tree Analysis Method for Risk Evaluation of Accidents during Oil Tankers Operation at Terminals

Author: Ionuț Robert PANCIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: As we are aware, one of the most important elements from maritime transportation is the ships. They can be of different type depending on their purpose such as: commercial vessels, service vessels and war ships. Therefore, oil tankers can be considered that they are an important point of the global trade and have been keep developing together with the technology. The Fault Tree Analysis method will be used to create and analyze the causes and the roots of the accidents for such accidents of oil tankers during loading and unloading operations at the terminals. In this study, we will observe that human factor is a potential cause for the accident after using the FTA method.

24. The use of IAR-330 PUMA NAVAL Helicopter in Search and Rescue Operations in the Territorial Waters Area

Author: Ionuț-Marius PASĂRE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. CLC Andrian-Sirojea MIHEI

Abstract: This project aims to conduct a study on the use of helicopter IAR-330 PUMA Naval in search and rescue operations on sea, more precisely its characteristics, generalities regarding this kind of operations, communications, the search execution mode, forces and means preparations and arrangements on board.

25. Measures to Combat and Repel Piracy Attacks on Board Merchant Vessels

Author: Georgiana PETRESCU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. CLC Andrian-Sirojea MIHEI

Abstract: This present paper aims to study the phenomenon of maritime piracy and to present the significance of the security measures of ships and port equipment, and why these activities became so important. Thus, the first chapter addresses the concept of maritime piracy and possible threats to commercial vessels and the second chapter deals with measures to combat piracy attacks, using the latest regulations.

26. The F221 „Regele Ferdinand" Frigate Ship' Manoeuvre for Transiting the Suez Canal

Author: Georgiana PETRESCU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA

Abstract: The present paper aims to address a few elements related to the description of the F221 „Regele Ferdinand" frigate ship and the transit of the Suez Canal by this ship. The transit of Suez Canal by F221 „Regele Ferdinand" frigate ship required a rigorous documentation on the navigation area and all the documents required to be send before transiting as well as the analysis of the specific actions carried out on board before and during the transit.

27. Integrated Navigation and Engine Simulators and Their use in the Training of Maritime Officers

Author: Nicolae-Silviu POPA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Ş.L. Dr. ing. Sergiu ȘERBAN

Abstract: The major cause for accidents within the maritime industry is human error. Therefore, maritime training has been focused on solving this problem over the last two decades. The training that deals with human factors is labeled resource management and has greatly improved the safety at sea. Simulators have also been a key tool in the training of technical and non-technical skills. But there is one part of the human factors that has mostly been left unexplored: the relation between the engine room and the bridge and the influence it has on the safety of operations. Through interviews with people who are involved in the training of mariners and a survey that investigate how active seafarers appreciate the teamwork and cooperation onboard, this study has attempted to show if intra-connected simulators can be an effective tool for improving the teamwork onboard the vessels.

28. Comparative Study of the Manoeuvrability of the Ship with Different Governance Systems

Author: Cosmin STAMATE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Conf. univ. Dr. ing. Mihail PRICOP

Abstract: Large ships, mainly large cruise vessels, built during last two decades are quite often equipped with revolutionary propulsion devices known under the name AZIPODs. There are many reasons for choosing AZIPODs as main propulsion units, the main reason being excellent maneuvering characteristics achieved. However in case of large propulsion units, having power of 15-25 MW, used for propulsion there are also some disadvantages and limitations, the last mainly related to

operational factors. Handling of ships equipped with AZIPODS is different from handling conventional ships and in certain maneuvering situations safety of the ship and of the propulsion units might be endangered. Therefore some limitations imposed on handling procedures are necessary and it is essential that pilots and masters of ships fitted with AZIPODs must be specially trained.

29. Management System of Oil Tank Operators. Evaluation, Measurement, Improvement

Author: Andrei-Robert STĂNICĂ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Ş.L. Dr. ing. Sergiu ȘERBAN
Abstract: To be effective, a management system needs to be much more than just procedures. The company leadership/management should define the company's values and aspirations and detail how the company intends to achieve the objectives of their stated policies. Management should provide adequate resources to ensure that the vessels are properly managed, crewed, operated and maintained. The management system should also include procedures which ensure that incidents and near misses are investigated to determine root causes, so that corrective and preventative actions can be implemented. There should be systems in place to analyze risk to ensure exposure to risk is considered at every level of management.

30. The Study of the Maximum Potential of the Wind in Sailing

Author: Laura Ionela ZBURLEA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor conf. univ. Dr. ing. Sergiu LUPU

Abstract: The purpose of this project is studying the efficient use of wind force in sailing. ”Mircea” Training Ship is a sailing ship and its main mission is the annual practice of cadets through national and international voyages. By using the maximum potential of the wind, I want to emphasize the importance of the correct and timely bracing of the yards depending on the wind direction and force. The implementation of an automatic bracing system on board the ship would bring a variety of advantages to the ship and the crew, among which the most important would be the optimization of the time given to the prior activities to sailing and lowering the risk of accidents in working at heights. For the practical implementation of the project, I chose to use the Arduino Uno programming system, connected to the necessary compatible equipment.

31. The Training Ship ”Mircea” Manoeuvre for Transiting the Corinth Canal

Author: Laura Ionela ZBURLEA, Academia Navală „Mircea cel Bătrân”, Constanţa
Scientific Advisor: Cdor conf. univ. Dr. ing. Alecu TOMA

Abstract: The present paper aims to address a few elements related to both the description of the Corinth Canal, the description of the "Mircea" Training Ship and the transit of the Corinth Canal for the first time by this ship. Transit the Corinth Canal for the first time by Training Ship ”Mircea” required, first of all, a rigorous documentation on the navigation area as well as the analysis of the specific actions carried out on board before and during the transit.

