“Mircea cel Batran” NAVAL ACADEMY

THE 45th SCIENTIFIC CONFERENCE FOR STUDENTS

CADET-NAV 2023

PROGRAMME

07th - 08th of April 2023
CONSTANTA

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CONFERENCE AGENDA	
THE 45th EDITION OF CADET-NAV 2023	
ANNUAL STUDENT CONFERENCE	
Thursday, 06.04.2023	
08.00 - 12.00	Arrival of Participants, Admin Matters
12.00 - 14.00	Visit on campus
14.00 - 15.00	Lunch
15.00 - 17.00	Visit to the Romanian Navy Museum/Visit training ship "Mircea"
17.00 - 20.30	Constanta Sightseeing City Tour
Friday, 07.04.2023	
08.30 - 09.30	Registration of participants; Distribution of conference maps - "Admiral Petre Barbuneanu" Auditorium
09.30 - 10.00	CADET-NAV 2023 Official Opening Ceremony
	Raising the Flag Ceremony
	Welcome Address of the Rector of "Mircea cel Batran" Naval Academy
10.00 - 11.00	Paper Presentations in Plenary: •Nicolaos Anghelos Samolis and Mihnea Teodor Trofin "The Doppler Log: Errors Caused by Environmental Influences" •Ioan Virgil Folea "Cyber Warfare between Russia and Ukraine: An Analysis of Tactics, Techniques and Effects" •Miruna Georgiana Ichim "Developing a Software as a Support for the Study of METOC Impact on the Planning Process of the Maritime Operations"
11.00 - 11.30	Photo Group; Coffee Break
11.30 - 14.00	Paper Presentations on Sections (Navigation and Transport – Room L A6, Engineering and Management – Room L 120, Military Sciences and Information – Room LI 126, Electrical Engineering – Room LI 356, Weapons and Communications – Room LI 125, Mechanical Engineering – Room E122, Fundamental Sciences – Room E121, Foreign Languages – Room L A5, Students' experiences in international exchanges – "Admiral Petre Barbuneanu" Auditorium)
14.00-15.00	Lunch/Free time
15.30 - 21.30	Leisure Time at the Seamanship and Water Sports Training Center in Palazu Mare *__for guests only__
Saturday, 08.04.2023	
10.00 - 12.00	Awards Ceremony
12.00	Departure of Participants

Contents

I. SECTION: NAVIGATION AND TRANSPORT

Section Committee:
Chairman:
Lecturer Sergiu ȘERBAN, PhD
Members:
Sup. Instr. Andrei POCORA, PhD
Lieutenant Lecturer Andra NEDELCU, PhD
Room: LA6

1. (ID 21) Fire Fighting Simulation on Board Fully Cellular Container Ship

Author: stud. Robert Marian PATRU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *To maintain the safety on board ship is elementary, so during this presentation I will present few simulations with different cases of fire on board that is extinguished using different methods of intervention.*
Keywords: *Safety on Board Ship, Fire Fighting, Fire Simulation, Fire Prevention.*

2. (ID 24) Marine Pollution Caused by Accidents of Container Vessels

Author: stud. Andrei-Alexandru CERGUTA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation aims to describe the dangerous effects oof accidents of container vessels, including collision with another vessel, grounding or loss of containers wich can all result in extremely negative effects on the enviorment.*
Keywords: *Pollution, Regulation, MARPOL, Container Vessels, IMDG.*

3. (ID 43) Use of Inert Gas Installation on Oil Tankers
Author: stud. Eduard-Marian JECU
Abstract: *This presentation focused on the use of Innert Gas Installation (IGI) on oil tankers. The benefits of (IGI), including reducing the risk of explosion and fires were discussed along with various types of IGI systems and their components. The regulatory framework governing the use of IGI as well as advancements in IGI technology, were also presented. The conclusion emphasized the importance of implementing IGI systems on oil tankers to improve safety and reduce the risk of accidents.*
Keywords: *Innert Gas System.*

4. (ID 59) Winter and Ice Navigation in Baltic Sea
Author: stud. Anamaria-Ligia CHEIAUA
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *As the name suggests, I have presented in my study what winter looks like in the Baltic Sea, why it freezes, the types of ice and also the types of ships that sail in these waters as well as the difference between an icebreaker and an ice-class/polar-class vessel. From my experience at sea as a cadet, I have attached some pictures of the vessel I was on board during the winter time from the port of Kotka, Finland. I have presented some specific characteristics of the Ice Class vessels, features incorporated, specific design and anti-icing systems on board.*
Keywords: *Ice Navigation, Ice Class, Icebreaker, Baltic Sea, Vuoksi Maersk.*

5. (ID 78) Optimizing the Navigation Route Algeciras (Spain)-Rotterdam (Netherland) with the Help of StarConnect Software
Author: stud. Laurentiu LEONTE
Scientific Advisor: Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The subject that is approached in this presentation is that of optimizing the navigation route, which the ship Maersk Kiel, a 6690 TEU container ship, traveled between Algeciras (Spain) - Rotterdam (Netherlands), with the help of the optimization software StarConnect. This presentation highlights the characteristics of the*

ship and details about it, it also presents the equipment on board the ship that was used throughout the voyage to extract essential data in order to monitor the voyage. The StarConnect software, which helps to optimize the navigation route and process information related to hydrometeorology, voyage planning and energy consumption on board, is also described. The steps necessary to plan the navigation route, which I followed, in the ECDIS program then exported to the StarConnect optimization program, are presented in detail. An analysis by days, during the voyage, was also carried out in order to bring relevant informations about it and to be able to see how I used the StarConnect software in order to obtain the informations necessary to monitor the navigation route in real time, avoiding moments which could endanger the navigation and the crew.
Keywords: *StarConnect, Optimization Software.*

6. (ID 83) Ocean Crossing Cadiz-New York
Author: stud. Dumitru-Cristian STOIAN
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ocean Crossing Cadiz-New York is a challenging and exciting voyage that requires careful planning and execution. This abstract aims to provide a brief overview of this remarkable feat, which involves traversing approximately 3,500 nautical miles of open water, navigating through unpredictable weather conditions, and dealing with potential hazards such as equipment failure and marine life encounters. The voyage typically takes around two to three weeks and involves a diverse range of crew members, from experienced sailors to novices seeking to broaden their horizons. Preparation is the key to a successful voyage, with rigorous training and route planning. Once underway, the crew must remain vigilant and adaptable, constantly monitoring weather patterns, managing fatigue, and responding to any unforeseen challenges. Yet, despite the hardships, an ocean crossing from Cadiz to New York promises unforgettable experiences, from breathtaking sunsets and starry skies to close encounters with whales and dolphins. In summary, the ocean crossing from Cadiz to New York is a remarkable adventure that requires courage, skill, and teamwork, offering a once-in-a-lifetime opportunity to explore the vast expanse of the open sea and experience the beauty of the natural world.*

Keywords: *The Ocean Crossing from Cadiz to New York.*

7. (ID 89) Comparative Analysis of Technical Systems Used for Offshore Operation of Tanker Vessels

Author: stud. Alexandru-Iulian MARIN
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper describes the characteristics and compares the main offshore systems used in the past decade. The paper provides a comparative analysis between: Conventional Buoy Mooring (CBM), also referred to as Multi-Buoy Moorings (MBM), Single Point Mooring (SPM) and conventional Single Anchor Loading (SAL) systems considering the hydro meteorological condition limits enabling safe ship's cargo and manoeuvring operation offshore. These systems (CBM, SPM and SAL) are typically used for short term mooring applications offshore associated with the offloading and loading of bulk liquid fuel tankers transporting refined and unrefined products of crude oil.*

Keywords: *Offshore Operations, Conventional Buoy Mooring (CBM), Single Point Mooring (SPM), Single Anchor Loading (SAL).*

8. (ID 98) Analysis of Preparation Activities for Dry Dock of an Oil Tank

Author: stud. Florin-Daniel SALCIANU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The primary purpose of the preparation is to provide all spaces to be free for entry no any gas, no any cargo, just ballast condition special for entry in dry dock according to the ship yard. The preparation for dry dock it will be a few months before starting with joining on superintendent on board for vessel inspection and scop of job assessment.*

Keywords: *DryDock.*

9. (ID 101) Exploitation of the Poarta Albă-Midia-Năvodari Channel

Author: stud. Andrei-Alexandru SIDOR
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The Poarta Alba-Midia-Navodari Canal is the national waterway of Romania under the exclusive jurisdiction of the romanian state. It is the northern branch of the Danube-Black Sea Canal and has a total length of 27.5 km. In the work we will present the exploitation mode of it and the complex functions it has. The Porta Albă-Midia-Năvodari Canal is not only of major importance for the transport of goods, it is also a water source for irrigation, a receiver for treated wastewater, a source of drinking and industrial water supply, but also has an important role in preventing floods. We will also mention the two twin locks that are on the canal section, namely the locks from Ovidiu and Navodari. Therefore, the purpose of this paper is to present the main technical data of the channel, the operation and maintenance mode and its impotence.*

Keywords: *Canal, Twin Locks, River Transport.*

10. (ID 103) New Technologies Based on Natural Biocides for Ballast Water Treatment

Author: stud. Nicoleta -Daniela LAZĂR
Scientific Advisor: Lecturer Manuela Rossemary APETROAEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *As transoceanic travel increases; the inadvertent introduction of non-indigenous species has accelerated and the threat to natural waterways and native species is more apparent. World-wide, it has been estimated that at least 7000 marine species are transported daily around the world [1], either as fouling organisms attached to the hulls of ships or entrained within ballast tanks. Globally an estimated 10 billion tonnes of ballast water are transferred each year, each ship carrying several hundred liters to >100,000 tonnes of ballast water. The United Nations International Maritime Organization (IMO) has arrived at an estimated annual economic cost of $123 billion associated with unwanted introductions of aquatic nuisance species worldwide. Ballast water*

introductions can also involve potentially serious health risks. Prominent among these has been the proliferation of harmful algal blooms resulting from ballast water transport of phytoplankton between coastal areas. In February 2004 IMO drafted a new Ballast Water Convention [2]. The convention makes provision for ballast water treatments capable of eliminating almost all ballast water organisms.
Keywords: *Ballast Water, Cost, Organization, IMO, Marine Species.*

11. (ID 109) Offshore Wind Farms
Author: stud. Andrada-Nicoleta ȚĂRANU
Scientific Advisor: Assoc. Prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *My presentation will be about marine wind farms, how it works this wind farms, how they transmit energy to the population on land, how marine life is affected by these wind farms.*
Keywords: *Wind Farms, Marine Life, Energy.*

12. (ID 111) Pollution on the Romanian Sector of Danube
Author: stud. Ana-Maria ÎNSURĂȚELU
Scientific Advisor: Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This paper presents a case study of pollution on the Danube. The cause of this pollution is due to a moving ship discharging its waste into the river. An analysis will be made of the damage caused and we will also identify the measures taken in this case.*

13. (ID 115) Construction Characteristics of Container Ships and Bulk Carriers
Author: stud. Stefania-Crina DINU
Scientific Advisors: Sup. Instr. Andrei POCORA, PhD, Eng. Livia RAUCA
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The purpose of the paperwork is to analyze the constructive characteristics between a container ship and a bulk carrier. This article presents particularities specific to each type of ship. The design of the ship's hull and the construction of cargo holds and*

hatch covers for the transport of goods will be analyzed to determine the differences between the container ship and bulk carrier.
Keywords: *Container Ship, Bulk Carrier.*

14. (ID 116) Essential Navigational Equipments Used on Board
Author: stud. Ana GEOGE
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *In this article I will present to you some navigational equipments which can be found on board of the M/V CMA CGM LA SCALA. The content of the essay includes the importance in marine navigation for the ship's officer to know the vessel's position while in open sea and also in congested harbors and waterways. While at sea, accurate position, speed, and heading are needed to ensure the vessel reaches its destination in the safest, most economical and timely fashion that conditions will permit.*
Keywords: *Navigational Equipments.*

15. (ID 118) Ships Development Through the Years
Authors: stud. Giulia Diana TĂMAȘ, stud. Maria Cătălina POPA
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The maritime world has a great and rich history, ships and boats being the oldest type of transportation. In our presentation we will talk about the evolution that ships had during the years but also the changes that will happen in the future.*

16. (ID 20) Multiple Use of IA in Shipping Industry
Author: stud. Aaron ACHIM
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *With a history dating back over a thousand years, maritime navigation is a field in which technology works alongside traditional practices to provide people with a safe way to travel on the sea. Despite significant advancements in recent years, navigation remains based on human decisions and abilities, so that information received by a navigator may be correctly interpreted and applied to provide the navigator with a safe path. This article will discuss the processes*

and activities that occur during navigation and are based on human decision. The processes and activities of navigation have an important role in the safety of the ship, its crew, and its passengers. Evaluarea constantă and active of many elements, such as the external environment, the internal environment, organizational factors, and navigation factors, necessitates interconnected and correct decisions in order to arrive at the desired destination in the shortest amount of time. Processes and activities have a role in making decisions and taking actions when preparing a vessel for a voyage, such as planning the voyage, scheduling the arrival and departure of the vessel, navigating the vessel, and preventing collisions. These procedures and activities are critical for the safety and success of navigation. Artificial intelligence (IA) refers to the use of information technology methods, algorithms, and other techniques to perform functions and processes that mimic human intelligence, such as learning and problem solving. Whenever this technology is implemented, it has the potential to revolutionize whole industries, such as navigation. IA algorithms are used in navigation to improve the way ships navigate on ocean and river calls, making them more effective at avoiding obstructions. These algorithms are also used to plan and optimize autonomous vehicle journeys.
Keywords: *Artificial Intelligence, AI.*

17. (ID 121) The Use of MATLAB Software in the Study of the Ship's Stability

Authors: stud. Radu LEONTE, stud. Anne-Lise Laolia BUZNĂ, Mihai Dan TIMOFTE
Scientific Advisor: Assoc. Prof. Eng. Mihaela-Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper aims to provide an insight into how, with the help of MATLAB software, graphs can be drawn through specified points and uploading corresponding pictures. For example, it was chosen the way of generating the static and dynamic diagrams of a ship. The objective is to create a simple and easy Graphical User (GU I) interface. The work details the steps of creating a GUI, the code for diagram plotting by points, and determining the value of the initial metacentric height and the value for a forty degrees angle of inclination.*

Keywords: *MATLAB, Ship, Angle, Diagrams.*

18. (ID 126) Maritime Transport from Ireland
Author: stud. Valentin MIHAI
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Shipping is an important mode of transport for Ireland, as it is an island country on the edge of Western Europe. Industries such as trade, fishing and tourism depend on Irish shipping, which plays a vital role in the country's economy.*
Keywords: *Water Transport, Transporting People, Oceans, Seas, Economic Losses.*

19. (ID 140) Loading and Discharging Procedures on LPG Ships
Author: stud. Marian ALBU
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Liquefied Petroleum Gas (LPG) is a popular fuel source worldwide, and LPG vessels are specialized ships designed for transporting large volumes of LPG across the ocean. Gases are liquefied for transportation for volume efficiency purposes. For example, liquefied petroleum gas (LPG) will occupy approximately 400 times less volume than one metric ton of petroleum gas in vapour form. The safe and efficient transportation of Liquefied Petroleum Gas (LPG) requires careful handling during loading and discharging procedures on LPG vessels. Loading involves pre-loading inspection, connection to the shore facility, preparation of tanks, loading and disconnection from the shore facility. Discharging procedures include arrival at destination, connection to the shore facility, preparation of tanks, discharging and disconnection from the shore facility.*
Keywords: *Liquefied Petroleum Gas (LPG), LPG Cargo Operations, Gas Tankers.*

20. (ID 143) Cargo Ventilation Necessity
Author: stud. Mihaela GĂVAN
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *One of the important aspects of transporting cargo on ships is to prevent any kind of damage to the cargo. It is important to take proper care of the cargo on board ships to avoid loss of property and avert cargo claims. Damage to cargo can happen because of several reasons such as accident, flooding, rain water, etc. Of all the reasons, moisture is one of the most common causes of cargo damage and a source of significant cargo claims. There are numerous reasons for ventilating a ship's holds. Among these are: ensure an adequate oxygen level for people to enter the holds; remove poisonous, flammable gases or fumigant gases; attempt to prevent condensation or 'sweat'. If the stacking has complied with the loading norms for the respective cargo then it can be transported in the best conditions if proper ventilation is ensured throughout the navigation.*

21. (ID 144) Developing a Software as a Support for the Study of METOC Impact on the Planning Process of the Maritime

Author: stud. Miruna-Georgiana ICHIM
Scientific Advisor: Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Few military endeavors, including those of our adversaries, are immune to environmental effects. Meteorological and oceanographic (METOC) support is essential to provide the commander with information about the components of the operational environment and the ability to exploit them to gain a tactical advantage during military missions. The following project is about developing a software which represents an efficient method for assembling METOC reports provided by Maritime Hydrographic Directorate from the North-West of Black Sea in order to calculate the impact of meteorological and oceanographic aspects on the maritime operations.*
Keywords: *METOC, Impact, Software, Maritime, Operations.*

22. (ID 147) Sea Transportation of LNG

Authors: stud. Alexandru-Cristian ALBU, stud. Rareș-Alexandru ANDREIEȘI
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Liquefied natural gas (LNG) is transported on vessels designed specifically for this purpose. These vessels must be equipped with advanced insulation and refrigeration systems to maintain the extremely low temperatures (-162 degrees Celsius) required to keep the LNG in its liquid state. This process reduces the volume of natural gas, making it easier to store and transport. Safety is a top priority when transporting LNG, and industry standards and protocols are in place to ensure safe transportation. As demand for LNG continues to grow, the industry is focused on developing new technologies and processes to improve the efficiency and safety of transportation. The transportation of LNG on vessels is a critical component of the global energy supply chain and plays a vital role in meeting the world's energy needs.*
Keywords: *LNG, Gas, Transportation, Safety, Energy.*

23. (ID 148) A MATLAB Program for Calculating Under Keel Clearance Using Admiralty Tidal Tables

Authors: stud. Mihai-Danut TIMOFTE, stud. Catalin Costin VLAD
Scientific Advisor: Lecturer Eng. Elena ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Safe navigation is crucial for maritime operations and requires an accurate assessment of the under keel clearance (UKC) for ships. This paper presents a program developed in Matlab for calculating the UKC using Admiralty Tidal Tables. The program provides a user-friendly interface and accurately calculates the UKC by taking into account the ship's draft, tidal height, water depth, and squat. The program's features and benefits are presented, highlighting its importance in maritime navigation. The program's efficiency and accuracy make it a valuable contribution to the field of marine safety.*
Keywords: *MATLAB, Ukc, Navigation, Admiralty.*

24. (ID 162) Study on the Maneuvering of Passenger Vessels without Tugs

Author: stud. George-Alexandru GRADINARU
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this presentation I am going to talk about ship maneuvering and about cruise ships.*

25. (ID 166) Women in Naval Industry

Authors: stud. Alexandra-Ioana BAJENARU, stud. Dorina-Mihaela COMANICI
Scientific Advisor: Assoc. Prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The seafaring world is known to be dominated by men which was transformed into a stereotype. The total percentage of female seafarers working in the maritime industry is just 2% according to figures released by the International Maritime Organization (IMO). This equates to approximately 24,000 women seafarers out of a total global workforce of 1.5 million. Statistics such as this really underline that gender diversity in the maritime industry remains a major problem. So, what are the reasons behind this and what is supposed to be done to encourage more female seafarers into the profession? The aim of this presentation is to promote gender diversity, inclusion and women's empowerment. We would like to change the perspective and provide some examples of how to reduce this problem.*

Keywords: *Seafarers, Women, Stereotype.*

26. (ID 169) Defence of Maritime Facilities and Transport in Relation to War in Ukraine

Author: stud. Maciej HAMERA
Scientific Advisor: Assoc. Prof. Sergiu LUPU, PhD
Institution: Polish Naval Academy

Abstract: *The presentation describes how important role maritime transport had for Ukraine before the war. It compares export and import via ports at the Black Sea in 2021 and 2022 and presents poor condition of Ukrainian Navy before the conflict which made impossible for them to properly defend against Russian blockade. The author's intention is to present that well trained and equipped navy still plays important role in protecting country's interests. According to that, number of potential conventional threats and solutions are presented which could be implemented in other navies considering ways of their development. As conclusions of the*

presentation are destined especially for the countries like Poland or Romania, it also presents some asymmetric threats which can be obviated by enhancing coast guard role of the navy or strategic alliances.
Keywords: *Maritime Security, Baltic Sea, Black Sea, Asymetric Warfare.*

27. (ID 171) Documents Required for Loading/Unloading Operation for an Oil Tanker
Author: stud. Vlad-Liviu POP
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Documents required for loading/unloading operations for an oil tanker.*
Keywords: *Documents.*

28. (ID 173) Factors that Affect Cyber-Risks in the Maritime Sector
Author: stud. Mihai-Robert PARASCHIV
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The maritime industry is becoming increasingly connected and reliant on technology, creating vulnerabilities that can be exploited by cybercriminals. With increasing connectivity of ships and ports, reliance on aging technology, a lack of awareness and training, reliance on third-party vendors, and the lack of industry-specific regulations, the maritime sector is facing a growing threat from cyber-attacks. As the world becomes more reliant on technology and connectivity, it is essential for the maritime industry to prioritize cybersecurity and implement measures to protect themselves and their assets. The potential consequences of cyber-attacks on the maritime sector can be significant, including disruptions to global trade, environmental damage, and risks to human safety. To mitigate these risks, it is important for the industry to invest in cybersecurity measures, promote awareness and training among staff, and work towards the development of industry-specific regulations to address cybersecurity concerns.*

Keywords: *Maritime Industry, Connectivity, Technology, Cybercriminals, Cyber-Attacks, Cybersecurity, Vulnerabilities, Aging technology, Awareness, Training.*

29. (ID 174) Identification of Risks in the Operation of LNG Vessels

Author: stud. Luca-Valentin ATANASIU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project aims to identify and analyze the risks associated with LNG (liquefied natural gas) vessels. LNG vessels are used for transporting large quantities of liquefied natural gas across the world. These vessels are exposed to a variety of risks, including technical, operational, and environmental risks, which can have significant safety, financial, and reputational consequences. To identify and assess the risks associated with LNG vessels, this project will undertake a comprehensive risk analysis approach that includes hazard identification, risk assessment, risk mitigation, and risk management. The study will explore the potential consequences of various hazards and risks, such as cargo spills, fire and explosion, collision, and grounding. Furthermore, the project will explore the existing regulations and standards that govern the safe operation of LNG vessels, and assess the effectiveness of these measures in mitigating the identified risks. The study will also consider the latest technological advancements and best practices in the industry to identify potential areas for improvement.*

Keywords: *Liquefied Natural Gas; LNG Carriers; Risk Analysis; Risk Assessment.*

30. (ID 176) Methods of Securing Cargo Containers

Author: stud. Mihnea PARASCHIV
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation is informing about the procedures for securing containers. The types of security are vast, and over time new methods have been added mainly for economic reasons. Thus, there are at least 5 methods of securing container ships. The main consequences will be presented in the failure of the correct and long-*

term security of the containers, which leads to great material damage, and in the most unfortunate case to human losses.
Keywords: *Cargo, Securing, Holds, Lashing.*

31. (ID 177) Naval Installations for Cargo-Handling
Author: stud. Georgian-Teodor POTERAȘU
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The main objective of the activity of operation of ships is to realize a transfer as quickly and as possible, secure the goods from/to the ships and to/from outside the port. Usually for handling goods, the ships are equipped with cranes, cableway cranes or other special installations.*
Keywords: *Cargo, Cranes.*

32. (ID 179) Individual Rescue Equipment at Sea
Author: stud. Simona-Mihaela DUMITRACHE
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paper, the main individual rescue equipment at sea will be introduced, which are of major importance for both cargo and passenger ships. The first part will contain the regulations imposed by SOLAS (Safety of Life at Sea), then the utility and structure of each piece of equipment will be detailed, completing the descriptions with clear pictures to improve the understanding of the equipment, but also the way of use and the situations in which it is used.*
Keywords: *Rescue, Equipment, SOLAS.*

33. (ID 180) Study on the Shipping System in Turkey - Statistical Research 2010-2020
Author: stud. Victor-Ioan PAVEL
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation will analyse the main shipyards of Turkey and their evolution based on data and statistics. This presentation will provide a comprehensive analyse of this industry compared with other countries surrounding Turkey.*

Keywords: *Shipyards, Turkey, Maritime Sector, Statistics.*

34. (ID 182) Case Study on Hydrometeorological Conditions in the Caspian NW Basin Based on Satellite Observations
Author: stud. Andra SCURTU
Scientific Advisor: Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *For this purpose, I used values of daily minimum air temperature over the North Caspian (44.46°–47.14°N, 46.70–52.90°E). We discuss in detail ice cover characteristics variations. I find that in the 21st century, compared to the 20th century, the number severe winters has decreased, while the number of mild winters has increased.*
Keywords: *Caspian Sea, Hydrometeorology, Satellites.*

35. (ID 189) Study of Maritime Transport System in Denmark
Author: stud. Elena Teodora BANIȚĂ
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Denmark is a country with a strong tradition in maritime transport and naval industry. The strategic location as a gateway to the Baltic Sea and the North Sea has played a crucial role in the development of the country's maritime sector. Denmark is home to some of the world's largest shipping companies, such as Maersk, which is a global leader in container shipping. The country has also been a pioneer in the development and implementation of green maritime technologies. Danish companies have invested heavily in research and development of low-carbon and zero-emission shipping technologies. The naval industry in Denmark is also strong, with several leading shipyards and suppliers of marine equipment. The country has a long history of designing and building high-tech vessels, including advanced military ships and commercial vessels. Overall, Denmark's maritime transport and naval industry are integral parts of the country's economy, and the country is well-positioned to continue leadership in sustainable maritime technologies in the future.*
Keywords: *Naval Industry, Maritime Transport, Green Maritime Technologies.*

36. (ID 191) Steering Gear

Authors: stud. Andreea-Lavinia MITRAN, stud. Rebeca NICOLAIE
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This scientific paper gives information about the construction and maintenance of the steering gear. Steering gear is one of the most important part of ship, which will steer the ship to its right direction. In this presentation at first reference regarding principles of operation, control system and system components is explained. Various graphics of the main components of steering gear are shown in the slides which will give better understanding of functioning of steering gear. The rotary vane and rams type steering gears, needs hydraulic oil for proper operation and function. Also, since it is critical equipment onboard, there are various SOLAS requirement for its maintenance and testing. All the data collated is from practical knowledge and from nautical publications on board. Actual emergency steering drill was conducted onboard where all crew participated. Simulation on the actual failure from bridge as the control was taken to the local steering room, and each crew tried out the proper operation of the knob to control the steering.*

Keywords: *Steering Gear.*

37. (ID 193) Study on the Impact of the COVID-19 Pandemic on Maritime Transport

Author: stud. Florin CLOȘCĂ
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper analyzes the macro and micro effects of the COVID-19 pandemic on the shipping industry. More specifically, it evaluates:*

• Economic and regulatory responses to the pandemic, particularly those adopted by national governments.

• The impact of national public health policies implemented to contain and mitigate COVID-19 on shipping and supply chain labor markets.

• National political effects on the international logistics network and the shipping industry, as well as on the commitment and long-term contributions of shipping to the United Nations (UN) Sustainable

Development Goals (SDGs), including in the context of employment in worldwide shipping.
Keywords: *Maritime Transport Impact; COVID-19; Shipping Recovery; Comparative Analysis.*

38. (ID 196) Black Tides
Author: stud. Alexandru CIOROIU
Scientific Advisor: Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Black tide is actually just a statement of the shadow of sea oil spills, harmful goods smuggled and polluted. The term "oil spill" does not simply mean the presence of hydrocarbons in the marine environment. It refers to a violent spillage concentrated in a specific area, surpassing the natural assimilation capacities of the surrounding environment.*
Keywords: *Oil Spill, Black Tide, Hydrocarbons.*

39. (ID 208) Rise of the Green Energy in Maritime Industry!
Authors: stud. Malina Andreea ANDRONIC, stud. Cristian-Andrei VERDEŞ, stud. Alexandru Victor VARTAN
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The maritime industry, among all other industries, is being forced to gradually reduce its emissions. This project deals with the improvement of shipping and we are providing a complete design procedure for green and electric ships.*
Keywords: *Ship, Electric, Green.*

40. (ID 210) The Safety Risk Relationship in the Exploitation of Oil Tankers
Author: stud. Andrei ARDELEANU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This Bachelor thesis aims to study the relationship between safety risks and the exploitation of oil tankers. The introduction provides background information on the topic and outlines the motivation for the study. The research objectives and questions are also defined. In the first section, an overview of oil tanker*

exploitation is given, followed by a historical analysis of oil tanker accidents. The current safety regulations in oil tanker exploitation are also discussed. The second section focuses on the analysis of safety risks in the exploitation of oil tankers. This includes identifying risk factors, evaluating the risk level, and proposing measures to reduce risks of oil spills. Moreover, we present the methods of cleaning up waters following oil spills. Finally, the conclusion and recommendations section summarize the findings of the study and provides recommendations for improving safety in the exploitation of oil tankers.
Keywords: *Safety, Risk Management, Oil Tankers, Oil Spills.*

41. (ID 213) Sea Rescue with the Help of Helicopters
Author: stud. Diana-Lorena PRAJESCU
Abstract: *I will talk about sea rescue with the help of helicopters, equipments and methods used in saving human lives at sea.*
Keywords: *Helicopters, Sea Rescue.*

42. (ID 214) Australia Shipping System Study 2010-2023
Author: stud. Adrian-Alin ZORILA
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present study will describe the situation regarding the naval industry in the country of Australia, between the years 2010-2023.*
Keywords: *Navigation, Transportation, Australia, Maritime.*

43. (ID 218) Study the Use of Celestial Navigation Techniques, Such as Using the Stars and the Sun to Determine Position and Course
Authors: stud. Camelia-Bianca STEFAN, stud. Larisia-Maria PEPTANARIU, stud. Robert-Marian MARGA
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Celestial navigation techniques have been used for centuries by sailors and navigators to determine their position and course at sea. These techniques involve using the stars and the sun to calculate latitude and longitude. By measuring the angle between the*

horizon and the celestial body, sailors can determine their latitude. By measuring the angle between the celestial body and a known reference point, such as the Greenwich Meridian, sailors can determine their longitude. Celestial navigation is still used today by some sailors, particularly in emergency situations where electronic navigation systems have failed. By studying celestial navigation techniques, we can gain a deeper understanding of the history of navigation and the importance of the stars and the sun in our lives.
Keywords: *Celestial Navigation, Sextant, Nautical Almanac, Course Determination.*

44. (ID 238) Methods of Accident Risk Analysis in Oil Tanker Ships for Unloading/Loading Operations
Author: stud. Catalin BECULESCU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ship risk management is the process of collecting data and synthesizing information in order to develop a clear understanding of the risk present in a certain situation. It includes processes related to the identification, assessment and prioritization of risks, followed by the economic application of resources to eliminate risks, as well as control of the probability or impact of undesirable events to which a ship may be exposed. The oil tanker risk analysis process is developed at the highest level as a result of the greater costs involved in this type of ships, mostly common tests used to be PHA and FTA. The fault tree is a graphic model that details the logical connections between events leading to faults and concomitant human errors that can occur in the system. By assessing the probability of failure of each component, it is possible to calculate the probability of occurrence of the original factor.*
Keywords: *Risk Management.*

45. (ID 251) Navigation Instruments
Authors: stud. Denisa-Andreea CONSTANTIN, stud. Diana-Gabriela IONIȚĂ
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this presentation we talked about electronic navigation instruments, how they work and how to use them for a proper navigation.*
Keywords: *Logs, Depth Sounders, GPS, Radar, AIS, GMDSS, DSC.*

46. (ID 253) Automatic Identification System (AIS)
Authors: stud. Andreea DRAGU, stud. Irina FELINCIOIU
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This project consists in a presentation of Automatic Identification System (AIS). First, this project present how AIS works with part names and function of an AIS controller. Secondly, this project contains Types and Classes Of AIS, Messages And Type Formats and in the end is a presentation of some of the most important benefits and errors of AIS.*
Keywords: *AIS; System; VHF; Display; Signal; GPS.*

47. (ID 261) Navigation in the Frozen Waters of Russia
Author: stud. Cristina Aida GUIU
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paper I will be talking about the navigation in the Northern Sea Route. I am going to describe the navigational and meteorological conditions and the extra regulations that apply to this area. I will also present the different types of ships which are made to navigate in frozen waters and the requirements that the ships have to satisfy in order to be allowed to transit this area.*
Keywords: *Navigation, Meteorological Conditions, Ice.*

48. (ID 262) Study on the Intervention in Case of Pollution in the Arctic Area
Author: stud. Alexandru CONSTANTIN
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paperwork is structured in 3 main chapters as follows: Chapter I. The particularities of the Arctic area and the possible scenarios of oil spills, in which the particularities of the Arctic area, hydrometeorological conditions and what impact they have in cases*

of oil spills are presented. It also presents the most common oil spill scenarios and what defines them.
Chapter II. Response planning and plans detailing the development of response plans and the decision-making process, the processes for detecting, delimiting, monitoring and tracking spilled oil and, most importantly, the response strategies.
Chapter III. Case study: Exxon Valdez, in which the case of the Exxon Valdez oil tanker is analyzed, which was responsible for one of the largest oil pollutions in the Arctic area, the negative effects of which still exist today. The causes, how the oil spill happened, the consequences and the lessons learned are analyzed.
The paper ends with the Conclusions and Bibliography chapters.
Keywords: *Arctic Sea; Pollution; Types of Spills; Intervention Strategies; Exxon Valdez.*

49. (ID 263) The Doppler Log: Errors Caused by Environmental Influences
Authors: stud. Nicolaos Aghelos SAMOLIS, stud. Mihnea Teodor TROFIN
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The overview of the errors on Doppler Log, caused by the vertical movements of the phytoplankton and the thermocline and how it can affect navigation.*
Keywords: *Doppler Log, Plankton, The thermocline, Error.*

50. (ID 264) Bulgaria's Maritime Transport System, Between 2010-2023
Author: stud. Adrian MANEA
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Bulgaria is a country located in southeast Europe, it covers a territory of 110,994 square kilometres and it disposes of both maritime and inland waterways, the countries biggest port being Varna, located on the Black Sea's west coast This study aims to analyze the maritime transport system of Bulgaria during a decade, including changes in the industry's structure, performance and economic conditions.The methodology of the study involves a*

comprehensive review of existing data and statistics from various sources.The findings of the study reveal that the Bulgarian maritime transport system has undergone significant changes over the past decade.
Keywords: *Maritime, Bulgaria, Port, Transport Capacity.*

51. (ID 265) Detection Systems and Fire Alarm
Author: stud. Alina PLÂNGE
Scientific Advisor: Lecturer Eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A fire, if detected quickly, can be fought and brought under control with a minimum of damage. The use of fire detection devices is, therefore, increasing particularly in view of reduced manning and unmanned machinery spaces. Three phenomena associated with fire are used to provide the alarm: smoke, flames, and heat. The smoke detector makes use of two ionisation chambers, one open to the atmosphere and one closed.*
Keywords: *Detector, Fire Alarm, Smoke.*

52. (ID 267) Human Error in Marine Accidents
Authors: stud. Andrei Catalin STAVILA, stud. Alexandru-Madalin STANCIU
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Over the past decade the number of maritime transportation accidents has fallen. However, as shipping vessels continue to increase in size, one single incident, such as the oil spills from 'super' tankers, can have catastrophic and long-term consequences for marine ecosystems, the environment and local economies. Many studies point to direct or indirect human error as a major cause of maritime accidents, which raises many unanswered questions about the best way to prevent catastrophic human error in maritime contexts.*
Keywords: *Maritime Accidents, Human Error, Human Factor.*

53. (ID 277) Croatia's Naval Transport System Between 2010-2023

Author: stud. Sebastian LEMNARU
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Croatia is a country located in Southeast Europe, with a long coastline on the Adriatic Sea. The country has several ports and harbors that serve as important transport hubs for both passengers and cargo, the largest port being Rijeka.This study aims to provide an analysis of the maritime transport system of Croatia during a decade, including changes in the industry's structure, performance, and the impact of economic and technological factors. The research methodology of the study involved a review of relevant analysis of available statistics and data. The study finds that Croatia's maritime transport system has undergone significant changes over the last decade, including changes in the structure of the industry.*

Keywords: *Croatia, Transport, Navigation, Port, Industry.*

54. (ID 278) Study on the Impact of Oil Spills

Author: stud. Andrei-Lucian IVAN
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Marine pollution as a result of oil spills can be defined as the establishment of harmful substances, which can have a devastating effect on water quality, wildlife and human health. In general, water is a very vulnerable environment to pollution due to its biological life-supporting task and its role as an ideal solvent and mobile fluid.Every ecosystem has a limited capacity to protect and self-repair against factors that have disrupted this naturally occurring load due to pollution.The main cause of pollution of the marine environment comes from oil rigs which, during the extraction of oil from the seabed, may accidentally release oil-based fluids and compounds that can excessively contaminate the waters of the seas and oceans. The transfer of fuel can also cause significant damage to the eco-system. Large spills usually occur when ships collide, but the danger is twice as great when oil tankers carry very large quantities of oil.*

55. (ID 279) The Risk of the Transportation of Dangerous Goods
Authors: stud. Luisa-Patricia BALAS, stud. Andreea-Erica ROBU
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In any debate about the transport of dangerous goods where the effectiveness of existing legislative controls is challenged, it is very important that there is a full understanding of the magnitude of the risks involved and the causes and major contributors so that properly informed decisions can be made. The accident of maritime dangerous goods will also cause serious pollution to marine environment, especially for such dangerous goods with serious pollution hazard and toxic harm, once leakage happens, it will cause a great threat to human and marine environment.*

56. (ID 284) Wave Energy Converters
Authors: stud. Mirela Andreea CAZAN, stud. Denisia AMATEESEI
Scientific Advisor: Lecturer Cristian SCURTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *To address challenges facing the wave energy industry, designing Wave Energy Converters (WECs) suitable for specific markets, with consideration for wave energy resources, national programs, and investment opportunities, could be a promising strategy. WEC array networks offer several advantages, such as increased efficiency, redundancy, flexibility, and cost reduction, making them an attractive option for generating electricity from wave energy. Different types of WECs, such as point absorbers, oscillating water columns, attenuators, overtopping devices, submerged pressure differential devices, and surface-following devices, utilize distinct methods to harness wave power.*
Keywords: *Wave Energy Converters, Wave Energy Resources, WEC Array Network.*

57. (ID 285) The PT500A Adaptive Autopilot
Authors: stud. Steluta MUNTEANU, stud. Dragos-Ioan POPA
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Ship motion is a complex controlled process with several hydrodynamic parameters that vary in wide ranges with respect to ship load condition, speed and surrounding conditions (such as wind, current, tide, etc.). Therefore, to effectively control ships is always an important task for ship masters. This presentation approaches an effective adaptive autopilot for ships that ensure the optimal characteristics of accuracy, economy and stability. The PT500 adaptive autopilot is a digitally controlled automatic steering unit designed for ships that can adapt to different sea conditions and navigational requirements, providing an efficient and reliable solution for ship navigation. It is an easy-to-use and fully customizable system that can be easily integrated into existing ship systems. Its advanced features like multiple operation modes, adaptive control, user-friendly interface, and safety features make it an excellent choice for vessel owners and operators who are looking for a high-performance autopilot system.*
Keywords: *Efficiency, Accuracy, Economy, Stability.*

58. (ID 286) Study on the Norwegian Shipping System 2010-2023
Author: stud. Elena-Medeea CIUBOTARU
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Norwegian shipping system has undergone significant changes from 2010 to 2023. The adoption of digital solutions such as autonomous vessels, blockchain, and big data analytics has been on the rise. The industry has also seen a shift towards environmentally friendly practices, with a focus on reducing emissions and improving sustainability. In addition, the Norwegian shipping system has faced challenges such as changes in global trade patterns, economic volatility, and new regulations. These challenges have led to changes in the types of vessels used and the routes taken by Norwegian ships. Despite these challenges, the Norwegian shipping industry has remained competitive and innovative, with a strong focus on safety and quality. Looking ahead, the industry is expected to continue to evolve and adapt to new technologies and changing market conditions.*
Keywords: *Norwegian Shipping, Industry, Vessels.*

59. (ID 291) Constructive Elements of a Submersible. Case Study: The Project 641B (Tango) Class Submarine

Authors: stud. Vlad-Mihai CHELU, stud. Răzvan Alecsandru CONSTANTIN
Scientific Advisor: Lecturer Eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper approaches notions about constructive elements of modern submarine ships including its component parts, partitioning and propulsion solutions. We will discuss about main points in technical history of this large study field but also about latest innovations in the construction and operation of submarine ships by pointing to relevant sources from specialty literature. Our study of case is the Project 641B (Tango) class submarine which is the largest Russian (Soviet) made and even though is no longer in use (it retired in 1998) remains relevant to our discussion as being a very complex and ample submarine class we had the opportunity to study up-close. Most of the photos accompanying our case study were made at Russian Fleet Museum in Moscow where a submarine of this type is publicly displayed today.*

Keywords: *Submarine Ship, Submersible, Submarine Innovations.*

60. (ID 294) The Influence Study of Free Liquid Surfaces on Ship Stability

Authors: stud. Roberta-Mihaela CONSTANTIN, stud. Alina-Elena CRACIUN, stud. Anca-Ionela DOBROMIRESCU
Scientific Advisor: Lecturer Eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *It is well known that the free surface of a liquid affects the transverse and longitudinal ship stability. Safety is the most debated feature of maritime transport while stability is one of the most critical features of a ship. At present, the assessment and calculation of ship's intact stability are based on the stability criteria and the righting lever curve needs to be corrected in order to decrease the influence of free liquid surface in tank. Corrections made on board are partial and approximate only because this method only considers the influence of static adjustment on sloshing phenomenon and doesn't consider dynamic adjustment and its influence. The present paper investigates the effect of fluid free surfaces in tanks on the*

transverse stability of the ship and expresses considerations on the influence of the tank filling level. The heeling moment caused by sloshing is analyzed in order to demonstrate the influence of the dynamics of free liquid surface on ship stability.
Keywords: *Liquid Surface, Safety, Sloshing, Ship Stability, Free Surface, Heeling Moment.*

61. (ID 247) Web Design Comes to the Rescue of Deck Cadets
Author: stud. Cristian-Andrei OPREA
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation is about a brief history of web design, some tips for those who will be starting in this field, and how web design has come to the aid of cadets, by developing a web site with important and last-minute information that is useful for their first voyage.*
Keywords: *Web-Design, Navigation.*

62. (ID 198) Antifouling Paints for Warships
Authors: stud. Daniel BERBECI, stud. Cozmin ȘORODOC
Scientific Advisor: Assoc. Prof. Manuela Rossemary APETROAEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *I try to present a general overview of marine paints, paying particular attention to the case of antifouling paints. This is complemented by a systematic assessment of the main types of living organisms that fix themselves to the underwater parts of ships. Consideration is also briefly made of the main basic mechanisms by which the different types of antifouling paints work. Finally, a current research lines on antifouling technologies are mentioned and conclusion.*
Keywords: *Paint, Fouling.*

63. (ID 304) Methods of Measuring Waves
Author: stud. Madalina RUSU
Scientific Advisor: Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *The industry standard for Wave measurements is to use a buoy moored freely in the ocean, transmitting data to shore or a nearby platform. This method has operational limitations that in many cases require other solutions. For offshore use, several other solutions based on down-looking radars or lasers exist and work reliably, depending upon location. Also, systems based on using horizontally looking radars, even standard X-band ships' radars, have been used as well as up-looking ADCP sensors and pressure sensors. Measuring Waves correctly can be very complicated, and data can easily be useless if it is not done correctly.*
Keywords: *Measurements, Waves, Radar.*

64. (ID 310) Sea Transportation of RO-RO
Author: stud. Nicolas BANIOTI
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ro-Ro ships are specialized cargo vessels designed for the transportation of wheeled and tracked vehicles, such as cars, trucks, and heavy equipment, as well as other cargo that can be rolled on and off the vessel. These vessels have large open bridges that allow vehicles to be loaded and unloaded rapidly and efficiently using ramps or special loading equipment. Both of those are also used to transport military vehicles and equipment, as well as other types of cargo that can be rolled on and off the vessel and face various challenges and risks, such as bad weather, piracy, and mechanical failures. To mitigate these risks, these vessels are equipped with advanced navigation and communication systems, as well as safety features such as rescue craft and firefighting equipment.*

65. (ID 312) Fire Occurrence and Prevention of Fire on Container Vessels and TEU Container Units Final
Author: stud. Robert George CORNEA
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The paper fire occurrence and prevention of fire on container vessels and TEU container units presents how fires occur on this type of vessels, how to prevent their occurrence on board,*

what equipment is used but also a small presentation about how container ships came into being.
Keywords: *Fire, Fire Fighting, Container Ship, TEU.*

66. (ID 313) The Problem of Hydrocarbon Pollution at a Global Level

Author: stud. Aida-Georgiana MARCU
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The contemporary world is grappling with a critical environmental challenge in the form of hydrocarbon pollution, which comprises petroleum and natural gas. While these resources are indispensable for modern society, their incorrect handling and disposal can lead to severe environmental ramifications. Hydrocarbon pollution primarily arises from oil spills, transportation, storage accidents, and industrial pursuits, such as drilling and refining. The detrimental effects of this pollution include harm to aquatic life, ecosystem degradation, and adverse human health outcomes. To tackle this problem, various measures have been implemented, including prevention techniques like transportation safety enhancements and industrial regulation, as well as remediation methods such as oil spill cleanup and soil and water rehabilitation. Continual research and innovation are crucial to reducing hydrocarbon pollution and mitigating its environmental and health impacts. Addressing the global hydrocarbon pollution problem requires a concerted effort from governments, industry, and individuals to reduce emissions, improve energy efficiency, and transition to cleaner energy sources.*
Keywords: *Hydrocarbon, Pollution, Global.*

67. (ID 317) The Main 3 Large Navigable Canals, Navigational Particularities

Authors: stud. Cristian-Andrei OPREA, stud. Alexandru-Andrei HURMUZ
Scientific Advisor: Lecturer Eng. Dumitru CORDUNEANU
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *Since the Panama, Suez and Corint canals were opened back in the 1900`s navigation around the world for all vessels*

became a lot shorter, easier and cheaper. These three marvelous creations have changed the way companies and sailors transport goods and passangers around the world, and this presentation aims to bring to light some of the challenges and rules that all ships and seamens must oblige to in order to sail safe through these three canals.
Keywords: *Navigation, Canals.*

68. (ID 320) Navigating by the Stars
Authors: stud. Rares-Andrei POPESCU, stud. Florin-Theodor TANASE
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *From the early years, humans used the sky and the stars to find their way in this world. In time, they developed tools and equipment to ease their quest. The present paper aims to stress on the importance of celestial navigation and the way it evolved.*
Keywords: *Celestial Navigation, North Star, Constellations, Sextant, Chronometer.*

69. (ID 321) Sextant
Author: stud. George-Mihăiță STANCIU
Scientific Advisor: Assoc. Prof. Romeo BOSNEAGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The sextant is an optical navigation instrument whose use is based on the principle of double reflection and which is used in the practice of navigation along with other instruments and devices for the observations necessary to determine the position of the ship.*
Keywords: *Sextant.*

70. (ID 324) Port Automations. Robotics in the Maritime Industry
Author: stud. Matteo VRABIE
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Port automation and robotics are transforming the maritime industry, providing benefits such as increased efficiency, reduced costs, and improved safety. Although challenges exist, such*

as high costs and technical complexity, the impact of these technologies is significant, changing the way goods are transported and improving sustainability. As new technologies emerge, the future of port automation and robotics looks promising.
Keywords: *Automations, Robotics, Artificial Intelligence, Port Operations.*

71. (ID 337) Maritime Disasters - The Main Causes of Passenger Ships Accidents
Author: stud. Bianca Anamaria BERCARU
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The theme presents a study on the main causes of accidents in which passenger ships are specifically involved. That main causes that lead to the occurrence of naval accidents will be clarified, the brief presentation of the maritime accident, as well as its effects and consequences. The studies carried out as a result of the occurrence of naval accidents aim as far as possible to exclude human errors and increase the safety of maritime transport, having at the same time an impact on the protection of the environment, the ecology and the economic environment. A single naval incident can have catastrophic and long-term consequences for marine ecosystems and local economies, but at the same time any loss of human life is one of the most important criteria that must limit the occurrence of naval accidents to a minimum.*
Keywords: *Maritime Disasters; Passanger Ships.*

72. (ID 338) Man Overboard Recovery Methods Used at Seas
Author: stud. Maria NICHIFOREASA
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Every day thousands of people lose their lives at sea from various accidents, including "man overboard". The present paper deals with different types of manouevres used to rescue a "man overboard", depending on the factors involved in the situation: location of the casualty, whether the casualty is seen going overboard immediately or if their missing is delayed, whether the ship is using engines or sails, the space available for the vessel to*

ștergere training of the crew involved. Keep in youd mind SAFETY FIRST and act accordingly to come back home safe!
Keywords: *Man Overboard.*

73. (ID 344) Loading Soya Beans in Brazil
Author: stud. Alexandru GRIGORE
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this presentation is to help you understand more about the process of loading soya beans from Brazil and it's transportation across the world. World's most consumed oilseed, soya bean is also the most cultivated and profitable crop in Brazil and it is the main item on the export basket. This project is meant to also explain the national grading standards and the framework for quantification, loading and stowage of grain cargoes, as well as the liabilities involved.*

74. (ID 353) Study About the Operation of the Dynamic Positioning System in the Offshore Industry
Author: stud. Catalin-Alexandru GHEORGHE
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ship stability is a major concern for ship builders, operators and regulatory bodies. Predicting stability requires a stability booklet or commercial software which are time-consuming, expensive and may contain errors. To address these issues, a number of tools were developed to automate stability calculations, making them faster and more reliable. The tools compute hydrostatic data, KN and GZ curves and stability criteria under different operational ranges and weather conditions by utilizing a user-friendly interface. The results were also compared to a stability booklet and found to be accurate. This paper presents new calculation methods for intact ship stability.*
Keywords: *Dynamic Positioning, Offshore, Vessel, System.*

75. (ID 357) Calculation Methods for Intact Ship Stability

Authors: stud. Samer Ahmad KINJ, stud. Aksun GEAUZAR, stud. Constantin ADAM
Scientific Advisors: Lecturer Eng. George NOVAC, PhD, Assoc. Prof. Mihail PRICOP, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Ship stability is a major concern for ship builders, operators and regulatory bodies. Predicting stability requires a stability booklet or commercial software which are time-consuming, expensive and may contain errors. To address these issues, a number of tools were developed to automate stability calculations, making them faster and more reliable. The tools compute hydrostatic data, KN and GZ curves and stability criteria under different operational ranges and weather conditions by utilizing a user-friendly interface. The results were also compared to a stability booklet and found to be accurate. This paper presents new calculation methods for intact ship stability.*

Keywords: *Ship Stability, Intact Stability, Stability Calculation.*

76. (ID 359) Definition and Classification of Dangerous Goods According to IMDG Code

Author: stud. Mihai RASCU
Scientific Advisor: Eng. Livia RAUCA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The transportation of dangerous goods is governed by international regulations to ensure safety and minimize risks to human health, property, and the environment. The International Maritime Dangerous Goods (IMDG) Code is a set of guidelines that provides rules and regulations for the safe transport of dangerous goods by sea. The IMDG Code classifies dangerous goods into different classes based on their physical and chemical properties, such as their flammability, toxicity, and corrosiveness. The nine classes of dangerous goods in the IMDG Code are explosives, gases, flammable liquids, flammable solids, oxidizing substances, toxic and infectious substances, radioactive materials, corrosive substances, and miscellaneous dangerous goods. Proper identification, packaging, marking, labeling, and documentation of dangerous goods are crucial to ensure safe transport and prevent accidents.*

Compliance with the IMDG Code is mandatory for all shipments of dangerous goods by sea.
Keywords: *IMDG, Dangerous.*

77. (ID 367) Emergency Navigation
Author: stud. Danut Gabriel MITREA
Abstract: *The project emergency navigation is a detailed description of how a navigator can determine his position in the event that modern navigation equipament in the ship is decommissioning no longer operates*
Keywords: *Emergency Navigation.*

78. (ID 371) Electronic Chart Display and Information System (ECDIS)
Authors: stud. George-Iulian MILEA, stud. Costin MIHAILESCU
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *An Electronic Chart Display and Information System (ECDIS) is a geographic information system used for nautical navigation that complies with International Maritime Organization (IMO) regulations as an alternative to paper nautical charts. The operation of the ECDIS unit is carried out via the control panel, and also by use of the trackball cursor and on-screen drop-down menus. Some of the on-screen controls duplicate the discrete controls on the control panel. In this project we will present the main functions of ECDIS and the importance of this equipment in the integrated navigation bridge system.*
Keywords: *Electronic Chart Display and Information System (ECDIS).*

79. (ID 373) DGPS Equipment Interface
Authors: stud. Teodor-Daniel OPREA, stud. Ioana-Cosmina IGNAT
Scientific Advisor: Eng. Cristina ALECSE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Differential Global Positioning System (DGPS) equipment interfaces are essential components in modern navigation systems that provide highly accurate positioning and timing information. DGPS equipment interfaces are designed to be user-friendly and*

accessible, allowing users to operate the system with ease. The software interface includes graphical user interfaces, data exchange protocols, and navigation software that enable users to interact with the system and access navigation information. DGPS equipment interfaces provide a wealth of features, such as real-time navigation, automated route planning, and course deviation indicators. Overall, the DGPS equipment interface plays a critical role in modern navigation systems, providing users with highly accurate and reliable positioning and timing information, as well as facilitating communication and integration with other onboard systems.
Keywords: *Ship Position, Plotting, DGPS Display.*

80. (ID 374) Echo Sounder
Authors: stud. Ioan-Sebastian VĂDUVA-CREȚU, stud. Răzvan-Ștefan NICHITA
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *One of the great mysteries of sailing is wondering what lies beneath us, between the water and the bottom. An echo sounder can help us in our exploration of the world below the depths. Grounding is one of many possible accidents that a vessel encounter. This happens when the bottom of the ship touches the seabed. To get accurate information, an echo sounder is used by officers on watch. It measures the depth of water and more importantly, the under-keel clearance. This presentation approaches an effective and easy to use echo sounder for ships that ensure the best depth measuring regarding the safety of the ship and crew along the voyage. Skipper GDS101 (Graphic Depth Sounder) Echo Sounder System is a highly reliable universal echo sounder with advanced functionality, that is easy-to-use and install. The GDS101 stores data from the last 24 hours including depth, time, date, position, course and speed in its internal memory. The echo sounder's rugged and robust design can be operated as a single or dual frequency unit. For fast and cost effective service, an optional selection between the standard tank transducer and the gate valve transducer is available.*
Keywords: *Safety, Accuracy.*

81. (ID 375) The Study on Real-Time Data Management Based on Synoptic Maps in the Black Sea
Author: stud. Gabriel POPA
Scientific Advisor: Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The Black Sea is located in the geomorphological basin. The Black Sea is the habitat of many species of fish, animals and plants. The Black Sea is a very important artery for maritime trade, being the bridge between Europe and Asia. On the Black Sea, the main goods transported are steel and various agricultural products, petroleum products and energy. It is also an important point of interest regarding the world economy. An important port adjacent to the Black Sea is the port of Constanța, which primarily has intermodal transport: sea, river, railway, road and international airport. Thus, having these advantages, the port of Constanța is classified in an advantageous position compared to other ports with access to the Black Sea. The wind speed can influence not only the height of the waves but also the safety on board the ship of the crew. Waves can flood the ship and also contribute to it capsize, if its stability is precarious.*
Keywords: *Black Sea, Wind, Waves, Rainfall.*

82. (ID 377) OneOcean Software
Author: stud. Daniel Gabriel ALEXANDRU
Scientific Advisor: Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The OneOcean platform is supplied to all vessels that subscribe to OneOcean services. It combines digital navigation and compliance data in one application. This application transmits in real time information about weather, maps, ports, piracy, navigation rules and includes all mandatory publications on board the ship in electronic format such as: MARPOL, IMDG, IMO CODE, IALA BUOYAGE, STCW CODE, LSA & FFA CODE and more.*

83. (ID 380) Presentation of the Doppler Sonar
Author: stud. Stefan-Mihail VOITINOVICI
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *Doppler Sonar is a system with one transducer mounted on the bottom of the vessel which direct beams of sonic radiation at an angle downward and measures the water speed and ground speed by using signals that are reflected from the sea bottom or an underwater layer. It measures the speed along two different directions: longitudinal, bow transverse. It calculates the speed stern transverse using the ROT (Rate of turn gyro) signal. It also measures and display run distance. This presentation will include the features of the Doppler Sonar, its configuration system, its functions and components with presented figures. Also, the operation system of the sonar will be presented alongside its display and additional features.*

84. (ID 382) Causes and consequences associated with the grounding of merchant ships

Author: stud. Cosmin-Alexandru APOSTOIU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The presentation offers an interpretation on the ship's groundings based on the new navigational style which is caused by the new models with changes on the structural and qualitative technique of building in terms of groundings on international vessels.*
The study is based on more then 80 reports of seagoing vessels engaged in international voyages. By the time was observed the tendency from owner and builders to increase the size of ships in order to have a better financial yield Grounding is one of the most serious threat in navigation which can have a harmful consequence for the environment. In conclusion the main factor for ship's groundings is the human error which can be corrected by improving training for the new building vessel that are not meeting the same maneuverability as before.
Keywords: *Ships Grounding, Losses of Vessel.*

85. (ID 384) Control of the Atmosphere in the Cargo Tanks for Safety in the Operation of Oil Tankers

Author: stud. Florin-Lucian SPIREA
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In the following we will analyze how the atmosphere in the tanks influences the safety of the crew and how a danger can be prevented.*
1. Damage of tanks or crew can be prevented by inerting the cargo tanks.
2. Oxygen content in cargo tanks should be less than 8%.
3. Tanks inerting should be done by well trained crew.
Keywords: *Tanks, Cargo, Atmosphere.*

86. (ID 386) Classification of Dangerous Goods on Container Vessels
Author: stud. Alexandru ARAPALEA
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this academic research i will present the classification of Dangerous Goods on container vessels. Classification of dangerous goods on container vessels is based on the International Maritime Dangerous Goods (IMDG) Code, which is a set of guidelines established by the International Maritime Organization (IMO) for the safe transportation of hazardous materials by sea.*
Keywords: *IMDG, Classification, Dangerous Goods, Classes.*

87. (ID 387) Loading and Discharging Operations on Tanker Vessels with Steam Turbine
Author: stud. Mihai VASILE
Scientific Advisor: Sup. Instr. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this presentation, I will elaborate step by step loading and discharging opertaions on tanker vessels with steam turbines. I will begin with equipment that is necesary for operations and explain the procedures for all steps of loading/discharging and stripping.*
Keywords: *Ballasting, Deballasting, Loading, Discharging, Stripping.*

88. (ID 323) An In-Depth Look into the Steering Gear System of Ships
Author: stud. Eduard-Cristian NICULAE
Scientific Advisor: Lecturer Eng. George NOVAC, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The steering gear system is an essential part of ships that allows them to navigate through waterways effectively. It is responsible for controlling the course and movement of the vessel, ensuring the safety of passengers and crew members. In this presentation, we will take an in-depth look into the steering gear system of ships, exploring its various components and mechanisms. We will examine how the system works and its evolution over time, from traditional mechanical systems to modern electronic ones. Additionally, we will discuss the challenges associated with maintaining and repairing the system, including safety concerns and regulations. By gaining a comprehensive understanding of the steering gear system, we can appreciate its importance and ensure the safe and efficient operation of ships.*
Keywords: *Steering Gear, Ship Steering, Navigation, Maintenance, Safety.*

89. (ID 314) Military University of Technology
Author: stud. Hubert WIŚNIEWSKI
Institution: Military University of Technology
Abstract: *1. Basic Informations*
Our academy is very specific because it connects technical aspects of study with military studies. The presentation is divided for 3 main parts: Basic information's, Core and additional activities and common things between our academies. Our academy has 8 departments: Department of Security, Logistics and Management; Departament of Electronic and Telecomunication; Cybersecurity Department; Mechanical Engineering Department; Department of Land Engineering and Geodesy; Department of Mechatronics, Armory and Aviation; Department of New Technologies and Chemistry; Institute of Optoelectronics.
2. Core AND Additional Activites
Training objects like shooting range. Moreover, covered tartan hall, sports hall, gym, outdoor calisthenic gym, light way obstacle course, covered tennis court. Football and basketball pitches, swimming pool, sauna and many more. On our academy you can find also very big combat field terrain for practicing military and tactics aspects.
Military sections: S3, WLP, S5, S2, OCTOPUS.

3. Common Things- Laboratories and Program of Studies.
Keywords: *The Organisation and Interesting Things About MUT.*

90. (ID 400) Gyrocompass
Authors: stud. Constantin Daniel HORVAT, stud. Sebastian Catalin DRAGNEA
Scientific Advisor: Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A gyrocompass is a type of non-magnetic compass which is based on a fast-spinning disc and the rotation of the Earth (or another planetary body if used elsewhere in the universe) to find geographical direction automatically. The use of a gyrocompass is one of the seven fundamental ways to determine the heading of a vehicle. A gyroscope is an essential component of a gyrocompass, but they are different devices; a gyrocompass is built to use the effect of gyroscopic precession, which is a distinctive aspect of the general gyroscopic effect. Gyrocompasses are widely used for navigation on ships, because they have two significant advantages over magnetic compasses:*
-they find true north as determined by the axis of the Earth's rotation, which is different from, and navigationally more useful than, magnetic north, and
-they are unaffected by ferromagnetic materials, such as in a ship's steel hull, which distort the magnetic field.
Keywords: *Gyroscopic, Compass, Rotation, Fixed, Particular, Friction.*

91. (ID 394) Influence Study of Geometric Characteristics on Resistance to Forward Motion of a Ship
Author: stud. Diana Iuliana CIOBANU
Scientific Advisors: Lecturer Eng. George NOVAC, PhD, Assoc. Prof. Mihail PRICOP
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In recent studies, we can see the common attempt to reduce resistance to forward motion of the ship by changing the shape of predetermined hull. Experimentally, it was possible to optimize its shape through a new method of calculating resistance in calm water at different speeds, which led to a decrease in fuel consumption.*

Thus, changes were made from the design phase of various types of ship, significantly reduced total resistance. Results show that hydrodynamic performance of the optimised form of hull is improved, particularly at lower speeds, unlike original hull, suggesting that the methods of optimising evolved hull form are valuable
Keywords: *Ship Resistance, Foward Motion Resistance, Ship Hull Form, Hydrodynamic Design.*

II. SECTION: ENGINEERING AND MANAGEMENT

Section Committee:
Chairman:
Assoc. Prof. Alexandru COTORCEA, PhD
Members:
Assoc. Prof. Mihai BEJAN, PhD
Assoc. Prof. Rita-Elena AVRAM, PhD
Room: L120

1. (ID 30) Remote Controlled and Autonomous Drone for Ship Maneuvering Training

Authors: stud. Cristian-Felician ZAHARIA, stud. Marius Petrut ZANFIR
Scientific Advisor: Lecturer Eng. Ovidiu CRISTEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *I have built a small model boat that is controlled by three Arduino boards in total, two onboard and a remote control. It is designed to navigate autonomously in the ship maneuvering laboratory's pool, and it can be used as a remote control ship to demonstrate the maneuvering characteristics of a ship with two engines. The autonomous part is designed to make a student's mission of maneuvering a remote-controlled boat more difficult, to test his or her ability to control their ship.*
Keywords: *Drone, RC, Remote Controlled, Autonomous, Boat, Ship.*

2. (ID 68) Technical and Managerial Solutions for Sustainable Transport on Inland Waterways

Author: stud. Andrada-Maria FODOR
Scientific Advisor: Prof. Florin Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The paper proposes a technical solution for supplying LNG to ships used for transport on inland waterways. The risks associated with LNG transport are another topic addressed. The Green Deal or the European Ecological Pact are two phrases that we hear*

frequently lately, especially in relation to protecting the environment, reducing pollution and increasing energy efficiency. For these reasons, the world economy will be marked by important changes, which will aim to reduce the impact on the environment. Implicitly, the transport sector will also be marked by radical changes, among them the conversion of natural gas transport ships. The latest regulations in the field of emission reduction and pollution in general, as well as the promotion of the carbon neutrality strategy, impose ecological transport and water transport as an immediate need for sustainable development. From the experience of large shipping companies, liquefied natural gas (LNG) propulsion is an effective technical solution that can reduce carbon emissions from ships.

Keywords: *Inland Navigation, Sustainable Transportation, LNG Ship Propulsion, Resilience Engineering.*

3. (ID 70) Human Resources Motivation - Component of the Labor Relations and Human Behavior Development

Authors: stud. Theodora DUTU, stud. Raluca Alexandra GABOR
Institution: Maritime University Constanta

Abstract: *In human resources management the influence of the motivation theory on management practice is absolutely vital as human resources are the most important category of assets used by an organization, but paradoxically they are the only asset that can act against the organization's goals. Thus, only through an effort of collaboration and motivation, employees find in their work the exterior outcome of their latent energy and creativity. In the organizational context, performance refers to the execution of the work activity. The level and quality of an employee's performance are determined by the employee's ability to perform the assigned work and the employee's motivation to perform it. There is an interconditioning between motivation and performance. The objective of this article is to synthesize the research outcome on human resources motivation as a component of labor relations and human behavior development.*

Keywords: *Human Resources, Motivation, Management Perfomances.*

4. (ID 71) Analysis of RO-RO Transport Variation in the Black Sea Basin

Author: stud. Anca -Gabriela CIRCIU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Freight transport plays an important role in the transport system, insofar as it is a fundamental element for the economic development of an area and a country in general. Roll-on Roll-off (Ro-Ro) transportation is a very important component of Short Sea Shipping (SSS). As it's known by now, Short Sea shipping' is the movement of cargo and passengers by sea over short distances. The European Commission describes short sea shipping as follows: short sea shipping includes domestic and international maritime transport, including feeder services, along the coast and to and from the islands, rivers, and lakes. In addition to the Baltic Sea and the Mediterranean, the Black Sea has been described as very important and appropriate waterways in aspects of Short Sea Shipping by the European Commission (EC 2020). Short distances between seaports are a crucial factor to conduct lower cost, speedy, effective, and productive short sea shipping operations such as Ro-Ro transportation.*

Keywords: *RO-RO Transport; Black Sea; Port; Short Sea Shipping; Terminal Operations.*

5. (ID 72) The Integrated Model of the Factors which Influence the Human Resources Management within the Rail Transport Companies

Authors: stud. Catalina MARTINOV, stud. Laurentiu GHEORGHE
Institution: Maritime University Constanta

Abstract: *The globalization and internationalization phenomenon related to exploitation and consumption imposes human resources management reconsideration, implicitly leading to competition intensification and internationalization on the rail transport market. Under these circumsatnces, the human resources management within the Romanian state-owned railroad companies is powerfully affected from the perspective of the adjusting of the labour force to the concrete conditions related to the global economic-financial crisis, which has also affected Romania. Paying the appropriate attention to each activity carried out by the human resources management has*

become necessary under the conditions of the current administration actions, while preparing the shaping of the transformation and adapting rail transport system to the particularities of the ever-changing environment. In this work, the research carried out followed the direction of the identifying the socio-economic demands which influence the human resources management activities within the Romanian railroad companies.
Keywords: *Railroad Transport, Human Resources, Socio-Economic Exigencies.*

6. (ID 73) The Railway Transport System and its Implications in the Economic Development
Authors: stud. Roxana Gabriela CHIPER, stud. Ersin RAMIS
Institution: Maritime University Constanta
Abstract: *A rail transport system is deemed in most countries a prerequisite for the overall economic development and, in this respect, considerable resources are allocated especially towards the railway installation and improvement, but also for the human resources system efficiency and optimization. Railways usually have an asset value that makes up a significant part of the national wealth and the rail sub-sector should bring a significant contribution to the GDP. It is therefore important and appropriate that this asset be managed professionally and that an increasing number of railway professionals are now encouraged to get involved in this activity. To clarify the impact transport has on the economy, several important research directions also strongly intercorrelated had been laid out in this paper: economic development, material goods production and distribution, influence on prices.*
Keywords: *Rail Management, Transport, Economy, Prices.*

7. (ID 76) Analysis of the Use of AGW Technology in the Operation of a Container Port Terminal
Author: stud. Gianina-Elena BOGHIAN
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Industrial automation leads to standardisation of performance and services by reducing human intervention in industrial activities and human error, thus allowing greater control of the equipment and processes involved. This advantage, followed*

by the elimination of uncertainty in response times and reduced operational costs, and given the current volume of global trade, makes an economy based only on manual labour a big disadvantage today. The logistics and supply chain sector are not unaware of this reality, which is why there are ongoing developments in the management of large transport infrastructures through full or partial automation of their processes. In the port sector, the greatest importance of automation is seen in container port terminals. The use of the Automated Guided Wagon - AGW, as a container handling unit in the terminal, would overcome technical and managerial problems and reduce handling times and costs through flexible management in relation to the characteristics of transport demand and supply.

Keywords: *Automated Guided Wagon, Port Terminals.*

8. (ID 90) OSCAR Downstream - Company Analysis

Authors: stud. Briana-Ioana REGEP, stud. Mario-Petru GEAMALINGA

Scientific Advisor: Cornel GRIGORUT

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project is based on an analysis of Oscar Downstream company, an oil company that produces and sells petroleum products. They offer an integrated refueling service called DIESELpoint suitable for businesses with vehicle routes passing through their fuel stations. The service includes loaned fuel stations, technical support, and maintenance, fuel supply, management system, and consulting. In addition, the company has launched its own franchise network with 31 branches. Despite facing challenges, the well-managed company has had solid performance in the past year with increased revenue and human resource expansion. Their diversified portfolio of products and services and adaptability to market changes have contributed to their success. Based on the analysis of Oscar Downstream, it can be concluded that the company's management has been improving annually, making it a promising company with a bright future in their industry.*

Keywords: *Oscar, Oil, Dieselpoint, Job, Employees, Profit.*

9. (ID 91) Analysis of Continuous Port Transfer Systems Used in a Port Terminal for Dry Bulk Cargo

Author: stud. Daniela-Bianca SIRBU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Bulk cargo is defined as the cargo that is handled and distributed unpackaged and provides significant profits for companies, requiring advanced handling equipment for efficient loading and unloading. One of the most common methods of handling bulk cargo in a port terminal is the use of continuous transfer systems. The transfer of goods is a complex process that requires a lot of coordination and documentation. Therefore, the cargo handling equipments are designed such that they facilitate easy, cheap, fast and safe loading and unloading with least human interference. This paper presents the challenges involved in the process of handling bulk cargo and includes an analysis of the main port operating systems used in terminals in the port of Constanta.*

Keywords: *Bulk Cargo, Transfer Systems, Handling Equipment, Port.*

10. (ID 94) The Role of the Human Factor in Maritime Accidents

Author: stud. Diana NEACȘU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Every year there are thousands of marine accidents that result in injuries, casualties, marine pollutions and also massive financial loss. A common goal of all stakeholders in the shipping industry is safe and accident-free shipping. In order to achieve this goal, one of the most important actions that can be taken is the analysis of past maritime accidents. This means identifying the main causes of accidents and, based on the results of the analysis, implementing effective corrective measures to help reduce such unwanted incidents in the future and improve safety measures in maritime transport. The purpose of this paper is to indicate factors that contribute to human errors which is identified as the most frequent cause to marine accidents, it accounts for 80–85% of all marine accidents.*

Keywords: *Human Error, Maritime Accidents, Safety*.

11. (ID 96) European Currency - EURO

Authors: stud. Briana-Ioana REGEP, stud. Mario-Petru GEAMALINGA
Scientific Advisor: Lecturer Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project examines the potential impact of Romania adopting the Euro currency. While there are benefits such as improved economic stability and integration with the global economy, Romania does not currently meet the necessary convergence criteria and is unlikely to adopt the Euro by 2025. Additionally, there are potential drawbacks such as the loss of monetary policy control, high transition costs, and asymmetries in the transmission of monetary policy. Challenges such as high inflation rates and the possibility of an economic crisis further complicate the situation. Overall, careful consideration of the costs and benefits is necessary before any decision to adopt the Euro currency.*

Keywords: *Euro, Romania, Economic, Currency, Price, Inflation.*

12. (ID 97) Port Administration Models at the European Level

Author: stud. Ștefania-Diana LAZĂR
Scientific Advisors: Assoc. Prof. Catalin POPA, PhD, Maria SERBANESCU, PhD, student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *There are several models of port administration in Europe, but one of the most common is the port authority model. This model involves the establishment of an independent port authority that manages and administers the port on behalf of the state or local authority. The port authority can be financed through port fees, dock usage fees, or other sources of revenue, and can be governed by a board of directors or a management committee. Regarding the organizational structure, the port authority can be divided into several departments, such as the port operations department, the infrastructure development department, the port security department, and the environmental department. These departments work together to ensure an efficient and safe operation of the port, as well as to achieve the strategic objectives of the port authority.*

Keywords: *Port, Port Authority, Models, Administration, Fees.*

13. (ID 100) Port Security and Safety

Author: stud. Roxana-Cristina BAJAN
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Port security and safety is the main theme of this paper, this concept of, "safety" is encountered in every port facility representing one of the most important entities within it. Port security is vital because maritime transport is a very prosperous and widely used form of transport, especially for the transport of goods. Ports are crowded areas and are spread over a very large area. This would mean that certain areas of ports may be inaccessible all the time in terms of patrolling and therefore could lead to cargo being stolen from containers. It could also involve smuggling weapons and armoury into a country and problems with stevedoring and illegal immigration. Port security helps address these inaccessibility issues and therefore reduces cargo theft that occurs.*

Keywords: *Port, Security, Safety.*

14. (ID 106) Two New Methods for Calculating Fuel Consumption

Author: stud. Andreea LOGHIN
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The most important factor affecting fuel consumption is service speed. Since fuel consumption is proportional to sailing speed, fuel costs can be reduced by optimizing sailing speed. Numerous formulas exist that show the relationship between service speed and fuel consumption. These formulas ignore ship displacement and/or wind speed. For example, the Beaufort and Aertsen Numbers are ignored. This neglect makes it difficult to predict the amount of fuel a vessel will consume on the road at each sailing. For example, traveling against wind resistance increases the error in the estimated fuel consumption. This error does not cause significant changes, but it does affect the total fuel consumption of the ship in the long run.*

Keywords: *Beaufort Numbers, Fuel Consumption, Displacement, Optimum Speed.*

15. (ID 113) The Plan for Taking Over and Managing Waste from Ships and Cargo Residues in the Sea Port of Constanta, Midia and Mangalia

Authors: stud. Cosmina-Ioana TOMA, stud. Alexandra-Ștefania LUCA

Scientific Advisor: Assoc. Prof. Manuela Rossemary APETROAEI, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Ecological Management of Ships-generated Waste: Challenges and Opportunities for Constanta harbor Ship-generated waste is regulated internationally under marine pollution policy, and the prevention of ship-source pollution depends to a large extent on having adequate reception facilities on shore. However, coordination between these facilities and other management operations is still an unresolved issue. This paper aims to examine the legislative challenges and opportunities related to the environmentally sound management of ship-generated waste after it is discharged into harbour reception facilities. Thus, to avoid and reduce discharges of pollutants into the marine environment from ships, the International Maritime Organisation (IMO) has developed a number of conventions, documents and regulations together with the international community. In addition, the MARPOL 73/78 Convention provides certain recommendations for the control, recording and management of waste on board ships engaged in international traffic and monitored and inspected by the maritime authorities in different harbours of the world. In addition, ship-generated waste is also studied from the perspective of European Union (EU) legislation. The objective of our paper is to present the importance of the ship-generated waste management plan in the port of Constanta in order to prevent marine pollution due to ship activity, from the perspective of EU legislation combined with IMO legislation. The types of waste concerned are sewage, sewage sludge, oil residues, garbage, etc.*

Keywords: *Wastewater, Management, Pollution, Harbour, Sewage.*

16. (ID 114) The Importance of Technology in Port Management
Authors: stud. Andrei-Leonard MORARU, stud. Onur SEFER
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Technological advances have revolutionized various industries, and the port management industry is no exception. Technology plays a vital role in port management, contributing to increased efficiency, safety and sustainability. In this essay, we will discuss the importance of technology in port management.*
Keywords: *Tech, Management, Importance of Tech.*

17. (ID 35) Vertical Wireless Drilling Machine
Authors: stud. Alexandru-Gabriel BOLOCAN, stud. Dragos-Florentin GOGOESCU, stud. Dalia MESHINSH
Scientific Advisor: Assoc. Prof. Ciprian Ion RIZESCU, PhD
Institution: University POLITEHNICA of Bucharest
Abstract: *The drilling machine is part of the field of machine tools. The authors set to solve the problem of drilling various blanks, in hazardous conditions (for example, the blank is radioactive, explosive, the material is pyrophoric) for the life of the human operator. As a solution to this problem, we created a vertical drilling machine, which can be controlled through wireless communication technology. An electric stepper motor (3) rotates the threaded rod (1), which is supported at both ends. An unfixed nut (2), attached to the platform, translates along the rod. In order to drill a blank, said blank is held in a vice. Then, the platform (4) on which the drill (5) is situated is lowered down and drills into the blank. The machine can be operated by buttons or wirelessly. The given commands can be vertical movement, or rotational movement.*
Keywords: *Wireless, Drilling Machine, Vertical Machine, Arduino, Machine Tool.*

18. (ID 124) Modern Automated Weapon Station
Author: stud. Andrei VLĂDESCU
Institution: "Ferdinand I" Military Technical Academy
Abstract: *Remote weapon stations have been gaining popularity in military applications due to their ability to increase the safety of military personnel by allowing them to engage targets from a safe*

distance. However, the effectiveness of these systems can be limited by human factors such as operator fatigue and cognitive overload. This project presents the design and development of an artificial intelligence-based remote weapon station that aims to improve the accuracy, speed, and reliability of the weapon system.
Keywords: *Artificial Intelligence, Remote Weapon Station.*

19. (ID 48) Designing and Manufacturing the Harmonic Reducer of an Electric Screwdriver Through 3D Printing
Authors: stud. Amalia Elena MARIN, stud. Alexandru-Mihai BARBU, stud. Andrei-Ioan CHEPTEA
Scientific Advisor: Assoc. Prof. Ciprian Ion RIZESCU, PhD
Institution: University POLITEHNICA of Bucharest
Abstract: *This scientific work consists of designing an electric screwdriver that uses a planetary reduction. The body of the screwdriver and the planetary gear are 3D printed using PLA (Polylactic acid) and TPU (Thermoplastic polyurethane) materials, making it lightweight. A motor is integrated to drive the screwdriver mechanism, which reduces the rotation speed and increases the torque. The screwdriver can be powered by a detachable rechargeable battery to maximize convenience, and the screwdriver tip can be changed to adapt to different needs. Its small size and portability make it ideal for use in narrow spaces, allowing easy and precise screwing and unscrewing of screws. This screwdriver is an example of the utility of additive printing technologies, as it allows the production of customized and unique tools that can be designed according to specific requirements.*
Keywords: *3D Printed.*

20. (ID 8) Mechatronics and Robotics in the Modern Military Sphere
Author: stud. Martin PETROV
Institution: VVMU "Nikola Yonkov Vaptsarov", Varna, Bulgaria
Abstract: *The following article will take an insight look into the recent tendences in mechatronics and robotics implemented into the military sphere. It will give some information about the technological basement and development of these two specific technologies and it will underline the benefits of their operational usage, including real*

combat, reconnaissance, surveillance, etc. The contribution of the mechatronics and robotics very often remains undervalued; therefore, the aim of the report is to emphasize on the significant stamp of the mechatronics and robotics on the contemporary warfare. The authenticity of the article will be confirmed by official and trustworthy sources, such as web pages and science books about the topic.
Keywords: *Mechatronics, Robotics, Military.*