32. Analysis of the Accidental Chain Due to Risk Materialization Associated With the Arrival Manoeuvre of Cruise Ships

Author: Vlad Alexandru RĂDOI, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The paper aims to offer a comprehensive explanation through statistics and practical case studies with regards to the risks associated with cruise ship maneuvering in port.
As such, the contents will be based on risk analysis by means of statistics in terms of fatality frequency, accident frequency, accident causes, fatalities by accident type, an oil spill event tree for a cruise ship, general risk exposure for crew members and passengers and, last but not least, individual risk zones for port activities. In other words, the paper presents the methodology through different approaches that are meant to deepen the understanding and highlight relations governing the cruise transport risks.

33. Human Factor and Safety Culture Maritime Transport

Author: Edis-Gabriel MEMENDUF, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The discipline of the human factor was born during the Second World War, when it was discovered that the costs derived from human error reached unacceptable levels. The US military has employed psychologists, engineers, physicists and experts from different disciplines to improve human behavior. The lines of action of these interdisciplinary teams with the aim of improving human reliability were initially traditional, focusing on issues such as personnel selection, establishing better training methods, etc. As a result of this strategy, the methods used generally improved human behavior, but these effects were short-term and there was stagnation in the

evolution of the results. At that time, new voices emerged that postulated a system approach to the operator's characteristics instead of adapting the operator to the system's features. This ideological transformation meant the birth of the discipline of the human factor whose origin must be concentrated on the United States. Over the past forty years, the shipping industry has focused its efforts on improving the structure and reliability of ship systems to reduce accidents and increase their efficiency and productivity. We have noticed improvements in the design of the hull, stability, propulsion systems and navigation equipment. Today, the ship's systems are technologically advanced and extremely reliable. However, the maritime accident rate is still very high and, therefore, we have to wonder why with all these improvements we were not able to significantly reduce the risk of accidents. The answer is that advances in shipbuilding, ship structure and reliability of the systems it is equipped with are a relatively small part of what we might call the safety equation. The maritime system is a human system and human error is prevalent among the direct or indirect causes of accidents. This paper analyzes the human factor and its influence on maritime safety in completing the multiple theoretical studies that are carried out on the so-called "human factor" in the maritime environment.

INGINERIE NAVALĂ ŞI NAVIGAŢIE – SISTEME ELECTROMECANICE NAVALE

BIROUL SECŢIUNII
Preşedinte: Prof. univ. Dr. ing. Beazit ALI
Membri: Prof. univ. Dr. ing. Vasile DOBREF
Conf. univ. Dr. ing. Marian RISTEA
Sala: EP 26

1. Considerations Regarding the Optimization of the Propulsion System of the Bulk Carrier- Infinity Sky - 65,000 tdw

Author: Alex-George IRIMIA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA
Abstract: In the first chapter of this case study are presented the technical and construction characteristics of the ship.
The resistance to advancement will be calculated through the free license software system "Visual hull modeling and stability analysis", where it is followed at the end of the calculations obtaining the power of the engine and the power of the propeller. Based on these data obtained previously, the free license software system "Caeses" will be used for automated propulsion system optimization, several propellers will be designed and with solid arguments the optimal propeller of the Infinity Sky bulk carrier will be selected.

2. Optimizing the Operation of the Engine-Engine System in an Oil Tank

Author: Marian ANGHEL, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Beazit ALI

Abstract: Optimization aims as its name implies reducing costs and increasing efficiency. Cost savings will be made on the following:

- Facility maintenance costs by introducing a single engine propulsion, a reliable axial lines and a single engine instead of two engines, shafts and propellers;
- Costs by reducing fuel consumption at the same speed;
- Increase speed to shorten the time to achieve a transport
- Reduction of emissions by introducing a new motor as construction

3. The Management of the Maintenance of the Propulsion System aboard the NPR Type Vessel

Author: Bogdan-Andrei MOISEI, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: This papers purpose is to plan, organize, coordinate and control the maintenance over the propulsion system, aboard the NPR type vessel. Maintenance management involves ensuring that the system is efficiently operated and minimum amount of resources are wasted. Well-maintained equipment optimizes all the workflows involving equipment. Safety levels increase when maintenance is properly managed and small risks are dealt with in a timely way.

4. The Management of the Maintenance of the Fuel System Aboard the NPR Type Vessel

Author: Vasile BUGA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: This papers purpose is to plan, organize, coordinate and control the maintenance over the fuel system aboard the NPR type vessel. Maintenance management involves ensuring

that the system is efficiently operated and minimum amount of resources are wasted. Well-maintained equipment optimizes all the workflows involving equipment. Safety levels increase when maintenance is properly managed and small risks are dealt with in a timely way. The fuel system is intended for fueling the propulsion plant as well as electricity. The purpose of the installation is to fill the spare tanks, transfer the fuel from any spare tank in the decanting tank and the landing of the fuel from the tankers reserve on the shore or other vessel. The fuel system provides: the normal supply of the propulsion system with the fuel in the fuel tank, supplying the propulsion plant, in case of damage, directly from the reserve tanks.

5. The Management of the Maintenance of the Auxiliary Energetic System

Author: Cătălin Gheorghe GHERDEA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: This papers purpose is to plan, organize, coordinate and control the maintenance over the auxiliary energetic system, aboard the NPR type vessel. Maintenance management involves ensuring that the system is efficiently operated and minimum amount of resources are wasted. Well-maintained equipment optimizes all the workflows involving equipment. Safety levels increase when maintenance is properly managed and small risks are dealt with in a timely way.

6. General Cargo Ship of 650000 tdw. Considerations Regarding the Optimization of the Bow Shape. Case Study: Infinity Sky Ship.

Author: Fabian CIUBOTARIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA

Abstract: For large ships, like Infinity Sky, may encounter in her lifecycle short waves, where the diffraction component of the added resistance is predominant. In this dissertation I will describe methods and techniques for shape optimization of the bow cargo using the function for hydrodynamics parametric distribution which describe fluid flow and will analyze resistance and then I will optimize the bow shape parametric.

7. Command and Control of the Optimal and Safe Operation of the Anchorage-Binding Installation at a 41,000 TDW Oil Tanker

Author: Suryan-Omar DEDE, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof univ. Dr. ing. Beazit ALI

Abstract: The anchorage installation is an assembly of parts, mechanisms and devices that serve to execute the maneuvering of the ship's anchorage and with the help of which it is ensured that the ship is stationed in a desired place, against the action of the wind, currents or waves. The binding facility has the role of ensuring the contact of the ship with the shore, whether or not it is arranged, with other ships stationed or in the sea.