21. (ID 139) Production Process Analysis with AnyLogic
Author: stud. Bianca-Mihaela IONASCU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Production process or "production line" means those industrial activities beginning when raw materials are delivered to the new or expanding business' fixed location and generally ending when the items of tangible personal property have been packaged for sale, or are in saleable form if packaging is not done. However, the production process may include quality control activities after the items have been packaged (or are in salable form if packaging is normally not done).*
Keywords: *Production Process, Quality Control.*

22. (ID 142) Computerized Maintenance Management System (CMMS) for a Port Operator
Author: stud. Anamaria PANA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Within this project, the identification and analysis of a software for maintenance management (also known as CMSS in literature), adapted to the operational needs of a port operator, is carried out. The basic concept of the reliability theory is failure. The moment of occurrence of a fault or the operating time until the occurrence of a fault (or between two successive faults) are random variables that take values that depend on a very large number of random or conditioned factors. Ensuring the reliability of a technical system is achieved through a set of operations that allow maintaining or restoring the system in a given state or restoring its specific operating characteristics and is defined by the term maintenance.*

Keywords: *Maintenance, Software, Management, Port Operator, Reliability.*

23. (ID 149) Transport and Handling of Raw Materials and Goods

Authors: stud. Bianca-Cristina MANOLACHE, stud. Stefania MILITARU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The choice of mode of transport is a fundamental part of the distribution management and must be analyzed.*

Keywords: *Transport and Handling of Raw Materials and Goods.*

24. (ID 155) Technical-managerial Solutions for Container Transport via Barges

Author: stud. Iordana OLTEANU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The inland navigation sector is often referred to as conservative. The fleet is on average more than 30 years old and has shrunk in size. The increasing size of new barges and the continuous search for new transport concepts are leading to changes in the sector. In the context of a strong European focus on inland waterway transport, the topic is unique in that it deals with the issue of technical and managerial solutions for container transport by barge. Like many other major ports, the Danube ports face challenges in transporting containers to the hinterland. This paper contributes to clarifying the technical issues associated with container transport via barges, including the technical aspects of a system for loading and unloading containers from barges, and to help clarify the economic and managerial issues associated with container transport via barges. For example, the price for barge transport can be significantly reduced by reducing the average transport time in major ports.*

Keywords: *Inland Waterway Transport, Barge Carrier Vessel, Logistics, Loading & Unloading Inland Barge.*

25. (ID 156) The Automation of the Cooling System Aboard an LCC Tanker Type Ship

Authors: stud. Andrei-Alexandru AMATEESEI, stud. Adrian-Constantin CIOLAC, stud. Marius ALEXANDRU
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The automation of the cooling system aboard an LCC tanker ship is the main goal of this project. It offers a thorough examination of the design, main parts, and operation of the SW, HT, and GE cooling systems. The function of the cooling system in the vessel's safe and effective functioning is also covered in the article. The piston temperature, the flow rate through the cooling system, the density of the cooling agent, and several other parameters can all be seen visually using the Simulink simulation model that was provided in this project. The cooling system design may be tested and optimized using this model, which can result in significant cost savings and increased reliability. This project will be of interest to professionals and researchers in the field of marine engineering.*

Keywords: *The Automation of the Cooling System Aboard an LCC Tanker Type Ship.*

26. (ID 167) Automating, Honeypot Platforms to Generate a Cyber Threat Intelligence Feed

Author: stud. Petru VASIAN
Scientific Advisor: Prof. Eng. Ion BICA, PhD
Institution: "Ferdinand I" Military Technical Academy

Abstract: *The project aims to implement a honeypot system with MISP Cyber Threat Intelligence (CTI) integration. A honeypot is a security mechanism used to lure attackers into a trap, allowing organizations to detect and analyze the tactics, techniques, and procedures (TTP) used by adversaries. MISP is an open-source platform for sharing, storing and correlating CTI data. By integrating MISP with a honeypot system, organizations can improve their understanding of the threat landscape, identify new attack patterns, and improve their incident response capabilities. The project will involve setting up a honeypot system and configuring it to receive and integrate CTI data from MISP. The honeypot will be deployed in a controlled environment and the logs and data captured*

will be analyzed using MISP's threat intelligence features. The project aims to demonstrate the benefits of combining honeypots and CTI in detecting and mitigating cyber threats.
Keywords: *MISP The Hive CTI Honeypot.*

27. (ID 178) Benefits of Containerization in this Era
Author: stud. Isabela-Mihaela HANU
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Maritime transport (or ocean transport) or more generally waterborne transport, is the transport of people (passengers) or goods (cargo) via waterways. As briefly defined above, Shipping is the act of carriage of cargo from point A to point using the ships which falls under the Maritime industry. Cargoes are carried by various types of ships all around the world like Oil Tankers, Dry Bulk Carriers, General Cargo Carriers, Container Carriers. A container terminal's main function is to allow for the transfer of shipping containers and cargo between ships and other modes of transport, such as trucks and trains. Terminals also act as a checkpoint where ships are inspected, loaded and unloaded. The main role of a terminal is to connect maritime transport to other modes of transport such as trucks, trains and barges. Terminals act as a gateway between one country and another. They enable cargo to be shipped by end-consumers, and act as an important distribution node. Upon a ship's arrival at a port, manned quay cranes at the terminal lift containers from the ship. The quay cranes then transfer the containers to vehicles, such as AGVs (automated guided vehicles). Some of the benefits of the containerization process are represented by transport costs, inventory costs and service level. Transport costs is characterized by lower transport rates, lower insurance rates, minimum loading unit. Inventory costs are characterized by Lower storage costs, reduced packaging costs of container and goods, faster rotation of stocks.*
Keywords: *Benefits of Containerization in this Era.*

28. (ID 181) The Evolution of Fuel in Shipping Area

Authors: stud. Emanuela-Gabriela BACIU, stud. Alexia-Madalina IOSIF
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The quality of the residual fuel depends on the quality of the crude oil. To achieve various specifications and quality levels, these residual fuels are blended with lighter fuels such as marine gasoil or marine diesel oil. The first price drop in fuel industry took place in 2020 where the prices were 190.00 $/mt (MGO) and 125.25$/mt (IFO) and reached the average in 2022 where the prices were 1377.50 $/mt and 713.00$/mt. The Mediterranean reaches a historic milestone in the regional endeavour for greener shipping and International Maritime Organization (IMO), the Mediterranean Sea Emission Control Area for Sulphur Oxides and Particulate Matter (Med SOx ECA) is set to come into effect on 1 May 2025. The uptake of LNG has been very strong in recent years, especially in newbuildings. This has been driven by a combination of the environmental benefits and attractive fuel prices, and the trend is accelerating.*

Keywords: *MGO, IFO, Prices of Fuel, ECA Zones, LNG.*

29 (ID 190) Experimental Study of a 6th Generation Wi-Fi Network Performance

Authors: stud. Robert Marian PAPA, stud. Raul-Petru PLIC
Scientific Advisor: Assist. Prof. Annamaria SARBU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *This is an experimental project realized with the purpose of determining the theoretical model of the signal propagation of a router and comparing the measured data with the theoretical model. The measurements were made in the 5G frequency band using a router that features Wi-Fi 6 and beamforming technology. The measurements were taken in 4 different cases, using Wi-Fi channel bandwidths from 20 MHz to 160 MHz.*

Keywords: *Router, Wi-Fi 6, RSSI, Download, Upload.*

30. (ID 199) Sustainable Ports. Importance and Implementation
Author: stud. Mihnea OANCEA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ports are experiencing increased pressure to reduce negative impacts on climate and environment. While ports are vital for economic development and crisis response, the associated maritime traffic, handling of goods, and road and rail transport take a toll on the environment through air and water pollution. This is caused by fuel-powered cargo handling equipment, ships, trucks, trains and the power plants providing the energy needed to run port operations. The emissions include greenhouse gases such as carbon dioxide and particulate matter, which cause respiratory infections such as bronchitis and pneumonia, and chronic lung and heart diseases. Some ports around the world have already altered their technology, machinery and methods for the better. When talking about sustainability, each port has a different approach and different methods of implementation. In this paper, I will present some examples of sustainable ports around the world and the methods implemended by them to achieve sustainability.*
Keywords: *Sustainability, Implementation, Pollution, Environment, Solutions.*

31. (ID 200) Addressing Efficiency and Sustainability in the Port of the Future with 5G: The Experience of the Livorno Port. A Methodological Insight to Measure Innovation Technologies' Benefits on Port Operations
Authors: stud. Seyal AMET, stud. Selda GALIT, stud. Isabela BILIBOACA
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Relying on the international 2030 Agenda and specifically applying sustainable develop- ment's triple bottom line to port operations, innovation technologies enabled by 5G transformation have shown to serve as a junction point between the UN Sustainable Development Goals (SDGs) and the port's Key Performance Indicators (KPIs). In order to measure economic, social and financial benefits deriving from 5G networks and digital*

transformation, a piloted technology model has been shaped with the final aim of designing new models of port management and operational planning, and of implementing sustainable port growth policies. Such an assessment finally represents a crucial means to enhance technological advancements on port competitiveness and efficiency, and to boost sustainability performance by supporting public policies and business decisions, finally leading to the development of the port of the future.

Keywords: *5G; AI; IoT; Digitalization; Sustainable Development; SDG; Ports; Livorno.*

32. (ID 204) Analysis of the Methods and Equipment Used in Marine Pollution Accidents

Authors: stud. Stefania DAMACHE, stud. Elena-Alexandra IONITA
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Considering that the Black Sea is exposed to some pollution factors due to the local industry existing on the coast with different substances such as waste dumped by ships or waste from land, brought from the sea by the waves of the sea, or scattered by people accidentally or sometimes intentionally, the article aims to analyze logistic measures and equipment that could be used in the case of pollution accidents. The specific objectives of the research consist in the identification of the sources that can generate pollution in the Black Sea, focused on the Romanian Black Sea coast, the presentation of some accidents that have occurred, the analysis of the depollution methods used and the logistical means. Finally, the prevention measures that should be a priority at national and international level.*

Keywords: *Pollution, Waste, Depollution Methods, Logistic Measures and Equipment, Pollution Accidents.*

33. (ID 207) Memory Management in Modern Programming Languages

Author: stud. Sebastian Marian STOIEAN
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Memory management covers multiple concepts that most programmers don't have to worry about nowadays. Older languages, the most notable and influential being C, let the programmer in full control of the memory, giving them the ability to do virtually anything, but this comes with great risks. Not being careful can lead to memory leaks, undefined behavior, or even complete program failures. Newer languages address such issues by implementing complete type safety, garbage collection and compiler errors for unsafe code. However, these features usually take a big hit on performance. Dynamic typing languages like Python, Lua and JavaScript offer great abstraction and freedom, striping a lot of the hard work away from the programmers, and allow for fast development, but become a hurdle once the codebase grows larger and suffer from performance issues. One of the most promising current languages regarding memory management is Rust, managing to not use garbage collection, yet offer memory safety and C-like performance. In the project will take a deeper dive into the inner workings of memory access in C, how garbage collection works and how Rust solves most of the problems.*
Keywords: *Python, JavaScript, Rust, Lua, Dynamic Typing Languages.*

34. (ID 229) Statistical Analysis of Maritime Trade in Bulk Products

Author: stud. Laurentiu-Catalin GAVRILA
Scientific Advisor: Assoc. Prof. Catalin POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Dry Bulk market has emerged from a strong growth market. The Baltic Dry Index peaked at a 14-year high of 4,800 in October 2021 and has since fallen to 1,900. Infrastructure bottlenecks have supported freight rates beyond the bottom, but these are falling. Freight rates and second-hand prices are now being driven in a market struggling with excess vessel capacity and falling demand. The outlook for demand is uncertain. Higher energy prices and slower economic growth are not supporting demand, but there is hope that a further injection of Chinese fiscal stimulus will support Dry Bulk demand in 2023.*

35. (ID 231) The Current Context of Maritime Freight Transport
Author: stud. Carmen-Maria BORTAS
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The performance of containerized transport can be described by four main criteria: price, reliability, speed, and direct line connectivity. These criteria have evolved in recent years, with container transport prices and transit times increasing, while reliability and connectivity have decreased. In the case of contracted shipping services, prices are negotiated between the shipper and the carrier and fixed for a certain period, usually one or more years. In the case of services purchased directly from the market, prices are determined on what is known as the spot market, which fluctuates daily and is known as spot rates. Large shippers, whose containerized cargo flows are high and constant, engage in contracts with carriers, while companies with low and inconstant volumes make more frequent use of container spot markets. Sometimes large shippers often use a combination of both methods: contracts for goods that can be secured and spot markets for additional flows of goods. Alternatively, shippers can outsource the procurement of transport services to a logistics service provider or freight forwarder. Most small and medium-sized businesses use freight forwarders who consolidate shipments and negotiate contract rates that businesses would probably not normally be able to purchase.*
Keywords: *Containerized Transport; Shippers; Cargo; Carrier; Freight.*

36. (ID 232) Marine Container Terminal Complexity
Author: stud. Alina Elena GHIORGHIU
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Continued pressure to increase the number of maritime container terminals has led most of them to significantly expand their services to try to stimulate customer interest and gain more market share. One of the consequences of all this activity has been an enormous increase in the complexity of their business, which tends to increase the fixed costs of doing business. This complexity manifests itself in many forms affecting different areas of marine container*

terminal operators such as: policy and regulations, communications, terminal space, equipment used, costs, etc. To successfully manage this complexity, we really need to understand its nature and identify their main areas. This paper looks at identifying the areas of complexity of maritime container terminals and identifies how complex they are. Most of the information is collected from interviews with key representatives of maritime container terminal operators. The findings and conclusions resulting from the analysis carried out can serve as an example and guidance for further research focusing on the complexity of maritime container terminals.
Keywords: *Terminal, Terminal Policy and Legislation, Terminal Equipment, Container.*

37. (ID 235) Design and Functionality of Conveyor Belts with FlexSim
Author: stud. Elena-Mădălina CHIRILĂ
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Belt Conveyor systems are the most versatile and simplest material handling systems. Conveyor belt systems are mechanical devices that transport objects, they are common throughout all industrial applications. Conveyors are used in most material handling industries for transporting bulk materials, or packets and parcels. They work with two or more pulleys driving an endless loop belt. The loop then moves a product from Point A to Point B on the belt with minimal effort. Belt conveyors are commonly used in both manufacturing and distribution facilities. Lightweight belting is designed to meet various material handling requirements in diverse industries.*
Keywords: *Conveyor Belt, Handling, Transport.*

38. (ID 237) Application for Monitoring Employee Tasks
Author: stud. Răzvan-Petrică ȘUHAN
Institution: "Ferdinand I" Military Technical Academy
Abstract: *In the current context, companies are facing an increasing number of tasks and projects that require efficient management to maximize employee efficiency and productivity. The project involves creating an application that will allow for the monitoring of*

employee activity within a company. This application will be useful in creating project statistics and facilitating effective communication between project managers and employees. Some of the advantages of monitoring employee activity include tracking project progress, visualizing task dependencies, preventing delays, and facilitating communication regarding task progress.
Keywords: *Application for Monitoring Employee Tasks.*

39. (ID 242) Passive Houses
Authors: stud. Tanya ȘTEFAN, stud. Ana-Maria SARAVARENCU
Scientific Advisor: Lecturer Eng. Anebella COȚOVANU, PhD
Institution: "Ferdinand I" Military Technical Academy
Abstract: *Global warming led to finding some of the solutions for reducing the level of pollution. Civil engineers have developed green houses. These houses use innovative ecological hydroisolations for maintaining a comfortable temperature without using heating methods. Taking advantage of inexhaustible natural resources, energy and heating costs are low. However, building costs are quite expensive, but the investment is amortized in 15 years, even more, with a proper technology, the entire house can be "smart", all that while saving the planet. Furthermore, the cost of passive houses tends to 0. Those houses are certified by Passivhaus Institut from Darmstadt, Germany and others certifiers globally accredited. In conclusion, in a world where the resources are limited, passive houses may be a solution for enjoying comfort and reducing pollution as well.*
Keywords: *Green House, Sustenability, Hidroisolation, Recycle, Costs.*

40. (ID 248) Definition of the Maintenance Concept
Author: stud. Mihaela BIDA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Maintenance, its definition and classification*
Depending on the approach to equipment maintenance there are several types of classifications of maintenance types, as follows:
- Corrective maintenance (CORMENT), which analyses failures occurring in accidental falls during equipment operation

- Preventive maintenance (PREMENT)
- Total Productive Maintenance (TPM), a modern concept of maintenance
- Integrative maintenance. This type of maintenance takes into account both the widely accepted components, preventive and corrective maintenance, to keep equipment in working order
- Proactive maintenance undertaken before a failure occurs, in order to prevent any failure condition.
This is a brief description of the topic discussed in the Cadetnav project
Keywords: *Maintenance, Operations, Concept, Equipment.*

41. (ID 249) The Challenges of Quality Management in Military Education
Authors: stud. Nicoleta DANAILA, stud. Alexandra COZMA
Scientific Advisor: Lecturer Andreea PORANCEA-RĂULEA, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *In the current context characterized by the constant need of reinventing the technology, quality has shaped new strategies and brought modern methods into the learning process of young generations. TQM (''Total Quality Management'') is a management philosophy and proceed toward that assets continuous improvement in all aspects of an organization. TQM objective is to improve efficiency but with a point on maximising customer satisfaction and minimising waste. Military education improvement is a procedure that started in the 90' and yet is still developing. The quality need has come proceed by the new standards of what lifestyle and school means, and more the role of education in the society. In this paper we will approach a series of challenges faced by the military learning process, how it aligns with the requirements imposed by globalization, respectively what is the vision of the cadets on current imbalances and how the main actors respond to their needs.*
Keywords: *Technology, Quality, Military, Requirements, Cadets.*

42. (ID 260) Hydrotechnical Developments from the Romanian Coast

Authors: stud. Cozmin-Horia SORODOC, stud. Daniel BERBECI
Scientific Advisor: Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *The purpose of this presentation is to inform readers about the changes that have happened to the Romanian coastline over the years. I will present a short history of the modifications it suffered from when it was founded. The Romanian coastline has undergone significant changes throughout history due to various natural and anthropogenic factors. In ancient times, the coastline extended further east, but the sea level rise caused by the melting of glaciers led to the formation of the Danube Delta and the retreat of the shoreline to its present position. It has also been affected by human activities such as deforestation, agriculture, and urbanization, which have led to erosion and sedimentation. In recent years, climate change and sea level rise have caused increased erosion and flooding, leading to the loss of land and infrastructure. Efforts are being made to mitigate the impacts of these changes through the implementation of coastal management strategies and restoration projects. The evolution of the Romanian coastline is an ongoing process, and it is crucial to understand the dynamics of the coastal system to ensure its sustainable management for the future.*

Keywords: *Hydrotechnical Erosion Coastline.*

43. (ID 271) Management of Human Resources Assigned to Projects

Author: stud. Ilinca VOINESCU
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Management was initially seen as a practical activity, applied in industrial enterprises, and then, at the beginning of the 1900s, by recognized personalities (Henry Fayol and Frederick Taylor), the foundations were laid scientific management, focused on the technical components and organizational and less on the human side. The realization of a project is not the contribution of one person, but of one group of people (work team), temporarily conceived, which brings together individual knowledge and*

experiences to achieve a common goal. The work teams for a project are established by the organizations through the project manager, being specially designed for channeling efforts individuals, who support and support each other, in achieving the objective that project.
Keywords: *Management of Human Resources Assigned to Projects.*

44. (ID 281) The Importance and Features of the Military Leader
Authors: stud. Gabriel DINU, stud. Alexandra CUPAR
Scientific Advisor: Mr. Major Cosmin GHERASIE and mrs. Madlena NEN
Institution: "Ferdinand I" Military Technical Academy
Abstract: *The purpose of this project is to bring to the attention of the importance of the military leader, the traits and competences necessary to become a successful leader. In this paper we will address topics such as: defining the concept of personnel management, individual behavioral traits in the management process, interpersonal communication, recruitment, selection and evaluation of personnel, staff motivation and decision elements. The personal addition of the paper is represented by a questionnaire with variants of answer addressed to our colleagues, military students from all the academies, whom we asked to fill in honestly, subjectively or objectively, depending on the question, referring to personal or professional experiences. Based on the questionnaire, we will analyze the results obtained and compare the difference between the theoretical part of a military leader and the practical one, the difference between reality and ideology, and we will draw conclusions about what can change in a leader and what is considered correct.*
Keywords: *Leader, Management, Colleagues, Analyze.*

45. (ID 287) Considerations Regarding the Mechanical Tests of Composite Materials Used in Aviation Technology
Author: stud. Georgian-Valentin IVAN
Scientific Advisor: Assoc. Prof. Eng. Doru LUCULESCU, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *This scientific document discusses the most important considerations that must be taken into account when conducting*

mechanical tests on composite materials used in aviation technology. Composite materials have unique properties that differ from traditional materials, offers some obvious advantages and therefore require specialized testing methods. Mechanical behavior of composite materials is complex and not well understood, which makes their testing and characterization challenging. The document highlights the importance of selecting appropriate testing equipment and interpreting the test results correctly. Overall, this document provides a comprehensive resource for researchers who are working with composite materials in aviation technology, as well as those interested in the broader applications of composite materials in other industries.

Keywords: *Composite Materials, Mechanical Tests, Test Piece.*

46. (ID 289) Navigating the Danube: Overview of the Inland Water Transport

Author: stud. Bianca-Gina COJOCARIU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Inland water transport is considered one of the most effective means of transporting bulk, general, liquid goods, and containers. To ensure its proper functioning, economic, transport, and territorial considerations must be aligned. It is also essential to have sufficient waterways that connect inland areas with seaports. The Danube River, the second-longest river in Europe, flowing through ten European countries. Inland water transport plays a critical role in the transport system of Europe and other parts of the world, linking the hinterland with seaports and providing access to global markets. Despite its length and strategic importance, the Danube has not been used to its full potential for transporting goods since the 1990s, mainly due to various factors such as infrastructure problems, outdated technology, and regulatory challenges. The primary objective is to offer an overview on the Danube navigation itself and it's charactristics.*

Keywords: *Danube, Navigation, Inland Vessels.*

47. (ID 290) The Economic Efficiency of Using Automation in Production Organization

Author: stud. Ionut-Alin ENCIU
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The rise of automation is having a profound effect on the economy and is only projected to become more significant in the next decade. In theory, automation could have huge benefits for the entire economy. Higher GDP, higher productivity and more customization of the consumer experience. However, there are legitimate concerns about how those profits will be distributed. It's easy to dismiss all worries about new technologies as unfounded and old-fashioned, but that would be a mistake. However, even if workers are let go from their jobs, there is no guarantee that they will be able to find new employment easily in an entirely different labor market.*

Keywords: *Economy, Workers, Automation.*

48. (ID 295) Conceptual Aspects in the Digitization Process in the Maritime Industry

Authors: stud. Ionut-Alin ENCIU, stud. Ruxandra-Cristina STOIAN, stud. Melisa DENISLEAM
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Industry 4.0 also focuses on the maritime industry. Both water transport and port activity are marked by the digitization process present in the logistics of the global supply chain. From this perspective, the paper highlights the concepts, principles and characteristic aspects associated with this issue in the Maritime Industry 4.0. By supplying priceless raw materials, parts, and completed goods, the maritime sector promotes trade and business. New and emerging technologies have evolved as global commerce has expanded, changing how businesses and engineers build, produce, and use vessels. European shipbuilders developed specialty ships with high complexity and high technological substance as a reaction. An integrated system of systems idea called "Maritime 4.0" is needed to create sustainable, secure, and linked ships. It is feasible to harmoniously coordinate efforts to better the business by bringing together not only technologies but also its components.*

Keywords: *Maritime Industry 4.0; Digitalization; Maritime Vessel.*

49. (ID 306) Technical Elements and Economic Analysis of a Petroleum Terminal

Author: stud. Melisa ZEADIN
Scientific Advisor: Assoc. Prof. Mihai BEJAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In the study of the oil terminal, general notions regarding the oil terminal, technical elements and economic analysis of the terminal were addressed. Chapter I is an introduction to the history of the transportation of petroleum goods by sea and also described a terminal by their components, location, facilities, design, maintenance and safety standards. The second chapter presents the technical elements such as the ship loading/unloading and (single point/single buoy/multiple buoy) mooring system, operating system, ship monitoring system, vapor control and recovery facilities, wastewater drainage system, fire protection and control. Chapter III focuses on the role of oil and oil terminals in economic development: the global oil trade and demand, global oil terminal market size, oil tank investment demand and growth, oil storage market, oil inventory growth and lists some of the market distributors and the competitive landscape of investement companies.*

Keywords: *Terminal, Oil, Economy, Port Operator.*

50. (ID 307) Design and Analysis of Thermodynamic Cycles

Authors: stud. Bianca-Elena IONESCU, stud. Antonia-Elena RAITA
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The purpose of this paper is to explore one of the methods of increasing the performance of a theoretical Rankine cycle using a thermodynamic cycle simulation program. The program used is called Cyclepad and it is dedicated to students having the aim to facilitate their rapid learning of the theoretical notions with focus on the improving the design of thermodynamic cycles, and performing analysis regarding the increase in the performance of thermal machines. The paper presents the working steps for the simulation of a Rankine cycle with steam superheating, as design, analytical data*

input, sensitivity analysis. The variation of internal energy, enthalpy and entropy on each transformation, mechanical work at the turbine shaft, mechanical work consumed by the pump, heat transferred in the condenser, maximum pressure and temperature are also determined. In the last stage, a sensitivity analysis is carried out, namely, the influence of parameters such as the temperature at the exit from the boiler and the pressure at the exit from the turbine on the thermal efficiency is analyzed.
Keywords: *Simulation, Thermodynamic Cycles, Heat Engine, Thermal Performance.*

51. (ID 311) Reviewing Tools and Technologies for Sustainable Ports
Authors: stud. Denisa IBRAM, stud. Nicoleta TOMESCU
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The world's ports have recently been promoting a series of technical and managerial projects aimed at reducing their negative impact. From this perspective, solutions are adopted to reduce emissions and reduce pollution. The paper achieves an investigation of these issues, suggesting feasible courses of action to port decision-makers. At the same time, the paper also proposes ways to approach port sustainability in future research, facilitating port decision-makers to both select and prioritise environmentally friendly tools or technologies.*
Keywords: *Sustainability, Port Activities, Management of Environment.*

52. (ID 318) Incoterms Conditions 2020
Author: stud. Andreea CÎLEA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The INCOTERMS rules, the application of which is optional, are mainly aimed at establishing uniform definitions for the interpretation of the main international commercial terms used in sales and purchase contracts, with a view to defining with sufficient precision the obligations of the parties in strict accordance with current practice in international trade. The INCOTERMS rules are*

intended to provide the parties with a set of international rules to enable the interpretation of the most common foreign trade clauses and to avoid or reduce as far as possible the uncertainty of different interpretations of these clauses, given that the participants in an international commercial contract are not always familiar with the commercial practices of the various countries. These rules are also set out in simple terminology, less specific to legal concepts but closer to the practical mentality of those involved in foreign trade.
Keywords: *Maritime Transport, Shipping Industry, INCOTERMS Conditions.*

53. (ID 319) Sustainable Community
Author: stud. Amine-Aila RIZA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Sustainable communities tend to focus on environmental and economic sustainability, urban infrastructure, social equity and municipal administration. The term is sometimes used synonymously with "green cities", "ecological communities", "habitable cities" and "sustainable cities". In order to achieve a sustainable community, certain general activities are carried out, such as: Green urbanism, which allows access to safe and affordable housing, without harming the environment. Energy autonomy through the collective management of solar panels. Idea of building an entire sustainable community. Energy conservation is one of the main characteristics, perhaps the most essential characteristic of a sustainable community. Energy conservation systems can be implemented while developing a community. A sustainable community is a community of people and/or institutions, focused on maintaining a good quality of life, strengthening it by using sufficient and equitable resources available in the long term.*
Keywords: *Sustainable Community.*

54. (ID 327) The Importance of Implementation of the International Safety Management Code
Author: stud. Lina FAHL
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Safety has always been the primary concern of any human activity. Being one of the most dangerous industries in the world, shipping demands a higher establishment and implementation of safety rules, regulations and standards. While human errors are considered the biggest reason for maritime incidents, the International Safety Management (ISM) Code has been established to clarify the responsibilities of safety on vessels. Before the implementation of the ISM Code, the maritime industry dealt with cataclysmic disasters which resulted in life loss. In the presented paper, I will analyse the importance of the ISM Code, the catastrophic disasters that took place before implementation, and the elements and principles that build the proper end result of the ISM Code.*
Keywords: *Safety, ISM Code, Implementation.*

55. (ID 329) Offshore Energy Potential
Authors: stud. Larisa - Elena GRECU, stud. Valentina GRECU
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of the study is the assessment of the level of capitalization of the offshore energy potential of the Romanian maritime space. The specific objective of the study is to carry out a SWOT analysis regarding the use of the wind energy potential. As such, to carry out this analysis, the bibliographic study was the main research method, being consulted specialized works, regulations and legislation in force. In conclusion, the benefits of exploiting the offshore wind potential of the Black Sea are highlighted with an emphasis on achieving the European Union objectives regarding the use of renewable energy sources, economic growth, job growth, attracting new investors in this sector, but also increasing the role of the port of Constanta. The development of offshore wind farms aims not only to invest in the sustainability of renewable energy, but energy independence is by far the greatest interest.*
Keywords: *Offshore, Wind Energy.*

56. (ID 331) Methods and Techniques of Motivation of the Employees in a Company

Authors: stud. Elena-Alexandra IONITĂ, stud. Stefania DAMACHE
Scientific Advisor: Lecturer Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Employee motivation is crucial to improving workplace performance, and company leaders need to understand their employees and team environment to apply the best motivation strategies. Motivational strategies vary according to different criteria. Successful companies have implemented various strategies, such as rewarding employees for good initiatives, respecting personal lives, setting achievable weekly goals, and showing enthusiasm. The real challenge is creating a community of people who share the same values. To do this, companies create a collaborative environment and show interest in employee well-being. Positive behavior such as completing tasks enthusiastically and on time, positive attitude towards the organization, creativity and taking responsibility are often displayed by motivated employees.*

Keywords: *Employee Motivation, Companies, Motivational Strategies, Employee.*

57. (ID 339) The Particularities of Cargo Traffic at European Level

Author: stud. Ioana-Laura JURATU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cargo traffic is a critical component of the European economy, with goods being transported across the continent by road, rail, air, and sea. This will examine the unique challenges and opportunities associated with cargo traffic in Europe, including infrastructure, regulations, and logistics. It will also explore the various modes of transportation used for cargo traffic and the trends in the industry. The paper will conclude by highlighting the key factors that impact cargo traffic in Europe, and the implications for businesses and policymakers. The continent's extensive network of roads, railways, and ports is essential for facilitating the movement of goods across national borders. However, variations in*

infrastructure quality and capacity across different regions can result in congestion, delays, and higher transportation costs. Overall, this paper aims to provide a comprehensive understanding of the complexities and nuances of cargo traffic in Europe, and its importance to the region's economy.
Keywords: *Logistics, Infrastructure, Railway Transport, Maritime Transport, Road Transport.*

58. (ID 341) Ports Prosperity: A Look at the Future of Shipping Infrastructure
Authors: stud. Andrei-Cosmin MUȘAT, stud. Marian VÎNĂ
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *As the world becomes increasingly interconnected and global trade continues to grow, the importance of ports and shipping infrastructure is only set to increase in the future. This paper explores the key trends and developments that are shaping the future of ports and shipping infrastructure, and the implications of these changes for the global economy and the environment. The paper begins by discussing the major trends that are driving change in the port and shipping industries, including the growth of containerization, the emergence of new technologies, and the increasing emphasis on sustainability and environmental responsibility. It then explores some of the key challenges that these industries will face in the future, such as the need to accommodate larger vessels, improve efficiency, and adapt to changing trade patterns.*
Keywords: *Shipping Industries, Future Technology, Global Trade.*

59. (ID 342) The Implementation of a Smart and Green Port Concepts in the Maritime Industry
Authors: stud. Maria-Bianca CAVADIEA-STEJEREAN, stud. Marian-Cosmin DRĂGAN
Scientific Advisor: Prof. Florin-Marius NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A significant progress for the specific application of energy conservation, emission reduction and the development of smart technologies is the development of an environmentally friendly, smart*

and green port. In this paper, there are presented the influencing factors and analyzed some concepts for the development of the green and smart port, such as the interpretative structural methodology. The idea of a green port is closely related to the idea of a smart port; therefore, they are in a constant development on both sides. As a result, it is demonstrated that the development of a smart and green port contributes to the development of the maritime industry on a global plan.

Keywords: *Green Port, Smart Port, Interpretativ Structural Methodology, Maritime industry.*

60. (ID 346) The Importance of Maritime Transport for Economic Growth

Author: stud. Ana-Maria BORȘ
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Maritime transport is one of the main activities of the blue economy, which plays an important role in the EU. This paper will assess the impact of shipping, related investments and air pollution on economic growth in 20 European Union countries using eight panel data regression models from 2007 to 2018. The results confirm that shipping, pollutants of air (NOx and SO2) from shipping and investments in seaport infrastructure are indeed positively correlated with economic growth. In other words, a 10% increase in these factors generated an associated increase in the economic growth rate of about 1.6%, 0.4%, 0.8%, and 0.7%, respectively. In addition to the intensity of maritime economic activities, pollution is positively correlated with economic growth and therefore it is recommended that policy makers and other stakeholders involved act to lessen the environmental impact of this sector by using green investments in port infrastructure and green ships, in line with current European trends and concerns.*

Keywords: *The Importance of Maritime Transport for Economic Growth.*

61. (ID 347) Sustainable Means of Transport in Port Operations
Author: stud. Georgiana DARABA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this paper is to present and assess trends in the means of transport used in port operations. The industry is moving towards adopting means of transport so that the environmental impact of port operations is mitigated and contributes to the sustainability of the port and the environment. The paper considers the importance of logistics and port operations for the smooth running of maritime cargo transport. Logistics plays a crucial role in today's economy. Improving the trade logistics infrastructure is necessary for sustainable and balanced economic development in all parts of the world. The success of any country's business or economy in global markets also depends on the importance of trade logistics solutions. New technological developments such as electrification, hybrid technology and energy regeneration have significant potential to reduce emissions from transport vehicles used in port operations.*
Keywords: *Port Operations, Environment, Sustenability, Logistics Port Operations.*

62. (365) Budget Management
Author: stud. Cristian RĂGHINĂ
Scientific Advisor: Lecturer Bogdan CHIOSEAUA, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *The implementation of budget management in the Romanian Armed Forces, represents a key point for alignment with NATO standard. The basic idea is to monitor all expenses and to have a clear vision of the budget and at the same time, to increasing the efficiency and effectiveness of expenses through the use of technology and innovation. By this fact, we can more easily orientate on some decisions in the procurement of new technology. The clarity, evaluation and centralization of the transactions gives us control over the activities and reduce corruption. The implementation of financial education among cadets represents the future of the economy of the military system. Also, there is an increased need for collaboration between military and civilian institutions in the*

development and implementation of common national security projects.
Keywords: *Budget, Personnel, Clear Vision, Military, Corruption, Salary, Financial Education, Technology, Equipment.*

63. (ID 366) Preventive and Corrective Maintenance of Navigation Equipment as Part of the On-Board Checklist
Authors: stud. Vlad Mihai CONSTANTIN, stud. Paul-Alexandru CIOCAN
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this project is to emphasize the need of preventive and corrective maintenance of navigation equipment as part of on-board checklists. This topic is considered one of the most important aspects while being in active duty on a ship. The maintenance of naval equipment is meant to prevent any hazard that may occur during sailing, problems that can't be solved as easily then as when the ship is docked. Some of the equipment like the Radar, the GPS, the NAVTEX, the VHF and the MF/HF radio station require scheduled maintenance. This project includes examples of these procedures.*
Keywords: *Checklist, Maintenance, Naval Equipment, Preventive and Corrective.*

64. (ID 376) Sustainable Development Strategies in the Naval Industry. The Vision of the International Naval Organization
Authors: stud. Florina GHEONEA, stud. Iulia-Georgiana BARBU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development designates all the forms and methods of socio-economic development, the foundation of which is primarily ensuring a balance between socio-economic systems and the elements of natural capital. Naval strategy is that strategy which has as its subject the choice of courses of action to achieve the objectives that the state has proposed in the naval field, in accordance with specific national interests.*

International maritime transport takes place on the world's oceans, and the International Maritime Organization is responsible for measures to improve the safety and security of international maritime transport and to prevent pollution from ships, the work of the IMO is the integrated art of the Sustainable Development Goals. IMO's objectives can be summarized as follows: safe and efficient shipping on clean oceans. Therefore, shipping is the backbone of world trade and globalization.

65. (ID 381) Numerical Methods for Solving Equations Newton's Method (Tangent Method)

Authors: stud. Elena-Roxana MANEA, stud. Andreea-Issabela UNGUREANU
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In the presented article we used Matlab program in calculating numerical methods for solving nonlinear equations. We introduced variant 1, variant 2 and presented a demonstrative example of determining a logarithmic equation using Matlab code 2 3 1.*

Keywords: *MATLAB, Newton, Tangent.*

66. (ID 383) Measuring the Comfort Level at the Workplace

Authors: stud. Alexia-Mădălina IOSIF, stud. Emanuela-Gabriela BACIU
Scientific Advisor: Lecturer Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *What is thermal insulation? The human body's sensitivity to heat depends on the body's thermal balance (thermal balance). Thermal balance is affected by physical activity, clothing as well as ambient atmospheric parameters.*
HVAC system
The abbreviation HVAC comes from: Heating (H), Ventilation (V), Air conditioning (AC) with Heating - heating means ensuring a comfortable temperature level in the room.
Ventilation - is the process by which the stale air from the room is evacuated and replaced with fresh air, brought from outside, filtered and heated or cooled depending on the outside temperature.