8. The Command and Control of the Optimal Operation of the Bilge Installation on an 8000 TEU Container Ship. Automation of the Operation of Bilge Separators to Ensure MARPOL Requirements in Order to Prevent Pollution of the Marine Environment

Author: Laurențiu DONOSE, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Beazit ALI

Abstract: The bilge installations are used to correct the position of the center of mass of the ship by boarding, transferring and evacuating overboard the liquid ballast, as well as to evacuate the waters collected in the bilge overboard. The installation

must be made so as to exclude the possibility of the water entering from outside the board inside the ship as well as the water from one watertight compartment to another watertight compartment. Other equivalent arrangements are allowed.

9. Tug Ship. Maintenance Management of the Propulsion System

Author: Vlăduț Cristian HARAPU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The reference work, structured on six chapters, presents the maintenance program of the propulsion plant of the tug RM 103 as well as aspects regarding the management of the activities on board, in order to carry out the ship's missions, in safe conditions. RM-type vessels are the newest vessels in the naval forces and the development of a maintenance plan in accordance with the on-board technique is essential for long-term operation, under safe conditions.

10. 7000 dwt Tanker Ship. Maintenance of the Propulsion Plant.

Author: Ștefan – Iulian HRISTU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: This essay consists of operation instructions for a 7000 dwt tanker ship. Each of the instructions covers technical engine data, operating instructions for the engine including safety issues and operational supervision as well as fault tracing and emergency operation, operating media, maintenance aspects and catalogue of spare parts. They are must have technical data since they include all necessary guidelines and notes for proper handling and maintenance of the propulsion plant. Following the instructions provided in the volume will eventually result in a safe and effective work of your plant. The

maintenance of the several components of a Ship Propulsion Systems is an onerous activity, which need to be efficiently programmed by a shipbuilding company in order to save time and money. The replacements policies of these components can be planned in a Condition-Based fashion, by predicting their decay state and thus proceed to substitution only when really needed. A failure of ship's machinery can involve a lot of risk, especially in bad seas, or dangerous waters. Saving money by reducing maintenance can result in heavy losses. Correctly following the maintenance schedules can reduce the risk of machinery stoppages, and reduce the cost of repairs when they are needed.

11. Management of the Maintenance of the Fuel Supply System of Type T22 Frigates

Author: Florin IONIȚĂ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The purpose of this project is to understand the fuel supply system of T22 frigates, as well as the specific maintenance work for the equipment in its composition, associated with a competent maintenance management of the logistical support and the sustentation of the necessary human resources, so that the operation of the equipment is be done under optimal conditions.

12. Oil Tanker of 250000 tdw. Maintenance Management of Auxiliary Energy Installations

Author: Ionuț Nicolae PAVEL, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The tanker is a ship destined for the transport of petroleum products having around 10-40 special rooms. The need for liquid fuels worldwide and a large distance between

the areas of exploitation and processing in the crude oil area and the consuming area is determined or continued after a type of ship, reaching the construction of super tanks up to 400000 tdw. Taking into account the huge capacity of some tanks, forensic energy installations must be tailor-made. In this study I have presented several types of energy installations of these types of ships but also the management of their maintenance.

13. General Freight Ship 65000 tdw. Considerations on Inland Waterway Navigation. Case Study: Infinity Sky Ship
Author: Darius Gheorghe LOMONAR, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA
Abstract: The paper addresses the considerations of navigation with a 65000 tdw ship through an inland waterway. The operations carried out on board, the importance of navigating on the inland waterway, rules for inland navigation, rules for national and international legislation and relation to rules of the road, signaling on inland waterways, night and day time marking of vessels as well as waterway signs and marking will be considered.

14. General Cargo Ship 65000 tdw. Considerations Regarding Navigation in Shallow Water Areas. Case Study: Infinity Sky Ship
Author: Alexandru Alin PANAITE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA
Abstract: Due to the scale enlargement in the maritime fleet the accessibility of existing harbors worldwide is getting more and more complex. To reduce infrastructural and operational costs for the adaptation of these harbors the knowledge of ship behavior in horizontally and vertically restricted channels and waterways helps in designing a cost effective access channel.

Ship maneuverability is changing considerably if the vertical and lateral clearance is decreasing. The parametric investigation of hydrodynamic effects through experimental fluid dynamics is illustrated for ship maneuverability in shallow water.

15. The Maintenance Management of Propulsion System at the Missile Carrier Vessel Type

Author: Cristinel PETCU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The Missile Carrier Vessel was manufactured in Ukraine in 1989, joining the Romanian Navy in 1991. It is a small ship with a length of 56,2m, a width of 11m, a displacement of 500t and a draft of 2,3m. The main mission of the ship is the missile launching during a conflict. It does not have a big autonomy, being a very fast ship. The present work describes the maintenance activities for the propulsion system and the works that are performed both with the means of the board and with the shipyard.

16. Optimum and Safe Command and Control of Propulsion System on a LNG Tanker. Environmental Pollution Prevention with Exhaust Gases.

Author: Lucian Grigore PÎRVAN, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof univ. Dr. ing. Beazit ALI

Abstract: This vessel is fitted with an azipod propulsion system, which is the main propulsion system for the ship. The azipod system combines the main propulsion electric motors and propellers with the rudders into a common pod unit suspended from the stern of the ship. Electrical power for the main propulsion system is supplied from a common electrical network, the main 6,600V switchboards. Several systems

combine to control the entire propulsion system. However, these systems, the speed lever system, etc., all control, either directly or indirectly control, regulate, change or adjust the motor speed and direction demand signals to the converters. This is mostly achieved by adjusting the required rpm signal to the frequency converter control systems, but can also be carried out by the emergency stops and the PMS, by opening the supply circuit-breakers if required.