Air conditioning– It is the process by which we cool the indoor air, recirculating it above a heat exchanger through which refrigerant circulates.
Measurement of PMV/PPD
The PMV/PPD value provides an integrated examination of thermal factors from the perspective of ambient and workplace conditions. The measurement result represents an objective expression of the level of thermal comfort.
Keywords: *Thermal, Comfort, Heating, Ventilation, Air Conditioning, Measure, HVAC, PMV/PPD.*

67. (ID 385) Design and Construction of Remotely Operated Miniature Underwater Vehicle
Author: stud. Daniel JAKUB
Scientific Advisor: Eng. Przemysław CHRABĄSZCZ, PhD
Institution: Polish Naval Academy
Abstract: *This thesis deals with the process of designing, selecting elements and building an underwater vehicle of the ROV type. The presentation is divided into four chapters, each of which deals with a different topic. In the first chapter, the classification of underwater vehicles is given and other designs of remotely controlled vehicles are briefly described. The second chapter presents the process of developing assumptions regarding the construction, project implementation and selection of components for construction. In the third chapter, the author describes the solutions used in the vehicle prototype construction process. The last part consists of a desription of changes, work being currently in progress as well as future upgrades that are considered to be applied into the project.*
Keywords: *Design, Construction, ROV, Underwater ROV, Underwater Drone, Electric, Electronic, Motor, 3D Modeling, 3D Printing, Robotics, Programming.*

68. (ID 309) Car Differential
Authors: stud. Mihai MAESCHI, stud. Andrei DORDE
Scientific Advisor: Assoc. Prof. Dumitru DASCALU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *I want to present our 3D model of a car differential maked with a 3d printer using only PLA and 6 bearings. My simplified 3D*

model is a representation of a car differential that has been created with a reduced level of details. I created a simplified model to make it easier to understand or manipulate while still conveying the essential features and characteristics of the original object. This model was created in Fusion 360 which is a software where can be created 3D models. I used a 3D printer (creality ender 5 pro) for printing this in a smaller scale with PLA which is a kind of plastic that can be melted at low temperature. (About 200 celsius degrees). We maked a short presentation of more types of car differentials.
Keywords: *Car Differential.*

69. (ID 392) Current Status of Marine Renewable Energy Usage in Europe
Author: stud. Andreea-Alina PETRISOR
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The negative impacts of climate change, and the role played by carbon emissions as human-made drivers of that change, are high on political agendas. There is an urgent and immediate need to significantly reduce carbon emissions and to move towards a carbon neutral society. Marine renewable energy refers to renewable energy that is installed and operated at sea and requires access to offshore grid and distribution systems. This can include offshore wind, tidal stream, tidal range and wave energy technologies. Renewable energy sources hold the potential to supply energy to a world with ever-growing populations and increasing industrialization. As renewable energy is comparatively environment friendly, more countries are using Renewable Energy (RE) sources as their energy source. However, producing RE is still more expensive than coal, but cheaper than conventional oil.*

70. (ID 398) Happy at sea?
Authors: stud. Valentina GRECU, stud. Larisa-Elena GRECU
Scientific Advisor: Assoc. Prof. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A career at sea can be full of satisfaction, but also full of challenges. Being a seafarer means having the opportunity to travel around the world and a wide variety of jobs, but at the same time*

seafarers face numerous dangers at sea and also long periods spent away from their families. Over time, the studies aimed to identify the main problems that affect the seafarers' life on board. As a result of the surveys, it was found that the dissatisfactions are mainly related to the shore leave, the food, but especially the Internet connection and contact with the family. Analyzing the degree of happiness of sailors at sea in general, a considerable increase in the year 2022 can be observed in relation to the previous years, considering that the problems caused by the pandemic and war have been overcome.
Keywords: *Seafarers, Happiness Index.*

71. (ID 403) The Importance of a Transportation Management System

Author: stud. Diana TRACHE
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The subject of this paper brings to the fore the shipping services of goods that ensure their movement in a timely and efficient manner across borders throughout the world. Freight forwarders have proven to be a huge boon to international companies, greatly reducing stress while providing reliable transportation for a variety of goods at reasonable prices. In "Transport Management" the importance of the research topic was analyzed, transport an inseparable part of any society presents a very close relationship with the lifestyle, range and location of activities, goods and services that are available for consumption. Advances in transportation have made possible changes in the way of life and the way societies are organized, and therefore have a great influence on the development of civilizations. This chapter provides an understanding of the importance of transportation in modern society by presenting selected features of existing transportation systems, their use, and relationships with other human activities.*

72. Study on Increasing the Sustainability of Transport Operations Through the Use of Alternative Fuels and Technologies

Author: stud. Alexandra OTLOCAN
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Sustainable Maritime System refers to the development and use of technologies that reduce the negative impact of shipping on the environment. Making shipping sustainable requires well-organised administrations to cooperate internationally and promote compliance with global standards, which is why the use of alternative fuels such as liquefied natural gas, liquefied petroleum gas, methanol, biofuel and hydrogen are the most promising solutions. Among the new technologies, battery systems, fuel cell systems and wind-assisted propulsion are considered to have reasonable potential for ship applications.*
Keywords: *Alternative Fuels, Sustainable, Technologies.*

III. SECTION: MILITARY SCIENCES AND INFORMATION

Section Committee:
Chairman:
Prof. Ion CHIORCEA, PhD
Members:
Assoc. Prof. Carmen COJOCARU, PhD
Lieutenant Silviu POPA
Room: LI126

1. (ID 1) Mobile App BG-ARMY-SOS

Author: stud. Georgi LOLOV
Institution: Nikola Vaptsarov Naval Academy, Varna, Bulgaria
Abstract: *We named the application developed by us BG-ARMY-SOS (Bulgarian Army Signal of Security), for which you are looking to focus on something from our field, namely military affairs, and make something interesting and useful as an application in the Army. The application is for emergency cases when a serviceman is outside the border or on some international mission. The app can save someone's life (yours or a colleague's) by sending an emergency contact from the app's message that a certain person is in danger (as the app itself will use international signal flags or Morse code/code Bulgarian standard - as for the moment it is just some text) and after the message itself is sent to the designated person/people and when it is received, its response is returned.*
Keywords: *Mobile App.*

2. (ID 14) The Role of International Organisations in the Organisation and Conduct of Multinational Military Operations

Authors: stud. Ecaterina PIȚENTI, Tudor CATAN
Institution: "Alexandru cel Bun" Military Academy of Forces Army
Abstract: *Although they emerged later than states, international organisations have developed rapidly, both in terms of numbers and in terms of the improvement of the structure, methods and means*

necessary to carry out their activities, a process that has been carried out under pressure from political, economic and social causes. Initially simple in terms of structure and organisation, they have become increasingly complex in order to cover the many aspects of international cooperation. In the process of peaceful settlement, States and international organisations shall enjoy full freedom to choose their means of peaceful settlement in such a way that they best suit the characteristics of the dispute or conflict and ensure its resolution.

Keywords: *International Organisations, Conflict, Solution, Cooperation, Peace, Security, Development.*

3. (ID 15) The Application of the Human Acellular Vessel (HAV) as Substitution of Autologous Vein in the Field Surgery

Authors: stud. Mariya MUTAFOVA, stud. Antonia HRISTOVA
Institution: Nikola Vaptsarov Naval Academy, Varna, Bulgaria

Abstract: *The autologous vein has proved to be the most effective surgical conduit in terms of sustainability and post-operative outcomes. It is a vessel extracted from a different part of the circulatory system of the same patient which is well integrated in the location where it has been implanted. It should be considered that in contaminated environment the vein brings few disadvantages including infection development. A different approach to cannulation could be obtained with the application of the human acellular vessel (HAV), which represents a bioengineered conduit, consisting of human extracellular matrix components with eliminated cells. Thus, immune response by the host organism is avoided, which leads to pliable and trouble-free surgical intervention. The HAV functions better in non-hospital environments compared to the autologous vein since it is less vulnerable to outer contamination and mechanical rupture. The aim of this report is to study a number of cases and to emphasize on the safety of the implantation of HAV in combat environment.*

Keywords: *Autologous Vein, Human Acellular Vessel, Contamination, Injury, Conduit.*

4. (ID 16) Informational War as a Method of Constituting Political Reality

Authors: stud. Elena SVIȘCIC, stud. Tudor CATAN
Institution: "Alexandru cel Bun" Military Academy of Forces Army

Abstract: *Classical military actions involve land, naval, air and space operations. Each of these components has developed in turn and it is not possible, for example, to speak of a space component of warfare as existing before the land or naval component. All have emerged as technology has evolved and man has been able to venture into increasingly diverse and exotic environments. Today, a new component of military conflict is seen as informational. However, there is a major difference between the informational environment in which some of the hostile actions of humans move today and that in which wars have been fought until now. One of the consequences of the demise of the bipolar system and the current technological explosion is the increasing concern that states are giving to information warfare as political warfare, as part of state policy, both to promote and protect national interests.*

Keywords: *War, Competition, Technology, National Interest, Confrontation.*

5. (ID 22) Cybersecurity-Honeypot

Author: stud. Gilda Elizabeth FAIFER
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity includes technologies that help protect confidential information, digital networks, data, and computer systems from digital attacks. It is related to information technology security and manifests itself in various forms of defense and counter-threats to networked systems and applications. A honeypot is an imitation of a target that aims to draw hackers so that they can be exposed, have their information leaked, have their method of operation discovered, or be diverted from other potential targets. Honeypots can be particularly helpful in spotting and thwarting outside efforts to break into internal networks. It looks like a real computer system with data and apps, setting up a trap for cybercriminals who may view it as a potential target.*

Keywords: *Honeypot.*

6. (ID 28) Initial Assessment of Respiratory Parameters of Crew for Transoceanic Voyages

Authors: stud. Todor TACHEV, stud. Martina MOSKOVA
Scientific Advisor: Assoc. Prof. Nikolova
Institution: Nikola Vaptsarov Naval Academy, Varna, Bulgaria

Abstract: *Respiratory parameters are of particular importance for medical research in the field of physiological research. Changes may be observed on long-term transoceanic voyages. It is especially important to carefully monitor the value of this type of research specifically for the crews of warships, where physical training and a healthy body are of particular importance for the general work of the crew. It is in this report that attention is paid to the first phase of spirometric research.*

Keywords: *Respiratory Parameters, Transoceanic Voyages*.

7. (ID 61) I Love You Worm

Author: stud. Alexandru DIACU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity defends against digital attacks. Malware harms computer systems, but protection involves using antivirus software, firewalls, and software updates. Worms are a type of malware that self-replicate and spread across networks, causing significant damage. In 2000, the I LOVE YOU worm infected millions of computers worldwide by tricking users into opening a malicious email attachment. Effective protection against malware and worms is essential for maintaining the security of internet-connected systems. Cybersecurity professionals work to prevent and mitigate the impact of cyber attacks, safeguarding critical infrastructure and data from harm.*

Keywords: *CyberSecurity, Worm, Malware, Virus, Defence*.

8. (ID 62) My Doom-Worm

Author: stud. Robert-Cristian ANGHEL
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity is the protection of internet-connected systems such as hardware, software and data from cyberthreats. The practice is used by individuals and enterprises to protect against unauthorized access to data centers and other computerized systems.*

Cybersecurity worms are malicious software programs that spread rapidly from one computer to another over a network or the internet, typically exploiting vulnerabilities in software or operating systems. These worms can cause significant damage to systems, including data loss, network outages, and system downtime. They can also facilitate unauthorized access to sensitive data, leading to data breaches or theft of intellectual property. One of the most infamous examples of cybersecurity worms include the MyDoom worm. To protect against cybersecurity worms, it's crucial to keep the system updated with the latest security patches and to use robust anti-malware software. Additionally, regular employee training and awareness programs can help prevent accidental infection through social engineering attacks.
Keywords: *Cybersecurity, Worm, Security.*

9. (ID 92) Social Engineering
Author: stud. Bogdan GRIGORE
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cyber Security is an application used in order to protect our information, systems and programs from cyber attacks. Its aim is to reduce the risk of cyber threats. We must be aware when we use the technology and we must protect our data even if we don't encounter any threats. I chose to talk about this topic because it is something that got my attention. In my point of view, this is one of the most important parts of cyber security and surely it will help me in my career in the future. There are a few steps which can help you be more vigilant with social engineering attacks. Also, there are more types of social engineering attacks. I am going to talk about phishing attacks because these attacks are one of the most important social engineering attacks and it is very important for us to know how to prevent these scams.*
Keywords: *Social Engineering - Cyber Security.*

10. (ID 2) Anti-Aircraft Missile System
Authors: stud. Ramona PETREA, stud. Andreea-Gabriela NEAGU
Abstract: *As a weapon, artillery and anti-aircraft missiles represent the product of the last century and its history of nine decades of*

existence, in which the watchword was "maintaining the air peace of the country". In modern armed forces, missiles have replaced most other forms of dedicated anti-aircraft weapons, with anti-aircraft guns assigned to specialized duties. Moreover, missiles are classified into different types of launch systems as Surface-to-air missiles (SAM), Naval surface-to-air missiles (naval SAM), and Air-to-air missiles (AAM). They have a number of benefits, such as combat readiness, the potential for early detection of an air threat and prompt response to the actions of air attack assets (AOS), the capacity to escort and fire at multiple air targets, a high likelihood of hitting different types of aircraft, the potential for use at any time of the day and in bad weather, among others. Anti-aircraft missiles are needed against the many air threats such as drones, missiles, enemy air-crafts, or air systems of jammers to protect the national and international air space. Although, even the smallest states have recently acquired the most recent PATRIOT systems, which are operational, battle-tested, and able to counter current air threats, it is not yet at their highest level and could be reinforced with a better missile system. The research made in this report presents the anti-aircraft missile systems from the world's most influential countries as the most reliable system to be implemented on the ships of the weakest countries. Furthermore, the implementation methods depend on what the Naval Forces are equipped with and what it needs to develop to be as powerful as the greatest forces in the world. For instance, the PAK-3, a new version of the Patriot air defense system is capable of destroying aerodynamic targets at ranges up to 100 km and altitudes of up to 25 km while also being able to intercept operational-tactical and tactical ballistic missiles at distances up to 25 km and an altitude of 15 km.

Keywords: *Missile.*

11. (ID 3) The Study Regarding the Equipping of Type 22 Frigates with Modern Small-Caliber Artillery Systems Necessary for Anti-Aircraft Defense

Authors: stud. Ioan-Marian ȘERBAN, stud. Gabriela SÂRGHE
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In the current paper, I would like to present the importance of upgrading the ships of the Romanian Naval Forces, specifically*

the modernization of the frigates, with new anti-aircraft artillery installations. I have chosen to study the frigate F221 and focus on the implementation of AK-630 anti-aircraft artillery installations on its platform. However, this is not quite all because the technique is outdated, and a faster and more efficient solution than the AK-630 does not exist from a technical point of view. I started to study and design a 30mm projectile unit which is an 30x165mm AO-18, but after a few adjustments and calculations, it has the properties of an AHEAD projectile that is compatible with our installation and can be produced in Romania without being imported. The result of this study proves that the anti-aircraft artillery installations from the frigate F221 could be improved with new systems which are efficient and reliable and helps the budget of the Romanian Naval Forces by being made in Romania.

Keywords: *Frigates, Anti-aircraft Artillery, AK-630, AHEAD Projectile.*

12. (ID 10) Study on the Defense of Oil Platforms in the Area of Responsibility of the Romanian Naval Forces

Authors: stud. Gabriela SÂRGHIE, stud. Alexandru Daniel NOAPTEȘ

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The current study highlights the importance of the Romanian Naval Forces in order to rescue and protect oil platforms at sea. The Romanian Naval Forces must ensure continuous supervision and monitoring of the area of responsibility, using means of detection and control, such as radars, sonars and video cameras. Also, the Romanian Naval Forces must have rapid intervention capabilities, such as patrol ships and fast boats, to intervene promptly in case of incidents or attacks. The Romanian Naval Forces can also use means of active defense, such as on-board weapons or the anti-aircraft defense system, to protect themselves against attacks. An efficient method for the defense of oil platforms in the event of a danger at sea would be the installation of naval artillery installations on an offshore platform, in the area where it does not cause danger. In general, the defense of oil platforms in the area of responsibility of the Romanian Naval Forces implies an integrated approach, which involves continuous surveillance of the area,*

prompt intervention in case of incidents, collaboration with other institutions and operators of oil platforms, as well as the use of active defense means.
Keywords: *Oil Platforms; On-board Weapons.*

13. (ID 11) Study Regarding the Equipment of Corvette Type Vessels with Modern Artilery Systems Capable of Ensuring
Authors: stud. Alexandru Daniel NOAPTEȘ, stud. Ionuț ȘERBAN
Scientific Advisor: Eng. Nicolae Siviu POPA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The following study refers to the importance of corvette type vessels from the endowment of Romanian Naval Forces for defending a number of oil platforms from Romania's exclusive economic area in the Black Sea. The defense is executed by means of 76 mm cal. artilery installations. The vessels are communicating between each other using coded mesages and use specific formations against anti-aircraft attacks. Modern artilery installations are more performant and efficient against aircraft and would bring a benefit to Romania if corvette type vessels would be featured with this type of installations.*
Keywords: *Corvette; Anti-aircraft Attacks.*

14. (ID 12) Study on the Implementation of Projectiles Capable of Destroying High-Resistance Plating
Authors: stud. Cosmin-Alexandru MIELU, stud. Saviana-Cristina BRIȘCUȚ
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *During this essay, we will talk about a study regarding the implementation of projectiles capable of destroying high-resistance plating. The essay will cover the actual stage of development and an exercise inside the Proteus Simulator asst. During this exercise, there will be a protocol mission during which 3 fluvial monitors and 2 Rocket-carrying ships will defend the "Egreta" ship, so they will use their weaponry to erase every threat. We will showcase the way The Romanian Naval forces plan to implement such projectiles in order to conduct Anti-surface warfare.*
Keywords: *Plating, Projectile, Tactical Exercise.*

15. (ID 13) The Study on the Endowment of "Mărășești" Frigate with Modern Artillery Systems Necessary for Carrying Anti-Surface Warfare

Authors: stud. Saviana-Cristina BRIȘCUȚ, stud. Cosmin-Alexandru MIELU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The paper deals with the study on the endowment of "Mărășești" frigate with modern artillery systems necessary for carrying anti-surface warfare. The content of this paper will have a tactical exercise performed in the Proteus ASST simulator wich takes place in the Black Sea. Several types of ships are involved in this operation such as "Mărășești" Frigate, Corvette 264, Rocket Carrying Ship 188. The ships have the mission to defend the territorial waters, so they will use the ships weaponry to eliminate any threat, succeeding and accomplish the mission.*

Keywords: *Frigate, Corvette, Rocket Carrying Ship, Weapon Systems, Tactical Exercise.*

16. (ID 17) The Command Elements of a Modern Anti-Ship Naval Missile

Authors: stud. Teodora DURA, stud. Karina PÎSLARIU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The present project entitled "The command elements of a modern anti-ship naval missile", proposes to report the aspects about the classic command means of the anti-ship naval missile, but also about those with a novelty character, thus the work being distributed on two sides. The approach to the subject is carried out in the manner of presenting a naval missile study base from the first appearances to the latest technologies applied in combat. At present, modern missiles tend to minimize the weight of the on-board equipment. One of the aims of the modernization of the control elements is to increase the maneuverability of the missile by increasing the flight speed, using load-bearing surfaces and optimal aerodynamic formulations. These considerations materialize by making a mathematical algorithm.*

Keywords: *Anti-Ship Naval Missile; Modern Missiles.*

17. (ID 18) Calculation of the Probability of Hitting the Air Target

Authors: stud. Karina PÎSLARIU, stud. Teodora DURA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The paper entitled "Calculation of the probability of hitting the air target" proposes to contribute to the awareness of the importance of this aspect in the conduct of battles and in knowing the steps needed to be taken to fulfill the mission successfully.*

In the chronicle of the great traditions of the Romanian army, artillerymen and anti-aircraft missileers are indisputable record indisputable and immortal deeds of arms dedicated to the Romanian homeland and the Romanian being. Taking into consideration the very sensitive actual military context, it is certain that the role of the artillery and the anti-aircraft missiles will increase, taken into account the defensive trait of the Romanian military doctrine and the strict defensive quality of the anti-aircraft means. Taking into account the magnitude and the vastness of this weapon, knowing the methods of perfecting the steps to be followed for the execution of the designed missions is considered primordial. Therefore, the probability of hitting the aerial target is the most important aspect in this battle. In order to fully apprehend this value, many practical exercises are needed but also the completion of numerous mathematical steps that are closely related to the final result.

Keywords: *Probability; Target; Anti-aircraft.*

18. (ID 57) Simulation of a Nonstrategic Nuclear Weapon on Military Ground Forces

Authors: stud. Charles BURKES, stud. Andrew DAWSON, stud. Tyler GUETZKE, stud. Noah MILLER, stud. Michele SZEGDA, stud. Andrew BOYLE, stud. Alexander WITHENBURY, stud. Nickolas DUNCAN
Institution: United States Military Academy

Abstract: *This effort looks at simulating the nuclear weapon effects on friendly ground forces when a conventional war escalates to the limited use of nuclear weapons. The simulation utilizes non-strategic nuclear weapons (NSNW) on ground forces up to the size of a brigade combat team. The simulation estimates the blast, thermal, and prompt radiation effects of a NSNW employed at a fallout free*

height of burst. Monte Carlo simulations are utilized to understand the uncertainty of effects on friendly forces. The simulations varied the disposition of ground forces and varied the employment of the NSNW parameters such as height of burst, circular error probable. The results of this study show that an adversary can effectively target a company size force. However, a similar strike against a much larger battalion or brigade size force would have much less of an effect against the unit's combat power.
Keywords: *Non-Strategic Nuclear Weapon, Limited Nuclear Weapons, Weapon effects.*

19. (ID 125) The Types of Cyber Invasion Detection Methods
Authors: stud. Mihaela POPOVSCAIA, stud. Igor ZAVALSKI
Institution: "Alexandru cel Bun" Military Academy of Forces Army
Abstract: *This article is dedicated to the study of invasion detection methods. The author analyzes the diversity of the types of actions undertaken for the rapid detection of possible attacks in order to reduce the damage, as well is analyzed the risk of such invasions in relation to the current conflict situation. The advantages and disadvantages of methods for detecting cyber invasions are established and proposals for their use are developed in accordance with the type of attack.*
Keywords: *Cyber Attack, Cyber Protection, Reaction to The Attack.*

20. (ID 145) From Mushrooms to Artificial Intelligence: Technology's Double-Edged Sword in Evolution of Enhancing Soldiers
Author: stud. Alex-Giulian COROI
Scientific Advisor: Superior Instructor Gabriela NICOARĂ, PhD Student
Institution: "Carol I" National Defense University, Bucharest
Abstract: *This article presents a meticulous study of the methods for developing humans capabilities to increase success rates during military conflicts. Hence, this scientific work encompasses a retrospective of the methods from antiquity by Sumerian, Viking, Greek, Roman fighters, as well as a contemporary and a prospective of the methods of augmenting soldiers into "supersoldiers". Whether we refer to the first stage and initial attempts at developing soldier*

capabilities through mushrooms, alcohol, amphetamines, or to the revolutionary phase of this field through the involvement of technology, all these methods represent a „double-edged sword". This is because it involves, besides benefits, a series of ethical and legal concerns. Nevertheless, the article pledges the solution of augmenting soldiers and reinforcing troops, while simultaneously upholding ethical and legal norms.
Keywords: *Developing Human, Methods of Augmenting, Supersoldiers, Technology, Ethical and Legal Concerns.*

21. (ID 154) Capabilities to Ensure the Mobility of Troops in Military Operations on Waterways
Author: stud. Stefan-Alin STINGA
Scientific Advisor: Assist. Prof. Andrei CONSTANTIN, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Carrying out military operations in the modern warfare has a large complexity, therefore they require good skills for the planning, preparing and execution. Regarding these details, the commander needs to ensure the mobility of troops, using the combat engineers from the echelon of joint forces. Ensuring the mobility of forces represents the main premise of the operation. Combat engineers structures plays a very important role making possible the mobility of the fighting troops. They have effective capabilities which can ensure the movement on the land ways of transportation, or passing over different obstacles. Within the theme chosen the waterway represents an obstacle which need a high attention for ensuring the mobility of the allied forces in the operation.*
Keywords: *Mobility, Military Operations, Waterways, Modern Warfare.*

22. (ID 134) Implications of the Use of Aviation in the Surface Combat Actions Executed by the Ships of the Romanian Naval Forces
Authors: stud. Vili-Alexandru CAPLAN, stud. Cosmin DINU
Scientific Advisor: Eng. Catalin Paul CLINCI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The current state of supply of Romanian Naval Forces with vessels with ASUW capabilites.*

Keywords: *Missile-carrying Ships, Frigate, Characteristics, Tactical Procedures.*

23. (ID 197) Blood Substitutes and Their Role in Pushing Fluid Resuscitation Towards the Point of Injury on the Battlefield

Author: stud. Vlad CONTESI
Scientific Advisor: Assoc. Prof. Mihail-Silviu TUDOSIE, PhD
Institution: Institute of Military Medicine, Bucharest

Abstract: *Loss of oxygen carrying and distribution capacity by the blood of a wounded soldier represents one of the most ubiquitous causes of mortality and morbidity on the battlefields of modern conflicts. Given the high level of specialization and thus the cost and time involved in training servicemen we propose a series of solutions to the problems that militaries run into when trying to bring fluid resuscitation closer to the point of injury. Implementation of novel compounds such as HBOCs or repurposing of older ones such as PFCs as well as the implementation of tactical blood transfusions may seem difficult techniques but given the value, we should put on our soldier's life we argue they are well worth a try.*

Keywords: *Fluid Resuscitation, Blood Substitutes, Tactical Field Care, Perfluorocarbons.*

24. (ID 220) Therapeutic Hypothermia, a Novel Technology Used in Treating Combat Trauma

Author: stud. Georgiana BĂCANU
Scientific Advisor: Assoc. Prof. Mihail-Silviu TUDOSIE, PhD
Institution: Institute of Military Medicine, Bucharest

Abstract: *Targeted Temperature Management or Therapeutic Hypothermia (TH) is now used in civilian healthcare system for treating a wide range of traumas. Nevertheless, TH is not yet implemented in treating and preventing hypoxia caused by severe haemorrhage in war casualties. Mild or moderate hypothermia can be induced in case of traumatic brain injury (when a soldier is wounded by an explosive projectile) or when a soldier was shot and haemorrhage occurs. There are various methods to induce TH, for example: ventilation with cold perfluorocarbons or trans-nasal evaporative cooling system, but there is another method. Arterial spiral cooling system is a permanent, fast and efficient way to lower*

your body core temperature. This device can be created by assembling a spiral tube made of soft biocompatible elastomers with high thermal conductivity and inserting it in contact with tunica adventitia of a major artery.
Keywords: *Hypothermia, Hypoxia-Ischaemia, Metabolism, Tactical Evacuation Care.*

25. (ID 245) Militarization of Outer Space
Author: stud. Nicolai LOVIN
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD, "Nicolae Balcescu" Land Forces Academy, Sibiu
Institution: "Alexandru cel Bun" Military Academy of Forces Army
Abstract: *This article is dedicated to researching the phenomenon of armed struggle in outer space. The militarization of outer space is a topic of growing concern as technology advances and countries become more interested in space exploration. The author analyzes the current composition and capabilities of the space forces of foreign armies, and the trends of militarization of outer space. The article also focuses on the potential consequences and risks associated with the further militarization of outer space, such as the possibility of an arms race, increased space debris, and the potential for conflicts to spill over into space. Based on the studied material, conclusions were drawn regarding the possibility of conducting combat actions in outer space. Overall, this article provides a comprehensive overview of the militarization of outer space, its current status, potential consequences, and the challenges associated with conducting combat actions in outer space. It is a relevant and timely topic that requires further discussion and analysis as space exploration and technology continue to advance.*
Keywords: *Militarization, Outer Space, Exploration, Consequences, Technology.*

26. (ID 268) The Current Status of Equipping the Romanian Naval Forces with Artillery-Carrying Ships
Authors: stud. Cosmin-Valentin DINU, stud. Vili-Alexandru CAPLAN
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The 67th Division of Artillery-Carrying Ships is an important contributor to Romania's security and defense, playing a vital role in regional cooperation initiatives. Its missions include intervention to combat naval terrorism, piracy, and the illicit trafficking of dangerous goods, as well as search and rescue operations, support for CBRN accidents, and monitoring of river traffic. During combat, the ship commander is responsible for preparing the ship by analyzing the situation, transmitting orders to combat services, and provisioning with ammunition and other materials. To defeat the enemy, a hierarchy of destruction is established, with terms such as destruction, neutralization, weakening, removal from the fight, destruction, disorganization, and hindrance used to express the losses that must be inflicted on the target. These terms vary in their required losses depending on the type of weapon and forces used.*
Keywords: *Security, Defense, National Authorities, Armament.*

27. (ID 296) Fast-Patrol Boats of the Romanian Navy and Their Methods of Action

Author: stud. Narcis ANIȚEI
Scientific Advisor: Eng. Catalin Paul CLINCI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The aim of this presentation is to show the means that the missile boats of the Romanian Navy (NPR) use to fight and how they use them. I will begin by presenting the history of the 150th Naval Missile division and then I will pick a ship and introduce its fighting capabilities and diffrent tactical situations in which she uses them. In the end I will conclude by showing the importance of the missile boats in the Romanian Navy.*
Keywords: *Missile, Means, Fight, Capabilities, Importance, Romanian Navy.*

28. (ID 350) Earthquake in Turkey - Contribution of Military and Civilian Logistical Support to the Removal of Its Effects

Authors: stud. Bianca-Elena MIHAI, stud. Lidia-Elena GRĂDINARU
Scientific Advisor: Daniela-Elena HRAB, PhD Student
Institution: "Carol I" National Defense University, Bucharest

Abstract: *This article presents the current situation in Turkey following the earthquake of 6 February 2023. Using the document analysis method, the latest data on the general characteristics of the earthquake, the magnitude of the earthquake, the affected area and the catastrophic aftermath have been identified. The effects it had on the country's infrastructure are briefly outlined, with a focus on the impact on buildings, shelters, population, as well as the urgency of medical requirements, water resources, food and shelter. The aim of the article is to highlight the way Turkey was provided with the necessary logistical support, emphasizing the involvement of the armed forces and their cooperation with non-governmental organisations and civilians in order to mitigate the shortcomings caused by the earthquake. From the study, it can be concluded both that the earthquake had a major impact on the well-being of the country and that adequate military logistical support can significantly change the pace of return to normality.*
Keywords: *Earthquake, Logistical Support, Armed Forces, Follow Up, Non-Governmental Organisations, Material Resources.*

29. (ID 358) Military and Civilian Logistical Cooperation in Natural Disasters: A Challenge

Authors: stud. Adelin CHELARIU, stud. Denis DINU
Scientific Advisor: Assoc. Prof. Ștefan-Antonio DAN-ȘUTEU, PhD
Institution: "Carol I" National Defense University, Bucharest

Abstract: *This article explores the critical role that military and civilian logistics cooperation plays in managing efforts to respond to natural disasters, highlighting the unique challenges faced by both entities. The study uses a qualitative research approach, based on a literature review, articles by logistics experts, and case studies of disaster response operations. The article examines the importance of effective coordination between military and civilian logistics in disaster response efforts, identifying key challenges such as long lead times caused by lengthy chain of command, communication breakdowns, differing priorities and logistical constraints. This article highlights the need for a more integrated and strategic approach to military and civilian logistics in disaster response to improve the effectiveness of these operations and better serve affected communities.*

Keywords: *Military Logistics, Chain of Command, Civilian Logistics, Disasters, Cooperation, Operations.*

30. (ID 363) Taiwan – China - the Effect of Regional Tensions on the Global Distribution of Microchips and on the Military Industry

Authors: stud. Mario – Andrei DUMITRACHE, stud. Rareș – Iulian ROTARU
Scientific Advisor: Daniela-Elena HRAB, PhD Student
Institution: "Carol I" National Defense University, Bucharest

Abstract: *The aim of this study is to provide general information on how Taiwan was formed, i.e. the processes, resources, and systems involved in generating, transporting, sustaining, and redeploying or reallocating materiel and personnel from the U.S.A. to the region we now call Taiwan. The paper also offers essential information as to the country's geostrategic position, as well as the way in which the country influences global electronics, home appliance manufacturing and the military-technical industry. Furthermore, this paper aims to analyze the relations between China and Taiwan, more precisely the reasons behind China's intention to attack Taiwan and the strategy they will presumably follow to that effect. Last, but not least, this article analyzes the intervention of the United States of America in favor of Taiwan and the consequences at global level in the opposite case, namely a defeat of Taiwan by China. As a conclusion, it will be demonstrated that the USA could be an essential ally, prepared to defend Taiwan from a military point of view, and, at the same time, from an economic perspective, to protect the industry at a global level regarding its necessity for microchips and semiconductors.*

Keywords: *Taiwan, China, Electronics, Geostrategic Position, Global, Microchips.*

31. Cyber Warfare Between Russia and Ukraine: An Analysis of Tactics, Techniques and Effects

Author: stud. Ioan-Virgil FOLEA
Scientific Advisor: Janel TANASE, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov

Abstract: *The Russia-Ukraine conflict has extended into the realm of cyberspace, with both sides engaging in a range of cyber attacks and*

information operations. This paper provides a comprehensive analysis of the cyber warfare tactics, techniques and effects employed by Russia and Ukraine. Using a combination of primary and secondary sources, the paper examines the various types of cyber attacks used by both sides. It also evaluates the effectiveness of these attacks and their impact on the broader conflict, including on military operations, critical infrastructure, and public opinion. The paper concludes that cyber warfare has become a key component of the Russia-Ukraine conflict, and that the success of these attacks depends on a range of factors, including technical capabilities, target selection and the ability to manipulate information. The findings have important implications for policymakers, military strategists and cyber security professionals seeking to understand defend against modern cyber threats.

32. (ID 388) The Capacity of Higher Education Institutions to Train Future Personnel of the Romanian Military

Authors: stud. Diana BULARCA, stud. Maria MORARU
Scientific Advisor: Lecturer Ramona HĂRȘAN, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov

Abstract: *In our country, there are several forms of higher education that aim to train the future personnel of the Romanian Military for the different categories of forces: land forces, naval forces and air forces. This paper is meant to analyze the methods by which these institutions manage to prepare future military officers and keep them motivated throughout this process. Furthermore, by interpreting the statistics regarding the reasons and the number of students who cease military higher education, the deficiencies of this training system will be identified.*

Keywords: *Military Higher Education Institutions; Relinquish the Military; Training Methods; Military Leadership; Students Graduating Civilian Colleges VS Students Graduating Military Colleges.*

33. (ID 399) The Importance of Preventing Corruption in the National Defense System

Authors: stud. Denisa-Georgiana VOICU, stud. Ramona-Maria CĂLIANU
Scientific Advisor: Lecturer Cătălin TECUCIANU, PhD
Institution: "Mihai Viteazul" National Intelligence Academy

Abstract: *The 20th Century comes with major threats to the National State of Law and sovereignty manifested in the highest levels of society, backlisting democracy world-wide. Corruption becomes its greatest antagonist, hollowing out the social contract and rule of law, essential to democratic states and their values. Corruption impairs efficiency and convincingness of all armed forces by undermining public confidence in the institution of the state through low troop morale and poor resource management. Throughout this research, our goal is to raise awareness of the emphasis of prevention policies regarding corruption in National Defense System, using both quantitative and qualitative research methods. Furthermore, the objective of this paper is also to expose that both military and civilians are insufficiently informed in regards to prevention instruments that are available, which acts as an obstacle in National Security. Predominantly, corruption in the National Defense System will be highlighted in our work.*

Keywords: *Corruption, Prevetion, National Defense System, Military, Threat.*

34. (ID 402) Health and Psychological Effects of Trauma on Military Personnel

Authors: stud. Stefan LECA, stud. Maria IORDACHE
Scientific Advisor: Superior Instructor Gabriela NICOARĂ, PhD Student
Institution: "Carol I" National Defense University, Bucharest

Abstract: *This article was inspired by a desire to explore this topic further, as well as by the many films we have seen of soldiers involved in missions and the many stories told by military personnel in the Romanian Army. Both male and female soldiers face psychological problems and health needs that are different from their problems in civilian life. It is increasingly common for military personnel returning from deployment sites to face post-traumatic*

stress disorder. Particular attention should be paid to those returning from theatres of operations, as the trauma they suffered from their deployments is with them every day, both at work and at home with their families. Trauma is a strong emotion that causes injury. Trauma is a pathological psychological state of an organism that is unable to cope with the stress that surrounds it at certain times, and is no longer able to respond in any way because of the trauma it has suffered, so it becomes unresponsive to any other situation it encounters.

Keywords: *Post-Traumatic Stress Disorder, Military Personnel, Theatres of Operations, Mental Problems.*

35. (ID 404) Use the Information Technology and the Unmanned Vehicles in the Modern War

Author: stud. Danylo HOLOVATYUK
Scientific Advisor: Prof. Vladlen SHAPO, PhD
Institution: Naval Institute, Odessa

Abstract: *After the Russia's invasion to Ukraine unmanned surface vessels (USV) became involved and capable of performing tasks of greater complexity. Such USs offer versatility, autonomy, the ability to respond to surveillance and attack functions. USVs can be used for conducting reconnaissance at sea and near the coastline, searching for submarines, attacking surface and underwater vessels, information collecting, tracking the enemy, delivering cargo. A few months ago, Ukrainian developers created advanced USV, equipped with an autopilot system, video subsystems, communication modules, combat unit. The whole suit includes an autonomous control station, transportation and storage system, a data processing center. Simultaneously Turkish companies have created quite similar USV ULAQ. The Ukrainian strike USV and the Turkish ULAQ USV are equipped with specialized systems and advanced capabilities, which allow professionals to improve their own and acquire new modern knowledge to control these assets, stay safe, quickly and timely respond to any danger.*

36. (ID 405) Using the Unmanned Vehicles for Underwater Works and Mines Search in the War Conditions

Author: stud. Dmitriy HRONSKYI
Institution: Naval Institute, Odessa

Abstract: *Over the past year, it has become clear that the use of maritime unmanned vehicles (UV) is important. Marine defense systems can be used to conduct reconnaissance at sea and near the coastline, search and destroy mines, attack on surface and underwater vessels, information collection, cargo deliver. The task of neutralizing sea mines is very relevant for the creation of a "grain corridor" from Ukraine. A possible solution is the use of REMUS 100 (Remote Environmental Measuring Units) UV. It operates at 100 m depth, moves underwater at a speed of 3-5 knots with 60 km range, equipped with different sensors. Also, the Norwegian company Blueye Robotics has developed the remotely controlled UV ROV X3 (Remotely Operated Vehicle) with support of external sonars, manipulators, sensors, cameras, light sources. Both UV are equipped with advanced technologies, allowing military personnel to obtain increased device autonomy and previously unavailable capabilities during missions.*

IV. SECTION: ELECTRICAL ENGINEERING

Section Committee:
Chairman:
Prof. Gheorghe SAMOILESCU, PhD
Members:
Lecturer Tiberiu PAZARA, PhD
Lecturer Eduard DRAGOMIR, PhD
Room: LI356

1. (ID 26) Unleashing the Power of Lightning: My Tesla Coil Project

Authors: stud. Alexandru Stefan BEREA, stud. Valentin Stefan HOTU, stud. Gabriel Marian LEIZERIUC
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The transmission of electrical power from a power source to an electrical load without a conductive physical connection is called wireless power transmission. Wireless power transfer ensures that cell phones, laptops, iPods, and other electrical devices turn on by themselves without the need to connect them to electrical outlets with various wires. When a magnetic field is transmitted over a short distance, it is called wireless power transmission. Magnetic fields are created by inductive coupling between coils of wire, while electric fields are created by capacitive coupling between electrodes. The most common method of wireless power transmission is direct induction, followed by magnetic resonance induction. The induced charge fluxes in the induction coil can be captured by another induction coil, which can create an induced flux between the receiver coils coupled to the primary coil. Since this technique uses a magnetic field to transmit electrical energy, the flux generated in the primary coil must be dense and of high frequency. To generate dense flux, the Tesla coil is used as a transmitter to generate high voltage, high frequency and low AC current. In this work, a Tesla coil is a key component of the transmitter in a wireless electricity device, which needs to be developed to show how magnetic induction is coupled to perform wireless power transmission. In addition, the design of the*

Tesla coil's winding coils would have significant implications for supplying power to a load over long distances without the use of cables. The advantages of a wireless electricity system are that it eliminates the existing cables between power sources for electrical equipment. The electrical system will be safer with wireless electricity as it will protect users from electrocution and power outages due to short circuits, faults or power loss on cables will no longer occur.
Keywords: *Tesla Coil, Electrical Power, Wireless.*

2. (ID 27) Propulsion Systems
Author: stud. Georgian POȘTARU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Propulsion systems are an essential component of vehicles, enabling them to move efficiently and fulfill their purpose. There are a variety of propulsion systems used in different types of vehicles, such as automobiles, airplanes, ships, and even space rockets. These propulsion systems are based on different technologies and operating principles, such as internal combustion engines, electric motors, steam engines, jet engines, and rocket engines.*
Keywords: *Propulsion; System.*

3. (ID 39) The Use of Correction Systems for Improving the Quality Factors of Energy Systems
Authors: stud. Alexandru ROMAN, stud. Petru-Iulian MOISA
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Correction systems can play an important role in improving the quality factors of energy systems. Quality factors refer to parameters such as voltage stability, frequency stability, and power factor that determine the efficiency and reliability of an energy system. One of the most common correction systems used in energy systems is the reactive power compensation system. This system helps to improve the power factor of the system by compensating for the reactive power that is generated due to the use of inductive loads. Reactive power compensation systems can help to reduce losses, improve voltage stability, and increase the capacity of the system.*

Another correction system that can be used to improve the quality factors of energy systems is the harmonic filters. Harmonic filters are used to eliminate or reduce the amount of harmonic distortion in the system. Harmonics are caused by non-linear loads, such as computers, televisions, and other electronic devices, and can cause voltage instability, power losses, and equipment damage. By using harmonic filters, these issues can be minimized, and the overall efficiency and reliability of the system can be improved. Other correction systems that can be used to improve the quality factors of energy systems include voltage regulators, which help to maintain a stable voltage level, and frequency regulators, which help to maintain a stable frequency level. These systems are particularly important in power systems where the voltage and frequency must be tightly controlled to ensure that the system operates efficiently and reliably. Overall, the use of correction systems can help to improve the quality factors of energy systems, which in turn can lead to increased efficiency, reliability, and cost savings.