17. General Freight Ship of 35,000 tdw. Considerations Regarding the Optimization of the Propulsion System. Case Study: IRYDA Ship

Author: Ciprian POPA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA

Abstract: In the first phase in this case study; the technical and construction characteristics of the ship for general freight IRYDA are identified. The resistance to advancement will be calculated through the free license software system "Visual hull modeling and stability analysis", where it is followed at the end of the calculations obtaining the power of the engine and the power of the propeller. Based on these data obtained previously, the free license software system "Caeses" will be used for automated propulsion system optimization, several propellers will be designed and with solid arguments the optimal propeller of the IRYDA vessel will be selected.

18. 165000 tdw Bulk Carrier Ship. Auxiliary Installations Maintenance Management.

Author: Bogdan-Tiberiu RUSU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The present paper briefly presents the maintenance management of the auxiliary installations on - board of an

165000 tdw bulk carrier ship. This paper can be improved in time based on the experiences gained during operation of the ship and during the periodic repairs performed in shipyards around the globe.

19. 35,000 tdw Bulk Carrier. Considerations Regarding Fairway Navigation. Case Study: Infinity Sky Ship

Author: Ionuț-Alexandru STATE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. Adrian POPA

Abstract: This project proposes an approach of measuring navigation performance using a 35,000 tdw bulk carrier, Infinity Sky. The motivation for this research is the updates in equipment and that the desire of using new instruments and technology not always is accompanied by analyses of the impact of the changes. The task of navigating in a fairway is proposed to be assessed through various methods to answer questions related to performance and the experience of using bridge equipment. The overall aim is to reach a higher degree of understanding and knowledge through the testing of different instrumentation setups.

20. Optimization of the Propulsion on a 2500 TEU Container Ship

Author: Mihai-Nicolae STOLOJANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof univ. Dr. ing. Beazit ALI

Abstract: The topic of the proposed project to be discussed at this communications session brings into question the optimization of the propulsion installation of a 2500 TEU container ship. One of the main directions of the report is optimization by reducing consumption. The main characteristics discussed are: the size and number of blades of the propeller, the calculation of the optimum speed for the

execution of the trip on time and with the lowest cost, but also a calculation of the consumption at a speed of 19, respectively 20 knots to prove the utility and reliability proposed changes.

21. Type 22 Frigate Maintenance Management of the FUEL Supply Installation

Author: Ionuț Andrei TAPÎRDĂU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: In the first phase in this case study, the technical and construction characteristics of the ship. Secondly, i will talk about the maintenance management of the fuel supply installation the constructive elements and the role of the installation.

22. Oil Tanker 250 000 tdw. Maintenance Management of the Propulsion System.

Author: Cosmin-Marin ULMEANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: The implementation of a maintenance service, as an important function of an organization, has led and leads to the possibility to anticipate, to predict the failures and to plan the interventions that will allow them to be avoided. The maintenance function represents, on average and in direct cost, 4% of the industrial turnover, and if the indirect costs are included this value reaches 7-8% (due to the complementary impact due to the costs induced by non-availability). This function is endowed with specialists, whose qualification is increasingly higher and in increasingly differentiated fields. In the shipbuilding industry, maintenance has always been the key factor in ensuring the safety of navigation. That is why the maintenance procedures applied are very restrictive and expensive. By complying with these regulations and using an

intentional "language" provided by the authorities, shipbuilders provide maintenance services and the documentation required for it by shipping companies that have the necessary technical support.

23. The Command and control of the Optimal Operation of Steering System for a Tanker Ship

Author: Mihai URIAŞU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof univ. Dr. ing. Beazit ALI

Abstract: The steering system is designed to keep the ship on the road while navigating and achieve change direction as required, by applying the control of vertical turning moments acting simultaneously with propulsive thrust. Steering system performs ship rotation around the center of gyration during maneuvers. Active steering is less used due to cost and technology achievement and easiest active governing body is active helm, consisting of a symmetrical profile of his rope and tilts around a vertical axis, located in the diametric vessel in its stern, with a propeller attached to the trailing edge. Linear steering plants are achieved by using a pair of linear hydraulic motors with simple effect with horizontal axis, acting on the steering tiller. Steering plants with hydraulic motors have a pair of rigid pallet, embedded in the rotor and stator.

24. Management of Maintenance and Repair Activities for Riverine Patrolling Warship

Author: Andrei VASILE, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Anastase PRUIU

Abstract: In most of the countries of the globe that have inland waterways and rivers, they can rise to the level of battle platform is essential in ensuring the security of national and international navigation, counter-terrorism, illicit arms

trafficking, people, drugs, but also to support the population in disasters and disasters caused by the human or natural factor. Each government allocates annually a minimum of resources and funds for the state budget for the categories of ships in their modernization, maintenance and repairs and mission accomplishment. In a ship's engine room, where the machines are located, engineers and crew carry out the maintenance for safe and efficient operation. Each machine on board a ship requires maintenance which has to be carried out at planned intervals of time.

25. The Management and Control of the Generating Power Plant on a Cruise Ship With 3500 Passenger on Board with PMS (Power Management System)

Author: Daniel Dumitru CIOBANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Vasile DOBREF

Abstract: The operation and management of all the switchboards and the vessel's distribution system can be carried out by the Power Management System (PMS). The PMS is an integral part of the vessel's Integrated Automation and Monitoring Control System (IAMCS). The main purpose of the power management system is to ensure that at all times there is sufficient generated power and reserve power to service the vessel's electrical distribution network. This is achieved by constantly monitoring the power requirements of the distribution network, if another consumer needs to be connected to the network, it has to be ascertained that there is sufficient power for this. If not, then the PMS will automatically start another generator, synchronize it and connect it to the switchboard. When the additional power is no longer required, the PMS will cause the load to be shifted to the other running generators and automatically disconnect the generator from the switchboard.

The core functions available in the PMS are as follows:
• PMS unit monitoring.
• Diesel engine starting and stopping (engine protection, engine blocking).
• Generator control (excitation control is done by the Automatic Voltage Regulator (AVR) with engine revolution, generator protection, generator blocking).
• Circuit-breaker control (closing on to a dead bus bar, synchronization and closing, synchronizing unit monitoring, circuit-breaker unloading and opening, circuit-breaker blocking).