4. (ID 40) Maintenance of electrical motor powering rescue boat installation

Authors: stud. Petru-Iulian MOISA, stud. Alexandru ROMAN
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The electric motor is the key component of the lifeboat installation and requires regular maintenance to operate at peak performance and to prevent breakdowns. To begin, it is important to check the level and quality of the electric motor oil. If the level is too low it must be topped up to the level specified in the user manual. In addition, it is important to change the oil at regular intervals to maintain the quality of the engine.*

5. (ID 46) The Ultimate System of Train Transportation

Authors: stud. Andrei PLÎNGE, stud. Matei CRISTEA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Our presentation will discuss about Maglev, which is a system of train transportation that uses two sets of electromagnets: one set to repel and push the train up off the track, and another set to move the elevated train ahead, taking advantage of the lack of*

friction. We will also describe the other advantages compared with conventional trains. Finally, we will list six commercial maglev systems that are currently in operation around the world. One is located in Japan, two in South Korea, and three in China.
Keywords: *Maglev, Train, Electromagnets.*

6. (ID 49) Modelling and Simuling an Synchronous Electric Motor in Matlab-SIMULINK
Authors: stud. Adrian DIACU, stud. Florina DRĂGHICI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this example model, it was assumed that the synchronous motor with permanent magnet-PMSM had its permanent magnets mounted on the surface of the rotor. This type of PMSM has therefore a uniform air gap and no saliency, hence Ld = Lq. It is assumed that the PMSM has an interior permanent magnets rotor. The impact of the buried-magnet configuration is rotor saliency that makes Lq > Ld and introduces a reluctance torque term into the PMSM torque equation. To take advantage of the reluctance torque, the Id current component is no longer set to zero has it is for the PMSM with surface mounted permanent magnets.*
Keywords: *Simulink, Electric Motor, Synchronous.*

7. (ID 50) Aspects and Impact of Power Quality Onboard Ships
Authors: stud. Anamaria BÎRZAN, stud. Elena ZAHARIA, stud. Rareș PROCACI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The ships' electric power networks differ from their land brethrens. They are isolated, small and medium power systems with enormous ratio of singular electric receiver power to souce power.*
Keywords: *Power Quality Onboard Ships, Three-Phase Harmonic Filters.*

8. (ID 64) Water Spray Fire Suppression System
Authors: stud. Andreea-Cătălina POP, stud. Gabriel ZAMAN
Scientific Advisor: Assoc. Prof. Paul BURLACU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Water spray fire suppression systems are effective because water spray has a greater influence on the fire source. So, in addition*

to cooling itself, the system creates a protective layer of water vapour that cuts off the oxygen supply to the fire area. This type of installation is based on cooling the surface of the combustible substance with a jet of water, automatically created using sprinkler or drencher spray heads. The water mist fire extinguishing system is based on the supply of pressurised water to nozzle heads located in places at risk of fire. At a preset temperature, sprinklers are automatically switched on and spray a jet of water, fed through a pipe mounted on the ceiling of the protected room. All aspects covered in this paper highlight how a fire extinguishing system works, from receiving signals on smoke level, temperature and fire source to extinguishing the fire itself.
Keywords: *System, Pressurised Water, Sprinkler.*

9. (ID 79) Protection of the Generators
Authors: stud. George ȚABĂRĂ, stud. Bogdan-Marian FLOREA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this session of comunication we will address the following topic: Generator Protection on board the ship. We will exemplify their three principal properties: The first property that we will refer to, will be the generator protection types, where we'll explain their two premises: protection relays for detecting faults occurring inside and outside the generator. The second property will be about the functioning for each protection. Lastly, the final subject assigned in our paper it will be about the importance of protection, it's role and qualities where we're going to adress multiple examples and consequences that may happen if the protection is neglected.*
Keywords: *Types of Protection for Generators.*

10. (ID 120) The Study of a Radar System Using a Platform with Microcontrollers
Authors: stud. Gabriel-Marian NEGREANU, stud. George Silvian COTORCEA
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paper we will present general aspects regarding radar systems. We will follow the current study of the use of radars on board ships, what is a microcontroller platform, how does a radar*

system work, what are the radar components. We will also consider the importance of using radar systems on board ships and types of radars used.

11. (ID 4) Study on the Modernization of Type T22 Frigates with Modern Artillery Systems

Author: stud. Darius PUȘCAȘU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *T22 frigates are vessels built to perform different missions, no matter what the sea conditions are. T22 frigates are designed with self defense systems and surface missiles for surface combat and machine gun systems. The main purpose of this paper is to study the development of a modern artillery system that uses electrical energy to launch projectiles. One of them is gauss rifle, also known as coilgun, an electromagnetic catapult consisting of coils used as electromagnets that launch high-speed guided projectiles. With the help of the magnetic force, the projectile accelerates rapidly along the barrel, an effect determined by the starting and stopping of the coils in a precisely timed sequence. The number of coils determines an increased speed for the projectile, compared to the existing artillery systems on board the ship.*

Keywords: *Frigates T22, Coilgun, Projectile, Magnetic Force, Velocity.*

12. (ID 128) Clasic and Intelligent Radar

Author: stud. Paul CHIRNOAGA
Scientific Advisor: Assoc. Prof. Romeo BOSNEAGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Marine radars are X band or S band radars, used by ships to detect other ships and land obstacles, to provide bearing and distance for collision avoidance and navigation at sea. They are electronic navigation instruments that use a rotating antenna to sweep a narrow beam of microwaves around the water surface surrounding the ship to the horizon, detecting targets by microwaves reflected from them, generating a picture of the ship's surroundings on a display screen. Radar is a vital navigation component for safety at sea and near the shore. Captains need to be able to maneuver their ships within feet in the worst of conditions and to be able to navigate*

"blind", when there is no visibility at night or due to bad weather. In addition to vessel-based marine radars, in port or in harbour, shore-based vessel traffic service radar systems are used by harbormasters and coast guard to monitor and regulate ship movements in busy waters. Classic marine radar uses a traditional radar system to detect and display information about objects and obstacles in the vicinity of a boat. It uses radio waves to bounce off objects and then receives the signal back to determine the distance, direction, and speed of the object. Classic marine radar typically displays this information on a screen in the form of blips and dots. Intelligent marine radar, on the other hand, uses more advanced technology, such as artificial intelligence (AI) and machine learning algorithms, to provide more sophisticated and accurate information about the environment. It can detect and classify different types of objects, such as other boats, buoys, and even marine life. It can also predict the behavior of these objects and provide alerts or recommendations to the captain based on the data it gathers. Intelligent marine radar also typically offers more advanced features such as automatic collision avoidance, weather tracking, and integration with other navigation systems. These features can greatly enhance safety and situational awareness for the captain and crew.
Keywords: *Radar, Frequency, Clasic, Intelligent.*

13. (ID 132) Classical and Modern Loch
Author: stud. Francesco Mihai AZOITEI
Scientific Advisor: Assoc. Prof. Romeo BOSNEAGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A classic loch on board a ship is a nautical instrument used to measure the ship's speed. It works by placing a rotor or propeller in the water at the bottom of the vessel. The ship' s speed is determinated by measuring how fast the rotor is spinning.*
Keywords: *Loch.*

14. (ID 153) Physics Software
Authors: stud. Vlad-Andrei CHIȚU, stud. Andi-Ionel ANTOHI
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This software shall solve electrical problems.*

Keywords: *Electrical Software.*

15. (ID 159) The Correlation of Electric Pumps Defects with the Vibrations Produced by Them

Author: stud. Costin DROGEANU
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Electric pumps produce vibrations like any other installation. The nature of these vibrations can be early fatigue, improper mounting of the parts, hidden defects by manufacturing process. In this paper, the aspects of condition monitoring using vibration analysis will be presented. A correlation between vibration spectra and defects of electric pumps is a good method of maintenance. The advantage of this method is that it doesn't require the dismantle of the pump. Using accelerometers, the vibrations are measured in specific points which are situated around the pump. Then, the spectra will indicate if the pump presents defects and how severe they are.*

Keywords: *Electric Pumps.*

16. (ID 175) Suggestions for Optimization and Efficiency Increasing Solutions to Electrical Energy Systems

Author: stud. David IONITA, stud. Catalin CALIN
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The electrical onboard ships can be divided into five specific systems:*
1) Generator system
2) Main Switchboard System
3) Emergency Switchboard System
4) Distribution system
There are certain ways that can optimize and increase the efficiency of those systems that are included in this project such as: using "Intelligent Electrical Grids", frequency converters and taking into consideration the laws of affinity. These improvement solutions are useful because they offer more security, accessibility, are economically friendly and user friendly.

Keywords: *Electrical Energy Systems, Electrical Installations.*

17. (ID 183) Investigation of the Electrical Characteristics of 3D Printed Objects

Authors: stud. Florin Adrian DOAGĂ, stud. Alexandru-Andrei NEGREA, stud. George-Viorel PĂUNA
Scientific Advisor: Lecturer Iancu CIOCIOI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *An additive manufacturing technique known as 3D printing is used to construct three-dimensional solid things. This technology is useful in many industrial sectors, particularly quick-prototyping. This project is focused on possibilities of use of 3D printing in electronics industry. 3D printed objects were investigated with a view to their electrical properties. The comparison of these properties for various common materials (PLA and ABS) was examined. The results showed that some of the properties of PLA are promising (relatively high dielectric strength, volume resistivity) compared to others (dielectric constant, loss tangent) that are not optimal for use in electronics industry and requires some improvements in form of additives. ABS have higher loss tangent than PLA, no significant difference in dielectric constant was found between ABS and PLA. Generally, an improvement of electrical properties of these materials is required, for example by adding some additives to the base material.*

Keywords: *3D Printing, 3D Printed Objects Properties, FDM, Measurement of Electrical Properties, Rapid Prototyping.*

18. (ID 194) Critical Components and Sub-Systems of Modern Naval Electro-Energetic Systems

Authors: stud. Bianca Maria GURIENCU, stud. Ana-Maria POSTOLACHI
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The naval electro-energetic system represents a fundamental aspect of modern ships, being responsible for supplying the electrical energy needed to power critical systems, such as propulsion, navigation, communication, and weapons. This system is remarkably complex, comprising multiple interdependent subsystems and components that must work in harmony to ensure the efficient and safe operation of the ship. This project aims to present a detailed*

analysis of the naval electro-energetic system, covering complex aspects related to its architecture, equipment, and technologies used. It will also explore the issues and challenges associated with the system, as well as current solutions and innovations in the field, through a rigorous and meticulous approach.
Keywords: *Naval Electro-Energetic, System Complex, System Efficient, Operation, Safe Operation.*

19. (ID 195) The Present Status and Future Outlook of the Research Regarding the Adoption and Integration of Renewable Energy Sources Onboard Commercial and Leisure Vessels
Authors: stud. Monica TANASE, stud. Robert STANCIUGELU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The integration of renewable energy sources on marine vessels is a crucial area of research aimed at reducing environmental impact and reliance on traditional fuels. Innovative technologies such as solar, wind, and hydro-power, as well as alternative fuels, are being explored for their feasibility, effectiveness, and cost-effectiveness. By reducing the dependence on fossil fuels, the marine industry can enhance its environmental sustainability. This research aims to develop practical solutions for implementing sustainable energy on commercial and leisure vessels.*
Keywords: *Renewable Energy, Environmental Impact, Fossil Fuels, Solutions.*

20. (ID 203) Platform for the Experimental Study of Starting by the Softstarter Method of a Three-Phase Asynchronous Motor
Authors: stud. Andrei-Cătălin FLOREA, stud. Ionuț-Cătălin DRUGĂ
Scientific Advisors: Prof. Vasile DOBREF, PhD, Asist. Prof. eng. Vlad MOCANU, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The paper presents an original project for the realization and testing of an experimental stand designed for the study of the operation of three-phase asynchronous motors fed with a softstarter type converter. Authors describe the basic electrical diagrams, the choice of component elements and the results of the measurements*

carried out in the Naval Electroenergetic Systems laboratory of the Department of Electrical and Electronic Engineering, Faculty of Marine Engineering.
Keywords: *Induction Motor, Softstarter.*

21. (ID 211) Renewable Powered Weather Buoy
Authors: stud. Emilia-Daniela NĂSTASE, stud. Oana NIȚESCU
Scientific Advisor: Lecturer Ovidiu CRISTEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Weather buoys are instruments used to gather weather and oceanographic data from the open sea. These buoys are designed to withstand harsh marine environments and are often deployed in remote areas where weather information is needed for safety or scientific research. A renewable powered weather buoy is a type of buoy that uses renewable energy sources to power its operations. This type of buoy is typically used to collect and transmit data about weather and ocean conditions, including, water temperature and turbidity, wind speed and direction, air temperature and atmospheric pressure. Renewable energy sources that can power weather buoys include solar power, wind power, and wave power. Solar power is particularly well-suited for weather buoys because they are typically located in areas with high levels of solar radiation, such as the open ocean or coastal regions. As well as batteries or other energy storage devices to store excess energy for use during periods of low energy production. Renewable powered weather buoys are an important tool for weather forecasting, oceanography, and climate research. They can provide real-time data about weather and ocean conditions in remote areas, and can help scientists and researchers better understand the dynamics of the Earth's atmosphere and oceans. The data collected by weather buoys is typically transmitted in real-time via satellite or other communication systems to weather forecasting centers and research institutions.*

22. (ID 217) Protection of the Current Transformers
Authors: stud. Bogdan-Marian FLOREA, stud. George TABARA
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper will follow, as the title implies, the subject of current transformers. More important we will focus on the protection of this machines mainly on the types of protection, principle of working, their role and some examples of why is important to protect current transformers.*
Keywords: *Different types of protection for the current transformer.*

23. (ID 223) High Voltage Insulation Systems on Ships
Authors: stud. Ștefan-Alexandru PLEȘCA, stud. Adrian-Cosmin BENEDEK
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *High voltage insulation systems are an important safety feature on ships that help protect personnel and equipment from electrical hazards. These systems are designed to provide insulation and isolation for high voltage electrical systems on board ships, which can range from 440 volts to 6,600 volts, depending on the size and type of ship. The high voltage insulation systems on ships consist of the following components:*
-Insulation materials: These are materials that are used to create barriers between high voltage electrical components and other conductive surfaces to prevent electrical current from flowing to unintended areas.
-Ground fault protection: Ground fault protection devices are used to detect any electrical current that is flowing to ground, which can indicate a fault in the insulation system. When a fault is detected, the protection device will trip to shut down the electrical system.
-Safety training and procedures: All personnel who work on or near high voltage electrical systems must receive safety training and follow established safety procedures to minimize the risk of electrical hazards.
Keywords: *High Voltage Insulation Systems.*

24. (ID 224) The Study of the Operation of Synchronous Motors for Naval Propulsion Powered by Cycloconverters

Authors: stud. George-Robert ALEXANDRU, stud. Alexandru-Cristian BANDRABUR
Scientific Advisors: Prof. Vasile DOBREF, PhD, Assist. Prof. eng Vlad MOCANU, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study of synchronous motors for naval propulsion powered by cycloconverters is a topic that involves the use of advanced technology to improve the efficiency and performance of marine vessels. Synchronous motors are known for their high efficiency and ability to deliver remarkable power density, impressive durability, and easier maintainability when compared to induction or wound rotor synchronous machines. They can be used in both conventional and propulsion system motors for marine applications. Cycloconverters are power electronic devices used to convert a constant voltage, constant frequency ac waveform to another ac waveform of a different frequency. They can be used to control the speed of ac motors such as synchronous motors. In the presentation, i will add a matlab simulink simulation of a cycloconverter.*

Keywords: *The Study of the Operation of Synchronous Motors for Naval Propulsion Powered by Cycloconverters.*

25. (ID 225) The Importance of Electrical Energy Quality

Authors: stud. Dragoș-Gabriel DRISTARU, stud. Daniel BANIOTI
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The quality of electrical energy on ships is crucial for the safe and efficient operation of various systems, including propulsion, navigation, communication, and lighting. The electrical power supply on ships is typically generated by diesel generators or gas turbines, which can produce electrical noise, voltage fluctuations, and harmonics. These electrical disturbances can affect the performance of sensitive equipment, leading to malfunctions, failures, and safety hazards. To ensure the quality of electrical energy on ships, various measures are taken, such as installing power filters, voltage stabilizers, and harmonic filters. These devices can mitigate the effects of electrical disturbances and improve the power factor and*

efficiency of the electrical system. Additionally, proper grounding and insulation of the electrical equipment and wiring can minimize the risk of electrical shock and fire. Regular maintenance and testing of the electrical system are also essential to detect and prevent potential issues that may affect the quality of electrical energy. The International Maritime Organization (IMO) has established regulations and guidelines for the safe and efficient operation of the electrical system on ships, including the Electrical Installations on Ships Code (ELECTRICS) and the International Convention for the Safety of Life at Sea (SOLAS). In summary, the quality of electrical energy on ships is critical for the reliable and safe operation of various systems. Proper design, installation, and maintenance of the electrical system, along with compliance with regulatory requirements, are essential to ensure the quality of electrical energy on ships.

Keywords: *The importance of electrical energy quality*.

26. (ID 226) Electrical Safety on Board

Authors: stud. Cristian BEBU, stud. Cosmin CHITU
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Electrical safety is of utmost importance on board an electrical ship, as any malfunctions or accidents can have severe consequences for the crew, passengers, and the vessel itself. With so many electrical systems and equipment in use on board, it is essential to follow proper safety procedures to minimize the risk of electric shock, fire, or explosion. One of the most critical aspects of electrical safety on board is proper training and education for the crew. Everyone on board should have a thorough understanding of the electrical systems in use, as well as the safety procedures and protocols that need to be followed when working with or around them. This includes wearing appropriate protective gear, ensuring equipment is properly grounded, and avoiding contact with live electrical components. Sure, I can help you with an introduction about shut down protections for diesel generators project. Regular maintenance and inspections of all electrical systems and equipment are also crucial for ensuring safety on board. This includes routine checks of wiring, switches, and circuit breakers, as well as more*

extensive inspections of generators, transformers, and other high-voltage equipment. Proper labeling of electrical panels and components is also essential to ensure that anyone working with them can quickly and easily identify them and take appropriate safety precautions.
Keywords: *Safety Electrical Circuit Breakers.*

27. (ID 228) Main Engine Safety
Authors: stud. Adrian-Cosmin BENEDEK, stud. Stefan-Alexandru PLESCA
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The main engine is one of the most critical systems on board a ship, as it is responsible for providing propulsion and power for the ship's essential systems. Therefore, it is important to have several safety measures in place to ensure the safe operation of the main engine on a ship. Some of the main engine safety features on a ship include:*
-Automatic engine shutdown: The ship's control system is programmed to automatically shut down the main engine if certain predetermined criteria are met, such as an unexpected loss of communication or a sensor reading outside of acceptable parameters.
-Manual engine shutdown: The ship's crew can manually shut down the main engine if they detect a problem or if the automatic system fails.
-Emergency stop button: An emergency stop button is located on the bridge and in the engine room to allow the crew to quickly shut down the engine in the event of an emergency.
Keywords: *Main Engine Safety.*

28. (ID 230) Diesel Generators Safety System
Authors: stud. Cosmin CHITU, stud. Cristian BEBU
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Diesel generators are widely used as a reliable source of backup power in a variety of applications, such as hospitals, data centers, and industrial facilities. However, like any other mechanical*

equipment, diesel generators are prone to failures and malfunctions that can result in serious consequences, including damage to the generator itself, loss of critical loads, and even safety hazards. To prevent such incidents, it is essential to have robust shut down protections in place that can detect and respond to abnormal operating conditions of the generator. The shut down protections should be designed to automatically initiate a controlled shutdown of the generator in case of any abnormality, such as low oil pressure, high coolant temperature, overspeed, over/under voltage, and over/under frequency. The shut down protections for diesel generators can be implemented using a combination of hardware and software components, including sensors, controllers, relays, and algorithms. The design and implementation of shut down protections require a thorough understanding of the generator's operating characteristics, the load requirements, and the environmental conditions.

Keywords: *Generators Safety Alarm.*

29. (ID 233) Analysis of Adjustable Switching Voltage Sources Used on Board Ships

Authors: stud. Panaiotis PEGKAS, stud. Florin Alexandru TRUPINA

Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Adjustable switching voltage sources are becoming increasingly popular on board ships due to their higher efficiency, smaller size, and lower weight compared to traditional linear voltage sources. However, their use on ships presents unique challenges, including the need for high reliability and the potential for electromagnetic interference. In this paper, we analyze the advantages and challenges of using adjustable switching voltage sources on board ships and provide a detailed mathematical model for analyzing their performance. We also discuss the practical implementation of these voltage sources on board ships.*

Keywords: *Adjustable switching voltage sources Shipboard power systems Efficiency Electromagnetic interference Reliability Mathematical model Simulation Ripple voltage Voltage regulation Power electronics Energy conversion DC-DC converters Power*

density Power quality Power management Safety standards Practical implementation Space constraints Weight reduction Energy efficiency.

30. (ID 234) Analysis of Deforming Power in the Naval Power System

Authors: stud. Florin Alexandru TRUPINA, stud. Panaiotis PEGKAS
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Deforming power is a crucial aspect of the naval power system, as it can lead to significant damage and disruption to critical systems on board ships. This paper presents an analysis of deforming power in the naval power system, including its sources, effects, and mitigation techniques. We also propose a mathematical model for analyzing deforming power and provide recommendations for reducing its impact on the naval power system.*

Keywords: *Deforming Power, Naval Power System, Mathematical Model, Mitigation Techniques, Impact Reduction.*

31. (ID 236) The Development and Design of a Robotic Arm with a Programmable Interface

Authors: stud. Alexandru BUJOR, stud. Cristian MANJESCU
Scientific Advisor: Lecturer eng Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project presents the development of a robotic arm and its application from which it can be maneuvered. It is also presented how this concept can be used in variable domains, for example: Naval Industry, Car Factories etc. A few ways this robotic arm may be operated in those domains are: Welding, cutting, painting and so on.*

Keywords: *PLC, Arduino, Robotic Arm, Android App.*

32. (ID 244) Comparing Different Clock Frequencies

Authors: stud. Teodor LABUNT, stud. Antoneta LUPU
Scientific Advisor: Prof. Vasile DOBREF, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *We will discuss methods of comparing different clock frequencies, the procedure of characterizing their performance in terms and determine the signal characteristic of the three output currents and the output voltage. We will describe methods that are used when the device under test and the reference device are in the same facility and when they are at different locations linked by a communications channel. All clocks consist of two components: a device that produces or observes a series of periodic events and a counter that counts the number of events and possibly also interpolates between consecutive events to improve the resolution of the measurement.*
Keywords: *Clock, Frequencies.*

33. (ID 250) The Detection Probability of Radar Targets in the Presence of Noise
Authors: stud. Andrei Silviu BUCI, stud. Valentin-Rares HARAS, stud. Marian Lucian VRANCEANU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Target detection (useful signal) in noise is an important requirement for vessel safety in poor visibility conditions. In this paper we discuss how the signal-to-noise ratio can be increased in order to increase the probability of finding targets in noise.*
Keywords: *Radar, Electrical Noise, Troubleshooting, Ideal Conditions.*

34. (ID 254) General Characteristics of Cycloconverters of Azipod Type Engines
Authors: stud. Alexandru-Cristian MINJESCU, stud. Alexandru Marian BUJOR
Scientific Advisor: Assoc. Prof. Paul BURLACU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A cycloconverter is a power electronics device that converts AC power from one frequency to another. In the context of Azimuthing Pod (Azipod) propulsion systems, a cycloconverter is used to convert the AC power from the ship's main power supply to the frequency required by the propulsion motor. Azipod propulsion systems are used in marine vessels to provide highly maneuverable*

propulsion, and they require a cycloconverter to convert the power supply frequency to match the frequency of the Azipod motor. The general characteristics of cycloconverters used in Azipod propulsion systems include high power density, high efficiency, and low harmonic distortion. These characteristics are essential for the reliable and efficient operation of the propulsion system. The cycloconverter is typically designed with a modular structure, making it easy to maintain and repair. In addition to its technical characteristics, the cycloconverter used in Azipod propulsion systems has a significant impact on the overall design of the vessel. The compact design of the cycloconverter allows for efficient use of space and reduces the overall weight of the propulsion system. This, in turn, reduces the fuel consumption and emissions of the vessel. In conclusion, the cycloconverter used in Azipod propulsion systems is a critical component that provides the necessary power conversion for highly maneuverable propulsion. Its high power density, high efficiency, low harmonic distortion, and compact design are essential for the reliable and efficient operation of the system.

35. (ID 255) The Analysis of the Quality Indicators of Electrical Energy at a Maritime Ship and Reduction Methods for Energetical Consumption of the Equipment in the Engine Room

Authors: stud. Sabin-Andrei STOIAN, stud. Romeo-Andrei TUFA
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this project i will be presenting the quality indicators of electrical energy, such as voltage, frequency and waveform but i will also include reduction methods for energetical consumption of the equipment in the engine room. Both of these topics are very important for running any kind of ship. Ilustrative photos and detailed information will be included.*

Keywords: *Quality Indicators of Electrical Energy.*

36. (ID 256) Analysis of Asynchronous Wound Rotor Motor Behaviour in Marine Electric Drive Systems Using Variable Loads

Authors: stud. Romeo-Andrei TUFA, stud. Sabin-Andrei STOIAN
Scientific Advisor: Assoc. Prof. Florentiu DELIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this project it is about Analysis of asynchronous wound rotor motor behaviour in marine electric drive systems using variable loads. The presentation includes information about the construction of an asynchronous motor and its importance for ships. It also shows how a motor works, it`s speed and it`s components. I will also include illustrative photos for every topic.*

Keywords: *Asynchronous Wound Rotor Motor Behaviour in Marine Electric.*

37. (ID 257) The Current Stage of Development of Offshore Wind Systems

Authors: stud. Eduard Alexandru ANDREI, stud. Marius Petrut ZANFIR
Scientific Advisor: Lecturer Ovidiu CRISTEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Currently, wind energy or wind power is widely used to produce electricity with the help of wind turbines. The electric power generated by these turbines is sustainable, renewable, inexhaustible, and durable over time, without having a very significant impact on the environment. Therefore, these characteristics make the difference between classic power plants that use fossil fuels, which are costly and have a serious impact on the environment, and the use of kinetic energy of wind to generate electricity. With the increase in global electricity consumption and the depletion of the planet's fossil fuel reserves, developed countries around the world have turned to alternative methods of renewable electricity. Consequently, by placing multiple individual wind turbines, more reliable wind farms or parks have been built and connected to the electricity grid. Therefore, in this project i will talk about the current stage of development of offshore wind systems.*

Keywords: *Offshore Wind Systems.*

38. (ID 269) Driving 3-6v DC Motors Using the Esp 8266 Microcontroller with Wi Fi Control

Author: stud. Vlad-Alex DIAMANDESCU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper deals with the control of DC electric motors and the development of the related software for their control by mobile phone. The programming language used in this project is Arduino; A C++ based language. The code is loaded in the esp8266 microcontroller. The esp8266 microcontroller has a wide range of use and is adaptable to a wide variety of applications concerning automation. It has 13 configurable inputs or outputs that can allow the input/output of digital signals depending on the application.*

Keywords: *Microcontroller, Electric Motors, Wireless.*

39. (ID 274) Requirements for the Implementation of the Marine Equipment Directive

Authors: stud. Robert-Florin MIHAI, stud. Alin Iulian TUDOR, stud. Alin MURARIU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The objective of this Directive is to enhance safety at sea and to prevent marine pollution through the uniform application of the relevant international instruments relating to marine equipment to be placed on board EU ships, and to ensure the free movement of such equipment within the Union. This Directive shall apply to equipment placed or to be placed on board an EU ship and for which the approval of the flag State administration is required by the international instruments, regardless of whether the ship is situated in the Union at the time when it is fitted with the equipment. "EU ship" means a ship flying the flag of a Member State and falling within the scope of the international "marine equipment" means equipment falling within the scope of this Directive in accordance with international conventions. (Colreg 1972, Marpol 1973, Solas 1974).*

Keywords: *Marine Equipment, Directive, International Conventions.*

40. (ID 275) Impedance Matching

Authors: stud. Alin Iulian TUDOR, stud. Robert-Florin MIHAI, stud. Alin MURARIU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *When talking about electronic equipment, energy must be transferred from a device from which we take energy (source) to one that receives energy (load). When designing and constructing electronic equipment, impedance matching must be treated with the maximum seriousness. In electricity, we are constantly dealing with the transfer of energy from the output of one circuit to the input of another. The purpose of impedance matching is to achieve maximum power transfer from source to load. In this paper we will cover topics such as: the theory involved in maximum power transfer in DC circuits, impedance matching, impedance of resonant circuits, but we will also talk about the transformer as an impedance matching device.*

Keywords: *Maximum Power Transfer, Impedance Matching, Resonant Circuits.*

41. (ID 270) Types of Marine Networking Systems and Their Advantages and Disadvantages

Authors: stud. Alexandru-Cristian BANDRABUR, George Robert ALEXANDRU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Networking on vessels, also known as marine networking, refers to the process of setting up a communication system between various devices and systems on board a vessel. It involves the use of technology such as computers, sensors, radios, and satellite systems to establish a seamless and reliable communication network between different components of the vessel. Networking on vessels is crucial for the safe and efficient operation of the vessel. It allows crew members to communicate with each other, access critical information, and monitor various systems and equipment on board. It also enables remote monitoring and management of vessel operations from a central location. There are various types of marine networking systems available, including wired and wireless*

networks. Wired networks use cables to connect different devices and systems, while wireless networks use radio frequency to establish connections. Both types of networks have their advantages and disadvantages, and the choice of system will depend on the specific requirements of the vessel. Overall, networking on vessels plays a critical role in ensuring safe and efficient maritime operations, and it is an essential component of modern marine technology.
Keywords: *Networking, Wireless, Board, Technology, Systems.*

42. (ID 297) The Integrated System of a Ship Consisting of a Deck Compartment and an Electromechanical Compartment
Authors: stud. Gabriel Cornel GANESCU, stud. Emil-Mihai CIOBANU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The integrated system of a ship that has deck compartments and electromechanical compartments can be extremely complex and includes a series of interconnected subsystems, each with its own important functions and roles in ensuring the proper functioning of the ship.*
Keywords: *Navigation System, Propulsion System.*

43. (ID 298) Analysis of Temperature Sensors Integrated in CMOS Technology Used on Board Ships
Authors: stud. mil-Mihai CIOBANU, stud. Cornel-Gabriel GANESCU
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper highlighted certain advantages of temperature sensors on board a ship. The CMOS and PMOS technologies and the shipboard temperature sensors were explained. A temperature sensor has several advantages, such as small size and easy integration. CMOS technology refers to the manufacturing of integrated circuits.*
Keywords: *Temperature Sensors, CMOS Technologies, Benefits of Temperature Sensors.*

44. (ID 300) Protection in Low Voltage Installations
Authors: stud. Alexandru Catalin LASCU, stud. Cristian ZAHARIA
Scientific Advisor: Lecturer eng. Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Protection in low voltage installations refers to the measures taken to safeguard the electrical system and the people and equipment connected to it from the dangers of electrical faults or malfunctions. Regular inspection, testing, and maintenance of the protective devices and the electrical system are also critical to ensure continued protection and safe operation of the low voltage installation.*

45. (ID 301) PID Controller with PLC
Authors: stud. Marian Lucian VRANCEANU, stud. Ionut Antonio ONEA, stud. Andrei ZAHARIA
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Technology is constantly evolving and one of the utilized components in the automation industry is a PLC controller. A PLC controller is basically a computer-type device that is used to control equipment in an industrial facility. A PID controller is the most popular control algorithm. PID stands for Proportional Integral Derivative. It can be used to regulate temperature, pressure, speed, flow and other process variables. The purpose of a PID controller is to force feedback to match a setpoint, such as a thermostat that forces the heating and cooling unit to turn on or off based on a set temperature. It's usefulness is key in all industrial domains.*
Keywords: *PID Controller; PLC; Automation Industry.*

46. (ID 302) Maintenance of Mooring Installation Through Periodical Inspections of Electrical Motor
Authors: stud. Ersin GAFAR, stud. Daniel POTELEANU
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this project will be found maintenance and in-service inspections of mooring equipment including lines and tails, criteria for identifying worn-out lines and tails for removal from service before failure, and criteria for selection of replacement mooring lines*

and tails also the maintenace of an electric motor like changing bearings checking the coil winding izolation, check and replace brushes that are more than half worn etc.
Keywords: *Mooring Lines Electric Motor Chain Shaft Coil Winding Stator Bearings Greasing.*

47. (ID 308) Calculation and Simulation-Based Study of Feedback Voltage Stabilizers
Authors: stud. Robert-Andrei BANEA, stud. Robert-Alexandru VARGA
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This project presents a method of calculation and simulation-based analysis of feedback voltage stabilizers, electronic devices used to maintain a constant voltage regardless of variations in the power supply or load. We will explain the mathematical models of the components used in the construction of stabilizers and show how these models can be used to optimize the design parameters of the stabilizers and evaluate their performance under different operating conditions.*
Keywords: *Calculation and Simulation-Based Study of Feedback Voltage Stabilizers.*

48. (ID 328) Study of the Regarding the Fiability of Naval Electrical Engines
Authors: stud. Dumitru Daniel POTELEANU, stud. Ersin GAFAR
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Several studies have been conducted to investigate the reliability of naval electrical engines. One common approach is to analyze the failure data of these engines over a period of time. This involves recording the number of failures, their causes, and the resulting downtime. By analyzing this data, researchers can identify the most common failure modes and the factors that contribute to their occurrence.*
Keywords: *Analyze, Engines, Failure, Data.*

49. (ID 330) The Biological Effects of Electromagnetic Fields: The Invisible Frenemy?

Authors: stud. Edna Adriana ANTON, stud. Vlad Costin DEDIU
Scientific Advisor: Lecturer eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Electricity underpins the activity of vital functions; our muscles and organs are all controlled by electrical signals. The electromagnetic field is everywhere around us. This constant in our modern daily lives, the subtle disturbing parameter of our system, leaves its mark on the body. We cannot dispute the existence of the beneficial effects of the electromagnetic field on a global scale, which has birthed a digital era and a tremendous technological progress, making people's lives substantially easier and better. However, the biological effects of EMF are not as appealing, slowly beginning to overshadow the excitement of its omnipresence. We will be browsing together through concrete examples of EMF-based technological developments, the sources that create it, its frequency spectrum, the difference between existing types and their respective cellular biological effects. Thus, we will understand the reason for electromagnetic field studies in influencing the development of cancer and its current findings.*

Keywords: *Electromagnetic Field, Frequency, Ionizing, Cancer, Celluar, Biologic.*

50. (ID 332) Design Parameters of Wind Turbine Mounted on a Catamaran Ship

Authors: stud. Liviu DECU, stud. Alin ANGHEL
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The objective of the thesis is to present how the dynamic analysis of the catamaran-type wind turbine installation vessel system with 4 wind turbines full assembly on board has been performed, to know in terms stability, sea-keeping motions, and stress for a sea-fastening, on an early design stage. For the dynamic analysis the method stated in the correspondent chapter was followed and as a result the displacements, velocities and accelerations where obtained, where it was shown that the values art the nacelle, where more than the 0.3g, which is the design limit parameter.*

Keywords: *Wind Energy, Dynamic Analysis.*

51. (ID 335) Insulation Resistance on Ships
Authors: stud. Daniel BANIOTI, stud. Dragoș-Gabriel DRISTARU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A part from the fact that good insulation resistance is an essential condition for maintaining service, the regular recording of insulation resistance values is undoubtedly the best method of detecting deterioration and of indicating when remedial action is desirable, or perhaps essential, in order to prevent complete failure. There are several methods of measuring insulation resistance, but the instrument universally used for ship's installations comprises a combined hand-driven d.c. generator and an ohmmeter giving direct readings in ohms and megohms.*
Keywords: *Measuring Insulation Resistance on Ships.*

52. (ID 340) Automated Control of Diesel-Generators
Authors: stud. Raul STAN, stud. Alexandru BALAN
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This project is oriented toward the automation control of diesel generators. The usage of an automatic system can bring a number of advantages to diesel generators. The project will also display its component parts through images and mounting schemes. One of the main benefits of an automatic system is its high reliability which is maintained when the consumption and operating costs get reduced. As an example, a generator power adjustment of these systems can be possible according to the demand of the load.*
Keywords: *Diesel-Generators, Automation Systems, Main Module of Control.*

53. (ID 348) Design Parameters of Photovoltaic Panels Powering a Naval Workshop
Authors: stud. Alin-Cristian ANGHEL, stud. Liviu DECU
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study investigates the design parameters required for photovoltaic (PV) panels to power a naval workshop situated in*

Constanta, Romania that operates online for 12 hours a day, five times a week. The research focuses on determining the optimal panel efficiency, orientation, and tilt angle to maximize the energy output and minimize the cost of electricity generation. The study also examines the impact of geographic location and weather conditions on the design of PV panels. The results of the study indicate that the optimal panel design for a naval workshop depens on various factors, including the workshop`s energy requirements and the geographic location.