INGINERIE ŞI MANAGEMENT

BIROUL SECŢIUNII
Preşedinte: Prof. univ. Dr. ing. Florin NICOLAE
Membri: Col. Conf. univ. Dr. Cătălin POPA
Cpt. Cdor. conf. univ. Dr. ing. Filip NISTOR
Prof. univ. Dr. ing. Gheorghe SAMOILESCU
Lt. Cdor. Ș.L. Dr. ing. Alexandru COTORCEA
Sala: CP 07

1. The Need to Modernize the Railway Connection with Constanta Port
Author: Alexandru-Cosmin ALBOIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Lt. Cdor. Alexandru COTORCEA
Abstract: The modernization of the railway lines from Constanta port will increase the capacity to serve the flow of freight coming from the port, contributing both to the development of multimodal transport in Romania and to increasing the volumes of freight traffic on the railway infrastructure. Area of influence of the port Constanta can be extended to Central Europe by ensuring an efficient rail connection with the port, which will attract larger freight flows. The objective of the paper is to ensure an efficient rail link between the port and the Rhine-Danube corridor of the trans-European transport network and the need to modernize the railway connection with Constanta Port in order to be able to take over increased volumes of rail freight traffic.

2. The Particularities of the Storage Function within a 'Chemical Operator
Author: Adrian-Marian BEJAN, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Col. Cătălin POPA

Abstract: Generation and keeping of stocks of goods in commercial trade can be a necessary and inevitable phenomenon, when there are stocks that cannot exercise the movement of goods. The objective necessity of commodity stocks is necessary and there is an objective for commodity warehouses. The existence of stocks and warehouses for their storage is determined by the particularities of production, consumption, circulation, as well as the particularities of the transport routes. The preservation of the products during their existence is a continuous concern, especially at present, when the movement of goods has increased unprecedentedly. It requires a series of organizational and technical measures that prevent the degradation of products. The storage of goods meets both the producer and the beneficiary. The basic elements in this process are the deposits.

3. Environmental Impact Analysis in the Maritime Transport Using LCA Method

Author: Andrei-Alexandru BÎGIU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: Maritime transportation plays an essential role in global transportation and ships' emissions are worth considering. Using life cycle assessment method, the environmental impacts of ships could be evaluated. Life cycle assessment is an effective tool and provides a realistic perspective of a product/service in its entire lifecycle. This study conducts life cycle assessment method to evaluate the environmental impacts of a Panamax bulk carrier from raw material extraction to shipbuilding phase. In order to clarify lifecycle emissions, some helpful mathematical formulas are also established.

Keywords: *cradle-to-gate, LCA method, Panamax bulk carrier, maritime transportation.*

4. Naval Force Logistics in Crisis Response Operations

Author: Dumitru-Alexandru BRATU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Col. Cătălin POPA

Abstract: The efficiency of logistics at operational and strategic level is given by the ability to make savings, to reinvest in the services offered on the first line of a possible battle front and to achieve a viable and flexible modern procurement program. In the content of this paper I proposed to highlight the main legal issues, the particularities, the logistical support procedures, the main standard operating procedures specific to the logistics of the multinational maritime operations, the specificity and the characteristics of the logistics of the Naval Forces during their participation in the multinational maritime operations.

5. Efficiency of the AMDEC Method for Emergency Response

Author: Ioana-Cristina CHEBUTA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The efficiency assessment is necessary to take into account all the faults identified in the system simultaneously. With the aim of presenting a decision-making framework, this study continues to work to analyze the methodology of defects, their effect and their criticism (AMDEC) for an evaluation of the effectiveness of the emergency system response and to be able to continue to provide emergency management regarding the distribution of oil.

6. The Management of the Risk-Safety Relationship in the Logistics Chain of Transport of Liquefied Gases. Case Study: Road Transport

Author: Mădălina CHIVU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: Natural gas is a widely used fuel in most economic sectors. Large quantities of gas, transported in the liquefied state, transit through the ports, are stored in huge quantities in large deposits or are transferred thousands of kilometers through the transcontinental pipeline networks. The field is complex and most often requires a diverse logistics assurance, which among other things take into account the flammable and destructive potential of this kind of merchandise. It can be seen quite easily that in many situations the supply of consumption points is made by road transport by means of special vehicles, which tow a tank in which LNG is located. The risk of accident is quite high, the practice demonstrating that such an event, which relates to the logistics of transport, can have maximum consequences.

7. Implementation of and ERP System for a Delivery Company

Author: Cornel COȘUG, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Conf. univ. Dr. Andrei BĂUTU

Abstract: ERP solutions refer to the management of enterprise resources, being centered on various business models that have proven successful internationally. In the 1990's more and more managers understood the need to approach a unitary solution for the efficient management of the company. The solution to these requirements was ERP (Enterprise Resource Planning) software, which aims to integrate the key points of a business and provide a global perspective of what is happening within

the organizational structure. Similarly, CRM (Customer Relationship Management), that strategy used to develop a close connection between producer and customer, is the engine of a successful business. Even if the Romanian market for ERP solutions is not very developed, as it also appears from the IDC study, there is no doubt the growing interest of companies, regardless of their size, for the rigorous, analytical and efficient administration of all that means the enterprise resource - production, human resource, sales volume, financial accounting, but also everything that involves the relationship with customers, with suppliers, marketing, image. This is because managers have understood that the success of the business depends, as it is natural, on the use of modern methods of managing the company's resources, an equation in which the main pawn is the computer, through the facilities offered by appropriate software.

8. Energy Audit at an Institution

Author: Mariana DEFTA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: The paper describes how to carry out an energy audit, the people responsible for this activity and the attributions of each one. In the first part of the project are presented the economic operator, the energy presentation of the economic operator as well as the share of consumption and the price for electricity and gas. In the second part of the project is analyzed the evolution of electricity and gas over the last three years, the legislation in force on energy efficiency and energy management activities within the economic operator aimed at increasing energy efficiency.

9. Offshore Activities and Their Technical-Economic Importance for the Shipping Industry

Author: Ionuț-Adrian DUMITRAȘCU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. conf. univ. Dr. ing. Filip NISTOR

Abstract: The purpose of this paper is to present the necessary resources required to carry out the operation of off-shore platforms. The conclusion of this paper is that off-shore platforms and their exploitation are becoming increasingly important, and at the same time offering new development and profit opportunities.

10. Use of FMEA Method for Risk Assessment in the Shipping Industry

Author: Gheorghe-Gabriel ENCICA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: In the competitive environment, shipyards attempt to reduce failures in their production system in order to maintain their competitive power. Failures cause some damages such as injuries and deaths to the shipyard. Most of the damage causes work loss in the shipyard. To mitigate this damage, the most risky activities and work stations must be identified. For this, the risk levels of the failures must be calculated by applying the Failure Mode and Effects Analysis Method. In this study, the hull structure production process of a shipyard was considered. After collecting the failure statistical data of a shipyard, the failures were categorized and the probability and severity of the failures were determined. A comprehensive process analysis of the work stations was then performed, and the durations of the work activities were determined. Finally, risk priority numbers were calculated, and the most risky activities and work stations were identified.

11. Analysis of Strategic Management Tools Applicable to Port Operators

Author: Nicoleta FULGA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Col. Cătălin POPA

Abstract: Port operating activities based on technical and economic efficiency concepts represent the major objective for any type of terminals, including for the oil terminals in particular. In this respect, in order to analyze and to adjust by measurement these ports operating activities a system of indicators defining functional aspects of a company will be used, as reflected in the paperwork. As shown in the study overtaken, the major focus in the vessels operating activities is to carry out a faster transfer rate in a secure environment for both, loading and unloading phases in oil transfer. In this article it has been approached as a practical example the OIL TERMINAL Co, the most relevant oil operators from Constanta Port, in order to reflect the operations management particularities in terms of handling and transportation of crude oil, liquid petroleum and petrochemical products.

12. Integrated Security Management System For Offshore Oil Rigs

Author: Alexandru Cristian GHEORGHIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: In the last decade, the production of petrol has growth due to the new models of ships and new ways of drilling. At the basis of this growth is also this integrated system of security on board of offshore rigs which regulates the level of growth, depending on the request. The integrated security system prevents any accidents caused by equipment errors, unexpected fluctuations of parameters or human errors, during handling of

the goods. The silent operation of the system is the basis of the production process of the platform, which depends on the security policies of each Company. This includes administering optional startup, bypass startup, sequential control, proper loop control, data recording as well as alarm management.

13. Maritime Platforms Security Management

Author: Alexandru Cristian GHEORGHIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: The growth of energy needs wordwide have led to the exploration of more accessible areas for the discovery and extraction of hydrocarbon deposits. Starting with the second half of the last century, the drilling in the Gulf of Mexico started the offshore exploration. At present, due to the technology evolution of exploration and identification of the deposits, as well as extraction technology, there are a number of fields of marine drilling rigs worldwide. Among the most important are: Gulf of Mexico, Venezuela, Brazil, West Africa, North Sea, Oceania and Australia. In order to ensure the security on board of oil rigs, specialized studies have been developed which made the basis for the elaboration of the necessary documentation for each maritime platform, in order to establish a desired degree of security.

14. The Study on the European Tendencies Regarding the Naval and Port Operation

Author: Cătălina Luciana GIUMBA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Col. Cătălin POPA

Abstract: Reflecting developments in the European economy and trade activity, international maritime trade lost momentum in 2018. Volumes expanded at 2.7 per cent in 2018, down from

4.1 per cent in 2017. The slowdown was broad based and affected nearly all maritime cargo segments. It undermined global port cargo-handling activities, and growth in containerized global port throughput decelerated to 4.7 per cent, down from 6.7 per cent in 2017.

15. Romanian Army Logistics

Author: Andrei GORDEȘ, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. conf. univ. Dr. ing. Filip NISTOR

Abstract: When referring to the concept of "logistics", modern army specialists start from the idea that logistics has to define all the material and assistance conditions necessary for the good development of military actions. In modern wars, logistics carries new meanings because of reorientation concerning the strategies on which the war is based, the quality of the involved human factor as well as the high level of technology which is part of the means of combat. The logistics of the Romanian national system of defense creates a complex of measures and activities, that take place during peace and war periods, it also involves preparing the economy and the territory for defense, giving and supplying the forces in charge with carrying out military actions, insuring telecommunication techniques, transport, financial, medical, health, veterinary and all other kinds of services needed in the process of defense.

16. The Influence of a Hydrocarbon Pollution Incident on the Danube on Freight Transport

Author: Laura HORCIU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Lt. Cdor. Alexandru COTORCEA

Abstract: Although large accidental pollution incidents are now rare, and has a severe impact on the environment, especially in

sensitive areas, like natural reservations. The unique simulation environment for oil spill modeling, composed of various maritime and technological simulators represents a valuable aid for battling oil spills, assessing proper containment solutions and assessing the associated pollution risks. For example, on January 30th 2000, the dam containing toxic waste material from the Baia Mare Aurul gold mine in North Western Romania burst and released 100,000 cubic meters of waste water, heavily contaminated with cyanide, into the Lapus and Somes tributaries of the river Tisza, one of the biggest in Hungary. Cyanide is highly toxic, and is lethal to humans and other species even in very small doses. The cyanide contaminated water has now been carried to the river Danube which flows through Serbia, Bulgaria and Romania. The available resources will be used for evaluating the overall risks, associated to the hydrocarbon pollution, by considering a case study, which follows real situations and threats in the Danube Delta area.