Keywords: *Naval Workshops, Electrical Repair Shops, PV Systems, Renewable Energy.*

54. (ID 349) Single-Phase Inverter

Authors: stud. Alexandru-Ionel MERCAȘ, stud. Alexandru-Robert SĂVULESCU

Scientific Advisors: Prof. Vasile DOBREF, PhD, Assist. Prof. Vlad MOCANU, PhD Student

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Inverters are often used and necessary devices to power your electrical appliances when the power source is other than that provided by the utility company. Current from a car battery, solar systems or a low voltage generator must be passed through an inverter. The present study presents the possibility of optimizing the electrical scheme of a single-phase inverter with electric bridge H by reducing the number of pulse generators, this being possible by replacing two of the four pulse generators with two logical operators that reverse the alternation of the pulse. The H-bridge consists of two bridge arms, each of which is made of two power transistors, connected in series and equipped with discharge diodes in parallel. The purpose of this bridge is to allow a voltage to be applied to a load in either direction. The four component switches of the H-bridge operate alternately, with the role of successively applying a positive (+) or negative (-) voltage to the inverter.*

Keywords: *Inverter, Electrical, Generator, Voltage.*

55. (ID 351) Correlation Between Noise and Defects of a Synchronous Electric Motor

Authors: stud. Cristian ZAHARIA, stud. Alexandru LASCU
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project investigates the correlation between noise and defects in synchronous electric motors. The study includes a literature review of existing research on the topic, as well as experimental tests on synchronous electric motors to analyze noise patterns and compare them with the type and severity of defects in the motors. The results show a clear correlation between bearing wear and noise in the form of grinding or squeaking sounds, as well as vibration and noise caused by a misaligned rotor. The study also finds that noise is not always directly related to a specific defect, as problems with power supply or motor balance can also cause noise. The findings can aid in developing more accurate diagnostic tools and techniques for synchronous electric motors, and provide insights into the diagnostic and troubleshooting process for these types of motors*

56. (ID 352) The Design and Development of an Application for a System Monitoring the Level of the Fuel Tanks of a Marine Vessel Using a PLC

Authors: stud. Laurenţiu Victor BĂLAN, stud. Ozgean Elvis AMET
Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *What are the advantages to using a PLC? For starters, they are more reliable than the technology you are replacing. Secondly, PLC's are more flexible, and from here the list goes on: they cost a lot less, they communicate easily with a broad range of equipment, they have a faster response time and are easy to troubleshoot. And we want to focus our attention on using a PLC to monitor the fuel level of a ship's fuel tanks.*

57. (ID 354) The Use of Asynchronous Electric Motors in Naval Electric Propulsion

Authors: stud. Emilian DANCIU, stud. Cristian-Gabriel HRĂNICERU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper examines the use of asynchronous electric motors in marine propulsion and the benefits of their use. The AC motor is fully controllable through voltage and current compounding and, when used in collaboration with a cyclo-transformer-cyclo-converter, presents no disadvantages. The use of these diesel-electric systems reduces the mass of the ship, increases stability and flexibility of the propulsion converters and motors, and ensures a balanced distribution of the propulsion installation components. The paper examines propulsion losses, types of power and forces acting on the ship, and the overall conversion efficiency of the energy required for propulsion. Additionally, the paper examines the equation of balance between forces acting on the ship and those of the propeller, as well as the operating regimes of the ship and methods of controlling electronic converters to reduce energy consumption.*

Keywords: *Propulsion, Engine, Ship, Efficiency, Electrical.*

58. (ID 355) Modeling and Simulation of the Vibration Transducer

Authors: stud. Ozgean-Elvis AMET, stud. Laurentiu Victor BALAN
Scientific Advisor: Lecturer Eng. Paul VASILIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Vibration transducers or vibration sensors are used in the manufacturing of machinery. Machines which have an important oscillation can be quickly identified to avoid major damages. Vibration transducers can be connected to an easy-to-read display which allows the user to control the current vibration level and to check the production process. Vibration transducers combined with a control system can automate completelly a machine, accelerating production and preventing damages caused by strong vibrations and their expensive repair costs.*

Keywords: *Vibration Transducer.*

59. (ID 362) The Digital Panel of Lathe
Author: stud. Gabriel HEREMCIUC
Scientific Advisor: Asist. Prof. Eng. Doru COSOFREȚ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The lathe is equipped with a digital panel, which has the role of supporting the operator in the high precision execution of turning operations on the lathe. These axes can be identified on the display by moving the carriage in the two directions. That is why the display is equipped with three axes (X, Y, Z).*
Keywords: *Semi-Automatic Digital Panel.*

60. (ID 364) Aspects Regarding the Benefits of Switching DC Voltage Stabilizers
Authors: stud. George-Silvian COTORCEA, stud. Gabriel-Marian NEGREANU
Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paper, the author will present the characteristics of the direct voltage stabilizer, the classifications of voltage stabilizers, their importance, the advantages of switching voltage stabilizers, block diagrams and operating principles.*
Keywords: *Voltage Stabilizer, Transformer, Rectifier Block.*

61. (ID 368) Overview and Study of Electrical Propulsion System on Vessel LNG/C Apollonia
Authors: stud. Robert-Alexandru VARGA, stud. Robert-Andrei BANEA
Scientific Advisor: Assoc. Prof. Eng. Paul BURLACU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paperwork we will take a look at the electrical propulsion system on the LNG Carrier Apollonia. LNG/C Apollonia is powered by two sets of Diesel Generators: Engines No.2&3 are Wartsila-Hyundai 12V50DF with an output of 11700kW at 514 rpm paired with a Converteam Generator (12544kVA,6600VAC,1097.3A @ 60Hz), Engines No.1&4 are Wartsila-Hyundai 8L50DF with an output of 7800kW at 514 rpm paired with a Converteam Generator (8367kVA,6600VAC,731.9A @ 60Hz). The two propulsion motors are Converteam N3 HXC 1000 J8, with a power of 14.45MW at 667*

rpm, 1x3300Vx8Poles, 3kA @ 44.7Hz, and their shafts are connected to a reduction gear that spins the main shaft(propeller).
Keywords: *Electrical Propulsion System, Eps, Lng, Power Management System.*

62. (378) The Concept of Virtual Radars and Electronic Warfare Laboratory
Authors: stud. Bogdan TODICĂ, stud. Bianca-Ștefania VARVARA
Scientific Advisor: Superior Instructor Liviu GĂINĂ, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *We find ourselves in the position of constantly needing an update of our surroundings, including the way we study. Learning new things in no way should it be hard, on contrary, if not now, in the 21st century, then when should we have more accessible ways of studying? The use of Unreal Engine was necessary as it was the closest thing a student could find to develop this system. We are trying to say that the fact someone randomly chose this application to build an entire project is the reason why AR is the most accessible way of learning. And if you are wondering, why do we want to add another digitalized platform, well, are there ever too many sources of learning something new? Let me give you the teacher theory: there are (n+1) ways of solving a problem.*
Keywords: *Updating, AR, Platform, Digitalized, Solution, Studying.*

63. (ID 305) DC Motor
Authors: stud. Andrei DORDE, stud. Mihai MAESCHI
Scientific Advisor: Assoc. Prof. Paul BURLACU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A DC motor is a device that converts electrical energy into mechanical energy. It consists of a stator and rotor, with the rotor rotating within the magnetic field of the stator. In a simple DC motor project, a basic DC motor can be built using materials such as a D battery, insulated copper wire, paper clips, a neodymium magnet, and electrical tape. The motor works by supplying electrical current to the coil, which creates a magnetic field that interacts with the magnetic field of the magnet. This interaction causes the coil to rotate, and the commutator action created by the paper clips allows the motor to continue spinning. The project helps to demonstrate the*

basic principles of how DC motors work and their applications in various industries. It also allows individuals to develop important skills such as problem-solving and creativity.
Keywords: *Direct Current Motor.*

64. (ID 334) Renewable Energy - Offshore Wind Farms
Author: stud. Ioan CIOBANU
Scientific Advisor: Lecturer Eng. Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The theme studies the evolution of offshore wind farms made in countries such as Great Britain, Norway, Sweden, which contribute significantly to the energy independence of these countries. Due to the modernization and technological progress of the last period, they can reach exceptional performances both from the economic perspective of the investment (Euro/MW) and by not affecting and not polluting the habitat. Investments in this field are growing and can have a great influence on the electricity supply market and the respective reduction of carbon dioxide, in order to produce the electric current necessary for the good functioning of the current society, also presenting an encouraging prospect in terms of evolution and sustainability on a long period of time.*
Keywords: *Offshore Wind Farms, Renewable Energy.*

65. (ID 86) Study on Beamforming Technology in the 28 GHz Range
Authors: stud. Raul-Petru PLIC, stud. Robert-Marian PAPA
Scientific Advisor: Assistant Prof. Annamaria SARBU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *The aim of the project is to study the propagation of the continuous waveform using 5G technology, more precisely the beamforming phenomenon. The objectives were to determine the propagation pattern, to determine the propagation distance and attenuation both indoor and outdoor and to determine the attenuation of the signal when passing through different obstacles. The signal propagation was achieved using an array of antennas, which transmit signal on frequencies from 26.5 GHz to 29.5 GHz. The frequencies are at the top of the SHF frequency range in the*

second band of 5G, more precisely in n257. Comparison of the different experimental scenarios is provided.
Keywords: *Beamforming, Super High Frequency, Free Space Path Loss, Radiation Pattern, Main Lobe.*

66. Electrical Actuation Concept
Author: stud. Georgiana ANDREI
Scientific Advisor: Assoc. Prof. Florentiu DELIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Different types of voltage or current such as Alternating Current (AC) and Direct Current (DC) are used to conduct and transmit electricity. Alternating current- current that periodically changes its directions. In these types of current, free electrons (electrical charge) move both forward and reverse. Direct current - the electric charge inside the conductor flows in one direction, the magnitude of the direct current always remains constant, its frequency being zero. It is used in mobile telephony, electric cars, welding or electronic equipment. Electric drivers are a technical discipline that deals with the study of systems composed of the electric motor and the technological equipment (working machine).*
Keywords: *alternating current, direct current.*

67. Asynchronous Machine Operation
Authors: stud. Alexandru Cristian MERTICARIU, stud. Robert Sebastian POPA
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The field of electricity brings to mind famous names such as Coulomb, Volta, Gauss, Faraday. However, one of the greatest electric geniuses of all time, Nikola Tesla, is often overlooked. His research included studying alternating current, generating and transmitting electrical power over long distance, high frequency and voltage studies, and the transmission of electric power through electromagnetic waves. Tesla's technical sense was unique, and his discoveries and inventions were often made through empirical methods rather than mathematical ones. A machine that converts electrical energy to mechanical energy is an electromagnetic*

converter, which operates as a motor in a rotating system or as a generator in a power-generating system.

V. SECTION: WEAPONS AND COMMUNICATIONS

Section Committee:
Chairman:
Lecturer Ovidiu CRISTEA, PhD
Members:
Lecturer Cristian SCURTU, PhD
Lecturer Gheorghe ICHIMOAEI, PhD
Room LI125

1. (ID 31) The Development of a C# External Ballistics Calculator

Authors: stud. Valentin DAN, stud. Miruna ICHIM
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *This paper provides a comprehensive view of an external ballistics calculator that can be used during naval operations and missions, both at times of peace or at war. Firing a naval projectile using a compatible naval artillery platform involves a lot of mathematical calculations to make sure that the shell hits the designated target. Current techniques used in the Romanian Navy are time-consuming and can involve some inaccuracies due to human error. In order to make this process faster and more reliable, a custom-made software can be used instead. This tool can relieve the pressure on the artillery personnel, especially during crucial situations, when more time is necessary to decide whether to fire or not, or either to fire first when the conditions are imposing to do so. Also, the training time of the crew can be reduced to a minimum, since using a graphical user interface with clearly laid out instructions is more accessible rather than following a list of procedures and algorithms, which require a lot of analytical thinking. This can prove to be an important advantage when it comes to projecting power at sea in an area of interest for the Romanian Navy or its allies.*

Keywords: *Software, External Ballistics, Trajectory, Projectile, Naval Platforms.*

2. (ID 42) Study on the Equipment of the Type 22 Frigates of the Romanian Naval Forces with Close-in Weapon Systems (Ciws Systems)

Authors: stud. Andrei COSTAN, stud. Cosmin NICOARĂ
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project it is about a theoretical study of the equipping of the type 22 frigates of the Romanian Naval Forces with close-in weapon systems (CIWS systems). The purpose of the project is to highlight the need to modernize the two type 22 frigates of the Romanian Naval Forces with CIWS systems. The armament of these ships, after they received the Romanian flag, was weaker compared to the British equipment. One solution would be the Goalkeeper system originally fitted by the Royal Navy in the central area of the ship in area 02J, giving it a 320-degree field of view, with the masts behind its position creating a blind spot. For the modern solution, I propose the installation of a system in the same position, on the same pedestal, and the installation of an additional system, at the stern, on the 03N section. The proposed positions create an additional layer of protection, even against modern missiles. It also protects the most vulnerable area preferred by the attacker and the missile software, namely the side of the ship.*

Keywords: *Close-in Weapon System.*

3. (ID 45) Ship Detection Using Naval Strike Missile

Author: stud. George-Adrian ROTARU
Scientific Advisor: Eng. Catalin Paul CLINCI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The Naval Strike Missile is a fully passive, stealth cruise anti-ship missile. It features an Autonomous Target Recognition (ATR) seeker and range is in excess of 200km. I will begin my presentation with a short introduction about general characteristics of Naval Strike Missile. Next, I will briefly describe the missile shape, materials and what type of launching system types are available. In the end, I will specify how this missile can recognize the ship and what type of seeker is used.*

Keywords: *Missile, Warhead, Control System, Seeker.*

4. (ID 102) Simulation Over a Mini Submarine Hit by Two Inactive Russian Va-111 Shkval Type Torpedoes Using Ansys Engineering Simulation Software

Author: stud. Nicolae CARACOSTEA
Scientific Advisor: Lecturer Eng. Gheorghe ICHIMOAEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper includes research over the impact on a mini submarine by two Russian torpedoes at their maximum speed, the notorious Russian Shkval which are known to be the fastest and "deadliest" torpedoes in the world, a subject that first appeared in the author's imagination. Because of his burning passion for torpedoes and submarines both, using Ansys Engineering Simulation Software, a simulation that created many results was created, this resulting in a better understanding of both what really happens in this kind of impact against submarines, and why Russia, even as aggressive as it is today, should not be underestimated or taken lightly because it still has a very powerful arsenal of weapons. This simulation shows the capabilities of this kind of torpedoes in actual warfare with realistic combat characteristics for the elements used to mesh and develop this tactical situation. Firstly, a short introduction about Ansys Simulation Software will be made, including the actual importance of the subject, whether it is important or not, and last but not least, how this project was developed and how it can be used to make the auditorium aware of the torpedoes' capabilities and their impact on submarines. Secondly, this presentation will address the initial conditions and the materials used to make this simulation, it will present physical characteristics of its elements, formulas and ideas used so that this simulation became as realistic as it is now, therefore teaching all of the audience how powerful torpedoes can be and how dangerous such an impact can be. To conclude this paper, the presentation will be centred on the results with mp4 files and graphics of what happens in the actual impact, before and after images of the submarine, and finally, the conclusion will be covering the damage which has been dealt to it, some final ideas and a very important conclusion which the audience will all receive in the presentation speech.*

Keywords: *Ansys, Simulation, Submarine, Torpedoes, Russian.*

5. (ID 105) Hypersonic missiles. The future of warfare or unnecessary upgrade?
Author: stud. Martin T. YANKOV
Institution: Nikola Vaptsarov Naval Academy
Abstract: *Guided airborne ranged weapon capable of self-proppelled flight usually by a jet engine or rocket motor is defined as missile in military terminology. Know for their efficiency, precission and speed – they are used in today's world by different countries and their military forces. Countries try to develop their weapons as much as possible in order to gain dominance.*
Keywords: *Hypersonic, Upgrade, Improvement, dominance, missile.*

6. (ID 25) Translation Application for the Hearing Impaired Community
Authors: stud. Maria GHENCIOIU, stud. Andrei STEFAN, stud. Catalin Alexandru FETICU
Scientific Advisor: Assoc. Prof. Eng. Ciprian Ion RIZESCU, PhD
Institution: Politehnica University of Bucharest
Abstract: *The application developed by authors consists in a system which is able to translate the sign language into text and voice. This system is dedicated to hair impairment persons. It uses neural networks to help us develop an algorithm which is able to identify various signs. The model itself works by first translating the 2d image from the webcam to a list of key coordinates of the body, which is then used in a model based on LSTM (Long-Short-Term-Memory) to make sense of all movements of the signs. The processed data/videos will be used to have an open-source database for any developer that wants to help advance the technologies of hear impairment. The end goal will be an API/Full application that can be used on any camera for translations.*
Keywords: *Translation Application for the Hearing Impaired Community.*

7. (ID 6) The Use of Unmanned Surface/Underwater Vehicles in the Navy
Author: stud. Łukasz PAZIEWSKI
Institution: Akademia Marynarki Wojennej/Polish Naval Academy

Abstract: *I'm going to present use of autonomous and unmanned vehicles for the use in the Navy. I'll show you active platforms used in Polish Navy and projects that I'm actually working on.*
Keywords: *Unmanned Surface/Underwater Vehicles.*

8. (ID 209) Antisurface Warfare
Authors: stud. Oana NIȚESCU, stud. Emilia NĂSTASE
Scientific Advisor: Eng. Viorel COSTACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Antisurface Warfare (ASuW) is a military term used to describe operations aimed at attacking and destroying enemy ships or other surface targets, such as offshore installations or coastal batteries. Means used in ASuW operations include ships, aircraft, fast patrol boats and submarines but also other means of electronic warfare, such as jammers or surveillance satellites. Surface Policy: surface threat, surface policy, success of Surface Action Antisurface Warfare is essential in military operations because it allows control of territory, security and protection of own forces. It can also be used to attack the enemy and disrupt their operations. Thus, the preparation and effective use of surface combat is essential for the success of military missions and the protection of own forces.*
Keywords: *Operations, Enemy, Threat, Ships, Submarines, Attack.*

9. (ID 219) Improving Access to Military Units by Artificial Intelligence and Fingerprint Recognition
Author: stud. Alin MOCANU
Scientific Advisor: Lecturer Ovidiu CRISTEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Access systems in military institutions are an essential component of maintaining security and controlling access to sensitive information and equipment. These systems are designed to restrict access to authorized personnel only, which helps prevent malicious access, theft, and damage to military assets. By using a combination of physical security measures, such as locks and barriers, and electronic security systems, such as card readers and biometric scanners, military units remain protected and secure. The fingerprint recognition access system connects the military environment to current technological trends. This project is based on the concurrent*

connection of an arduino board, a lcd display, a fingerprint sensor and a 12V solenoid to enhance the necessary security of military units.

10. (ID 252) Modern Naval Missile Systems of the World
Author: stud. Tudorel REBENCIUC
Scientific Advisor: Eng. Ionel PREDA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Modern naval missile systems are essential for any naval force that seeks to project power, deter potential adversaries, and defend itself against maritime threats. Naval missiles provide a significant advantage in naval warfare by allowing ships to engage targets at long ranges, beyond the reach of traditional guns and torpedoes. There are various types of naval missiles, including anti-ship missiles, anti-aircraft missiles, anti-submarine missiles, and land-attack missiles. Anti-ship missiles are designed to target enemy ships and can cause significant damage or sink them outright. Anti-aircraft missiles provide defense against airborne threats such as enemy aircraft or missiles. Anti-submarine missiles are used to detect and destroy enemy submarines. Land-attack missiles are used to strike targets on land from the sea. Naval missile systems have undergone significant technological advancements in recent years, with the development of sophisticated guidance systems, longer ranges, and improved accuracy. These advancements have made naval missile systems even more potent and lethal, enabling navies to engage targets with pinpoint accuracy from a safe distance.*

11. (ID 280) Modified Apollonian Gasket Antenna for SHF applications
Author: stud. Robert-Manuel BOTA-IOANA
Scientific Advisor: Simona MICLAUS, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Fractals represent self-similar patterns that repeat at different scales and can be found in many natural-word shapes as well as in many man-made structures. One of the methods of generating fractals is by iterating the process that defines them multiple times. Fractal antennas present a high performance in a small form factor. Among the advantages they present, we mention*

multiband operation, compact size and robustness. In this paper a second-iteration Apollonian Gasket patch antenna was modelled and simulated in CST Studio. The dimensions were optimized, and elements were added. The used substrate of Rogers RO3003(εr=3) had a thickness of 1.52 mm. The final solution antenna provided a minimum VSWR of 1.05 at the resonance frequency of 7.258 GHz. The -3dB bandwidth was 50 MHz while the maximum gain was 6.3 dBi. The frequency band of this antenna recommends its use in wireless backhaul or in military applications - such as communication and electronic warfare systems.
Keywords: *Fractal, Apollonian Gasket, Optimization, Farfield.*

12. (ID 369) Python Program for Calculating the Specific Parameters Regarding Shooting with AK630
Author: stud. Anastasia SCRIPCARIU
Scientific Advisor: Lecturer Eng. Elena ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A Python program for calculating the specific parameters regarding shooting is a software application designed to calculate the trajectory of a projectile in flight. The program takes into account various factors such as gravity, air resistance, and wind conditions to provide accurate predictions of the projectile's path. The program requires the user to input certain parameters related to the projectile and the shooting environment. These parameters include the muzzle velocity, ballistic coefficient, atmospheric conditions such as temperature, pressure, and humidity, and the distance to the target. The program then uses mathematical algorithms and ballistic equations to calculate the trajectory of the projectile. The predicted impact point is displayed on a graphical user interface, which may also include a graphic visualization of the projectile's path. Overall, a Python program for calculating the specific parameters regarding shooting is a powerful tool for shooters to make accurate predictions of their shots and improve their marksmanship.*
Keywords: *Python, Program, Shooting, Parameters, Algorithms.*

13. (372) Oerlikon or the Twin 35mm Oerlikon Cannon
Author: stud. Valeriu Gabriel Marian GIRBOVAN
Scientific Advisor: Senior Instructor Cristian ENE
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *I chose to study the system Oerlikon 35mm cannon, because it is an effective and often used weapon in anti-aircraft defense by the land forces trained by the "Henri Coanda" Air Force Academy.The Oerlikon cannon is a complex of tools for eliminating air hazards, this is a weapon that will be served by officers leaving the banks of the academies, so our duty, that of students and future officers, is to understand the weapon as well as possible and to handle it exactly as we were processed, being able to make improvements in its use. Regarding the way we can make improvements in the future, there are many, but among the most important would be the possibility to calculate the only distance between the IR camera and the laser rangefinder, without having to use the one from Gun Star Night to calculate the distance between the two, and the IR camera can be in color and with a much better resolution. Therefore, we should take them out of service for a period of time and they should be taken for improvement, to be much more effective than they are at the moment.*
Keywords: *IR Camera, Cannon, Gun Star Night, Oerlikon.*

14. (401) Self-Propelled Anti-Aircraft Complex "GEPARD"
Author: stud. George CHIRILUT
Scientific Advisor: Senior Instructor Cristian ENE
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *Artillery and anti-aircraft defense systems are vital weapons in modern ways of fire support operations of combat forces having a great impact in the development of tactics and strategies in the army. The purpose of this research is to understand the importance, the limits and the effects on aerial, land and naval targets. This weapon aims to involve more people in its operation, which indicates that teamwork is vital and makes the people involved cooperative and making proof of good teamwork, regardless of the situation. According to this study, we learn the importance of artillery weapons in defense against attacks, including the limits and power of these weapons, which also includes information on how to*

develop in terms of technique and tactics. These include work on building more precise guidance systems, researching cutting-edge electronic warfare technologies, and improving the mobility and flexibility of anti-aircraft missile weapons. Overall, this research addresses the students and military personnel and helps them form an idea about this weapon, its beauty and importance.
Keywords: *Artillery, Tactics, Strategies, Weapon, Defense, Research.*

VI. SECTION: MECHANICAL ENGINEERING

Section Committee:
Chairman:
Lecturer Narcis VOLINTIRU, PhD
Members:
Lecturer Aurelia CHIOIBAŞ, PhD
Asist. Doru COSOFREŢ, PhD
Room: E122

1. (ID 33) Troian Horse
Author: stud. Vlad-Alexandru PANAIT
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Trojan Horse is a PC program used for direct injection into the target system and causes caustic activities within it.*
Keywords: *Troian Horse.*

2. (ID 37) Power and Authority in Naval Operational Leadership
Author: stud. Laurentiu-Cristian TARANU
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study defines naval operational leadership as a process of social influence in which a social actor (the leader) determines attitudinal, affective, motivational, behavioral changes of the followers (followers), in order to effectively fulfill naval missions. In this sense, the concepts of power and authority become complementary, the influence relationship being non-coercive, and the status-role relationship being congruent. The study especially insists on the leader's authority that resides in specific personality traits valued by followers, which increase their motivation and interests in the collaborative work to achieve common objectives.*
Keywords: *Operational Leadership, Power, Authority, Social Influence.*

3. (ID 38) Leadership and Management in Engine Department - Comparative Analysis

Author: stud. Daniel-Petrisor TULAC
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study aims to analyze the existing relations between the two notions, Leadership and Management: the identification of the notions, the categorical differentiation, the postulation of a relationship of partial coincidence of the spheres of the two notions. In this study, we bring valid arguments to support the last version of the relationship that is established between the two concepts. This means that leadership and management, leaders and managers each have their own, specific elements that ensure their individuality and relative autonomy, but also a series of common elements, a fact that facilitates interaction and their mutual empowerment.*

Keywords: *Naval Leadership, Management, Social Influence.*

4. (ID 41) The Specifics of Interpersonal Relationships in the Engine Department

Author: stud. Gabriel SOLOMON
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study proposes a pertinent analysis of the specifics of interpersonal relationships in the Engine Department, focusing mainly on the characteristics of the naval crew considered to be a social microgroup. The dynamics of interpersonal relationships are described, in particular, by collaborative, competitive and, not infrequently, conflictual interactions. We suggest a number of solutions to ameliorate dysfunctional relationships in order to increase the effectiveness and safety of naval missions.*

Keywords: *Interpersonal Relationships, Cooperation, Competition, Conflict.*

5. (ID 47) Multiculturalism and Work Efficiency in the Engine Department

Author: stud. Florin-Mihail NICA
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study argues for the construction of the "blame free" level in personal and organizational effectiveness, starting from the Socratic assertion of the relativity of truth. Personal effectiveness and professional performance vary in direct proportion to the work climate where empathy, the absence of labels and over-generalizations, the absence of discrimination and prejudice are dominant. Respect and non-critical attitude, acceptance of diversity create the prerequisites for productive and effective interpersonal and professional relationships.*
Keywords: *Multiculturalism, Prejudice, Discrimination, Work Efficiency.*

6. (ID 69) Aspects of Low Temperature Onboard Ship (LT Cooling System)

Authors: stud. Elena ZAHARIA, stud. Rareș-Alin PROCACI, stud. Anamaria-Daniela BÎRZAN
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *A major role in economic development is played by maritime transport, which is a cheap source even for the transport of common products, due to much lower prices compared to other means of transport:*
In this system, all engines on ships are cooled by circulating fresh water. This system comprises three different circuits:
1.Sea water circuit:
2.Low temperature circuit: includes all auxiliary systems.
3.High temperature circuit.
The role of the installation is to cool the diesel engine generators. As an auxiliary installation, it serves to maintain a temperature suitable for proper engine operation. Inside the cylinders, there is a temperature of 1800-2000 degrees Celsius, the cooling system picks up and transmits to the medium 20-30% of the heat of the engine parts, ensuring the most favourable temperature 85-90°C, otherwise the mechanical properties of the components are altered, resulting in seizure or failure.
Keywords: *Cooler System, Temperature, Circuit, Heat, Water.*

7. (ID 81) Osmotic Power Generation
Author: stud. Adrian DIACU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Energy consumption is an important aspect in our day to day life. Energy consumption rate is increasing very rapidly everyday. If this continues as such then the world will one day face shortage of energy. So, its time to look for more sources of energy rather than the non-renewable sources of energy and reduce the rate of consumption of non-renewable energy. There are many forms of renewable energy sources in the world. The abundant renewable energies include solar energy, tidal energy, wind energy, Geo thermal energy etc. One of the most recent power generation techniques is osmotic power generation.*
Keywords: *Osmotic Power Generation.*

8. (ID 82) Sollar Photovoltaic Cells & Photovoltaic Effect
Author: stud. Florina DRAGHICI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The transition to renewable energy is one of the most important measures to combat climate change and the environment. Investments in renewable energy are necessary and technological innovation is an essential factor for a future with low carbon emissions.*
Keywords: *Sollar Photovoltaic Cells & Photovoltaic Effect.*

9. (ID 138) Comments on Ship's Geometry and Three-dimensional Representation of Lines Plane
Author: stud. Andreea STOICA
Scientific Advisor: Assoc. Prof. Mihaela - Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *One of the challenges a student faces in studying the ship theory and its nautical qualities is the understanding of the particularly complex geometry of a hull, which justified the choice of this analysis topic. The study was conducted in compliance with the principles of representation of descriptive geometry and technical drawing. The geometry of the ship was highlighted in the three main planes of projection: The center plane, the midship cross plane and the complete water line plane. They have been supplemented by a*

number of parallel sections to allow the understanding of the complexity of the shape of the hull. The result is a mock-up for the lines plane of a Platform Supply Vessel (PSV-type) ship built at Vard, Tulcea Shipyard (to whom we thank for the documentation provided). The graphics of the work were created using free licenses of AutoCAD, CorelDRAW X8, TROTEC JobControl, Rhino 7 software tools. The mock-up is part of the Diploma Project entitled "Analysis of the consequences of small weight loading/unloading on the static nautical qualities of a support ship of the Romanian Naval Forces".
Keywords: *Geometry of the Ship, Three-dimensional Representation.*

10. (ID 151) An Overview of the Technical Specifications of a Cargo Ship

Author: stud. Eduard-Nicolae ILIE
Scientific Advisor: Lecturer Aurelia CHIOIBAŞ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This research project aims to provide a comprehensive overview of the technical specifications of the selected vessel. The study will begin by introducing the vessel, including its size and capacity. The research will cover the vessel's propulsion systems, including the engines, propellers, and auxiliary and emergency engines. Additionally, the study will explain the type of generators and boilers used in the vessel. The study will also explain the vessel's cargo and ballast capacities, crucial for safe and efficient operations. The research will provide a detailed analysis of the vessel's design and construction, including the materials used in the construction of the vessel. Furthermore, the study will include a brief overview of the general cargo shipping industry, covering the various types of cargo that are transported. The research will explore the logistical challenges associated with transporting general cargo, including issues related to cargo handling, stowage, and securing. In conclusion, this research project offers valuable insight into the workings of a modern shipping vessel by providing an in-depth analysis of the technical specifications of a selected vessel and explaining the more important systems of the vessel.*
Keywords: *Technical Specifications Cargo Ballast Systems Cargo Shipping.*

11. (ID 152) Improving Marine Propulsion: Designing an Experimental Propeller Boss Cap Fin System

Authors: stud. Ionuț-Daniel RĂDULICEA, stud. Marian-Valentin MOISĂ
Scientific Advisor: Assoc. Prof. Mihaela - Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The purpose of this paper is to provide a comprehensive overview of the process of designing and 3D modeling a propulsion system based on a propeller and a boss fin cap using AutoCAD software. The design process involves utilizing a range of drawing and 3D modeling tools to create detailed profiles that ensure optimal efficiency and effectiveness of the propulsion system. The paper includes an introduction to the topic, a description of boss fin caps and propellers, and a step-by-step guide outlining the process followed to achieve the desired design. By understanding the process of designing a boss fin cap and propeller in AutoCAD, readers can gain a deeper insight into the technical aspects of propulsion system design.*

Keywords: *Propeller, Propulsion System, AutoCAD.*

12. (ID 157) Optimization of Special Transports Through Modeling and Simulation

Authors: stud. Alexandru ȘANDRU, stud. Mihail-Eduard NICA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The success of military operations mainly depends on the proper flow of logistical supplies like water, food, ammunition, etc. from the source to the theater of operations on time. There are special types of transport ships in terms of supply characteristic. However, when transporting special materials such as ammunition, most navies usually prefer to use their own transport capabilities, as they require special treatment. The ship movement problem is a mathematical optimization problem that attempts to find the optimal routing and scheduling solution for simultaneous military ship movements. In this paper, several optimization methodologies are designed and tested to find the most suitable algorithm for solving practical ship routing cases. Encouraging results are obtained by using a mixed-integer programming model along with simple*

heuristics, by creating an exact branch-and-bound methodology, and by developing a fixed-order-based routing approach. The bachelor's thesis also provides a complementary application to compare the qualities of the designed methods, to present calculated routes and timetables, and to display motion animation on the map. The thesis illustrates that mathematical optimization methods can be used to solve real-world cases of the displacement problem in a fast way and with quality results, thus leading to improved decision-making in the operational practice of naval route planning.
Keywords: *Optimization of Special Transports Through Modeling and Simulation.*

13. (ID 192) Oil Lubricating System
Authors: stud. Sebastian-Dorin BARNA, stud. Alexandru-Gabriel AVĂDĂNEI, stud. Robert Ionut CHISCOP
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project represents the circuits of the oil in different compartiments of the ship.*
Keywords: *Oil, Valve, Engine, Tubulature.*

14. (ID 202) Modern Systems for Fire Detection
Authors: stud. Ionuț-Cătălin DRUGĂ, stud. Andrei-Cătălin FLOREA
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The paper presents an original project for the presentation of some of the most advanced and some of the newest methods that are used in fire detection and prevention. In this presentation the authors will discuss which are the best methods, advantages and disadvantages and later they will debate a project that has been realised used a virtual software that shows how to assemble a simple but efficient system that detects the smoke and ring a buzzer to alarm and signal that a fire is on.*
Keywords: *Fire System, Detectors.*

15. (ID 240) Aspects Regarding Improving Ship Marching Attitude Through the Use of Anti-Roll Stabilization Systems
Authors: stud. Valentin Leonard TENE, stud. Emanuela PETCU
Scientific Advisor: Lecturer Narcis VOLINTIRU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this paper, the authors will present the benefits of the anti-roll stabilization system for a ship as well as what it is, how many types of stabilizers there are and how they help the ship to be as stable as possible while underway. The anti-roll stabilization system with fins and tanks is a crucial element in modern maritime navigation and was developed in an effort to reduce the lateral movements of ships and thereby improve the comfort and safety of passengers and crew.*
Keywords: *Anti-Roll Stabilization, Fins, Tanks, Stabilizers.*

16. (ID 258) Analysis of Ship Noise
Authors: stud. Alexandru-Daniel ROMAN, stud. Matei BEJAN, stud. Robert-Adrian NISTOR
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Main goal of underwater acoustics is to identify the sound of interest from the background noise. Ambient noise is that part of total noise which is not emitted by a localized source. Ambient noise is present in the environment independent from the activities of the observer. The interference of noises which are emitted or are part of the platform on which the sensor is installed, are known as sources of self-noise. Those are different from ambient noise. Noise on board ships and offshore units has seen increased attention in recent years. Excessive noise levels can adversely affect crew members' health and their task performance. Crew members may become distracted if exposed to high noise and vibration levels and this can increase the potential for human error. Prolonged exposure to high-noise environments can lead to long-term health issues such as noise-induced hearing loss. This low frequency ambient noise has been difficult to determine in the high shipping areas where most ambient noise studies have been made. The paper also draws on studies of the effects of noise on marine mammals. Noise from many distant ships across an ocean basin produces a general nondescript background*

noise known as "traffic noise" where the contribution of any single ship is not detectable. Noise from a nearby ship reaches higher levels than traffic noise but is present for short times and close distances. Noise from a close ship can be positive if it causes an animal to move away and avoid collision.
Keywords: *Noise Analysis.*

17. (ID 272) Data Collection System for Fuel Oil Consumption of Ships
Authors: stud. Ionut-Daniel ROSU
Scientific Advisor: Levent ALI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The fuel oil consumption of ships is a critical aspect of maritime transportation and has a significant impact on operational costs, environmental sustainability, and regulatory compliance. Therefore, it is essential to have an efficient data collection system that accurately measures and records fuel consumption. One approach to collecting fuel consumption data is to install fuel flow meters on the ships. These meters measure the amount of fuel that is consumed by the engine and provide accurate real-time data. The data is then transmitted to a central server using wireless communication technologies such as Wi-Fi, Bluetooth, or satellite. The server stores and processes the data, making it accessible for analysis and reporting. Another approach is to install fuel oil density meters, which measure the density of the fuel oil. By combining the fuel oil density data with the fuel flow rate, the system can calculate the actual fuel consumption more accurately. Additionally, ship owners and operators can implement fuel consumption monitoring systems that use data analytics and machine learning algorithms to identify patterns and trends in fuel consumption. These systems can help optimize fuel efficiency by identifying areas for improvement and providing recommendations for operational changes. Moreover, it is crucial to ensure data security and privacy when collecting and storing fuel consumption data. Access to the data should be restricted to authorized personnel, and the system should have measures in place to prevent unauthorized access and data breaches. In conclusion, a robust data collection system is essential for monitoring and optimizing fuel consumption in ships. By using*

modern technologies and data analytics, ship owners and operators can improve fuel efficiency, reduce costs, and comply with regulatory requirements while contributing to environmental sustainability.
Keywords: *Data Collection System for Fuel Oil Consumption of Ships.*

18. (ID 273) Ballast System
Authors: stud. Rares-George MICU
Scientific Advisor: Prof. Eng. Beazit ALI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A ballast system on a ship is a vital component that ensures stability and balance during a voyage. It is a system that enables the ship to regulate its weight distribution, adjust its center of gravity, and maintain a level keel. A ballast system consists of various tanks, pumps, and piping arrangements that help in the transfer of seawater to and from the ship's ballast tanks. Ballast tanks are located at the bottom of the ship and can be filled with water to increase the ship's weight and lower its center of gravity, making it more stable. Conversely, when the ship needs to reduce its weight and increase its buoyancy, the ballast tanks are emptied of water, making the ship lighter and more agile. The ballast system's primary function is to keep the ship stable and balanced during transit. It helps counteract the force of wind and waves, which can cause the ship to roll or pitch. A poorly balanced ship can lead to cargo damage, hull damage, or even capsize in extreme cases. Furthermore, ballast systems also play a crucial role in preventing the spread of invasive aquatic species. When a ship takes on water in one location and discharges it in another, it can unintentionally introduce non-native species into a new ecosystem. To combat this issue, ships must follow strict regulations and protocols for ballast water management to minimize the risk of introducing harmful species. In conclusion, a ballast system is a critical component on a ship that ensures stability and balance during a voyage. It helps to maintain the ship's weight distribution, adjust its center of gravity, and keep it level. Proper ballast system management is essential for a safe and efficient voyage, and all seafarers must be trained in its operation and maintenance.*
Keywords: *Ballast System.*

19. (ID 288) Ram Pump

Authors: stud. Ionut Catalin FLORICA, stud. Laurentiu-Emilian UNTARIU
Institution: "Ferdinand I" Military Technical Academy

Abstract: *The ram pump or hydram is a water pump that uses the kinetic energy of water to pump water from its source to a higher level. It needs a continuous water flow that has difference in altitude between the source of the water and the place where te pump is located or a high velocity of the water, either both. The ram pump operates just with water without using any source of electricity or fuel using the hammer water principle. The main advantages are:*
- The pump can work uninteruprted 24/7, it needs to be stopped only if it's a tehnical issue.
- The pump can be a good substitute in isolated areas.
- The pump just needs a continuos flow of water.

Keywords: *Water pump, renewable energy.*

20. (ID 322) Torpedo Propulsion Showdown: Which Method Reigns Supreme?

Authors: stud. Ionuț-Daniel RĂDULICEA, stud. Marian-Valentin MOISĂ
Scientific Advisor: Lecturer Gheorghe ICHIMOAEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The following research elaborates the differences between the single motor pump and dual-motor pump waterjet propulsion system on torpedos. This paper will afford the proper knowledge to be able to clear out the advantages and disadvantages of the propulsion systems and choose the best one based on the specific requirements of the torpedo and the context in which it will be used. Throught the paper we aim to give comprehensible information about the systems also using the AutoCAD 3D design of the motors.*

Keywords: *Torpedo, Propulsion System, Jet.*

21. (ID 326) C++ Programming Facilities in Vessel's Buoyancy Analysis

Author: stud. Daniela-Florentina PETCU
Scientific Advisor: Assoc. Prof. Mihaela - Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *It is difficult to calculate the vessel's buoyancy using the trapezoidal method: takes time and is susceptible to errors for students who do not have enough experience in reading the lines plane of a body ship. The purpose of this work is to provide an effective alternative to work. For this reason, a C++ program was written in the CodeBlocks application. An algorithm has been used that allows to different users to run the calculations in just a few seconds only by entering the initial data (the values read from the lines plane of the ship, drawn in the AutoCAD utility, in the form of a bidimensional matrix m×n). The study had been challenging, due to the need to correlate the knowledge acquired in several studied disciplines – Technical Drawing and Infographic, Computer Programming and Programming Languages, Ship Theory and Construction. Last but not least, it should be noted that the program can be further optimized by importing/exporting data directly from a/to an excel file, as well as by optimizing the present algorithm.*
Keywords: *Vessel's Buoyancy.*

22. (ID 336) Lubrication Plant
Author: stud. Sorin STRATULAT
Scientific Advisor: Lecturer Daniel MARASESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The presentation is aimed at introducing the public into the installations of a diesel generator, more precisely the lubrication plant. The lubrication plant is one of the crucial installations for a engine, lubrication being an essential thing for the normal operation of an engine. The purpose of this paperwork is to present the principle of the installation and its components.*
Keywords: *Lubrication.*

23. (ID 345) Economic and Technical Aspects Concerning Pumped Hydroelectric Energy Storage (PHES) Plant
Author: stud. Vlad-Mihai CHELU
Scientific Advisor: Assoc. Prof. Rita-Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *One of the most important problems that the implementation of clean green energy faces is its storage after production. Many of the green means of energy production are*

dependent on natural variables. We must add the environmental ones, like, for example, the evolution of weather, that can affect negatively or positively over the seasons the reliability of the before mentioned methods of energy production. In this paper we discuss a very innovative solution to the problem of green energy storage – the PHES plant that is capable of collecting excess energy produced by green means for compensating the periods in which the production is low, thus saving energy that would have been otherwise be lost. The main technical and economic aspects of this technology will be discussed by giving references to real-world examples and the specialty literature in the objective of understanding where and how it can be applied.
Keywords: *Hydromechanics, Energy, Power Storage.*

24. (ID 361) The Extraction, Transportation, Refining and Use of Fuel Nowadays
Author: stud. Cosmin-Cristian TIGARET
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Over time, mankind has had many extraordinary scientific discoveries, including the discovery of thermal energy and its daily operation. This alone was not enough, because of the exhausting resources at the beginning like wood/coal, so the mankind discovered what we are calling it today, "The Fuel".*
Keywords: *Fuel, Extraction, Transportation.*

25. (ID 391) New Methods of Ballast Water Treatment
Author: stud. Stefan Gabriel AOROSOAIEI
Scientific Advisor: Simion DRAGOS, PhD Student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Pollution of water areas by ballast water discharged from ships has become a serious global environmental problem. To solve it, it is necessary to introduce modern ballast water treatment systems as actively as possible. All over the world, governments and non-profit organizations are actively discussing environmental issues. Unfortunately, internationally agreed actions are carried out far from all areas of the fight against environmental pollution.*

However, there are examples that show the possibility of a constructive solution to environmental difficulties.
Standard D-1.
Ships must exchange ballast water with an efficiency of 95% of their volume. Pumping three times the volume of each ballast water tank is considered equivalent to the specified standard.
Standard D-2.
Ships must throw 1 cubic meter. m - less than 10 viable organisms larger than 50 microns; per 1 ml - less than 10 viable organisms smaller than 50 microns and larger than 10 microns.