17. Integrated Risk Methodology - Future Solution Towards Maritime Pollution Prevention

Author: Loredana Andreea MACOVEI, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: Since 1973, when the International Maritime Organization has set a baseline towards the awareness regarding the maritime pollution from ships by establishing the MARPOL Convention, several studies have emphasized the severity of the level of pollution, along with the importance of preventive field simulations. Integrated risk methodology comes as a response to questions like: what is the rate of maritime accidents in certain areas or what preventive measures should be applied. These types of methods are based on mathematical-logical calculus and integrate specific parameters

such as meteorological characteristics, ship type, indexes or coastal features all combined with gravity-probability statistics. The paper aims to reveal the importance of an integrated risk method in recent discoveries and presents the involved factors.
Key words: *pollution, integrated, coastal index, probability, statistics.*

18. Mandatory Requirements Regarding Maritime Safety and Security
Author: Giorgian-Dorel MANEA, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU
Abstract: Maritime safety and security is an expression that draws attention to new challenges and rallies support for tackling these. There are little prospects of defining maritime security once and for all, frameworks by which one can identify commonalities and disagreements are needed. This presentation proposes three of such frameworks. Maritime security can first be understood in a matrix of its relation to other concepts, such as marine safety, sea power, blue economy and resilience. Second, the securitization framework allows studying how maritime threats are made and which divergent political claims these entail in order to uncover political interests and divergent ideologies. Third, security practice theory enables the study of what actors actually do when they claim to enhance maritime security. Together these frameworks allow for the mapping of maritime security.

19. Actions to be implemented to Ensure Port Security in Oil Berths
Author: Viorel Bogdan MARTINESCU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: This work entitled "Actions to be implemented to ensure port security in oil berths" includes information on loading-unloading facilities of oil berths, the need to equip them with installations of fire protection, a description of storage tanks for petroleum substances and providing them with fire-fighting equipment.

20. Case Study on the Dimensioning of Logistical Support in Naval Forces Actions

Author: Mihail-Mirel MINTAR, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Col. Cătălin POPA

Abstract: In the 21st century we observe an unprecedented development of the military phenomenon. This has been caused by both technological development and chaotic geopolitical evolution since the turn of the century. Thus, in the context in which the current security environment is characterized by volatility, uncertainty, complexity and ambiguity, it is clear that the current military phenomenon also presents certain mutations depending on the areas in which it manifests. As for the military logistics part, it can be said that it is inseparable from the battlefield. The transport of troops to hot spots around the world, ensuring the timely fulfillment of all the needs of the deployed personnel and bringing them back home is the simplified essence of military logistics. The challenges of the coming decades impose substantial logistical capabilities, and the nature of these capabilities will differ greatly from what was in the past. The present paper aims to analyze the procurement processes in the military environment, notably the logistical assurance of troops serving military ships during conflicts or peace exercises.

21. Liquefied Reference Terminal: HAZOP and FTA Analysis

Author: Miruna Andreea MOCANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The size and complexity of industrial chemical plants, together with the nature of the products handled, means that an analysis and control of the risks involved is required. FTA analysis indicates that the most likely event is a fuel spill in tank truck loading area. A sensitivity analysis from the FTA results shows the importance of the human factor in all sequences of the possible accidents, so it should be mandatory to improve the training of the staff of the plants.

22. Case Study on Maritime Ports Management

Author: Gabriela MUNTEANU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Cpt. Cdor. conf. univ. Dr. ing. Filip NISTOR

Abstract: Ports are the crucial land-to-sea interface, where a number of activities are required to import and export goods. The port authority plays a particularly important role in ports, being the organization which is responsible for providing the various maritime services necessary to bring ships to the operating berth. The project presents the global forces that lead port's reform and management analysis of Rotterdam, Antwerp, Constanta and Hamburg ports, by providing the port presentation, organization and structure, the port facilities and services, their financial analysis, investments, SWOT analysis and PEST analysis.

23. Elaboration and implementation of the methodology for evaluating environmental performance in sustainable port development of the Constanta SeaPort

Author: Marius NAZARE, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The paper addresses the concept of sustainable development based on the three components: the surrounding environment, society and the economy. At present, these three areas are not correlated so as to reach a sustainable balance. The negative impact on the environment or society is rarely taken into account when making economic decisions. Many ports around the world have implemented ecological port strategies for sustainable development, aiming at improving environmental protection by greening port operations. The concept of sustainable development was born in response to the emergence of environmental problems and the crisis of natural resources, especially those related to energy. The Stockholm Environment Conference of 1972 is the time when it is recognized that human activities contribute to the deterioration of the environment, which endangers the future of the planet. Sustainable development is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. The paper represents a practical application of the concept of ecological port, with an emphasis on improving the regulations and procedures regarding the collection, treatment and storage of waste related to the port of Constanta, meant to lead to the rational exploitation of the existing facilities.

24. Modern Methods and Techniques Used in the Initial Phase of a Project. Case Study.

Author: Nicolae-Florin PITEA, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Conf. univ. Dr. ing. Mihail PRICOP

Abstract: The concept of project planning in this society is relatively a new concept because many seemingly very good ideas have had a very low success rate in the present society compared to weaker projects due to lack of short and long term vision, to assume unnecessary risks as well as superficial thinking, planning and managing the activities has become a compulsory tool in order to obtain progress and profit, the planning branch must think in advance both in the short and long term and draw conclusions from old techniques and lessons learned. So that the risks are minimal and the success rate is as high as possible. The present paper represents a case study involving a set of activities, methods and modern techniques of drawing up, planning and implementing the initial sequence of the project for the highest success rate, of the planning and coordination teams of the potential projects.

25. Analysis of Maritime Infrastructure Resilience in Constanta Sea Port

Author: Cosmin-Valentin RADU, Academia Navală „Mircea cel Bătrân", Constanţa

Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: Constanta Port is one of the main distribution centers serving the Central and Eastern Europe region. The reason for which the approach of this theme was decided was the importance of this port for Romania, the financial contribution it brings to the economy, but also the fact that it represents an entity that creates jobs. Implementation of resilience strategies at the port level can ensure the proper functioning of the subsystems of the maritime infrastructure system component, which implicitly ensures the economic profit and the good conduct of the activities regardless of the challenging situations that may arise. Although efforts are being made to design more and more resilient systems, the experience gained in recent

years proves that a maximum level of safety and prevention of unpleasant situations can never be reached, the only solution being continuous research and improvement.

26. Energy Efficiency Analysis for the Purpose of Increasing the Quality of Life and Consumer Safety

Author: Neculai George RUSAN, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: By energy efficiency we mean the saving of fossil fuel energy resources and the reduction of greenhouse gas emissions that has led over time to global warming and a possible transformation of the general climate. Through this transformation of the climate it refers especially to the natural disasters that can unleash: repeated fires on large spaces, endangering certain species of plants, animals and especially the melting of glaciers that will lead to the rise of the level of the seas and oceans.

27. Comparative Analysis of the Logistical Solutions Used in a Container Port Terminal through the CO2 Footprint Indicator

Author: Iulia-Anca ȘANDRU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The purpose of this paper is to present a methodology for analyzing CO2 emissions from container terminals and to find more efficient solutions for reducing them. The model of this work was implemented in 95% of the container terminals in the Netherlands. The objective of the research is to develop a methodology that can predict the total CO2 emissions from the terminals. A quick methodology is presented to estimate the CO2 emissions generated by the port terminals for containers

based on fuel and energy consumption. The study provides information on container handling and transshipment processes and calculates the contribution of these processes to CO2 emissions. Estimates are validated for maritime and inland container terminals in the Low Countries. Based on this information and the identification of potential solutions for reducing CO2 in terminals, policy proposals can be made for terminal operators and governments. This study is based on a quantitative analysis of the terminal energy consumption and related CO2 emissions. CO2 emissions are a direct consequence of the burning of fossil fuels that generate the energy needed to operate the processes at terminals. Container transshipment takes place with different types of equipment that are used by the terminals. The type of equipment and the use of this equipment determines the energy consumption, and therefore the amount of CO2 emissions. The amount of fuel directly determines the emissions, which is different for different energy sources: for example, burning one liter of diesel produces around 2.65 kg of CO2 (based on the calorific value of diesel, with a density of 0.835 kg / dm3).

28. Impact of the SOLAS Amendments and the ISPS Code on the Activity of the Port Terminals

Authori: Mihaela ȘIPOTEANU, Ionuț Mugurel CORBU, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Gheorghe SAMOILESCU

Abstract: This paper deals with aspects regarding the impact of the SOLAS Amendments and the ISPS Code on the activity of the port terminals. In the content of the paper I have dealt with both aspects related to the national legislation in force, but also specific aspects of designing the security management system for the CSCT container terminal in Constant Port. This work is divided into seven chapters and several sub-chapters.

29. Risk-Safety Relationship Management in the Offshore Industry

Author: Marius STAN, Academia Navală „Mircea cel Bătrân”, Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: The paper entitled "Risk-safety relationship management in the offshore industry" presents the analysis and interpretation of the notions of risk and safety in the exploitation actions of the maritime oil industry in relation to the organizational and operating regulations. By its composition, the risks and safety elements applied to the activities on an oil platform are mentioned and also the potential of Romania's endowment and competence in the offshore industry through the western Black Sea basin is presented. Based on the history of this industry, two of the most impressive offshore industry accidents were analyzed, the explosion of the Piper Alpha platform in 1988 and the explosion of the Deepwater Horizon platform in 2010. The consolidation of the paper includes the presentation of a management program on risk reduction and safety development through the specific resources and means in the offshore industry.

30. Analysis of the Efficiency of the Integrated Logistic System

Author: Maria-Alexandra ȘTEFĂNESCU, Academia Navală „Mircea cel Bătrân”, Constanţa
Scientific Advisor: Prof univ. Dr. ing. Beazit ALI

Abstract: One of the fundamental components of integrated defense management is integrated defense resource management, and within them logistics plays, in my opinion, the most important role. We can speak about integrated logistics system (ILS), which has two subsystems: integrated logistics support and integrated logistics assistance. My

references come from French sources, because in the French Armed Forces this system is functional. My proposals represent a new approach to the ILS within the wider context of the integration process. Many Romanian researchers agree with this vision regarding the ILS, and my wish is to demonstrate that this is a reality. From the analysis of the integrated defense management it is clear that its main chapter is the defense resources which in turn they must be included in a system that allows them to be used with maximum efficiency at the right time, for the most important and full mission interoperability with similar systems in the armies of the allied countries.

31. Logistic Management in the Event of a Disaster

Author: Adrian STOIAN, Academia Navală „Mircea cel Bătrân", Constanţa
Scientific Advisor: Prof. univ. Dr. ing. Florin NICOLAE

Abstract: With this work I will clarify the concept of disaster from the perspective of humanitarian logistics defined on two criteria: destructive impact and call for international assistance. The response to disasters is the sum of all actions taken by people and institutions in the event of a disaster. The classification of disasters is based on its origin and their onset speed. In the early stages of a disaster, evaluation activities give decision makers the information they need to set goals and policies for emergency assistance. Therefore, humanitarian logistics distinguish two disaster situations in relation to the reaction time: - emergency disaster situations characterized by a need for urgent action and for immediate distribution of humanitarian supplies; - Protracted disaster situations, where the time allowed for action is of greater duration and the target distribution dates relatively remote. Therefore, response time is the critical factor in dealing with a disaster.

32. Methods and Practices in Port Capacity Review

Author: Ionuț ȚIGĂNUȘ, Academia Navală „Mircea cel Bătrân”, Constanţa
Scientific Advisor: Conf. univ. Dr. ing. Mihail PRICOP

Abstract: The article follows the review of the port capacity, addressing the inclusion of immediate connections of seas and hinterland ports. The methodology provided applies to various port terminals along with coastal and hinterland connections. Two dimensions are used to define capability: static size and dynamic size. Static capacity refers to the space available for use, and the dynamic capacity is represented by the available technology of the equipment in combination with the skilled workforce. The article presents a case study from a container terminal illustrating the implementation of the methodology. Applying this methodology results in several multidimensional benefits. Some key benefits such as a flexible framework tailored to the needs of each port capacity measurement system, productivity estimates of business processes involved in freight and passenger traffic, and assessing the financial performance of different business units and the port as a whole.