26. (ID 393) Logistics Ship 281. Modernizing Solutions of Electroenergetic System

Author: stud. Cătălin-Mihai DOROS
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Logistics vessel 281, being a ship, is not directly involved in modernizing the power grid system. However, there are certain measures that the ship's crew could take to reduce energy consumption and contribute to the efficiency of the power grid system. On the topic I have chosen, I will present the improvements that the ship could benefit from by using more energy-efficient engines and generators, which reduce fuel consumption. Although ships themselves are not directly involved in modernizing the power grid system, there are a number of measures that the ship's crew and port infrastructure can take to contribute to reducing energy consumption and greenhouse gas emissions, and thereby contributing to the efficiency of the power grid system.*

27. (ID 395) Generalities of the Ship and Hydrophore Specifications

Author: stud. Cristian GHEORGHE
Scientific Advisor: Lecturer Aurelia CHIOIBAŞ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project will basically consist of a set of technical specifications of the vessel. It will be developed by presenting the vessel, its dimensions, and capabilities. The research will cover the ship's propulsion system, engines and propellers, and will also*

explain the operation and use of hydrofoils. The document will explore the functionality of the hydrofoil, its needs, recommendations and benefits. The study will also explain the functional route of the hydrophore on board the ship. This document will be a detailed analysis on the use, role and practicality of the hydrophore. The study will also include a brief presentation of the manufacturing technology of the hydrofoil water supply pump shaft. In conclusion, this research project provides a valuable insight into the operation of the hydrofoil, providing an analysis of the technical specifications of a selected vessel and explaining the most important of its systems.

28. (ID 396) Logistics ship 281. Modernization of Propulsion
Author: stud. Andrei-Silviu POPESCU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Given the history of the ship, I believe that Logistics Ship 281 could be classified as a logistical support vessel in a group of ships performing military missions in the Black Sea but also in other seas and oceans. The Black Sea has not benefited, in the over 15 years of Romania's activity in NATO, from extensive exercise missions with Romanian ships. The theme I chose, the design of the propulsion plant, helps to modernize the ship for this purpose, presenting the improvements that the ship could benefit from in order to fulfill its logistical support mission in a group of NATO ships. The current situation of the ship, the speed of movement does not correspond to NATO standards for an international mission, so I propose to analyze and solve the problems related to the propulsion of N.S.-Constanța.*

29. Cooling Water System
Author: stud. Elena BĂBĂU (IONIȚĂ)
Scientific Advisor: Prof. Beazit ALI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Due to the high power produced by naval engines, various methods have emerged to reduce the high temperature developed by them.*

VII. SECTION: FUNDAMENTAL SCIENCES

Section Committee:
Chairman:
Assoc. Prof. Andrei BĂUTU, PhD
Members:
Assoc. Prof. Rita-Elena AVRAM, PhD
Lecturer Adriana SPORIȘ, PhD
Lecturer Anda OLTEANU, PhD
Lecturer Eleonora RĂPEANU, PhD
Room: E121

1. (ID 5) Comparative Analysis of Physiological Indicators of the Respiratory System by Spirometry Between State Divers and Military Non-Divers

Authors: stud. Martina MOSKOVA, stud. Blagovest LIGOV
Institution: Nikola Vaptsarov Naval Academy

Abstract: *In order to prevent acute and chronic effects of diving on health status, divers must maintain a good health status. The normal functioning of the respiratory system is a leading factor for effectiveness of the actions of marine professionals in an aquatic environment. The objective was to investigate the respiratory function of professional divers by conducting spirometry and to compare the data obtained with those of non-divers. The long-term effects of scuba diving on the lung function of man are discussed controversially among specialists from all over the world. When divers are subjected to the increased pressure of the marine environment and the inhaled air, it can lead to a number of health risks. On the one hand, the higher density of the gas, leading to an increase in the resistance of the airways and the load on the respiratory system, as well and reduced maximal respiratory capacity. The additional mechanical load is due to submersion, which may impose static transrespiratory pressure, as well as a decrease in pulmonary compliance. The study participants were divided into two groups matched by gender and age. The study of*

respiratory indicators was carried out in a standardized way methodology with a spirometer that measures and registers over 30 indicators. In the present study are analyzed three of them: forced expiratory volume in 1 sec (FEV1), forced vital capacity (FVC) and their percentage ratio FEV1/FVC.
Keywords: *Diver, Marines, Army, Spirometry of Divers, Respiratory Function.*

2. (ID 54) Spoofing
Author: stud. Robert-Gabriel ONETE
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The goal of this paper is to provide Cyber Security knowledge and information for the possible threads and how to take action in order to protect your biometric system. Spoofing defines impersonating entities by deceptions (fake E-mails, URL, #'s). There are various methods and types of trickeries. In this abstract I would like to introduce and explain the following spoofing attacks: Caller ID, Facial, Email, Web. Deception of any kind has no legal or constructive use. Some results may be sports, theft, defense or any other malicious goal. The scale of these attacks could be very serious causing huge losses.*
Keywords: *Cyber Security, Spoofing, Impersonating.*

3. (ID 55) Spamming
Author: stud. Medina DIACONU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Entering the field of Cyber Security, I realized that there are a series of actions that can be extremely harmful to us, as users, but also on personal computers. Even the simplest actions, to which we do not give a special importance, can have serious consequences after accessing them. A concrete example is spamming, known as: "threat", "unwanted messages" or "unsolicited messages". This process of transmitting messages electronically is defined by a representative, threatening and repetitive character. It is active in several methods: Vishing, Phishing, Baiting, Quid Pro Quo. Interestingly, a case of Phishing took place at Bank Transylvania.*

Through the presented ones, users realize the consequences of Spamming, learns how to take action, but also how to avoid it.
Keywords: *Cyber Security, Spamming, Threat.*

4. (ID 58) Attacks on Mobile Text Messaging. Smishing
Author: stud. Luiza-Gabriela BOUROȘ
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cybersecurity protect networks, computers, and data from attack and unauthorized acces. Social engineering is a section of cybersecurity which uses psychological manipulation to trick users into making security mistakes or giving away sensitive information. Smishing combines mobile text messages and phishing with scams like "you've won the latest iPhone" types. Bullies take advantage of people's naivety on the Internet by sending them fake text messages and asking for personal information. Numerous fraudulent methods are going around the world such as: smishing with the help of covid-19, financial services, gifts, facts or customer support.*
Keywords: *Cybersecurity, Social Engineering, Smishing, Psychological Manipulation.*

5. (ID 63) C Program for Determining the Maximum-Valued Related Hard Components in a Directed Graph with Valued Arcs
Authors: stud. Simon-George MANEA, stud. Filip-Marian ARHIRE, stud. Armand-Constantin BEIU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper presents a C programming language implementation of the algorithm for determining the related hard components of a directed graph with valued arcs. In addition, the program determines the maximum-valued related hard components of the graph.*
Keywords: *Directed Graph, C Programming, Arcs.*

6. (ID 77) SeaSpy2 Magnetometer in the Siutghiol Lake
Author: stud. Lorena-Elena AVRAM
Scientific Advisors: Assoc. Prof. Dinu ATODIRESEI, PhD, Lecturer Eng. Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study begins with a brief introduction to the measurements' location, Lake Siutghiol, as well as the logic behind why researchers utilize the SeaSpy2 magnetometer. Second, the paper describes the operation of the SeaSpy2 magnetometer. Finally, I'll discuss the benefits and draw some inferences from utilizing this magnetometer.*
Keywords: *Lake Siutghiol, SeaSpy2 Magnetometer.*

7. (ID 84) The Dynamics of Combat Action Through the Lanchester Model

Authors: stud. Valentin-Marian SANDULESCU, stud. Tibi-Georgian SANDULESCU
Scientific Advisor: Lecturer Bogdan Gh. MUNTEANU, Mathematics PhD, "Henri Coandă" Air Force Academy, Brasov
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *The modeling of combat actions is done by well formulated and demonstrated mathematical tools. They allow perspective analysis of some military conflicts by means of perspective analysis. In this study, the Lanchester combat model is presented which models the combat dynamics of two forces (red and blue) for direct fire, following certain laws and principles, and also the square law. The dynamics of the combat action are animated with the help of GeoGebra software.*
Keywords: *Lanchester Model, Directed Fire, Square Law.*

8. (ID 88) 3D Printer

Author: stud. Cosmin STANCU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project has as its theme the creation of a mobile phone stand with the following facilities: To allow the user to keep the phone in a stable position, easy to follow from various positions; To have an ergonomic, aesthetically pleasing shape; To amplify the sound emitted by the phone speaker; To allow a wristwatch to be placed on the same stand; To allow the insertion of a power cable.*

9. (ID 95) Applications of the Divide et Impera Method
Authors: stud. Teodor-Marian CRÎNGAȘU, stud. Denis-Ștefan PALERU, stud. Serkan ISMAIL
Scientific Advisor: Lecturer Eng. Paul VASILIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Our presentation aims to present some applications of the Divide et Impera method. We have given some examples where this method is used. With the help of this method we calculated the sum of the elements of a vector, the minimum value in a vector and the square root of a number.*
Keywords: *Divide et Impara, Sum of the Elements of a Vector, the Minimum Value, Square Root.*

10. (ID 104) Lie Groups
Authors: stud. Cătălin CĂPRIORU, stud. Remzi AGI-ALI
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this presentation we will talk about a very interesting topic, namely Lie Groups. A Lie group is a continuous group, i.e., one whose elements are described by several real parameters. Thus, Lie groups provide a natural model for the concept of continuous symmetry, such as rotational symmetry in three dimensions. Lie groups are widely used in many parts of modern mathematics and physics. Lie's original motivation for introducing these groups was to model the continuous symmetries of differential equations, in the same way that finite groups are used in Galois theory to model the discrete symmetries of algebraic equations. One of the key ideas in Lie group theory is to replace the global object, the group, with its local or linearized version, which Lie calls the "infinitesimal group" and which has since become known as the Lie algebra(d) his.*
Keywords: *Algebra, Lie Group.*

11. (ID 110) Honoring the Principle of the Prevalence of the Economic on the Legal in Military Institutions. The Essence of Maintaining the Steady Image of Economic Transactions
Author: stud. Alexandra-Georgiana POPESCU
Scientific Advisor: Assoc. Prof. Teodora DRAGHICI, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *The management of accounting operations in military institutions presents great complexity, therefore it requires good organizational competence and ensuring operational techniques. In order to achieve the subject of transparency and fairness in the execution of accounting operations, several analyzes were tested regarding the role and requirements of each accounting principle. The paper traces the fact that the solution for a more faithful view involves the union of values from different reporting periods, illustrating separately assets from liabilities, to avoid hiding a part of an institution's patrimony. More precisely, the principle of the importance of the economic over the legal marks a clear, neutral and error-free presentation of transactions, respecting the exact moments in which they took place.*
Keywords: *Fairness, Transparency, Accounting Principles, Financial Transactions.*

12. (ID 112) Reseting the World Order; Perspectives of Ihl and Refugee Law

Author: stud. Eduard PĂPULETE
Scientific Advisor: Assoc. Prof. Teodora DRAGHICI, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *The essay combines the essence of armed conflicts starting from the context that underlies them, the military strategies and political interests of the great powers in accordance with the law in force and the influences that humanitarian law has. I started from the fundamental principle of international humanitarian law which emphasizes that the use of force in international society is not permitted. The paper argues that the interests of those in power should be aligned with the rights and freedoms of those most affected, namely civilians. I identified certain boundaries between the law of armed conflicts and international humanitarian law that lead to the destabilization of the population and leave room for interpretation as to why we are witnessing an ongoing conflict of interests. One of the results of conflicts or crimes of aggression are refugees representing a sensitive subject who, although protected by law, are considered by certain states to be a threat to their security and economy. Regarding the new world order, I analyzed how Russia violates aspects of international humanitarian law under certain*

pretexts supported directly or indirectly by treaties with other states and international laws.
Keywords: *International Humanitarian Law, Political Interests, Refugees, Conflict, Crimes of Aggression, Law.*

13. (ID 119) Liders and Courage
Author: stud. Mihnea-Gabriel GROSU
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Leadership and courage go hand in hand, as true leaders must have the strenght and bravery to face difficult decision and take responsibility for their actions. Courageous leaders inspire and motivate their followers, leading by example and showing that they are willing to take risks and make sacrifices for the greater good. They set the tone for their organisations, creating a culture of courage that encourages innovation, creativity, and resilience. In the project that will be presented, we will explore the relationship between leadership and courage, exxamining the traits and behaviors that define courageous leaders and discussing how they can inspire others to act with bravery and conviction.*

14. (ID 122) The Application of Mathematics in Civil Engineering
Author: stud. Mircea Gabriel MOLDOVAN
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Mathematics is a fundamental science which includes plethora of calculus, which makes it hard to believe that it can be applied in our daily life. However, this work is intended to prove quite the contrary, meaning that knowing more than basic calculation is indeed salient in our society, and even crucial when it comes about the fields that it is applied to. This project addresses to the complex problem of not only projecting, but putting into practice and usage of the buildings that surrounds us everywhere we look also. The methods that construct the basis of this work are searching on the internet and carefully selecting the right information, including the formulas that engineers use for making their projects durable and to make sure that they are ready to be put in use. The goal of this project is to make everyone understand the process that*

civil engineers go through when elaborating any kind of projects, as well as all the aspects they have to take into consideration for the safety of the public.
Keywords: *Engineering, Calculus, Physics.*

15. (ID 123) The Application of Stochastic Matrices in Computer Engineering
Author: stud. Marian Sebastian SARANDI
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Stochastic matrices, also known as probability matrices or Markov matrices, are one of the most used methods of modeling and analyzing various systems that involve probabilistic behavior. Although rarely heard of, stochastic matrices are the basis of numerous widely used algorithms. The modeling of Markov chains, which are systems that transition from one state to another over time, is one such application. These mathematical models allow for effective data compression, pattern recognition and state estimation. Reinforcement learning, one of the main three machine learning paradigms, and even Google's PageRank algorithm, their ingenious way of measuring the relevance of web pages, are also build upon the concept of Markov chains. As we can see, lots of algorithms we make use of daily without even knowing are built upon this concept. The goal of this project is to understand the basics of stochastic modeling, and we'll explore some examples such as making predictions based on current known data or simulating the PageRank algorithm on a small scale network.*
Keywords: *Stochastic Matrix, Markov Chain.*

16. (ID 129) To Lead Others
Authors: stud. Roxana-Mădălina TÎRÎLĂ, stud. Mihail-Eduard NICA
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Leadership is the ability to influence and guide others towards a common goal. To lead effectively, one must possess a combination of skills, including communication, vision, decision-making, empathy, and adaptability. Successful leaders must also*

have a clear understanding of their strengths and weaknesses and be able to leverage those to inspire and motivate their team. The paper contains 15 slides with specialized informations.
Keywords: *Leadership Is an Ability.*

17. (ID 131) Les Devises des Bâtiments de la Marine Nationale de France
Author: stud. Bianca-Stefania STOIAN
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Le thème <<Les devises des bâtiments de la Marine nationale de France>> est un sujet important d'un point de vue culturel aussi bien que moral. Vu que la marine nationale de la Roumanie a beaucoup de coopérations avec ses partenaires français, on considère qu'il nécessaire de connaître quelques devises inscrites sur les bâtiments de la Marine nationale de France. Cet ouvrage va passer en revue la structure de de Marine nationale de France et la définition du mot ‹‹devise››. Ensuite, on présentera une brève classification des devises et des exemples classifiés selon ces deux critères: le groupe de bâtiment et la langue de provenance. L'ouvrage comprendra également les devises favorites de l'auteure et ses conclusions sur l'importance des devises.*
Keywords: *Devise, Bâtiments, Marine.*

18. (ID 137) Empathy of a Leader
Author: stud. Toma-Ionut DOBRE
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Empathy is a crucial trait that a leader must possess in order to establish meaningful connections with their followers. A leader's ability to understand and share the feelings of their team members can create a supportive and collaborative work environment, leading to increased productivity and loyalty among employees. This paper explores the concept of empathy and its significance in leadership, examining the ways in which empathy can be developed and applied in a leadership role. Through the analysis of case studies and scholarly literature, this paper aims to provide a comprehensive understanding of the importance of empathy in leadership, and its potential impact on organizational success.*

Ultimately, this paper argues that empathy is not only a desirable quality in a leader, but an essential one, and that leaders who prioritize empathy are more likely to inspire and motivate their team members towards achieving their collective goals.
Keywords: *Empathy of a Leader.*

19. (ID 141) Mathematics and GPS Coordinates
Authors: stud. Izabela CATRINOIU, stud. Alexandra CHIVULESCU
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper summarizes how GPS works and the mathematical theory used by the system as an application in this field. The practical aspects and the corrections that need to be implemented to obtain conclusive results are analyzed. The influences predicted by relativity theory, through time dilation at high speeds and curvature of space in the vicinity of a body of appreciable mass, are experimentally verified in the system. Other applications of GPS are described and some technical data are given in the presentation.*
Keywords: *GPS.*

20. (ID 146) Limitations and Barriers in the Digitization Process at the National Level
Author: stud. Elena-Andreea GURAN
Scientific Advisor: Assist. Prof. Cristina-Maria BĂTUȘARU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Considering today's technical and technological progress, digitization represents a clear solution in ensuring an appropriate development that responds to new trends and that ensures the successful achievement of an organization's strategic objectives. Thus, this paper aims to analyze the performance of digitization at the national level and identify the barriers that stand in the way of ensuring European competitiveness. Progress in the digitization process at the national level is remarkable, but Romania registers major discrepancies between its digital performance and the EU average. The causes of these gaps require the implementation of solutions to accelerate the process of digitization efficiency in the*

targeted fields. A homogeneous market in the digital field at the EU level is, at the moment, an aspiration and Romania must improve its cyber security base so that the development is carried out in the most efficient way.
Keywords: *Digitization, Performance, Limitations, Efficiency, Cyber Security.*

21. (ID 150) Parabolic Coordinates
Author: stud. Andreea-Georgiana RADU
Scientific Advisor: Lecturer Anda OLTEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A first important step in understanding and solving a problem is the selection of coordinates. More insight can be gained from finding invariants within a class of coordinates system. We recall that the parabola is the geometric place of the point from the plan equally distant from a fixed point called focus and a fixed line called directrix. We want to define a new coordinate system and to see the properties that are preserved. In order to do this, we take the definition of a parabola to be a curve that can be expressed as an equation representing a quadratic function of one variable in rectangular coordinates. The rectangular coordinates can be subjected to a rigid motion, so that the parabola's equation is, which is the only form that we use. We prefer this form because y is an explicit function of x and the parameter p is the y-coordinate of the parabola's focus F. During this presentation we will discuss and explore the transformation between parabolic coordinates and rectangular coordinates.*
Keywords: *Parabolic Coordinates, the Transformation Between Parabolic Coordinates and Rectangular Coordinates.*

22. (ID 158) Zennon's Dichotomous Paradox
Author: stud. Ana-Elisabeta ANTON
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *I will present the work entitled "Zennon's Dichotomous Paradox", in which I will talk about how Zennon sees the problem of infinity and I will demonstrate the solution of this paradox from a mathematical point of view. Zeno of Elea, a Greek philosopher,*

proposed several paradoxes to challenge the concept of motion. One of his most famous paradoxes is the dichotomy paradox, which goes as follows: To travel a certain distance, one must first travel half of that distance. And to travel half of that distance, one must travel half of that half distance, and so on infinitely. Therefore, one would never be able to complete the journey as there would always be an infinite number of halves to travel.
Keywords: *Paradox.*

23. (ID 205) The Lorenz Curve – Applied Analytics in the Study of Income Inequality
Author: stud. Vlad-Mihai CHELU
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Developed by the American economist Max Lorenz in the early years of the 20th century, the Lorenz Curve is a graphical representation of wealth inequality within a selected population. It has since offered economists a very practical model to represent and study the mechanisms behind the evolution of wealth distribution. Understanding the Lorenz Curve is a fundamental part of determining the more important Gini Coefficient that is a measure of statistical dispersion to represent income or consumption inequality in a nation or determined social group. We can determinate the Gini Coefficient using an application of Analytical Mathematics to define the area between the line of equality and the mentioned Lorenz Curve, divided by the total area under the line of equality.*
Keywords: *Gini Coefficient, Lorenz Curve.*

24. (ID 216) Mathematical Principles Behind Artificial Intelligence and Machine Learning
Authors: stud. Camelia-Bianca STEFAN, stud. Larisia-Maria PEPTANARIU
Scientific Advisor: Prof. Dan LASCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Artificial intelligence and machine learning rely heavily on mathematical principles such as calculus, linear algebra, and probability theory. These principles are used to build models that can learn from data and make predictions or decisions. Key techniques*

include gradient descent for optimization, matrix operations for data manipulation, and Bayesian inference for probabilistic reasoning. Other important concepts include neural networks, which are inspired by the structure of the human brain, and decision trees, which are used for classification and regression tasks. By understanding these mathematical principles, we can build more effective and efficient AI and machine learning systems.
Keywords: *Artificial Intelligence, Calculus, Linear Algebra, Probability Theory.*

25. (ID 259) Numerical Methods for Analyzing Transport Network Properties
Authors: stud. Izel MEMEDULA, stud. Andreea-Catalina PASARE
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this article, we presented numerical methods that can be used to study the strength of transport networks and to identify strategies for improving their resilience, such as optimizing the network to improve safety, efficiency, and sustainability of networks worldwide. Transport networks are complex systems that allow the circulation of people, goods, and information. The properties of transport networks are studied in this article using numerical methods. The topology of a network has a significant impact on its behavior, and graph theory is used to study the topology of transport networks and identify key structural properties. The flow dynamics of a network are modeled using numerical methods, such as the macroscopic traffic flow model, which helps predict the capacity, congestion, and travel time of a transport network.*
Keywords: *Numerical Methods, Transport Networks.*

26. (ID 276) The Art of Photogrammetry
Authors: stud. Bianca-Elena ANGHEL, stud. Romina CHERECHEȘ
Scientific Advisor: Lecturer eng Liviu PORUMB, PhD
Institution: "Ferdinand I" Military Technical Academy
Abstract: *Photogrammetry (or aerial photography) is the art and science of extracting 3D information from photographs. Platforms for aerial photography include fixed-wing aircraft, helicopters, unmanned aerial vehicles (UAVs or "drones"), balloons, blimps and*

dirigibles, rockets, pigeons, kites, or using action cameras while skydiving or wingsuiting. Handheld cameras may be manually operated by the photographer, while mounted cameras are usually remotely operated or triggered automatically. Vertical aerial photography is used in cartography (particularly in photogrammetric surveys, which are often the basis for topographic maps), land-use planning, aerial archaeology. Oblique aerial photography is used for movie production, environmental studies, power line inspection, surveillance, construction progress, commercial advertising, conveyancing, and artistic projects.
Keywords: *Photogrammetry, Aerial Photography, Aircrafts, Maps, Cartography.*

27. (ID 282) Euler's Method in Approximating Differential Equation Systems Using the Matlab Program
Authors: stud. Denisa-Georgiana STRATULAT, stud. Florentina-Anca VADUVA
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Euler method is one of the simplest methods for numerically determining the solution of the problem with initial conditions. We consider a simple model to describe the dynamics of a motor vehicle. Selected simplified model, presented in figure 1, the force f represents the force generated by engine through the road / tire interface and fr is the resistive force, due to the resistance air and driving conditions. We assumed that this force varies linearly with speed fr=hp. It opposes the movement, so it acts in the opposite direction to the force traction f. In this simplified model we have neglected the dynamics of the system traction, tire dynamics.*

28. (ID 292) The Space Race Between the USSR and the USA
Authors: stud. Vlad-Mihai CHELU, stud. Răzvan Alecsandru CONSTANTIN
Scientific Advisor: Assoc. Prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Space Race was a challenge between the United States and the Soviet Union to project their power through the exploration of space. Directly determined by the development during the Cold*

War of more advanced means of delivering payloads beyond the stratosphere, the Space Race determined an entire era and inspired both scientists and the pop-culture, while also being a potent factor of ideological propaganda. In this presentation, I will summarize the most important aspects that determined the Space Race by analyzing both the American contribution to the exploration of space, as well as the Soviet one. In the end, I will also offer some perspectives over the Soviet-American space collaboration as well as the impact that this had in mending the conflictual relations between these two nations in the 1980s.
Keywords: *Astronomy, Astronautics, Space Exploration.*

29. (ID 315) Cryptography
Author: stud. Alex-Emanuel BARTOS
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cybersecurity is a broadly used term, an umbrella term, whose definitions are often variable, subjective, and sometimes even misleading. The absence of a concise, universally accepted definition that encompasses the multidimensionality of cyber security is an impediment to technological and scientific advancement, reinforcing the purely technical perspective on cyber security, leaving in the shadows aspects that should work together to solve the complex challenges of cyber security. Cryptography is defined as "the art of writing and solving codes", a historically correct description, but it does not encompass the vast field it represents today. This definition focuses strictly on codes that have been used for centuries to facilitate secret communication. Nowadays, however, cryptography encompasses much more than codes: it deals with integrity mechanisms, secret key exchange techniques, user authentication protocols, electronic voting, cryptocurrency and others. In short, we can define modern cryptography as "the study of mathematical techniques to ensure the security of digital information and systems against attacks".*
Keywords: *Cybersecurity, Cryptography.*

30. (ID 325) A Group Structure on the Golden Triples
Author: stud. Gabriela-Estera IANCU
Scientific Advisor: Lecturer Anda OLTEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The golden number is a number used since antiquity and is part of the golden ratio that is common in the surrounding world. In this presentation we will define a group structure on the set of golden triples, but we will also analyze the Fibonacci sequence in relation to the golden number and its applications in different domains such as architecture, painting, aesthetics, but also in nature.*
Keywords: *Golden Triples, Fibonacci Sequence, Golden Number, Group Structure, Fibonacci Golden Ratio.*

31. (ID 360) Green Hydrogen
Authors: stud. Ștefan-Cristian MUȘAT, stud. Andrei Denis NECULA
Scientific Advisor: Asist. Prof. Cosmina-Andreea NECULCEA
Institution: "Henri Coandă" Air Force Academy, Brasov
Abstract: *The theme proposed in the following paper considers the development of the concept of green hydrogen as an alternative energy solution in the future both at the level of the country and the military. It is obtained by electrolysis of water with the help of renewable energy such as solar or wind energy. Considering that energy resources decrease from year to year, this is an ideal way to replace current resources. In addition, green hydrogen is a clean energy source that only emits water vapour and leaves no residue in the air, unlike coal and oil.*
Keywords: *Hydrogen, Energy, Military, Future.*

32. (ID 370) Quadrics in Everyday Life
Authors: stud. Ștefan BOUREANU, stud. George CRÎNGAȘU
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In the article below, we presented examples of quadrics in everyday life, in the branches of engineering, architecture and art. In architecture, we presented as the first example the building of the Marriot hotel in San Francisco, which has a roof in the form of a hyperboloid with 2 sheets, and as the second example, we presented*

the train station in Predeal, characterized by its hyperbolic paraboloid-shaped roof. In engineering, the hyperboloid can be used in the construction of certain structures such as the antennas and cooling towers of power plants. In terms of decorative art, Pringles chips represent a hyperbolic paraboloid, their shape being designed by chemist Fredric Baur.
Keywords: *Quadrics, Engineering, Art, Architecture, Hyperbolic Parraboloid.*

33. (ID 379) Beautiful and Famous Curves
Author: stud. Lavinia-Irina BLĂJUȚ
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The curves presented in this article, Astroid, Kampyle of Eudoxus, Cardioid, Cissoid of Diocles, Quadrix of Hippias, The Devil`s Curve, Lemniscate of Bernoulli, Spiral of Archimedes and Cayley`s sextic, represent a historical interest related to the names of famous mathematicians of Antiquity. They are used in the ingenious solution of simetry equations, parametric polar cartesian equations. The evolution of curves appeared in the 5th book of Apollonius` Conics and was revived in its present form by Chr. Huygens, in 1673.*

34. (ID 390) Job Satisfaction
Author: stud. Neculai IFRIM
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Job satisfaction refers to how happy and fulfilled a person feels in their work. It's important for both individuals and organizations, as it can impact mental and physical health, productivity, and overall performance. Factors that contribute to job satisfaction can include growth opportunities, supportive relationships, a sense of purpose, and fair compensation.*
Keywords: *Satisfaction, Job, Work, People.*

35. Mathematics of Winning: How to Apply Probability Formulas in Gambling
Authors: stud. Mario BACIU, stud. Davide CIORTESCU
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In the article presented, I used a series of mathematical calculations to determine the probabilities of winning in gambling games. The Kelly Criterion is a mathematical formula used to determine the optimal size of a series of bets to maximize long-term growth. By using the Kelly Criterion, a gambler can balance risk and reward and avoid making bets that are too aggressive or too conservative. However, it requires precise estimates of probabilities and payouts, which can be difficult to obtain in practice.*

36. Mathematics in Ancient Greece

Authors: stud. Lorena-Andreea OATU, stud. Alina-Mihaela PREDA
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *We chose this subject because we believe that every person should know at least a little about the history of mathematics. For example, the first versions of the Elements, which appeared in Medieval Europe, used Arabic translations of them, because there were no Greek or Latin copies. In fact, the first Arabic translation (using Theon's annotated copy) was made in the 9th century. The most elegant Greek manuscript was made for Pope III in 1536, and is the copy of Appolonius's book on conics. Two great mathematicians were Aristotle and Platon. Platon (427-349 BC) was a disciple of Socrates (469-399 BC). Platon's importance to mathematics lies not in his direct mathematical contribution, but in the influence, he had, during his lifetime and afterwards, on others, in his insistence on clear definitions and postulates, in his belief that the study of mathematics is a means of becoming virtuous. Platon calls the number √2 àlogon, meaning inexpressible, irrational. Aristotle of Stagira (384-322 BC) was Plato's student for twenty years, although he disagreed with him on the nature of mathematics. For Aristotle, mathematical axioms are true, therefore the theorems deduced from them are also true. Finally, we can say that Aristotel and Platon had a great importance in creating the numbers in today's mathematics.*
Keywords: *Arabic translations, Platon, Aristotel, creation on the numbers.*

37. Theory of Ordinance-Critical Path Analysis

Authors: stud. Bianca-Elena IONESCU, stud. Antonia-Elena RAITA
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The purpose of this work is to find optimal methods from an economic point of view financially to reduce the cost of transportation during the execution period. The principle of the method consists in dividing the action into two component parts at a level that allows their logical and technological correlation, that is, to make possible the establishment of conditioned relationships between the component parts. The ADC graph shows a single initial node and a single final node, and every activity has at least one previous activity and at least one that succeeds it. In the presented example, I used the ADC graph on the current practice of the Constanta Sud (ROMANIA) - Samsun (TURKEY) Ferryboat, with the optimal ordering solution.*

VIII. SECTION: FOREIGN LANGUAGES

Section Committee:
Chairman:
Assoc. Prof. Delia LUNGU, PhD
Members:
Lecturer Dana ZECHIA, PhD
Lecturer Laura CIZER, PhD
Lecturer Mariana BOERU, PhD
Lecturer Edith-Hilde KAITER, PhD
Lecturer Raluca APOSTOL-MATEȘ, PhD
Lecturer Camelia ALIBEC, PhD
Lecturer Corina SANDIUC, PhD
Room: LPA5

1. (ID 7) The American Domestic Policy During the Cold War

Authors: stud. Stefan-Andrei COSTARU, stud. Bogdan-Dragos-Aurelian POPESCU
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *As World War II turned the United States and the Soviet Union into intimidating superpowers, the competition between the two countries increased. After the Axis powers were defeated, a political and ideological conflict between the two nations gave place to the beginning of the Cold War. This paper aims to present the key events that led to the beginning of the Cold War and to observe the development of American culture throughout this particular time period. Furthermore, the repercussions of the Cold War on the United States are still evident up until this day. Moreover, during this struggle between those two countries, propaganda was the most efficient means of gaining various advantages. Propagandists may present their audiences with true or false information, frequently highlighting good aspects while downplaying negative ones, or vice versa, in an effort to alter general public opinion or induce changes in behavior.*

Keywords: *Cold War, American Propaganda, American Culture, Rivalry.*

2. (ID 19) From Enemies to Allies: The Berlin Airlift
Author: stud. Andrei BAR
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *When World War II ended in 1945, Germany was divided between the United States, the United Kingdom, France and the Union of Soviet Socialist Republics into four occupation areas. Its former capital, Berlin, which was lying in the Soviet controlled zone, was also split among these nations. However, the following years have seen tensions rising between the former allies. Both the Soviets and the Americans had two irreconcilable visions for Germany. Stalin wanted to create a buffer zone between his eastern European satellite states and the western powers. To reach his goal, the dictator planned to create a puppet state and to evict the Anglo-American forces out of Berlin. In 1948, the Soviets installed a blockade around the city and stopped the American supply lines. This article aims to present the story that unfolded in those 11 months of encirclement and the ability of the European nations to work together towards a common purpose: creating the North Atlantic Treaty Organization.*
Keywords: *NATO Alliance, Berlin Airlift, Western Powers, Democratic Values.*

3. (ID 32) User Data Protection on the Internet
Authors: stud. Andrei PLÎNGE, stud. Matei CRISTEA
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Our presentation will discuss the importance of user data in the modern world. We will clarify what qualifies as user data and why it is so sought after. We will also describe the ways in which companies and sites gather your data, the legislation that concerns Internet privacy and why companies need your data. Finally, we will list a number of ways in which people can maliciously acquire your data and extend some advice on how to protect yourself on the Internet.*
Keywords: *User Data, Internet Privacy, Online Safety.*

4. (ID 34) The Impact of Social Media on Today's Youth

Authors: stud. Vlad-Alex DIAMANDESCU, stud. Andrei-Silviu BUCI
Scientific Advisor: Lecturer Mariana BOERU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation aims to discuss the harmful effects of social media and of the mindless scrolling that comes along with it on today's youth. First, we wish to discuss the psychological mechanisms behind the addictive nature of excessive social media usage. Secondly, we reveal the consequences of its long term use and the impact that it has on today's generations of teenagers and young adults. Finally, we would like to share some strategies which can help mediate and sever the addictive relationship with social media and harness its positive attributes.*

Keywords: *Social Media, Addiction, Attention Span.*

5. (ID 36) The Spanish Flu and Its Impact on American Society: A Historical Perspective

Author: stud. Lorena-Maria POP
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *World War I was one of the deadliest conflicts of the 20th century, involving over 30 countries from 5 continents. It was an industrial war, where each side tried to outproduce the other one, but it was also a mass mobilization conflict. Around 60 million people were sent to the front lines and forced to fight in muddy trenches, which led to the development of infectious diseases and illnesses. One of these infections would affect a third of the world's population, killing more than 25 million people. The deadly influenza pandemic broke out at the end of WWI and it quickly affected the combat units that were engaged in war all across the globe. This paper aims to present some historical data on the Spanish flu pandemic and how it affected the United States in numerous ways. The study also analyses the medical systems that fought hard to prevent and cure the disease and whose scientific discoveries allowed the implementation of a new and efficient method against viruses: vaccines.*

Keywords: *World War I, Spanish Flu, Pandemic, Vaccines, Health Improvement.*

6. (ID 51) Chantal Desbordes - La Première Femme Amirale de France

Authors: stud. Sorina Mihaela ANTOCHE, stud. Miruna Georgiana ICHIM
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Certaines professions sont encore dominées par les hommes, cependant la tendance actuelle de la Marine nationale de France est l'inclusion, non pas l'exclusion des femmes. Ainsi, la Marine participe à la politique de féminisation de ses effectifs. Dans ce contexte favorable, mais non pas sans efforts, s'inscrit Chantal Desbordes, qui a réussi à devenir la première femme amirale de France. Elle est donc une pionnière qui a ouvert la voie à d'autres femmes pour atteindre les grades plus élevés dans la Marine nationale de France. En ce qui suit, après avoir présenté la définition de ce grade, on va se concentrer sur les dates clés de la biographie de Chantal Desbordes, sa réception dans la presse française et internationale. De même, on va faire référence à « une femme amiral », son livre (auto)biographique, sa devise, sa position dans le débat hommes/femmes et on va finir par les conseils qu'elle donne aux générations à venir. En examinant le parcours de Chantal Desbordes, on espère inspirer d'autres jeunes femmes à poursuivre leurs rêves et à se battre pour atteindre leurs buts, en dépit de toutes les difficultés.*

Keywords: *Femme amirale, parcours, inclusion, féminisation, Marine, France.*

7. (ID 52) La Marine Nationale de France à Travers les Bandes-Dessinées

Author: stud. Alin SINTION
Scientific Advisor: Lecturer Laura CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cet ouvrage a l'intention de jeter de la lumière sur la manière dont les marins sont présentés dans les B.D. des revues françaises. La représentation des personnes, leur caractéristiques physiques et morales, leurs attitudes de vie, la manière de penser, de travailler et de vivre sont très bien rendus par les B.D. et les marins de la marine nationale de France n'en font pas l'exception. Ce type de travail peut varier depuis simples caricatures jusqu'aux histoires*

plus ou moins compliquées. D'abord, cet ouvrage va vous introduire dans le monde de la B.D. par la définition de la B.D., suivie par une brève histoire de la BD, les représentatifs les plus remarquables du genre et enfin, par un focus sur des exemples concrets de B.D. dont on va faire une analyse complète pour les lecteurs non-avertis. La partie finale de cette présentation va comprendre les conclusions personnelles de l'auteur.
Keywords: *Marine nationale, France, bandes-dessinées, illustrateur.*

8. (ID 74) eSports
Authors: stud. Stefan MIREA, stud. Alexandru TUDORAN
Scientific Advisor: Lecturer Mariana BOERU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this presentation we will talk about eSports. We will define what it means, clarify for everyone to understand how exactly it works in the real world. We will show how eSports has become one of the biggest competitions worldwide with millions of players and viewers. We will also discus how it has literally become a job, and how it can constitute a source of income that can beat most 'real life' jobs. Finally, we will analyze the specific mentality required, because this kind of sport does not involve physical effort, but it is rather more of a mental challenge.*
Keywords: *eSports, Challenge, Competition, Mentality, Job.*

9. (ID 75) Dynamic Aspects of Interpersonal Relationships in a Multicultural Naval Crew
Authors: stud. Alexandru-Valentin TUDORAN, stud. Stefan Andrei MIREA
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Our study aims to explore different personality types of people in the naval crew, respectively defining character traits (understanding, attentive, patient...), with different degrees of training and work experience, the way they relate and interact with other members of the the crew, types of communication used on board the ship. We thus capture the specifics of interpersonal relationships in their dynamics: cooperation, competition, conflict that greatly influence the positive or negative work climate.*

Keywords: *Interpersonal Relationships, Cooperation, Competition, Conflict.*

10. (ID 53) A Brief Introduction into the World of British Superstitions

Authors: stud. Alexia-Mara BÎCLEȘANU, stud. Valentin-Ionuț ILIESCU
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *A superstition is commonly known as an old wives' tale, an irrational belief in extramundane forces. It is also applied to assumptions or traditions related to luck, spirits, paranormal activities, astrology and last but not least, at predicting future events based on specific signs. Britain has always been a superstitious society. The credence in witchcraft, phantoms, and mysterious healings was based on s uperstitions. In contemporaneous Britain, knocking on wood is the most popular superstition, with crossing fingers on the second place. As well as superstitions define the unseen portrait of a country, its culture represents the identity of it. Researching through a country's culture, it reveals the personality and the attitude that people share, their beliefs and values. British culture was built up on the foundation that different nations have reinforced. This paper aims to present an overview of British superstitions and beliefs, to exemplify some uncommon beliefs and superstitions and to reveal some ideoms related to them.*

Keywords: *Superstition, Belief, Culture, History, Idioms.*

11. (ID 56) Guns in America: Exploring the Complexities of a Nation's Relationship with Firearms

Authors: stud. Alexandru-Antoni CHIORCEA, stud. Alexandru-Teofan VOICA
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *In the United States of America, owning a firearm is a sign of freedom and we all know how much American citizens love to fight for their rights. But in the last decades, this has become a problem which is yet to be solved. Where do we draw the line between liberty and an actual crisis? Should guns be banned or is there another solution to regulate and restrict ownership? We will take a deep dive into the roots of the American Gun culture, where it began, how it*

has affected the American society as a whole, and what once was considered a fundamental right is now one of the leading causes of violence and homicide. Furthermore, we will examine some of the solutions that could help prevent such things.
Keywords: *Firearms, American Culture, 19th Century, Laws, Freedom.*

12. (ID 66) The Rise and Fall of Prohibition - 13 Years of Temperance to Excess
Authors: stud. Nandor - Janos BARTHA, stud. Iulia - Karina POP
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Some of us adore alcohol, while others despise it. It is a drink that is available in a variety of forms, including whiskey, beer, wine, rum, and so on. Some of us don't drink it and some of us do, at a social event, in a bar or maybe just at home. But what if any kind of alcohol drink was illegal? What if drinking would consequently imprison you? Well, this question was answered by the American citizens at the beginning of the 20th century, when they experienced the "Prohibition", a strangely enacted law which was active for 13 years, from the 17th of January 1920 until the 5th of December 1933. In this article, we aim to describe the American culture during the Prohibition era, the factors that led to the enactment of the law, and the significant negative impacts it had until the conclusion of the "Dry" period.*
Keywords: *Prohibition; Corruption; Speakeasies; Anti-Saloon League; Volstead Act.*

13. (ID 87) John Fitzgerald Kennedy
Author: stud. Cosmin STANCU
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *My project is based on one of the greatest United States presidents, John F. Kennedy, because a lot of people liked him as president of the United States of America. His predominate characteristics helped him to win over many voters and citizens of the United States. His incredible charisma helped him foster the trust of the people. John F. Kennedy's competitive nature drove him to*

constantly strive towards the top of whatever he was endeavouring. He was willing to be a risk taker knowing that he would not achieve his goals unless he was willing to take the risks. The courage he exhibited în making the hard decisions was part of his nature and one that helped him to become a beloved president of the United States of America. In this essay I would like to convey John F. Kennedy's love for peace and his ability to still fight for the safety of America.

14. (ID 93) The War of Words

Authors: stud. Antonio Florin STAN, stud. Ionică Mihai VLĂDULESCU
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *Knowing foreign languages is the ability to understand, speak, read, and write languages other than one's native language, providing opportunities for personal and professional growth through cultural exchange, travel, education, and employment. This aspect becomes even more important in the context of international relationships, where if some words or phrases are misunderstood, conflicts can break or escalate. For this reason, we consider it is essential that the military trains and develops foreign language learning, in order for soldiers to get a better understanding of the operational environment. In this article, we will discuss the importance of learning foreign languages, which is instrumental in facilitating professional development and in promoting a more effective communication between people from different countries and cultures. The practical part of the article provides some examples of operational situations where knowing a foreign language made the difference between failure and success.*

Keywords: *Foreign Languages, Intercultural Communication, Operational Environment, Military Career*.

15. (ID 107) Laughing in the Shadows: A Closer Look at the CIA's Humorous Side Projects

Authors: stud. Valentin - Ștefan HOȚU, stud. Alexandru - Ștefan BEREA
Scientific Advisor: Assoc. Prof. Delia LUNGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *How would it be to think about the most interesting mistakes of international governments? Well, that's what we want to talk about, the most sweeping ideas that have appeared throughout history at a high level. The main subject will be the CIA and some of their not-so-normal attempts to control the power of foreign governments. These presentations from some of the countless CIA projects are published and open to the public long after their attempt or execution, so we will mainly talk about the main events of the 20th century and our story of how we discovered these facts. In a time when the access of information was very limited even among the most famous personalities of a nation, we want to present you some of the most interesting secrets and curiosities that could someday change the state of nations and even the world, so we can look at how humanity has evolved and what such activities are still taking place nowadays or developing these days.*
Keywords: *International; Impressive; Secrets; Humanity.*

16. (ID 130) The Evolution of Sound - Exploring the Diversity and Innovation in Contemporary Music
Author: stud. Andrei VLASA
Scientific Advisor: Assist. Prof. Alina NEGOESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Over time, music has proven to be an extremely important factor in the development of society. From the first harmonized sounds created by the ancient cultures to the present day, there has been a constant change in the way music is perceived. Today, music is seen as a form of recreation or even a method of conveying certain emotions, but it is certain that we all find ourselves in the music we listen to. What interests us is not only the evolution of musical genres and their representative artists in recent years, but also the impact music has on society, and its ability to change people. The paper presents a comparison between two different generations of music: the old music, the one our parents used to listen to, which could have been heard in every disco, and the new music, the one we use to listen to. Furthermore, it discusses the major changes that occurred in music genres, and the rise of streaming services. The legacy that the old genres left behind and the technological development made music what it is today.*

Keywords: *Music, Genre, Sub-Genre, Charts, Artists.*

17. (ID 135) William Wallace
Author: stud. Sebastian Marian SARANDI
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *For generations, William Wallace has been a hero to Scotland and a patron of freedom. The reason that I have chosen this subject is because of its drama. Not much is known about William Wallace as he is one of the most mysterious heroes of all time. William Wallace, the legendary Scots warrior who led his nation into battle against the English in the years around 1300 was an ambitious leader, big on simple emotions like love, patriotism and treachery, who avoided the travelogue style of so many historical swashbucklers. He is considered a hero because he was a noble man from Scotland, who realised Scotland was being mistreated by England and stood against it, using military mastery to defeat England in several battles including Saking, the great city of York. All in all, he was an iconic figure because he managed to start up a revolution that gained Scotland's independence, until 1770 when Scotland and England decided to form the country known as the Kingdom Great Britain, which later became the United Kingdom after the acquisition of the Ireland island, Isle of Man and a few other small archipelagos north and western of Scotland.*
Keywords: *Scottish Hero, Bravery, Swashbucklers, Independence, Military.*

18. (ID 136) The Universe and its Complexity
Author: stud. Mircea Gabriel MOLDOVAN
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *For centuries people believed that the Universe extended only above their heads until it reached the stars everyone could see on the night sky. But researches and experiments that were made over time proved that they were pretty much far away from the right answer, the Universe expanding for hundreds of billions of light-years. The purpose of this project is to show that the Cosmos is endless, how it reached the point that it is now, and what it is*

happening right as these words are being read. This research is addressed to everyone who have asked themselves what is beyond we observe, and how the Universe works. This project is based on watching documentaries and reading scientific papers that have been made on this topic, as well on personal knowledge. The goal is to make everyone aware of the endless expansion of the Universe, what could be found in it, the beauty that the nature has created, as well as the mysteries that it beholds for us for now.
Keywords: *Universe, Infinity, Galaxies, Black Holes.*

19. (ID 161) Colonialism, Invaders, and the Poem Beowulf in Headley's the Mere Wife
Author: stud. Karen MIKOYAN
Scientific Advisor: Assist. Prof. Brânduşa-Oana NICULESCU, PhD, "Nicolae Balcescu" Land Forces Academy, Sibiu
Institution: Hellenic Greek Academy, Athens, Greece
Abstract: *The paper explores Maria Dahvana Headley's novel "The Mere Wife" and its deconstruction of the Old English poem "Beowulf". The author argues that Headley questions the messages communicated by canonical texts such as "Beowulf" by demonstrating that the accepted heroes can be the villains who invade preoccupied land and claim it as their own. The paper discusses how Headley expands upon the issue of land occupation presented in "Beowulf" to present different manifestations of colonization in a modern setting. The author also analyzes the representation of the suburban community of Herot Hall and its conformity with modern criticism of United States suburbs, mainly referring to racism. Ultimately, the paper argues that the author assigns animalistic characteristics to humans and uses repetition to emphasize their corruptness and greed, ultimately advocating for the respect of occupied land and nature.*
Keywords: *Beowulf, PTSD, Colonialism, Land Occupation, Racism.*

20. (ID 163) A Short History of the Falklands Conflict

Authors: stud. Christos TSIROGIANNIS, stud. Dionysios NOVAKIS, stud. Paraskevas PAVLOU
Scientific Advisor: Assist. Prof. Brânduşa-Oana NICULESCU, PhD, "Nicolae Balcescu" Land Forces Academy, Sibiu
Institution: Hellenic Greek Academy, Athens, Greece

Abstract: *Argentina and the United Kingdom (UK) engaged in a military battle over the disputed Falkland Islands in 1982, which became known as the Falklands Conflict. Argentine forces attacked and captured the islands, which had been under British rule since the 19th century, and that is when it all started. To reclaim the islands, the British government sent a naval task force. 649 Argentine military troops, 255 British military personnel, and 3 Falkland Islanders died during the 74-day conflict, which involved air, sea, and ground battles. The Falkland Islands were returned to British control on June 14, 1982, following Argentine capitulation. The Falklands Conflict prompted the British military to modernize and reignited tensions between Argentina and the UK regarding the Falkland Islands' sovereignty. Our paper aims to analyze the operations contacted by air, land and sea as well as Argentine's attacks and Britain's regain of its territory.*

Keywords: *British Forces, Argentina, Battles, Falkland Islands, Operations.*

21. (ID 164) British vs Canadians – Beautiful Mindsets and Amazing Cultural Aspects

Author: stud. Anisia Teodora FUGARU
Scientific Advisor: Assist. Prof. Alina NEGOESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *The cultural differences between the Canadians and the British have pursued a fascinating evolution, taking into consideration the profound and positive relationship they have. This paper follows the reasons these two countries are so delightfully compared to others around the world. First of all, it will explore the bond between them two, which had been created over years of history. Second, the paper discusses similarities and differences in terms of customs and traditions, and the way people enjoy living in their own country. Finally, it highlights differences concerning food*

and drinks. Moreover, the paper focuses on the values and attitudes these two nationalities have or don't have in common. All these considered, the paper emphasizes that cultural differences should not separate people from each other, but rather that cultural diversity brings a collective strength from which humanity can benefit.
Keywords: *Culture, Commonwealth, Traditions, History, Good Citizen.*

22. (ID 165) Vikings' Supremacy - An Era of Conquest Paved with Blood and Fear
Authors: stud. Costel HANTA, stud. Razvan POPA
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *In a world where heroism and cowardice made a difference, groups of strong people bonded by blood and origin forged their own history. Coming from the depths of Scandinavia, these Northern people sailed towards centuries of domination: conquest awaited them. On the occupied lands an Empire was about to rise and its impact on the world would be fundamentally felt in the centuries to come, shaping modern civilization. Skillful sailors and merchants by day, brutal pirates and raiders by night, the Vikings left a huge mark on the modern history of the Great Britain as we know it. In this article, we aim to describe the incursions of the Northmen in the North-Western lands, their evolution as a nation, and their huge bearing on the world's culture and civilization.*
Keywords: *Vikings, Conquest, Impact, Culture, Civilization.*

23. (ID 168) Des gestes à la française. Regards croisés
Authors: stud. Clara LIȚU, stud. Florina MUSCĂ
Scientific Advisor: Lecturer Laura D. CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cet ouvrage est centré sur l'importance des gestes dans la communication non-verbale. On va explorer les gestes utilisés par les Français pendant la communication quotidienne. Plus précisément, on va donner la définition du mot « geste », telle qu'on la retrouve dans le dictionnaire et on va présenter et analyser les gestes de la perspective offerte par le psychothérapeute Paul Watzlawick, dans son ouvrage « Une logique de la communication ». Puis, on va*

choisir quatre gestes qu'on va décrire on détail. Ce sont les gestes typiquement français comme: «faire-la-bise», «compter sur les doigts», «Hé! On se tire?» et «Mon œil!». Finalement, on va interpréter ces gestes et on va trouver leurs correspondants en roumain.
Keywords: *Geste, communication non-verbale, français, culture et civilisation.*

24. (ID 172) Are Video Games Good for You? A Look at the Benefits of Gaming
Authors: stud. Iuliana-Alexandra PINTILIE, stud. Mihai-Gabriel TIMOFEI
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation explores the various benefits of gaming beyond just being a form of entertainment. It highlights how gaming can improve cognitive abilities and social interaction; provide a sense of accomplishment and achievement; be an escape from reality, and a gateway to learning and creative expression. Playing video games can improve problem-solving, spatial awareness, and decision-making skills. Multiplayer games can help players form new friendships and provide an opportunity for families to bond. Games with objectives and challenges can provide a sense of satisfaction and boost confidence. Additionally, gaming can provide a way to relax and unwind, making it beneficial for individuals who struggle with anxiety or depression. Finally, gaming can also be a way to learn and express creativity, making it a well-rounded form of entertainment with many benefits.*
Keywords: *Gaming; Benefits; Abilities; Creativity.*

25. (ID 185) Women in World War II
Authors: stud. Patricia PETRARIU, stud. Anna IVANOV
Scientific Advisor: Assist. Prof. Corina MITRULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Women made significant contributions to World War II, which was a watershed moment in the political and economic landscape of the time. Considering their activities during that time, women can be separated into two big categories: those who stayed at*

home and organized themselves to help the war effort, and those who "dressed in uniform" supported male forces on the field. On the one hand, this paper discusses "Rosie the Rivet" which was a generic name given to women "fighting" from home, and more exactly those who worked in factories to build airplanes or weapons in the place of men. "Rosie the Rivet" is the epitome of every woman that took wartime jobs, empowering them to believe in their own forces, under the slogan "We can do it". On the other hand, women like the spy Virginia Hell and the singer Vera Lynn actually took part in the battle. Consequently, women "fought on all fronts"; this was an important step for them to learn that they could do the same work as men and to boost their self-confidence, which later helped them gain women's rights.

Keywords: *Women, War, Field, Male Forces, Rosie the Rivet, Spy, Singer, Women's Rights.*

26. (ID 186) The Psychology of Reactionary Crowds in the Salem Witch Trials

Author: stud. Cosmina AILENEI
Scientific Advisor: Assist. Prof. Corina MITRULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *Since the beginning of time people have been intrigued, yet terrified of what they could not comprehend. There are numerous instances in human history where people have placed blame on malevolent beings that tormented them. People feared the Devil and any of its forms, and this was passed down from generation to generation. They believed that the Devil would give out its power to humans in return for their loyalty and that witches were its main servants. This paper is an attempt to discuss the topic of mob mentality; the subject matter is exemplified by the Salem witch trials which represent an illustration of how emotions could lead people to adopt certain behaviors that are not based on a rational basis. People became delusional and violent as a result of widespread panic and hysteria which led to mass paranoia. The witch hunt was started by their desire to eradicate evil.*

Keywords: *Fear, Paranoia, Witchcraft, Religion, Psychology, Magic.*

27. (ID 187) The Inside Angels from 11 September
Author: stud. Alexandre IFTIME
Scientific Advisor: Ramona HERMANN, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *On 11 september 2001, four commercial airplanes were hijacked by 19 terrorists which were known to have worked for Al Qaeda, an islamic terrorist group leaded by Osama Bin Laden. Two of the airplanes crashed into the World Trade Center and caused over 3000 deaths which shocked the whole world. But it could have been much worse if it had not been for the ESU teams. Many of us don't have a clue about the rescuers who saved hundreds of people and that is why I will talk about these heroes. People's lives were far more important than theirs and unfortunately half of the ESU teams died during the collapse of the towers. Their bravery remains indisputable; therefore, they were decorated with the medal of honor of the United States.*
Keywords: *Terrorism, Heroes, Collapse.*

28. (ID 188) The Evolution of Rock Music Over the Years
Author: stud. Lavinia-Irina BLĂJUȚ
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The following paper is about rock music and the history of its worldwide dissemination. Unlike other genres, the slightly different style appeals to listeners because they can relate to the lyrics and realize that they are not the only ones going through various difficult situations. First of all, I will present the definition of rock music from my point of view and then I will focus on the gradual evolution of the music over the years to the present day. Moreover, I will categorize the progress of this style, in terms of costumes and the feelings conveyed to listeners. The paper ends with a conclusion of the presented analysis.*
Keywords: *Rock Music, Progress, Dissemination.*

29. (ID 201) Leading with Courage: The Resilient Legacy of Shackleton

Author: stud. Monica TANASE
Scientific Advisor: Lecturer Laura D. CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Resilient leadership in the navy demands a captain who possesses a rare combination of unwavering grit, inspiring fortitude, and steadfast composure in the face of tumultuous waters. This requires a leader who can chart a course towards shared objectives, motivate and influence the crew to strive towards excellence, and steer the ship towards success amidst the most turbulent of storms. One such leader who epitomized this level of naval leadership was none other than the intrepid Shackleton, whose bold and daring spirit served as a beacon of hope to his crew, guiding them through the darkest of times and towards the light of triumph.*

Keywords: *Leadership, Navy, Resilience, Challenging Situations, Crew.*

30. (ID 227) Social Media

Author: stud. Ianis Nicholas CONSTANTINESCU
Scientific Advisor: Lecturer Mariana BOERU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Currently, our society is in continuous digitalization, and this is beneficial, but it has also had negative effects. On the one hand, the Internet is beneficial because we can easily retrieve the information we need, on the other hand, anyone can post anything without being verified. One significant negative effect of using online social media platforms is that lately, people's self-esteem has decreased as they tend to compare themselves to what they see online. Our presentation will explore the negative effects of online social media platforms and make suggestions as to possible ways of mitigating them.*

Keywords: *Digitalization, Internet, Social Media.*

31. (ID 239) Les langues qui nous unissent

Authors: stud. Gabriel LEIZERIUC, stud. Sorin SCORUS
Scientific Advisor: Lecturer Laura D. CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cet ouvrage est basé sur une expérience personnelle au sein d'une mobilité d'études Erasmus+. Plus précisément le 21.09.2022 jusqu'au 20.12.2022 j'ai étéen Lituanie, dans la ville de Klaipeda où j'ai étudié à l'université Lietuvos Aukštoji Jūreivystės Mokykla. Pendant cette mobilité, je suis devenu ami avec des étudiants de différents pays tels que l'Espagne, la Turquie, l'Italie, le Pakistan, le Kazakhstan, les îles Canaries, la France et la Lituanie. Au cours de nos discussions, nous avons remarqué un large éventail de similitudes linguistiques entre les langues parlées, mais surtout dans le cas des langues latines. Ainsi, ce travail part du point commun que ces langues latines ont et leur évolution jusqu' à nos jours, par rapport à la langue roumaine. Cette étude est basée sur l'interprétation des résultats collectés à la suite d'un questionnaire que les auteurs ont réalisé et distribué en ligne à bon nombre d'étudiants latinophones rencontrés lors de la mobilité.*
Keywords: *Erasmus, similitudes linguistiques, latines, d'étudiants latinophones.*

32. (ID 241) Naval Superstitions
Authors: stud. oan-Lucian DĂNESCU, stud. Andrei-Viorel CHIRU
Scientific Advisor: Assoc. Prof. Delia LUNGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Sea voyages have required not only skill and bravery, but also the ability to balance the fine line between faith and fate, since the early days of pirates, fishermen, and sailors. Seafarers devised rituals to channel good luck for safe sailing or to fend off bad luck for disasters at sea, as humans have often tried to make sense of the unfamiliar for comfort. Superstitions are firmly ingrained in human existence, from urban mythology and folklore to old wives' tales and traditions. Whether one believes in superstitions or not, the following legends and myths convey tales of treacherous marine life while demonstrating that humanity are inextricably linked to the ocean's mysteries.*
Keywords: *Navy; Sailors; Seafaring; Myths; Legends; Traditions.*

33. (ID 243) 1969: "One Giant Leap for Mankind"

Authors: stud. Andrei GHITA, stud. Valentin SERBU
Scientific Advisor: Assist. Prof. Corina MITRULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *The Space Race was a geopolitical competition between the United States and the Soviet Union during the Cold War, primarily concentrated on space disquisition. It began in 1955 with the launch of the Soviet satellite Sputnik, which was the first man-made object to route the Earth. This sparked a sense of urgency in the US to catch up, leading to a series of significant mileposts, including the first American in space (Alan Shepard) and the first American to route the Earth (John Glenn). In 1961, President JFK pledged that by the end of the decade, the US will send a man to the moon. This thing was achieved in 1969 with the Apollo 11 charge, which saw Neil Armstrong and Buzz Aldrin come the first humans to step on the moon. This achievement marked a significant corner in mortal history and cemented the US's dominance in the Space Race. This paper aims to discuss the Space Race between The United States of America and the Soviet Union and the 1969 American Moon Landing with the purpose of dominating space.*

Keywords: *Space Race, 1969, Moon Landing, Cold War.*

34. (ID 246) The Battle of the Atlantic and Its Impact on Military Culture

Authors: stud. Achilles APOSTOLIDIS, Hellenic Military Academy, stud. Hayden BURCHFIELD, University of North Georgia
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *In this paper we examine the often-overlooked Battle of the Atlantic that took place in the Second World War and the manner in which it influenced the culture of the military. Despite its disregarded status, the Battle of the Atlantic was a major military campaign that included multiple different nations and soldiers. From the German use of the U-Boats, the sinking of the Bismark, to the invasion of Iceland, the Battle of the Atlantic was a turning point in the conflict. With heroic acts on both sides, we will be exploring this battle from a cultural perspective. Using a combination of sources, we came to the*

conclusion that the Battle of the Atlantic was a decisive point in the War that almost certainly changed the tide of the war, contributed to the Allies' winning of the conflict and also stamped the military culture.
Keywords: *World War II, Battle of Atlantic, Impact, Military Culture.*

35. (ID 266) The Perks of Being a Nerd
Authors: stud. Andreea-Catălina PASĂRE, stud. Izel MEMEDULA
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present paper deals with what is generally called a "nerd". At first, the term used to be filled with plenty of negative connotations. Nowadays a "nerd" is no longer a type of person to avoid, a boring or unpopular person, but rather an intelligent individual who loves learning, a new kind of "cool" figure. No doubt, there are both advantages and disadvantages to being a nerd - there is a matter of isolation, as well as a great deal of creativity behind this word. We have chosen to focus on the perks of being a nerd, as shown by the examples of famous nerds, who may help us understand how every single one of them is unique in their own way.*

36. (ID 283) The History and Evolution of Ocean Liners
Author: stud. Cosmin CRACIUN
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The era of the ocean liner has ended decades ago. Becoming obsolete after the rise of the commercial airliner, the ocean liner is only a relic of the past today. But that does not mean we should forget the long history of these great vessels that gave birth to modern nations by transporting tens of millions of people around the globe. From the crude designs of the 1830's and 1840's, to the superliners of the mid 20th century, these grand old ladies of the ocean have evolved greatly through their careers, being credited with many innovations, such as the first iron-hulled ship of considerable size. They have served as much more than simple commercial passenger vessels, as in times of war, their vast size and great speed was a great asset to the navies of the world, being used as hospital ships, troop transports and even merchant cruisers as*

early as the Crimean War. Even though they are mostly gone nowadays, the ocean liners continue to awe the public. Legendary liners such as the Queen Mary, Lusitania and the infamous Titanic remain as some of the most famous vessels in history and to this day inspire young people to pursue a maritime career.
Keywords: *Liner.*

37. (ID 293) The Life and Impact of Princess Diana in British Society - Short, But Fascinating Existence
Author: stud. Irina CHIRILĂ
Scientific Advisor: Lecturer Alina-Elena ONET, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Royalty is the fairy-tale romance of a princess coming together with living history. Diana simply thought royal life would be like something put of a romantic novel. The idea of being Queen of England appealed enormously to her. In this paper I shall analyze not only the fact that she has had a life-changing impact on everyone, but also the crises she went through from the moment responsibility appeared in her life. The central question then becomes: Diana was the perfect modern-day princess? She was unlike any other Royal before. Being thrust into princessdom is a lot to handle, especially for a 20-years-old with no princess experience. But despite that, Princess Diana was adored by the public and her death shook the nation. However, she was able to make an impact on the entire world.*
Keywords: *Princess Diana, Royalty, Changes.*

38. (ID 303) Technology Usage at Sea
Author: stud. Ailin BAUBEC
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project "Technology Usage at Sea" is about how digital technology is very important nowadays in the maritime industry. In the past, the sailors and officers did not have the luck to ease their work by having intelligent machines to do their work and keep them safe at sea, but with time the era of technology has been evolving and is still evolving. The first part of the project presents the advantages of technologies on a ship and how a European project*

was funded by the European Union to be ahead of potential disasters and helps the mariners to connect with land in real time. In the second part, there are presented ways to improve healthcare and solutions to enhance safety at sea by using digital technology. Technology is the future of our world and it should be used extensively since it can bring many advantages in this type of industry.
Keywords: *Technology, Healthcare, Mariners, Maritime Industry.*

39. (ID 333) Mental Issues for Seafarers
Authors: stud. Iuliana-Cătălina AMBROSE, stud. Alexandra BĂJENARU
Scientific Advisor: Lecturer Mariana BOERU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Seafaring has frequently been reported as being a 'risky occupation' in terms of both physical and mental health. Individuals working in seafaring professions are exposed to various stressors in the workplace, including social isolation, exposure to poor physical conditions and long work hours, with fewer opportunities for relief than they would be likely to find on land. As a novice in this area, it can be even more challenging to adapt to this way of living. The main point of this presentation is to raise awareness of the most significant challenges faced by all who are about to start their career at sea and make suggestions as to the many possibilities of making their lives easier while working onboard merchant ships.*
Keywords: *Seafarers, Health, Physical, Career, Stress.*

40. (ID 343) The Erosion of Linguistic Diversity in Eastern Europe in the 19th and 20th Centuries
Author: stud. Vlad-Mihai CHELU
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Overall, the linguistic erosion in Eastern Europe is a complex and multifaceted phenomenon that reflects the region's cultural, historical, and political evolution. While many Eastern European countries made efforts to preserve minority languages and dialects, the extent to which these efforts can stop the erosion remains uncertain. This paper deals with the linguistic history of*

Eastern Europe during the 19th and 20th century, an era characterized by nationalism and imperialism. We will discuss the erosion of linguistic diversity in the mentioned area, namely the processes of russification and germanisation that affected many linguistic minorities that are now under danger of disappearance or have already disappeared. We will mention the particular cases of the Eastern Slavs in the German realm (Germany and Austria-Hungary): The Sorbs, the Rusyns, the Poles, and those of the Slavic, Turk and Finno-Ugric languages under the Russian Empire/USSR.
Keywords: *Language, Dialect, Cultural History.*

41. (ID 356) The Cultural Impact of the Russian Invasion on Ukraine

Authors: stud. Razvan CERCEL, stud. Eduard PIȚUR
Scientific Advisor: Assist. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *The 2022 invasion of Ukraine by Russian forces had a profound impact on the country's culture and way of life. Prior to the invasion, Ukraine had a rich cultural heritage, shaped by centuries of history and traditions. However, the conflict and subsequent annexation of Ukrainian territories by Russia brought about significant changes to the country's cultural identity. This article seeks to explore the cultural changes that took place in Ukraine after the invasion, including the suppression of Ukrainian language and traditions, the imposition of Russian culture and values, and the impact on cultural institutions such as museums and libraries. By examining the cultural landscape before and after the invasion, we can gain a better understanding of the ways in which military conflict can affect a country's cultural identity and heritage. We will also discuss the challenges and opportunities that Ukraine faces as it strives to rebuild and preserve its cultural heritage in the aftermath of the invasion.*
Keywords: *Russian-Ukrainian War, Invasion, Culture, Heritage, Challenges.*

42. (ID 389) Media:21st Century Most Powerful Weapon
Author: stud. Stefan ONEA
Scientific Advisor: Assoc. Prof. Delia LUNGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Intelligence, one of the most important parts of a war, can sometimes be decisive in the outcome of the conflict. Being widely used as a mean of communication and information, media represents a principal concern when it comes to intelligence. Many important actors on the world's geopolitical stage are commonly using media as a weapon in present day conflicts, and not only once through media some conflict's outcome was influenced. Used correctly, media, through all of its forms, can be capable of changing a conflict's conclusion. This paper will present the importance of media in modern conflicts and how world's stage is being influenced by the use of media.*
Keywords: *Media, War, Influence, Modern, Communication.*

43. (ID 316) James Webb Space Telescope
Authors: stud. Alexandru Andrei HURMUZ, stud. Stefan MATVEI
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Since the beginning of time, humankind looked at the sky and wondered what lies beyond the veil of the stars. Astronomers tried to answer this question but they didn't have the technology to accomplish this quest. In the present day the answer to this question remains unknown but there is hope that James Webb's space telescope with its state-of-the-art equipment will shed some light upon this lifelong mystery. If this is the case humankind may need to rewrite all of the history books regarding the creation of the Universe. Even though James Webb's telescope is probably one of the most important and interesting inventions that human kind has ever built, he lacks the attention it deserves, and this presentation aims to bring this mesmerizing piece of equipment in front of the spotlights.*

IX. SECTION: STUDENTS' EXPERIENCES IN INTERNATIONAL EXCHANGES

Section Committee:
Chairman:
Colonel Assoc. prof. Cătălin POPA, PhD
Members:
LCDR Marius CUCU
Miss Alexandra MIHAIU
Room: Aula Magna

1. (9) Students' Experiences in International Exchanges
Author: stud. Karol STASZKIEWICZ
Institution: Akademia Wojsk Lądowych we Wrocławiu

2. (44) Students' Experiences in International Exchanges
Authors: stud. Andrei CHIHAIA, stud. Adrian CHIRU
Keywords: *Erasmus Bulgary.*

3. (60) Police Academy Beyond the Borders
Author: stud. Anda DEDIU
Institution: "Alexandru Ioan Cuza" Police Academy
Abstract: *Finding myself placed between being a sightseer and a resident in the capital of Czech Republic, turned into a "long-term tourist", writing about my foreign experience is a great opportunity to reveal the road I took, not only to the Centre of Europe, but mostly to myself. Police Academy "Alexandru Ioan Cuza" opened the gates through more and more Erasmus+ exchange programmes, letting the students breaking new grounds and shouting about their professional formation, their country and the institution which they represent. Through this bidirectional cultural and educational interchanging, students have the chance to be put in another Police Academy student's shoes, to go places and push their limits, as international contacts bring a lot of useful challenges for our future career and personal development. My paper is aimed to answer certain*

questions regarding the pros and cons of joining such a project, how it is to live in another country for four months as a student and what is the main luggage that I will take with me after this experience.
Keywords: *Erasmus+, Prague, Police Academy, Travelling, Novelty.*

4. (67) Gender Matters – A Study of Military Students' Perception
Authors: stud. Hans Teodor CRĂCIUN, stud. Sanda Roxana BORZA
Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu
Abstract: *Gender - a single word that can generate so many emotions, moods, feelings, but also many reactions, reflections and initiatives. A concept that emerged a long time ago, but which has gained increased attention in local organisations because of the way society tends to develop. This article is intended to present how information on the concept of "gender" is at work in the military environment and how it brings significant changes to the natural course of things within it. The article will seek to clearly define the concept of "gender" by framing it within military sociology and highlighting the features that distinguish it from the concept of "sex", to clarify the misconceptions perpetuated over time about the position of women in society and their consequent unsuitability for a military career, and to present some important measures and methods taken by international organisations to eliminate them. We had the extraordinary opportunity to participate in the development of a project that aims to educate military personnel, which turned us into vectors of influence and at the same time made us responsible for perpetuating information and demonstrating that only by further disseminating information can we sway the mentality of a society. To this end, we administered a questionnaire to all students involved in the project and analysed the data to discover how their view of the importance of this concept has changed.*
Keywords: *Gender, Sex, Vectors, Misconceptions.*

5. (80) Students' Experiences in International Exchanges
Authors: stud. Giulia Diana TĂMAȘ, stud. Maria Cătălina POPA
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Originally it was a stand-alone project for 11 member states. In its first year 3,244 students provided their first insight into different cultures and ways of life. The Erasmus Programme started by making study abroad an exclusive experience no longer restricted to a minority, but one from which more and more students across Europe are able to benefit. At the same time, this project is useful even for teachers' professional career, making them to provide a new perspective on teaching practices and approaches. During the years, European people get to know what it means to accept each other and living under the same roof, fact that is acting as a mediator for globalization. By having gone through this, we can say that Erasmus is not just about activities but also about finding yourself in a new culture and learning about who you are under a totally new set of living conditions.*

6. (108) Hellenic Naval Academy Summer Training Trip

Authors: stud. Cosmin NICOARA, stud. Andrei COSTAN
Scientific Advisor: Assoc. Prof. Delia LUNGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Traveling has been a great experience since the very first time man started moving from one place to another. Traveling can be done in different ways but being aboard a ship is fascinating and those who have had this chance are considered to be very lucky. I am one of those fortunate ones and I have had the opportunity to be onboard different ships on different occasions so far. The aim of this presentation is to write about one of the most interesting experiences, namely a two-month voyage taken onboard the largest Greek naval vessel, around the Mediterranean Sea from Greece to Portugal via Gibraltar and back. I will present the most important experiences of this voyage, I will also introduce some of my colleagues that I met there, and last, but not least, I will refer to the lessons learned which contributed to my personal development and helped me to understand better my future.*

Keywords: *International Voyage, Ship, Lesson Learned, Multicultural Experience.*

7. (ID 127) A Journey to Discover Polish Culture: The Unforgettable Experience of the ERASMUS+ Program

Authors: stud. Andra CERNIAVSCHI, stud. Alexandru DIACONU
Scientific Advisor: Lecturer Ramona HÂRȘAN, PhD
Institution: "Henri Coandă" Air Force Academy, Brasov

Abstract: *Intercultural exchanges are crucial for young adults in order to develop their professional and personal skills. The ERASMUS+ mobility program gave us the opportunity to step outside our comfort zone and explore the world around us. Our host country was Poland and from the beginning we were able to immerse ourselves in its history and traditions. Our journey highlighted the educational process by using the interplay between the Academy's activity and our personal willingness to discover. Our contribution considers the benefits of our experience as foreign students, with a focus on its intercultural dimension.*

Keywords: *ERASMUS+, Culture, Journey, Exchange, Development*.

8. (133) Noise Pollution - Part of Environmental Pollution. Sound Environment

Authors: stud. Cristina ROȘCA, stud. Larisa PLOP
Institution: "Alexandru cel Bun" Military Academy of Forces Army

Abstract: *The ambient environment and its quality has a great significance in maintaining the well-being and health of the population, noise being a complex of sounds, with random unpleasant insurgency, which affects the psychological and biological state of people and other organisms in nature. The given article refers to the correlation created between noise pollution and environmental effects. The given subject is approached with the aim of finding solutions to the problems faced by the environment, as a result of noise pollution, be it created by various transport units or various sounds from explosions. In particular, an analysis is made of the ecological state of acoustic pollution, in the context of international events. The content includes relevant and topical issues worldwide, issues of increasing importance in the scientific, political and administrative world.*

Keywords: *Noise Pollution, Solutions, Development, Ecology, Noise, International Events, Monitoring, Environment.*

9. (160) Once Upon a Time: An Erasmus Experience of a Lifetime

Author: stud. Gabriel ZAMAN
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The Erasmus experience is an unforgettable journey of self-discovery, cultural immersion, and personal growth. This program allows students to study, work or volunteer abroad in one of the many European Union (EU) member states or partner countries. Erasmus students gain a unique perspective on the world by learning about different cultures, customs, and traditions. They have the opportunity to make lifelong friendships, develop language skills, and broaden their academic and professional horizons. Living abroad as an Erasmus student can be challenging, but the rewards are immeasurable. Students become more independent, learn to navigate unfamiliar territory, and gain a sense of self-confidence that only comes from taking risks and stepping outside of their comfort zone. One of the most exciting aspects of the Erasmus experience is the opportunity to explore new places and try new things. From sampling local cuisine to attending cultural festivals and events, Erasmus students have access to a wealth of exciting and enriching experiences. In short, the Erasmus experience is a life-changing opportunity that provides students with the skills, knowledge, and experience they need to succeed in today's interconnected world.*

Keywords: *Erasmus, Esperience, Traditions, Students.*

10. (ID 170) How Polish Military Cadets Differ from Other Nations in Terms of Standards

Authors: stud. Katarzyna PAZUREK, stud. Marcel STARZECKI, Polish Naval Academy in Gdynia
Scientific Advisor: Lecturer Laura D. CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation includes our personal experiences with military students from other countries as partners of Polish Erasmus+ office with three-year experience. Firstly, there will be an introduction of ourselves and our military point of view (who we are, basic regulations). Secondly, drill comparisons: marching, saluting as well as uniform differences, also external appearance, like hair, accessories, jewelry etc. Thirdly, the topic of academic rules in force,*

duty demands and some behavioral differences (gestures, interpersonal actions derived from culture). Ultimately, expressing our opinion and encouraging the audience to form such relations, for example international missions, Erasmus+ and other programs/project mobilities. This topic can serve as an inspiration to cadets thinking of participating in such activities. It can also show several interesting facts that are not commonly touched upon. Such experiences can develop certain characteristics required for a role of an internationally/abroad-serving future officer.
Keywords: *Difference, Comparison, International, Military, Characteristics.*

11. (ID 212) Mon expérience de mobilité Erasmus
Author: stud. Cristian POPA
Scientific Advisor: Lecturer Laura D. CIZER, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cet ouvrage présente mon expérience en mobilité Erasmus. Dans un premier temps, il comprend la période et l'endroit où mobilité d'études s'est déroulée, suivi d'une brève présentation de ma routine quotidienne. Plus précisement, on va mentionner les matières étudiées et la manière dont elles ont été enseignées. Dans la deuxième partie de la présentation, il y aura une comparaison entre l'université du pays d'accueil et l'université du pays d'origine pour mettre en évidence ce qu'on pourrait apprendre et adapter à l'avenir. L'ouvrage va également comprendre l'expérience au niveau de la culture et des zones touristiques visitées. En conclusion, on présentera la façon dont cette expérience a influencé ma vision de la vie en général et du pays d'accueil en particulier.*
Keywords: *Expérience, études, culture, mobilité.*

12. (ID 221) Erasmus Experience in Montenegro
Authors: stud. Larisa - Elena GRECU, stud. Valentina GRECU
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this presentation is for us to share with you our Erasmus experience at the Faculty of Maritime Studies in Kotor, Montenegro. We took on this challenge in the second semester of our first year of study, during the academic year of 2021 – 2022, when*

we participated in a study mobility from February 20th to June 1st. Although full of challenges, the Erasmus study mobility was a unique opportunity to get to know a new culture, to evolve professionally, and to make wonderful memories. On a personal level, this experience helped us to become much more extroverted and responsible; it also pushed us to manage on our own, in a completely new environment. From a professional point of view, we consider it to be one of the most beneficial experiences we have ever had. We enriched our English vocabulary, met new people with various professional perspectives, and managed to overcome stressful situations.

Keywords: *Erasmus, International Exchange.*

13. Presentation of MUT Academy

Authors: stud. Hubert WISNIEWSKI, stud. Malgorzata BINKIEWICZ
Institution: Military University of Technology

14. Presentation of NVNA

Authors: stud. Rosen RUSEV, stud. Angel SANDOV
Institution: Nikola Vaptsarov Naval Academy, Varna, Bulgaria

15. Study mobility in Helmut-Schimdt University

Authors: stud. Constantin BIGU, stud. Radu PREDA, stud. Cosmin STANCU, stud. Valentina ANUTEI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

16. Robotics Seminar

Authors: stud. Alexandru ROMAN, stud. Dan NICHITEANU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

17. Study Mobility in Italy

Authors: stud. Mihai-Robert STANGIUGELU, stud. Maria POSTOLACHI
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

18. Leadership-USA
Authors: stud. Sonia ILIESCU, stud. Catalin VLAD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta