“MIRCEA CEL BATRAN” NAVAL ACADEMY

CADET-NAV 2024

THE 46th SCIENTIFIC CONFERENCE FOR STUDENTS

CADET-NAV 2024

PROGRAMME

11th – 13th of April 2024

CONSTANTA

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Voinescu Ilinca
Voloșeniuc Maria
Zamfirache Liviu

CONFERENCE AGENDA	
THE 46th EDITION OF CADET-NAV 2024	
INTERNATIONAL STUDENTS' CONFERENCE	
11 - 13. 04. 2024	
Thursday, 11. 04. 2024	
08.00 - 12.00	Arrival of Participants, Admin Matters
Thursday, 11. 04. 2024	
12.00 - 14.00	Visit on campus
14.00 - 15.00	Lunch
15.00 - 17.00	Visit to the Romanian Navy Museum
17.00 - 20.30	Constanta Sightseeing City Tour
Friday, 12.04.2024	
08.30 - 09.30	Registration of participants; Distribution of conference maps - "Admiral Petre Barbuneanu" Auditorium – Exhibition with Students' Achievements in Scientific Projects Carried Out in Romanian Naval Academy "Mircea cel Batran"
09.30 - 10.00	CADET-NAV 2024 Official Opening Ceremony
	Raising the Flag Ceremony
	Welcome Address of the Rector of Romanian Naval Academy
10.00 - 11.00	Paper Presentations in Plenary **- Command and Control Communication Systems in Romanian Maritime and Aerial Operations** – stud. Rareș IORGA, Scientific Advisor Lecturer Daniela NAGY, PhD, "Henri Coanda" Air Forces Academy; **- Marine Navigation Software – SailXplorer** – stud. Andreea Monica TĂNASE, Scientific Advisor Lecturer Elena Grațiela ROBE-VOINEA, PhD, Romanian Naval Academy; - **Nicotine – Risk or Pleasure** – stud. Bianca-Gabriela ENE, Scientific Advisor Lecturer Cristina-Andreea TUDOR, PhD, Romanian Naval Academy.

11.00 - 11.30	Group Photo; Coffee Break
11.30 - 14.30	Paper Presentations on Sections (Navigation and Transport – Room Lp A5, Engineering and Management – Room Lp A5, 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 CI 101, 102, Students' experiences in international exchanges – "Viceamiral Ion Coanda" Auditorium)
15.30 - 21.30	Leisure Time at the Seamanship and Water Sports Training Center in Palazu Mare
Saturday, 13.04.2024	
10.00 - 12.00	Awards Ceremony
12.00	Departure of Participants

Contents

I. SECTION: NAVIGATION AND TRANSPORT

Section Committee:
Chairman:
Lecturer CORDUNEANU Dumitru, PhD
Members:
Lieutenant Lecturer NEDELCU Andra, PhD
Lecturer DUMITRACHE Lucian, PhD
Stud. FRĂȚILĂ Mădălina
Stud. VAȘCU Dhurim
Stud. TURK David
Stud. IANCU Estera
Room: Lp A5

1. (ID 10) Analysis of the Provisions of the Solas Convention in the Field of Systems and Equipment for Preventing and Fighting Fires on Board Ships
Author: stud. Mihai MARCU
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Fires and explosions on ships often lead to serious consequences. Loss of life, damage to goods and even pollution of the marine environment can occur. Every ship in operation presents many potential risks of fire and explosion, starting from the installations on board the ship, the electrical equipment or the cargo transported. Faced with such permanent threats, ships must be equipped with fire protection equipment to respond actively and promptly in case of an event. The article highlights the IMO requirements for the prevention of explosion hazards, as well as aspects of the advanced fire extinguishing systems present on board the ship, so that through their implementation the safety of maritime transport is guaranteed.*
Keywords: *SOLAS, ship, fire fighting*

2. (ID 19) Global Impact of the New Conflict in The Red Sea Waters

Author: stud. Eduard-Gabriel BUGA
Scientific Advisor: Chief Commissioner, Assoc prof. Elena-Loredana PÎRVU, PhD
Institution: ”Alexandru Ioan Cuza” Police Academy

Abstract: *Unfortunately, we are witnessing an increasing number of conflicts arising between states for various reasons: from territorial domination, to the creation of a zone of influence, to assertion in the international world, to outward manifestations of faith. It is not untrue that those who do not learn from history will be forced to repeat it, because we can see in the clearest way that different actions end up repeating themselves, just like in a circle. Water, in its various forms, from underground springs, to flowing waters, lakes, seas and oceans, has been and still is a much easier way of transporting different objects from one point to another, its supreme advantage being the quantity delivered, quantitatively far superior to other man-made forms of transport. Since ancient times, people have been looking for ways to use the gifts of nature to their advantage. However, man's creative nature unfortunately complements his destructive, power-hungry nature. This is why, since ancient times, humans have been competing with each other for supremacy, to prove that they are better than their enemies. This article aims to shed light on such an event. It is intended to represent the idea that no matter how advanced a civilisation is, no matter what regulations it has imposed on itself, it will still at some point seek an argument to justify its activities against itself and its enemy, who is none other than its own kind. As legal scholarship has it, the law exists as long as it is obeyed, as long as it is respected and as long as there are means of restoring it to its original state.*

Keywords: *Conflict, houthi, trade, crisis, importance*

3. (ID 35) Navigation Systems

Author: stud. Raul BOTEA
Scientific Advisor: Assoc. prof. Anda OLTEANU, PhD
Institution: “Mircea cel Bătrân” Naval Academy, Constanta

Abstract: *In this presentation, we meet hyperbola and hyperbolic navigation system and present both definitions and mathematical*

equations about them. We will get to know the Loran Theory of Functioning and see how it is found in the life of a navigation. In the last part we will see how the "price of technology" affects drivers who use GPS applications, which provide traffic-related information, and how they spend 33& more time behind the wheel than those who do not.

Keywords: *hyperbola, ship's position, Loran, driving time*

4. (ID 38) Autonomous Underwater Vehicles

Author: stud. Mihaela COSTACHE
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Autonomous underwater vehicles represent the latest innovations in a series of vehicles that take over the duties of divers to perform various activities in the ocean. They have been created for use in different fields such as offshore industry, scientific research, and naval domain, covering many of the functions of towing vehicles and those intended for mapping. In the industry, there are various models of AUVs, including: Bluefin Robotics Bluefin-21, developed by Bluefin Robotics and appreciated for its modular design and adaptability to different mission requirements; Remus AUVs (Remote Environmental Monitoring Units), initially developed by the Woods Hole Oceanographic Institution (WHOI) and later commercialized by Hydroid Inc., are widely used in oceanographic research, marine archaeology, environmental monitoring, and military applications; Riptide Autonomous Solutions AUVs: Riptide Autonomous Solutions offers a range of compact and lightweight AUVs designed for operations in shallow waters or near the shoreline.*

Keywords: *underwater, vehicle, autonomous*

5. (ID 39) Traffic of Goods through the Ports of Singapore

Author: stud. Rebeca NICOLAIE
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Waterways, port infrastructure and cargo traffic through Singapore's ports are the main topics covered in the paper. The main ports of Singapore and its waterways are briefly presented.*

Keywords: *sea, ports, transport, cargo, ship*

6. (ID 42) Search and Rescue
Author: stud. Cosmin - Daniel BUSE
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This text outlines the functionality and importance of Search and Rescue Transponders (SARTs) and Emergency Position-Indicating Radio Beacons (EPIRBs) in maritime emergency situations, along with the Williamson turn maneuver for ship recovery operations. SARTs and EPIRBs transmit distress signals to aid in locating distressed vessels, while the Williamson turn offers a versatile method for returning a ship to a previously passed point, crucial for rescuing casualties at sea.*
Keywords: *rescue; search*

7. (ID 45) Tanks Preparation Methodology
Author: stud. Andreea-Lavinia MITRAN
Scientific Advisor: LCDR Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this scientific paper you will come to know about the importance of preparing the tanks before loading the cargo. The cleaning stages of the tanks, as well as about washing with crude oil and chemicals. In this presentation as first reference it is about the tank preparation procedures that are essential to ensure the safe transport of various goods as well as to prevent risks related to the safety of the goods, the crew and the environment. Next, it is detailed each cleaning, disinfection and sanitization process. It is highlighted that the tanks can be washed both with oil and with chemical products. All the data has been taken from special manual for cleaning and preparing cargo tank.*
Keywords: *procedures, cleaning, washing*

8. (ID 47) Application of the HFACS-PV Approach for Identification of Human and Organizational Factors (HOFs) Influencing Marine Accidents
Author: stud. Denisa-Andreea CONSTANTIN
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Wiegmann and Shappell initially applied the HFACS (Human Factors Analysis and Classification System), rooted in Reason's Swiss Cheese model, to scrutinize aviation accidents. This method serves as a broad human error analysis framework, enabling a hierarchical exploration of accident occurrences. By utilizing HFACS, one can delve into the impact of human factors on accidents, dissecting both active failures and latent conditions. Its primary distinction lies in its exhaustive taxonomy, facilitating the analysis of human and organizational factors. This taxonomy streamlines the extraction of such factors, even in intricate scenarios like accidents, with precision and ease.*
Keywords: *Human factor; HFACS-PV; marine accident; marine safety; accident analysis*

9. (ID 48) Study of Dangers on Board Lpg/Lng Ships
Author: stud. Diana-Gabriela IONITA
Scientific Advisor: Instr.sup. eng. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Due to the increasing size and capacity of many new LNG carriers, the Department of Energy commissioned an evaluation of the overall scope of potential hazards associated with breaches and spills from these newer LNG carriers with capacities of up to 265,000 m3. Expanding upon the research and analyses presented in the 2004 report, it re-evaluated emerging accidental and intentional threats, subsequently conducting detailed analyses of breaches for the new large LNG carrier designs. Utilizing estimated breach sizes, locations, and LNG carrier configurations, spill rates and volumes were determined, and thermal hazard and vapor dispersion analyses were conducted.*
Keywords: *LNG SHIPS, LPG SHIPS, DANGERS, SOLUTIONS*

10. (ID 52) The Influence of the Ukraine Conflict on Traffic on the Danube-Black Sea Canal
Author: stud. Cristian-Andrei VERDEȘ
Scientific Advisor: Eng. Cristina ALECSE, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study examines the effects of the conflict in Ukraine on maritime traffic on the Danube-Black Sea Canal from 2020 to 2023.*

By analyzing data on the volume and nature of maritime traffic, as well as socio-political and economic factors, the research highlights significant changes in shipping routes and quantities of goods transported through this canal in the context of regional tensions. The findings indicate adjustments in commercial routes, declines in traffic, and shifts in the types of goods transported, reflecting the impact of the Ukraine conflict on maritime trade in the Danube-Black Sea region.
Keywords: *Danube-Black Sea Canal*

11. (ID 55) Design and Operation of a Steering System for a Container Ship
Author: stud. Ana-Alexandra TRANDAFIR
Scientific Advisor: Lecturer George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ships developed rapidly and has generated major changes in the shipbuilding industry. A container ship is a type of cargo ship specially designed and built to transport standardized containers, typically in the form of large metal boxes. Containerization has become the most important method of shipping goods globally and offers a faster, more efficient and cost-effective way to transport goods across long distances. Besides the above-mentioned container ship industry, the steering system for a container ship, a sensitive and current topic, was also analysed in this paper. Moreover, the adavantages and specific characteristics for a good operation at the optimal parameters of this system, were explored as well.*
Keywords: *navigation, steering system, container ship, transport, containers*

12. (ID 67) Maritime Transportation of Liquefied Carbon Dioxide
Author: stud. Alexandru-Cristian ALBU
Scientific Advisor: Commander Assoc. Prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Carbon dioxide is frequently transported by ship in the form of compressed gas or liquefied gas under pressure. CO2 is typically transported in specifically designed tanks or cylinders capable of sustaining high pressure. These tanks are securely loaded*

onto ships, ensuring that carbon dioxide is safely transported from manufacturing facilities to distribution points or end users. The transportation of CO2 by ship is critical for industries such as food and beverage, where carbon dioxide is used for carbonation, as well as environmental mitigation applications such as carbon capture and storage (CCS). Historically, these cylinders were manually loaded onto ships, which presented logistical challenges and safety risks. Furthermore, without advanced monitoring and containment systems, there was a greater risk of leaks or accidental releases during transport.

Keywords: *Carbon dioxide, transportation, gas, liquefied, safety*

13. (ID 68) Study on The Naval Transport System in South Korea. Statistical Research 2010-2024

Author: stud. Dragoș-Cristian ALEXANDRU
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study examines the naval transport system in South Korea through statistical research spanning the period from 2010 to 2024. Over this timeframe, South Korea has experienced significant developments and challenges in its maritime transportation sector. Through comprehensive statistical analysis, this study aims to provide insights into the trends, patterns, and dynamics of South Korea's naval transport system. By analyzing data on vessel traffic, cargo volumes, port infrastructure, regulatory frameworks, and economic indicators, the study seeks to identify key factors influencing the efficiency, sustainability, and competitiveness of South Korea's maritime transportation network. The findings of this research contribute to a deeper understanding of the South Korean maritime industry.*

Keywords: *naval transport, South Korea, statistics, maritime industry*

14. (ID 74) Analysis of Human Factor Contribution to Cargo Fires on Container Ships

Authors: stud. Tiberiu-Marian MIRCEA, Stud. Daniel Cristian CRIMPITA
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cargo fires represent a significant hazard aboard container ships, posing risks to life, property, and the environment. Understanding the human factors contributing to these fires is crucial for enhancing safety measures and mitigating risks effectively. This study explores the multifaceted role of human factors in cargo fires on container ships through a comprehensive analysis of relevant literature, case studies, and industry data. Key areas of focus include crew training, decision-making processes, communication breakdowns, and organizational culture. By identifying and understanding these factors, strategies can be developed to improve training programs, enhance communication protocols, and foster a safety-oriented organizational culture. Ultimately, this analysis aims to contribute to the development of proactive measures for preventing and managing cargo fires, thereby enhancing maritime safety and security.*
Keywords: *cargo fires, human factors, crew training*

15. (ID 75) Pilot Operation on Vessels

Authors: stud. Cristian Mihai CHIVU, stud. Vladut Ionuț DRAGOMIR
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The pilot operation on vessels is a critical aspect of maritime navigation, ensuring safe passage through waterways. Pilots are highly skilled professionals responsible for guiding ships through intricate channels, ports, and congested waters. This essay will delve into the significance of pilot operations in maritime transport. Moreover, pilotage contributes to the overall safety of maritime transport. Pilots serve as an additional layer of oversight, complementing onboard crew expertise and navigation systems. Their presence mitigates the likelihood of human error and enhances situational awareness during challenging maneuvers. In conclusion, pilot operations play a vital role in ensuring the safety, efficiency, and environmental sustainability of maritime transportation. Their specialized skills and local knowledge are indispensable for navigating vessels through complex waterways, ultimately facilitating global trade and commerce.*

Keywords: *Vessels, Skilled professionals, Channels, Ports, Pilotage, Safety, Efficiency, Specialized skills, Local knowledge*

16. (ID 78) Causal Factors with an Impact on Ship Safety
Author: stud. Alessia COSTACHE
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *As the literature, which is part of the main stream of publications in the field, shows, the main purpose of accident investigation is to improve maritime safety and to prevent pollution from ships, in order to reduce the risk of future maritime accidents. In this respect, the bibliographical sources consulted, present in the international databases dedicated to this field, show that the identification of the causal factors influencing the safety of shipping can only be achieved by understanding the precursors associated with maritime accidents and incidents. Under these circumstances, this presentation will analyse the causes of maritime accidents for the period 2014-2021, focusing on: -The casuistry of maritime accidents and incidents; -The specificity of accidents in relation to the ships involved in maritime accidents and incidents. Based on these aspects, the research directions outlined above are summarised below.*
Keywords: *Maritime accidents and incidents, maritime safety*

17. (ID 81) Navigating the World of Ferry Boats
Authors: stud. Carlos-Constantin BRĂTUIANU, stud. Mălina VLĂDOIU, stud. Matei-Gabriel BUCUR
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Our presentation is taking you into the wonderful world of ferry boats, tracing their evolution, significance and modern innovations. Ferry boats have always been a vital mode of transportation, linking communities and facilitating commerce across water bodies. From ancient rafts to modern day vessels, ferry boats have traversed rivers, lakes and oceans, shaping the course of human history. Drawing from global examples, we'll examine succesful ferry projects, highlighting their impact on local economies, tourism, and connectivity.*
Keywords: *ferry boat*

18. (ID 84) The Study on China's Naval Transportation System
Author: stud. Nicoleta-Roxana CIOCIA
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This research is based on China's Shipping System Study Scientific Research*

19. (ID 85) Emergency Teams on Cruise Ships
Author: stud. Răzvan VLADOIANU
Scientific Advisor: Instr.sup. eng. Andrei POCORA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *I've chose this title because I want to talk deeply about the emergency teams duties and responsabilities on board a Passenger Ship.*
Keywords: *passengerships, cruiseships, emegergencyteams*

20. (ID 86) The Study on SUA's Naval Transportation System
Author: stud. Gheorghe-Daniel POPA
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This research is based on SUA's Shipping System Study Scientific Research.*

21. (ID 88) Design and Operation of the Water Jet Fire Extinguishing System for A 5400 Tdw Oil Tanker
Author: stud. Vlad-Theodor STOICA
Scientific Advisor: Lecturer George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation is based on "Design and operation of the water jet fire extinguishing system for a 5400 TDW oil tanker "*

22. (ID 90) Astronomical Navigation in the Context of Ancient Polynesia and the Kon-Tiki Expedition of 1947
Authors: stud. David-Andrei MOLOAGA, stud. Cristian KISCANEANU
Scientific Advisor: Commander Assoc. prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The aim of our project is to explore the crucial role that astronomical navigation played for the ancient people of Polynesia and it's relevance to the Kon-Tiki expedition from 1947 led by Thor Heyerdahl. It will explain how the ancient Polynesians used astronomical knowledge such as celestial bodies and techniques like star compasses and stellar elevation in order to find their way on the Pacific Ocean. Our project will also examine the Kon-Tiki expedition; an attempt to cross the Pacific from Peru to Polynesia, relying only on ancient technology, thus trying to prove a theory about connections between ancient South American and Polynesian civilizations. As a result, our project seeks to showcase the understanding of historical navigation techniques and their significance for maritime exploration.*
Keywords: *Ancient Astronomical Navigation*

23. (ID 99) Systems of Navigation
Author: stud. Robert-Marian PIRLEA
Scientific Advisor: Scientific Researcher 3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Navigation is the method of determining the position, speed and direction of an object. They are mainly classified into two groups: physical model-based methods (PMM) and external data-based methods (EDM). Examples of PMM are inertial navigation systems (INS) and dead reckoning. They determine an object's current position by measuring various changes in its state, such as speed and acceleration. EDM represents the Global Navigation Satellite System (GNSS). In the case of spacecraft, auxiliary navigation systems using data compression have been proposed. In the case of satellites in low Earth orbit, the difference between the nominal and real orbits is compressed in the form of Fourier coefficients using the periodic properties of the orbit. In the case of Deep Space Explorer, B-spline based orbit compression and propagation has been proposed.*
Keywords: *Global, Navigation, Satellite, System*

24. (ID 100) Development of a Computation Program for Determining the Minimum Safe Under-Keel Clearance in Navigation Areas with Tidal Variability

Author: stud. Mihai-Danut TIMOFTE
Scientific Advisor: Lecturer eng. Elena-Gratiela ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper proposes the design of a MATLAB app that converges port information, weather data, and tide level to find the minimum safety under-keel clearance (UKC) for ships in areas with tidal variation. The app has a user-friendly dashboard for the selection of ports, the inputting of vessels parameters, the retrieval of weather and tide information in real time. The program creates matched action plans considering precise tidal predictions, vessel, and environmental factors for marine stakeholders to make decisions on navigational safety and optimal container port operations. Moreover, the paper is dedicated to the necessity of using all available data sources and computational approaches to improve the maritime industry's reliability and overall performance. The developed application works as a useful tool for vessel operators, port authorities and other maritime personnel, which being properly applied helps to achieve optimum route planning, reduce the risk of grounding and finally contribute to better vessel performances in tidal waters.*
Keywords: *MATLAB, navigation, UKC, API, tides*

25. (ID 103) Artificial Intelligence and the Future of Maritime Shipping

Author: stud. Denis DOLCEANU
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A quiet revolution has suddenly penetrated all the business processes and modes of operation. Artificial intelligence, abbreviated as AI, was once limited to the interests of computer scientists. However, nowadays, AI is not just a technological jargon but a real-world force that has already penetrated into many industries. Maritime shipping operations are executed with the help of intricate logistics, colossal vessels, and the complex dynamics of the world trade. AI has the potential to impact the maritime shipping industry as well, although the connection between algorithmic decision-making and data-driven solutions may appear worlds apart.*

The future of maritime shipping will be dominated by AI tools and technologies, which will determine how goods should be transported and how ships should be navigated for optimized routes. AI will also play a pivotal role in ensuring the safety of sea travel, improving fuel efficiency, and reducing carbon emissions.
Keywords: *Artificial intelligence, maritime transport, navigation, safety at sea*

26. (ID 105) We Can Do It!
Author: stud. Roberta-Mihaela CONSTANTIN
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The maritime industry, traditionally associated with men, has been transformed by the significant contribution of women. From their history in this field to the present, women have played a vital role, bringing innovation and diversity. Women on board ships are still relatively rare, facing the waves of the seas and oceans of the world. Female navigators face unique challenges, managing the balance between life at sea and life at home. In a traditionally male-dominated world in the maritime industry, women have made a significant contribution in various roles such as deck officers, engineers, and navigation crew. Maritime professions were officially prohibited for women until the 20th century, and participation in the operation of commercial ships was only possible through family connections. As a result, some courageous women disguised themselves as men to board ships, but their careers were often short-lived. In conclusion, through their professionalism and contribution to the maritime industry, women pave the way for future generations, promoting gender equality and positively influencing the direction of evolution in the field of navigation.*
Keywords: *women, ship, navigators, maritime industry, gender equality, strength, seafarer*

27. (ID 109) The Impact of LNG in the Maritime Industry
Author: stud. Rareș-Alexandru ANDREIEȘI
Scientific Advisor: Commander Assoc. prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The marine sector has been greatly impacted by LNG (liquefied natural gas). It has gained popularity as a cleaner energy source to replace conventional marine fuels, lowering the carbon footprint of the sector. Stricter emission restrictions have been the driving force behind the development of LNG. LNG helps ships comply with International Maritime Organization regulations by emitting zero sulfur oxides and substantially fewer nitrogen oxides and particulates. The switch to LNG is not without difficulties, though. The initial cost of ships powered by LNG is greater, and the infrastructure for LNG refueling is still being developed. Notwithstanding these challenges, LNG remains a viable option for a healthy maritime sector due to its long-term advantages in terms of the environment and economy. In conclusion, despite infrastructure and financial hurdles, LNG is revolutionizing the marine industry toward a more environmentally friendly future. The industry's commitment to this transition is a testament to its dedication to environmental responsibility.*
Keywords: *LNG, fuel, climate, fleet, lng powered, growth*

28. (ID 111) The Naval Transport System in Russia
Author: stud. Nicolas BANIOTI
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The naval transport system in Russia plays a crucial role in facilitating maritime trade, defense operations, and maritime connectivity. This paper provides a comprehensive overview of the key components, infrastructure, challenges, and developments within Russia's naval transport system. It examines the strategic importance of Russia's ports, including major hubs such as Saint Petersburg, Vladivostok, and Murmansk, in facilitating international trade and connecting Russia to global maritime routes. The analysis also delves into the fleet composition, including merchant vessels, naval ships, icebreakers, and support vessels, highlighting their roles in ensuring maritime security, search and rescue operations, and Arctic navigation. Furthermore, the abstract discusses the challenges faced by the Russian naval transport system, such as infrastructure modernization, harsh weather conditions, and geopolitical tensions, and explores ongoing initiatives and investments aimed at enhancing*

efficiency, capacity, and connectivity. Overall, this abstract provides valuable insights into the dynamics of Russia's naval transport system and its significance in the regional and global maritime domain.

Keywords: *maritime, global, naval, system, vessels*

29. (ID 114) The Importance and Operating Principles of The Maritime Autopilot

Authors: stud. Cosmin MAZILU, stud Cosmin Adrian DOROFTEI
Scientific Advisor: LCDR Lecturer Sergiu SERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The maritime autopilot is crucial for enhancing safety and efficiency in sea navigation. It operates on principles of sensor input and automated control to maintain a vessel's course. By integrating data from gyrocompasses, GPS, wind sensors, and motion detectors, the autopilot continuously adjusts the ship's steering to stay on course. This automation relieves the crew of constant manual steering, allowing them to focus on navigation, monitoring, and other critical tasks. Additionally, the autopilot can respond swiftly to changing conditions, such as wind shifts or currents, optimizing fuel efficiency and reducing the risk of human error. Overall, the maritime autopilot plays a vital role in ensuring precise navigation, improving crew workload management, and enhancing overall maritime safety and efficiency.*

Keywords: *Maritime, Autopilot, Safety, Efficiency, Sensor, Input, Navigation*

30. (ID 119) The Most Famous and Most Feared Pirates of All Time

Authors: stud. Alina-Elena CRĂCIUN, stud. Anca Ionela DOBROMIRESCU
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The 17th and 18th centuries marked the Golden Age of piracy, a period of maritime lawlessness intertwined with colonial expansion in the Americas. Notable among these seafaring outlaws were figures like Blackbeard, Anne Bonny, Mary Read, Bartholomew Roberts, Calico Jack, Henry Morgan, and Charles Vane, whose*

exploits have become legendary in both history and popular culture. Blackbeard's fearsome reputation, Anne Bonny and Mary Read's defiance of gender norms, and Bartholomew Roberts' unmatched success on the seas are just a few examples of the captivating stories that emerged from this era. Despite their criminal deeds, these pirates have left an enduring mark, inspiring countless works of fiction, films, and historical accounts. Their tales offer a glimpse into the complex geopolitical landscape and economic challenges that drove sailors to piracy, making them symbols of adventure, defiance, and the untamed spirit of the high seas.
Keywords: *Golden Age, piracy, maritime, history, success, stories*

31. (ID 120) The Influence of Surface-free Liquids on Stability of a Supply and Support Vessel
Author: stud. Mălina-Andreea BUZAMĂT
Scientific Advisor: Assoc. prof. Mihaela-Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The paper includes research about the influence of surface-free liquids on the stability of a supply and support vessel. Firstly, the paper will provide general information about ship's nautical qualities, followed by the presentation of the vessel used to elaborate this project. Secondly, the paper will outline theoretical considerations about this research, which will be approached using a traditional method, by tabular calculation. After presenting the classical analysis of the approached study, conclusions will be provided.*
Keywords: *surface-free liquids, stability*

32. (ID 121) Comments on Tanker Ship Oscillations in Black Sea Navigation
Author: stud. Alex-George MIHAIL
Scientific Advisor: Assoc. prof. Mihaela - Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The oscillatory behavior of ships in real hydro-meteorological conditions represents an important issue for both ship designers and builders, as well as for the onboard operating personnel. The occurrence of serious negative consequences, including capsizing due to the loss of transverse stability,*

necessitates a profound understanding of the complex phenomena accompanying transverse-vertical oscillations on waves, as well as preventive measures to be considered for practical operations. The paper presents a case study for a tanker-type vessel. The choice of this type of vessel was justified by the additional danger represented by the free surfaces in the cargo storage tanks. The study was developed in a classical manner and opened the perspective for computerized simulation of the ship's behavior.

Keywords: *oscillations, Black Sea, transverse stability, tanker-type vessel*

33. (ID 123) Navigating Organizational Challenges: A Synergistic Approach to Risk Management Integration in Contemporary Leadership Paradigms

Authors: stud. Mario - Andrei DUMITRACHE, stud. Petruț Cristian CERNEANU

Scientific Advisor: Associate Professor Daniel ROMAN, PhD

Institution: National Defence University "Carol I" Bucharest - Romania

Abstract: *This article scrutinizes contemporary transportation challenges within the logistical sector and proposes innovative solutions leveraging current technologies. It begins by highlighting the pressing nature of these challenges and the critical role of effective solutions. A detailed examination follows, elucidating the intricacies of logistical operations and the prevalent problems therein, alongside a brief exploration of historical context for context. Subsequent sections delve into the methodology employed, emphasizing the meticulous selection of current technologies and strategic implementation strategies aimed at mitigating transportation problems. The subsequent analysis dissects the outcomes of these applied methodologies, assessing their impact on operational efficiency, cost reduction, and their environmental footprint. In conclusion, the article underscores the significance of integrating contemporary technologies to address transportation challenges, emphasizing the necessity for ongoing innovation in this vital sector.*

Keywords: *transportation problems, logistic, current technologies*

34. (ID 124) The Specifics of Logistics Management in The Air Force

Author: stud. Noris-Stefan NEAGU
Scientific Advisor: Associate prof. Daniel ROMAN, Phd
Institution: National Defence University "Carol I"

Abstract: *This paper delves into logistics management within military Air Forces, emphasizing resource coordination for operational efficacy. It discusses essential activities like transportation, warehousing, and inventory control, while also touching upon modern concepts such as anticipatory logistics and supply chain management. Objectives of logistics structures within Air Forces include achieving operational readiness and interoperability, crucial for joint actions within alliances like NATO. The paper underscores the significance of realistic training simulations for troop preparedness in operational environments. By providing a concise overview, this paper highlights the critical role of logistics management in military operations and the necessity of adaptability for achieving success in dynamic environments.*

Keywords: *air force, logistics, management, military operations*

35. (ID 130) Search and Rescue

Author: stud. Octavian Valentin GUGOAȘĂ
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Search and rescue operations in the ship domain are crucial for maritime safety, often involving coordinated efforts from various authorities and organizations. These operations encompass locating and aiding distressed vessels, individuals overboard, or aircraft in maritime distress. Utilizing specialized equipment such as sonar, radar, and rescue boats, teams navigate challenging conditions to swiftly respond to emergencies. The effectiveness of these operations relies on skilled personnel, efficient communication, and advanced technology to minimize response times and maximize the chances of successful rescues, ensuring the safety of those navigating the seas.*

Keywords: *Search, Rescue, overboard, safety*

36. (ID 131) Study on Piloting Practices Aboard Ships
Author: stud. Alexandru-Ionut CLINCIU
Scientific Advisor: LCDR Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In pilotage, position fixing and maneuvering should not be separated. It would be useful to carry out pilotage in such a way that masters and officers are familiar with the principles of navigation in narrow fairways. In aviation this objective has mostly been achieved, and the aim is for the whole cockpit crew to reach a uniform performance level. Pilotage affects all seafarers who have a pilot licence, a fairway certificate or a pilot exemption certificate, and all those who work as masters or as watch- keeping officers. Piloting is often considered to be the task belonging only to the pilot, from outside the vessel, but pilotage includes navigation and monitoring irrespective of the position or certificate of competency.*
Keywords: *Pilotage, navigation, pilot, tug*

37. (ID 133) Mapping Enc as a Tool for Understanding Changes in The Shoreline in The Context of Maritime Navigation
Authors: stud. Ionel SCARLAT, stud. Andrei Anișor EPUREANU
Scientific Advisor: Captain Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Electronic Navigational Charts (ENCs) are vital tools in maritime navigation, providing digital representations of real geographic areas. They support various forms of maritime navigation and comply with international safety standards. ENCs offer precise and efficient navigation, enhance safety by providing real-time warnings of potential hazards, and contribute to environmental monitoring. They aid in planning port infrastructure and ensuring compliance with maritime regulations. ENCs also play a crucial role in understanding changes in the shoreline, detecting alterations over time, analyzing causes, predicting future changes and informing management decisions. Factors such as sea level rise, wave action and human activities contribute to shoreline modification. Monitoring and data collection methods, including hydrographic surveying and remote sensing, are essential for updating ENCs accurately. This project discusses the use of Electronic Navigational Charts (ENC) as a tool to map and*

understand changes occurring in the shoreline in the context of maritime navigation.
Keywords: *Enc, Shoreline*

38. (ID 137) Risk Assessment for Crude Oil Tanker Fleet
Author: stud. Cosmin-David PODARU
Abstract: *This presentation delves into an in-depth analysis of risk acceptance criteria within the global oil tanker fleet, focusing keenly on maritime safety and environmental conservation. It navigates the complexities brought on by demand-supply imbalances in the crude oil market, further intensified by the COVID-19 pandemic's effect on oil consumption. Emphasizing the importance of understanding risk factors, it aims to enhance safety measures and prevent pollution, highlighting oil transport's significant contribution to global crude oil production, estimated at 50-60%. Insights from entities like the European Maritime Safety Agency (EMSA) introduce key risk metrics such as potential loss of lives (PLL), environmental impact (PLC), and loss of property (PLP). The discourse extends to the challenges faced by the maritime industry, including the transition to cleaner energy amidst geopolitical tensions and evolving energy demands. Advocating for a rigorous safety evaluation and proactive risk management, the presentation underscores the necessity of implementing effective safety protocols to mitigate maritime transport risks, ensuring the industry's adaptability to environmental regulations and sustaining global economic stability.*

39. (ID 141) Remotely Operated Underwater Vehicles
Author: stud. Darie Ștefan DOBRICĂ
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A remotely operated vehicle (ROV) is a mobile underwater robot that is controlled and operated remotely by an operator from the surface. Unlike autonomous underwater vehicle (AUV), which operate independently, ROV are typically connected to the surface via a tether cable that provides power, communication and control signals. These vehicles are equipped with cameras, lights, sensors, manipulator arms and other tools for performing various tasks underwater, such as exploration, maintenance, inspection, research*

and salvage operations. They are commonly used in industries like offshore oil and gas, marine science, deep-sea exploration, underwater construction and environmental monitoring. These remotely operated vehicles enable humans to explore and interact with some underwater environments in real-time without the need to endanger human lifes.
Keywords: *remotely, underwater, vehicle*

40. (ID 143) Marine Navigation Software - SailXplorer
Author: stud. Andreea Monica TANASE
Scientific Advisor: Lecturer Elena Gratiela ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *SailXplorer is an app that brings together the basics of navigation with advanced techniques and weather details, making it useful for both experienced sailors and beginners keen to learn. The main purpose of my paper was to create an app where everyone, regardless of their knowledge, can easily find the information they need to sail safely to their destination.*
Keywords: *Navigation, Weather, Mobile, Calculations*

41. (ID 148) OOW During Port Stay
Author: stud. Alexandru OLTEANU
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present paper deals with the duties of the officer of the watch during the port stay from the moment the ship enters the harbour until the departure. We also put the stress on the different jobs the OOW has to carry in a safe manner and the papers he has to fill in after the watch.*
Keywords: *OOW during port stay*

42. (ID 151) Study on the Naval Transport System in Japan. Statistical Research, 2010-2024.
Author: stud. Teodor-Daniel OPREA
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *My presentation it's about a statistical study presenting the naval transport system in Japan over the period 2010-2024. Japan*

ranks among the leading powers of naval transport. It is ranked at the top positions based on various aspects such as the number of registered commercial vessels, the value of maritime exports and imports, as well as port capacity and the level of technology applied in the naval industry.
Keywords: *statistics*

43. (ID 161) Study Regarding Operating OBO Vessels
Author: stud. Alexandru-Victor VÎRTAN
Scientific Advisor: Instr. sup. Andrei POCORA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *OBO Vessels (Ore-Bulk-Oil), also known as combination carriers, are vessels built to be able to transport multiple types of cargo, thus having a great market flexibility: such vessels can choose which cargo to load, either dry or wet, depending on which market is higher, and can adhere to vessel type-specific regulations through conversion between each type of cargo that can be carried. It is a very practicable ship type, and in this presentation will be presented the advantages and disadvantages of such vessel type*
Keywords: *OBO, Combination Carriers, dry cargo, wet cargo, conversion, market flexibility*

44. (ID 164) Risk and Safety Management in Cruise Ship Operations
Author: stud. Irina FELINCIOIU
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation sheds light on the lessons learned from the mishaps experienced by the Viking Sky cruise ship, including blackout, loss of propulsion, and a near-grounding incident in Hustadvika, Norway, during March 2019.Additionally, the presentation emphasizes the importance of adapting and enhancing standards and regulations to mitigate risks associated with harsh environmental conditions, thereby preventing marine accidents. Furthermore, it suggests leveraging digital solutions such as digital twins for condition monitoring of cruise ships operating in Polar regions as innovative yet underutilized tools in the marine industry, which could enhance safety and operational efficiency.*

Keywords: *Marine accidents, Cruise ship, Blackout, Safety, Experience, Critical situation*

45. (ID 167) Considerations on the Stability of Tugboats on Full Load

Author: stud. Mihaela DRĂGAN
Scientific Advisor: Assoc. prof. Mihaela-Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Stability is the property of the ship to return to its original position of equilibrium after the removal of the cause that led to its displacement. The paper outlines the conventional study methodology for assessing the stability of a tug vessel while under full load at high angles of inclination. The study illustrates the tabular calculation completed with the display of static and dynamic stability charts.*

Keywords: *stability, tug, load, static, dynamic*

46. (ID 169) Presentation of The Weather Conditions, Lashing Ten Days, on The Route "Le Havre-Cape Town"

Authors: stud. Lavinia-Maria ROIU, stud. Alex-Claudiu HERLEA stud. Andrei-Catalin GHEORGHIU
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The project consists in presenting the weather conditions of a ship, for 10 days, on the route Le Havre - Cape Town. Regarding the weather conditions we highlight the following: wind direction, wave height, visibility, precipitation and temperature. The ship departs on 03.01.2024 from the port of Le Havre, France, crossing the Celtic Sea and the Atlantic Ocean at an average speed of 26 Nd, and then on 13.01.2024 to arrive in Cape Town port, South Africa.*

Keywords: *wind direction, visibility, precipitation, temperature*

47. (ID 173) Designing and Operating the Fire Extinguishing System with Water Jet for a Cargo Ship of 8200 TDW.

Author: stud. Cristian BREABĂN
Scientific Advisor: Lecturer Eng, George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this study, we delve into the intricate process of designing and operating a fire extinguishing system utilizing water*

jets specifically tailored for a cargo ship boasting a deadweight tonnage (DWT) of 8200. The maritime industry places paramount importance on ensuring the safety of both personnel and cargo amidst the inherent risks associated with seafaring endeavors. Consequently, the efficient design and effective operation of fire suppression systems stand as indispensable components in safeguarding lives and valuable assets at sea. Moreover, our study sheds light on the significance of implementing robust maintenance protocols to uphold system reliability and functionality over prolonged periods. Routine inspections, performance testing, and prompt repairs are imperative in mitigating potential vulnerabilities and ensuring readiness for emergent scenarios. Furthermore, we explore emergency response strategies tailored to swiftly and effectively combat fire outbreaks, encompassing crew training initiatives, evacuation protocols, and coordination with external emergency services.
Keywords: *ship, shipwreck*

48. (ID 182) Marine Polution on Romanian Coast - the Sinking of Queen Hind
Author: stud. Flavius George BUȚURCĂ
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Keywords: *Polution Queen Hind*

49. (ID 187) The Leadership and Collaboration in Maritime Teams
Author: stud. Stefania BREAZU
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *While the attractive salary is often highlighted and promoted in the maritime industry, the psychological aspects of navigation are often neglected, leaving many seafarers to face the difficulties of the profession without adequate support. It is important to recognize that the maritime environment can have a significant impact on the mental health of seafarers and that increased attention to this aspect is necessary. This paper explores the importance of leadership and collaboration in maritime crews within the*

psychological context of the naval industry. Leadership and collaboration are crucial aspects for the smooth operation of a vessel and for maintaining the mental health and efficiency of the crew during prolonged periods spent at sea.
Keywords: *Leader, Psychological aspects, Mental health, Adequate support, Crew efficiency, psychological impact*

50. (ID 189) Presentation of the Weather Conditions, Lashing Ten Days, on the Route "Los Angeles-Port Cartier"
Authors: stud. Izabela-Alexandra OTELEA, stud. Delia-Marina GHEORGHIU, stud. David-Andrei PETROVICI
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project presents the weather conditions, on the route "Los Angeles-Port Cartier", for 10 days. For each day, we analyzed the wind direction, wave height, visibility, temperature and temperature. The ship departs on 03.01.2024 from the port Los Angeles, and then on 13.01.2024 arrives in Port Cartier, Canada.*
Keywords: *temperature, precipitation, wind direction, atmospheric pressure*

51. (ID 190) Naval Accidents Due to Unfavorable Weather Conditions
Authors: stud. Crina TELIBAN, stud. Costin MIHAILESCU
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present study presents naval accidents caused by weather conditions, exploring the impact of extreme meteorological phenomena on the safety of navigation and vessels. It investigates how weather conditions such as storms, dense fog, or ice can lead to shipwrecks, collisions, or other maritime accidents. Additionally, it examines the impact of climate change on the frequency and intensity of these events. The main purpose of this study is to provide a deeper understanding of the risks associated with extreme weather conditions and to contribute to the development of strategies for the prevention and efficient management of naval disasters.*
Keywords: *naval accidents, meteorological phenomen*

52. (ID 191) Procedures of Loading and Unloading Oil Tanker Vessels

Author: stud. Stefan Mihail VOITINOVICI
Scientific Advisor: Eng. Cristina ALECSE, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project is about the procedures of the loading and unloading oil tanker vessel. In this paper is describing the preparation of the vessel before arriving in the loading port, the loading process and the procedures of cargo control. Also, will be presented the cargo pumps and valves used, the ballast operation that is doing on the cargo loading and the preparation of the ship for unloading and the procedure of unloading. Another important thing is the maintenance of the cargo that is made when the ship is underway.*

Keywords: *Loading procedures*

53. (ID 194) Analysis of the Transport of Vegetable Oils on an Oil/Chemical Tanker Vessel

Author: stud. Aiseghiul GEAMBULAT
Scientific Advisor: Specialist Eng. Livia RAUCA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Oils may also be categorised in relation to the extent of processing which they have undergone prior to the shipment. Most oils are shipped in the crude state but the shipment of refined products, often described as "Refined, bleached and deodorised" (RBD). Generally, refined oils are more sensitive to poor storage and handling conditions than crude oils.*

Keywords: *navigation, transport, analysis, oil, tanker*

54. (ID 196) Software Solution for Training Employees Regarding Company Policies in Crewing Agencies

Author: stud. Iulia-Ioana MIHAI
Scientific Advisor: Associate Professor Andrei BĂUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In the fast-paced environment of crewing agencies, ensuring that employees fully understand and follow the company policies and regulations is important to maintaining safety and operational efficiency. Recognizing the challenges that crewing*

companies face in training a diverse workforce, innovative software solutions have emerged in order to make the training process more adequate for both sides and also to enhance employee knowledge retention. The purpose of this paper is to develop a new method and to explore the already exiting options to enhance seafarers' efficiency for crewing companies. To do this, different approaches to managing crewing company effectiveness are examined in this paper, taking into account peculiarities of crewing and the conditions in the global seafarer market. The data for this project was collected from research papers, published articles, and by observing and analyzing crewing companies' policies and the training process.
Keywords: *software, crewing company, employees, solutions, research*

55. (ID 198) Deepwater Horizon
Author: stud. Alexandru-Madalin STANCIU
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Case study about Deepwater Horizon, an ultra-deepwater semi-submersible offshore drilling rig.*

56. (ID 199) Study on the Management of Plastics and Microplastics on Board a Passenger Ship. Treatment Systems.
Author: stud. Andreea DRAGU
Scientific Advisor: Captain Assoc. Prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this project we highlighted the main factors of pollution and also methods of avoiding it. In the first part we described the impact on the environment, water pollution and waste management as well as the impact of noise on marine life. In the second part we presented the measures to reduce the pollution generated by passenger vessels as well as the international regulations and standards on the pollution generated by ships. In conclusion, the pollution of the marine environment could be redressed by introducing innovative technologies to reduce environmental contamination.*
Keywords: *pollution, plastic, passager ship's*

57. (ID 203) The History of Tattoos in Navy
Authors: stud. Ioan-Alexandru GAVRIL, stud. Cristian KISCANEANU
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this project, we explore the rich history of tattoos among sailors, a tradition that dates back to at least the 16th century. Sailors adorned themselves with tattoos for a variety of reasons, including identification, commemorating their travels, and expressing their individuality. Certain tattoos were also believed to bring good luck or protection. The popularity of sailor tattoos boomed in the 19th century, and by the early 20th century, many sailors sported tattoos. While tattooing declined among sailors in the late 20th century, the "old school" style of sailor tattoos continues to hold a special place today.*
Keywords: *history, tattoos, sailors*

58. (ID 210) Firefighting Equipment on an Oil Tanker
Author: stud. Constantin Daniel HORVAT
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Firefighting equipment on tanker vessels is vital for the safety of the crew and cargo. This includes fire detection systems, alarms, automatic and portable firefighting systems, proper compartmentation, personal protective equipment, and rescue gear. Continuous monitoring, regular maintenance, and crew training are crucial for the effectiveness of these tools in fire prevention and control. In such a risk-sensitive industry, prioritizing safety and implementing adequate fire prevention measures are an absolute imperative.*
Keywords: *Firefighting equipment Tanker vessels Safety Crew Cargo Detection systems Alarms Prevention Maintenance Training*

59. (ID 211) The Importance of Astronomy in Navigation
Authors: stud. Lorena-Andreea OATU, stud. Alina-Mihaela PREDA
Scientific Advisor: Commander Assoc. prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *We chose this subject because we consider that everyone should know how important astronomy is in navigation, and how much it can help us as navigators. Astronomy is vital in navigation, from ancient civilizations to the modern technology era. Mesopotamians considered the sky as a divine manifestation and used towers to track and record the movements of the Sun, Moon, and stars. The term "astronomy" derives from the Greek for "star" and "law," reflecting the rules of the sky. Navigation has evolved over time to improve safety and efficiency, and GPS, originally created for military purposes, is now freely available to civilian users. However, in times of conflict, astronomy comes to the forefront because GPS may be inaccessible, and navigators rely on astronomical observations to navigate. Finally, astronomy remains essential in navigation, even in the advanced technology era, highlighting its continued importance in guiding and ensuring navigation safety*
Keywords: *Astronomy, navigation, GPS, history of astronomy*

60. (ID 213) Energy Management of Large Seaports
Author: stud. Andreea – Maria BEU
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The energy management of major maritime ports is the central subject of this study, focusing on the methods and practices used to manage energy consumption and greenhouse gas emissions in these vital hubs of maritime transportation. By analyzing how major ports address these challenges, the research explores innovative strategies used to optimize energy efficiency and integrate renewable energy sources. The results of these initiatives highlight the economic and ecological benefits of a sustainable approach in the energy management of maritime ports, including the reduction of operational costs and the impact on the surrounding environment.*
Keywords: *Green Port, maritime ports, port energy efficiency.*

61. (ID 214) Ship Collision Avoidance Path Planning Based on Artificial Potential Fields and Maneuverability
Authors: stud. Costin-Alexandru STEFAN, stud. Mario Alexandru NEAGU

Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation highlights gaps in current ship-to-ship avoidance algorithms regarding the consideration of factors like ship length, maneuverability, and adherence to COLREGs. It proposes a solution by combining a cooperative ship domain model with the APF (artificial potential field) method to address these limitations. This integrated approach accounts for differences in ship length during close collision scenarios and incorporates ship maneuverability into the algorithm. Additionally, it outlines collision avoidance actions for the stand-on vessel according to COLREGs when the give-way vessel fails to act. Simulation results validate the proposed method's effectiveness, reasonableness, and practical applicability.*
Keywords: *Ship collision, ship maneuverability, collision prevention.*

62. (ID 217) Deep Waters, Deep Crisis: Combatting Sea Water Pollution

Author: stud. Daria Georgeta POPA-NICA
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present article addresses the critical issue of sea water pollution, highlighting its sources such as plastic waste, oil spills, and chemical runoff, and its devastating effects on marine ecosystems, biodiversity, and human health. We explore the consequences of ocean acidification, eutrophication, and coral reef degradation, underscoring the urgency of tackling pollution to safeguard marine life and human communities reliant on the ocean. Therefore, we advocate for comprehensive solutions, including policy reform, technological innovation, and global cooperation, to combat sea water pollution effectively. The goal of this article is to inspire collective action towards preserving marine health and ensuring the sustainability of our oceans for future generations.*
Keywords: *marine pollution, plastic waste, overfishing, oil spills*

63. (ID 218) CADCAM Techniques for Interpreting and Processing Naval Hull Geometry

Authors: stud. Alexandru - Ștefan BEREA, STUD. Vlad Mihai CONSTANTIN
Scientific Advisors: Assoc. prof. Mihaela-Greti MANEA, PhD, Scientific Researcher 3 Alexandru PINTILIE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *CADCAM (Computer-Aided Design, Computer-Aided Manufacturing) techniques have revolutionized the field of engineering by their ability to interpret and process complex geometry at the highest precision. In this presentation, the blueprint of a PSW-type vessel was morphed into a submersible drone blueprint using AutoCAD, followed by forming the shape itself into 3D. This project aims to go further into its development in the future, by studying the hydrodynamics of the hull, and how the values change after morphing its shape, and to study it's mobility in water depending on the size and weight of the vessel. The ability to design the model of a hull was demonstrated with the intention of aiding in the development of future naval drone designs.*

Keywords: *CADCAM, hull, geometry,3D, hydrodynamics*

64. (ID 219) General Overview of the Influence of Extreme Weather Events on The Coastal Area of the Black Sea in the Last 5 Years

Author: stud. Daria Georgeta POPA-NICA
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The above-mentioned study aims to offer insights into extreme weather events triggered by global warming and natural phenomena such as the El Niño phenomenon along coastal areas. Extreme weather events have escalated due to the alarming index reached by global warming. The entire planet is facing extreme weather phenomena, with the year 2023 being declared the hottest year on record: annual temperatures have been more than 1°C higher than the average for the period 1991-2020, resulting in a surge of extreme weather events such as storms, wildfires, floods, and droughts worldwide. The main purpose of this study is to present some of the main extreme weather events affecting the coastal area of*

the Black Sea and to identify solutions that align with the global movement to fight against global warming, the leading cause of extreme weather events.
Keywords: *extreme weather events, coastal areas, global warming, El Niño, Black Sea*

65. (ID 220) The History and Importance of Suez Canal
Authors: stud. Bogdan Ionuț BURDUJA, stud. Daniel-Andrei CHITEALĂ
Scientific Advisor: Lucian DUMITRACHE
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Suez Canal stands as a pivotal artery in global maritime trade, serving as a vital conduit between the Mediterranean Sea and the Red Sea. This abstract delves into the importance of the Suez Canal, examining its historical evolution, economic impact, and geopolitical implications. It highlights how the canal's construction in the 19th century revolutionized maritime transportation, drastically reducing voyage durations and costs between regions. Moreover, it shows the canal's role as a linchpin of global trade routes, facilitating the movement of goods and commodities between Europe, Asia, and beyond.*
Keywords: *The History and Importance of Suez Canal*

66. (ID 221) Planning, Execution and Travel Monitoring on the Route Angras Dos Reis (Brazil) – Quintero (Chile) On Board Oil Tanker
Author: stud. Vlad-Andrei CHIȚU
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this presentation I will highlight a part of the navigation process during the execution of the voyage on the route: Angras Dos Reis (Brazilia)– Quintero (Chille), going through the Strait of Magellan. My article will include historical and geographical aspects deemed important for the safe monitoring and execution of the journey.*
Keywords: *Voyage*

67. (ID 222) Study on Passenger Transport on the Romanian Sector of the Danube

Author: stud. Crina TELIBAN
Scientific Advisor: LCDR Lecturer Serban SERGIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study examines passenger transport on the Romanian sector of the Danube, focusing on its significance, operational aspects, and impact. It delves into the dynamics of waterway transport, particularly in relation to tourism, economic implications, and environmental considerations. Through analyzing navigation infrastructure, regulatory frameworks, and vessel traffic, the study offers insights into the challenges and opportunities for enhancing passenger transport along the Danube in Romania.*

Keywords: *Danube River; passenger transport; Romania's Danube ports*

68. (ID 224) Current Sailing Conditions in the Black Sea and the Sea of Azov

Author: stud. Nicolaos Aghelos SAMOLIS
Scientific Advisor: Assoc. prof. Romeo BOSNEAGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The project "Current Sailing Conditions in the Black Sea and the Sea of Azov" will follow the voyage from the Black Sea to the Sea of Azov, the current navigation conditions and the hydrometeorological situation during the voyage.*

Keywords: *Navigation, Black Sea, Sea of Azov*

69. (ID 225) Determining Seabed with Single-Beam Echo Sounder

Author: stud. Gabriel-Adrian DEDIU
Scientific Advisor: Captain Assoc. prof Dinu ATODIRESEI, PhD.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation will explore the applications of hydrographic research equipment in the north-western part of Black Sea. Firstly, the presentation will begin with a brief introduction of the Black Sea, continuing with a descripiton of the research equipment used in this experimentation. The paper will then continue with the research. The selected areas were chosen to be relevant to*

the underwater area on the north-western coast. Therefore, were chosen Sulina area due to the fact that the area is deeply affected by Danube`s sediment at the spilling into the Black Sea and the Midia area where the maritime traffic is heavy considering the principal port entrances of Romania, Midia and Constanța. Finally, the presentation will conclude with a discussion on the roles of this type of research.
Keywords: *Echo sounder, seabed, Black Sea*

70. (ID 227) Unlocking the Panama Canal: A Passage through History
Authors: stud. Carlos-Constantin BRĂTUIANU, stud. Mălina VLĂDOIU, stud. Matei-Gabriel BUCUR
Scientific Advisor: Lucian DUMITRACHE
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This PowerPoint presentation chronicles the Canal's inception, detailing the ambitious vision behind its creation and the monumental engineering feats that made it a reality. From its construction in the early 20th century to its modern-day role as a vital artery of global commerce, the presentation explores the economic, political, and environmental impacts of this strategic passageway.*
Keywords: *Panama Canal, cargo transition*

71. (ID 228) The Impact of Cargo Distribution on Ship's Longitudinal Strength
Author: stud. George-Mihai MATUSA
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study examines the crucial relationship between cargo distribution and ship's longitudinal strength. Understanding how the placement of cargo influences the structural integrity of a vessel is paramount for ensuring maritime safety and operational efficiency. By analyzing factors such as stability, bending moments, trim optimization, and dynamic effects, naval architects and operators can mitigate risks associated with uneven loading and enhance the ship's ability to withstand varying environmental conditions. Through a comprehensive investigation of cargo distribution patterns, this*

research aims to contribute to the development of optimized loading plans and structural designs that enhance the longitudinal strength and seaworthiness of ships.
Keywords: *ship cargo distribution, ship longitudinal strength, maritime engineering.*

72. (ID 229) The Intersection of Art and Mathematical Analysis: Decoding Leonardo da Vinci's Mathemathical Genius
Authors: stud. Alexandra MICU, stud. Timur MAMBET
Scientific Advisor: Prof Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation aims to explore the fascinating intersection of art and mathematics, focusing on the genius of Leonardo da Vinci as a prime example. Through a concise analysis, we'll uncover how da Vinci seamlessly integrated mathematical principles into his artworks, revolutionizing techniques such as perspective, proportion, and anatomical precision.*
Keywords: *Golden Ratio and Fibonacci Sequence, Mechanical Inventions and Engineering*

73. (ID 230) Cargo Operations on RoRo Vessels
Author: stud. Catalin Sebastian DRAGNEA
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this portfolio is to provide clear and practical information about Cargo operations on RoRo vessels. Portfolio begins with a brief explanation about RoRo shipping in general, and then moving to more advanced topics such as segregation of cargo. In the end of this portfolio, I present my conversation with Chief Officer about safety risks on our vessel during cargo operations. For instance, we discuss about the current and upcoming risks and how to avoid these incidents from happening.*
Keywords: *RoRo shipping, Cargo handling, IMDG*

74. (ID 232) Shipwrecks Study
Authors: stud. Andrei-Iulian DUMBRAVA, stud. Robert Mihai DORNEANU

Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study of shipwrecks transcends mere maritime history; it serves as a multidisciplinary lens through which to understand human civilization, technological innovation, environmental impact, and cultural heritage. This abstract delves into the intricate tapestry of shipwreck research, encompassing archaeology, oceanography, anthropology, and conservation sciences. Through meticulous documentation and analysis of artifacts, shipwreck studies reconstruct lost chapters of human history, illuminating the interconnectedness of civilizations across continents and epochs.*
Keywords: *Shipwrecks, Marine archaeology*

75. (ID 235) The Evolution of Autonomous Ships
Authors: stud. George Daniel JERCAN, stud. Mihaela JIANU
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Unmanned vehicles have become a part of everyday life, not only in the air, but also at sea. In the case of sea, until now this usually meant small platforms operating near shores, usually for surveying or research purposes. However, experiments with larger cargo vessels, designed to operate on the high seas are already being carried out. In this context, there are questions about the threats that this solution may pose for other sea users, as well as the safety of the unmanned vehicle itself and the cargo or equipment on board. The problems can be considered in the context of system reliability as well as the resilience to interference or other intentional actions directed against these objects. The paper describes the dangers that arise from the specificity of systems that can be used to solve navigational problems.*
Keywords: *autonomous ship, unmanned ship*

76. (ID 239) Stability Study of a Damaged Ship of Type Tanker of 73.000 Tdw
Author: stud. Alexandru-Daniel BURLACU
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Studying the stability of a damaged vessel, such as a 73,000 TDW oil tanker, is crucial for assessing safety and risks in emergency situations. This study involves analyzing the vessel's behavior under different loading conditions, waves, and wind, as well as in the event of oil spills or accidents. Factors such as cargo distribution, vessel structure, and pumping capabilities from compartments are considered to ensure that vessels can maintain stability and safety under any circumstances.*
Keywords: *Stability, tanker, risk, structure*

77. (ID 241) Employee Evaluation Software
Author: stud. Cosmin STROIE
Scientific Advisor: Assoc. prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *There are several employee evaluation software options available that can be customized based on your organization's needs and goals. These solutions can include performance appraisal tools, skill assessments, 360-degree feedback, and more. It's important to choose software that fits your company's processes and values and provides an efficient and transparent assessment experience for employees.*
Keywords: *Software*

78. (ID 243) Stability Study of a Damaged Bulk Carrier of 25.000 TDW
Author: stud. Ioana-Adriana DINU
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study focuses on assessing the vessel's behaviour and survivability in emergency situations. By analysing the cargo distribution, structure and subdivision of the vessel, critical factors that may influence its stability and buoyancy are identified. Using computer simulations and physical models, effective damage response and management strategies are developed to minimise risk and ensure the safety of crew and cargo.*
Keywords: *Risk, Safety, Bulk, Cargo*

79. (ID 246) Study Regarding Hydrometeorological Conditions During the Voyage from Naples Port to Yokohama Port
Author: stud. Hakan REFIGEAN
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The present paper presents the hydrometeorological situation departing from Naples to Yokohama. The route lasted 10 days, during which I analyzed parameters such as air temperature, precipitation, wind direction and speed, wave height, direction and speed, visibility, nebulosity and atmospheric pressure.*
Keywords: *Visibility, Pressure, Hydrometeorological condition, Voyages*

80. (ID 251) Study on Decarbonisation of the Maritime Sector by 2050
Author: stud. Gabriel GEORGESCU
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Decarbonizing the shipping sector by 2050 requires a multifaceted approach, integrating cleaner fuels like hydrogen and ammonia, alongside advancements in propulsion technologies such as wind-assist and electric propulsion. Additionally, improving vessel efficiency through design innovations and operational optimizations will play a crucial role. Policymakers, industry stakeholders, and innovators must collaborate to achieve this ambitious goal while ensuring economic viability and global regulatory alignment.*
Keywords: *shipping decarbonisation; maritime transport; renewable energy*

81. (ID 252) Implementation of Technologies to Reduce Black Carbon (Soot) Emissions from International Shipping.
Author: stud. Mihnea TROFIN
Scientific Advisor: Instr.sup.eng. Andrei POCORA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *To effectively reduce black carbon emissions from international shipping, an extensive investigation is underway to identify suitable control measures, including abatement technologies. This involves a comprehensive approach integrating innovative*

solutions to mitigate environmental impact while ensuring safety and security in maritime operations.
Keywords: *black carbon emissions; IMO; control measures*

82. (ID 253) Training of the Staff at the Board of the Ship
Author: stud. Alexandru-Gabriel ŞTEFĂNICĂ
Scientific Advisor: Assoc. prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The presentation will focus on the importance of training the staff of the ship for the security while on board.*
Keywords: *training, securith*

83. (ID 257) Risk and Safety Issues in the Operation of Oil Tanker Ships
Author: stud. Cristian-Traian MARIN
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *It is widely accepted that risks in maritime transportation are quite diverse and complex. Due to the nature of their activity, oil tankers entail particular risks, the analysis of which requires a careful, rigorous, and systematic approach. From this perspective, the paper presents the preliminary elements that facilitate the understanding of the notion of risk in the operation of oil tanker ships and the typology of maritime accidents involving oil tankers. From a pragmatic standpoint, the research materializes in the analysis of the risk of fire and explosion on chemical/oil tanker ships. The lessons learned from the analysis of the Stolt Groenland chemical tanker accident can be replicated in the analysis of similar accidents, with the proposed analytical technique being comprehensive.*
Keywords: *oil tanker, risk and safety, sources of marine risk, casual loop diagrams*

84. (ID 268) Preventing Piracy Onboard
Author: stud. Mihai Robert PARASCHIV
Scientific Advisor: Instr.sup. eng. Andrei POCORA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Piracy remains a persistent threat to maritime operations, posing significant risks to crew safety, vessel integrity, and cargo*

security. This project proposes a comprehensive strategy to mitigate piracy incidents on board ships. It encompasses technological innovations, procedural enhancements, and crew training programs to fortify defense mechanisms against piracy attacks. The technological aspect includes the integration of advanced surveillance systems, early warning detection mechanisms, and secure communication networks to enable swift response to potential threats. Procedural enhancements involve the development of standardized protocols for piracy prevention, emergency preparedness, and crisis management. Furthermore, specialized training programs will equip crew members with the necessary skills to effectively handle piracy situations, including conflict resolution and self-defense techniques. By combining these elements, the project aims to create a robust defense framework that minimizes the vulnerability of ships to piracy, ensuring safer voyages and protecting maritime assets.

Keywords: *piracy prevention, maritime security, on-board defense, technological innovations, surveillance systems, crew training, emergency preparedness, crisis management, self-defense techniques, maritime assets protection.*

85. (ID 269) Python API Rest Interface for Magnetic Deviation and Declination

Authors: stud. Ciprian MIHAI, stud. Vlad-Remus VASILIU
Scientific Advisor: Lecturer eng. Elena ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Regardless of their level of training, all seafarers need to know the difference between true and magnetic north. These differences are known as magnetic variation or declination and are the horizontal angle formed between true north and magnetic north. This paper presents a program developed to provide a user-friendly interface for accessing information related to magnetic declination and compass deviation, offering valuable tools for navigation and orientation. Overall, our application helps users who want to calculate these two important parameters in real time and without having physical access to a specific map.*

Keywords: *Python, API, numpy, magnetic declination, satellite, marine, magnetic (compass) deviation*

86. (ID 275) Crude Oil Tankers: Navigating Challenges and Innovations

Authors: stud. Dragos-Carlos IVASCU, stud. Alex-Claudiu HERLEA
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project encapsulates data regarding the challenges and innovations in navigating the petroleum industry. The addressed subthemes include the significance of oil transportation, the volume of transported goods, and the distances covered. Additionally, it delves into environmental impact and associated hazards. Other pertinent information encompasses the global economic impact and industry challenges.*

Keywords:

87. (ID 291) Considerations Regarding the Influence of Small-Weights Loading on the Static Nautical Qualities of a Ferry-Type Vessel

Author: stud. Bianca-Elena PĂDURE
Scientific Advisor: Assoc. Prof. Mihaela-Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Specialized literature pays attention to the operations of loading weights because they are commonly encountered in ship exploitation practices. The small weight loaded on board produces a change in draft, so that the sides of the ship can be considered vertical along its entire length. Complicated physical phenomena accompany these operations. Therefore, I have chosen to discuss this topic, "loading small weights." The aim of this project is to bring your attention to the theoretical study of stability and buoyancy safety, taking into account various algorithms.*

Keywords: *loading, small weights, buoyancy, stability*

88. (ID 294) The Electronic Chart System for Inland Waterways - Performance Standards and Provided Facilities

Author: stud. Steluta MUNTEANU
Scientific Advisor: LCDR Lecturer Sergiu ȘERBAN, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Inland waterway transportation plays a crucial role in global commerce, offering a cost-effective and environmentally friendly alternative to land-based transportation. However, ensuring safe navigation on inland waterways presents unique challenges due to variable water levels, limited infrastructure, and dynamic environmental conditions. The Electronic Chart System (ECS) represents a pivotal technological advancement, offering a comprehensive solution for safe and efficient navigation on inland waterways. This presentation will provide a comprehensive overview of the performance standards and facilities provided by ECS for inland waterways, emphasizing their role in enhancing navigation safety and efficiency on inland waterways. Through an overview of regulatory frameworks and technological advancements, it will highlight the importance of adhering to performance standards and leveraging advanced ECS features. By addressing these topics, this presentation aims to provide insights into the significance of Electronic Chart System in optimizing inland waterway navigation.*
Keywords: *Inland waterways, ECS, performance standards, efficiency, navigation safety*

89. (ID 297) Design of Fire and Explosion Prevention and Fighting Installation for a 9700 TEU Container Ship

Author: stud. Luisa-Patricia BALAȘ
Scientific Advisor: Lecturer Eng George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The occurrence and development of fires on board is a current issue. In this context, the purpose of this document is to present both the fire and explosion prevention and fighting installations on container port ships and how they are currently used.*

90. (ID 300) Human Reliability Assessment in Oil Tanker Operations

Authors: stud. Crina TELIBAN, stud. Alessia COSTACHE, stud. Ioana-Adriana DINU
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This research aims to enhance Human Reliability Analysis (HRA) specifically for oil tanker operations to mitigate human errors*

and prevent spills. It addresses the scarcity of human reliability data in maritime settings, emphasizing the need for improved methodologies. Historical analysis of oil tanker incidents underscores the urgency of this endeavor. A conceptual framework integrating HRA with Human Organizational Factors (HOF) is proposed to augment existing methodologies. While Cognitive Reliability and Error Analysis Method (CREAM) are recognized for identifying error causes, its limitations prompt the development of an advanced CREAM and a human reliability quantification model using Analytic Hierarchical Process (AHP) and fuzzy logic. This advanced model not only identifies root causes but also offers solutions and quantification, fostering better HRA data in maritime contexts.

Keywords: *human errors, oil tanker operations*

91. (ID 301) Marine Polution on Romanian Coast the Sinking of Queen Hind

Author: stud. Flavius-George BUȚURCĂ
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The present paper provides a concise overview of the Queen Hind incident, highlighting its significance as a case study for understanding the complex dynamics of maritime disasters and the imperative for sustainable practices in shipping and environmental management. The sinking of the M/V "Queen Hind" off the coast of Romania on November 24th, 2019, serves as a poignant case study of maritime disaster and environmental impact. This incident, involving a livestock carrier laden with thousands of sheep destined for export, underscores the potential ramifications of inadequate vessel stability and cargo management. Initial investigations suggest factors such as overloading, improper cargo stowage, and adverse weather conditions contributed to the vessel's capsizing.*

Keywords: *Marine polution*

92. (ID 302) Ballast System

Authors: stud. Alessia COSTACHE, stud. Crina TELIBAN
Scientific Advisor: Specialist eng. Livia RAUCA, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study presents the importance of the ballast system for maritime vessels, emphasizing its role in maintaining stability through weight distribution adjustments. It ensures operational safety, trim, and adherence to environmental regulations. These abstract underscores its critical significance in vessel operations and environmental protection efforts.*
Keywords: *ballast system, stability*

93. (ID 304) The Study of Meteorological Conditions Along the Route from Jose Petroterminal (Venezuela) to Barcelona (Spain)
Authors: stud. Alessia COSTACHE, stud. Crina TELIBAN
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study of the navigation route between the Jose Petroterminal in Venezuela and Barcelona, Spain, requires a deep understanding of meteorological phenomena that can influence the route and navigation safety. These phenomena include, among others, winds, ocean currents, waves, and extreme weather conditions such as storms and hurricanes. Large waves and extreme weather conditions can pose additional risks to the safety of the crew and cargo. To assess and manage these risks, it is essential to conduct detailed meteorological studies and use real-time weather data to plan and adjust the navigation route. Additionally, considerations must be given to aspects related to navigation safety and applicable international standards.*
Keywords: *navigation rute, navigation safety, meteorological phenomena*

94. (ID 307) Reducing Ship Pollutant Emissions Through Modern Methods
Authors: stud. Madalina-Antonela COSTAN, stud. Tiberiu-Stefan SERBU
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The reduction of ship polluting emissions through current methods is a critical topic in today's society, as we strive to mitigate the impacts of pollution on the environment and human health. This theme explores the latest techniques and technologies being used to*

decrease harmful emissions from ship transportation. By implementing innovative practices and policies, we aim to achieve cleaner air and a healthier planet for future generations.
Keywords: *ship pollution, ship emissions, ship environment*

95. (ID 309) Ship Surface Biofilms: Consequences for Environmental and Ship Biofouling Control
Author: stud. Ailin BAUBEC
Scientific Advisor: Lecturer eng. George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ship operating performance can be improved and transportation costs can be decreased with better biofouling management on the ship's hull. Biofouling on submerged ship surfaces can have a direct effect on how the vessel operates, increasing fuel consumption and greenhouse gas emissions as well as the risk of effects and transfer of non-indigenous species (NIS). From the perspective of ship operations and biosecurity, proactive in-water cleaning (IWC) of biofilms from submerged ship surfaces might be a practical solution. However, these advantages must be weighed against other environmental costs, such as the possibility of increased biosecurity risks due to the elevated release of diverse microbes from ship surfaces.*
Keywords: *biofilms, marine environment, ship biofouling, ship pollution*

96. (ID 311) Graphical User Interface for Determining the Ship's Location by Simultaneous Celestial Observation
Author: stud. Laurentiu-Leonte RADU
Scientific Advisor: Lecturer Eng Elena-Grațiela ROBE-VOINEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study focuses on making an graphical user interface which determines the ship's location using celestial navigation, specifically by measuring the altitude of stars. By observing the angle between the horizon and a star, navigators can calculate the ship's position on Earth. The method relies on accurate timekeeping and reference tables to convert observed angles into geographical*

coordinates. This paper outlines the process of celestial navigation using two star altitude observations
Keywords: *Graphical user interface, ship's location, celestial navigation, two star altitude observations*

97. (ID 312) The Life of a Cadet on Board the Ship
Author: stud. Gabriel ION
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *There is a big difference between what one may think of or imagine how an experience may seem and actually living that experience. This paper is like a personal mirror of such a situation; it deals with being a cadet onbord a merchant ship. It depicts what are the requirements for this position, what is the daily schedule, what are the dos and the don'ts for a cadet onboard. The goal of this paper is to share my personal experience with my fellow colleagues and future cadets, to ease any contingent shock that may appear when changing the life pace.*
Keywords: *experience, life, cadet, onbord*

98. (ID 314) The Technical and Constructive Features of Arctic Ships
Author: stud. Alexandru BOTAS
Scientific Advisor: Commander Assoc. prof. Sergiu LUPU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Arctic ships demand specialized design and construction to navigate extreme conditions. This abstract explores key technical aspects such as hull design, propulsion, and icebreaking capabilities, emphasizing integration of advanced materials and technologies for enhanced performance and sustainability.*
Keywords: *ice acrtic ships efficient*

99. (ID 315) Design and Optimisation of Hatch Covers on Board a Bulk Carrier
Author: stud. Alexandru CIOCHINA
Scientific Advisor: Lecturer Eng George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *In this paper, Finite Element Analysis was used to simulate ship hatch covers with different grid geometries viz. Square grid, Inclined grid, Diamond grid and Honeycomb grid. The entire finite element analysis results were generated by ANSYS® workbench environment. The hatch cover provides an air tight barrier protection for the cargo. For the present simulation the original hatch cover dimensions are used (21000 × 14000 × 300 mm). The principle objective of the present paper is aimed at proposing a light-weight material, so called glass fibre reinforced plastic material over the existing steel to reduce the weight for the cargo ship to improve the efficiency by reducing fuel consumption so that dead weight is downgraded. Glass fibre reinforced hatch cover also reduces man power for the process of handling the hatch cover. Based upon the finite element analysis outcomes of different grid geometries are Square, Inclined, Diamond, Honeycomb optimal core grid of hatch cover was chosen. A scaled down model of hatch cover using glass fibre reinforced plastic with an optimal grid structure has been also developed in this paper.*
Keywords: *Hatch cover; Hull structure; Lightening; Optimization; Bulk carrier; Environment-friendly ship.*

100. (ID 336) Ships Fire Detection and Alarm Systems
Authors: stud. Emir MOLOGEAN, stud. Darius-Flaviu PANICAN
Scientific Advisor: Lecturer Eng George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study examined the characteristics of ship fire protection and the application status of land fire protection systems. It also examined the functional requirements of ship fire protection systems in light of the ship`s unique environment, which includes congested escape routes and a complex structure. The presented designed system has a certain application and promotion value, a simple structure, stable performance, and high cost performance.*
Keywords: *Ship fire detection, Ship fire alarm*

101. (ID 337) Navigation Conditions in the Mediterranean Sea
Author: stud. Georgian GRAMA
Scientific Advisor: Assoc. prof. Romeo BOSNEAGU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The Mediterranean Sea presents unique navigation conditions due to its diverse geographical, climatic, and regulatory aspects. Geographically, the Mediterranean Sea is surrounded by various countries and regions, each with its own distinct characteristics such as deep and shallow areas, islands, straits, and navigable channels. Navigators must possess detailed knowledge of these features to ensure safe passage. Climatically, the Mediterranean region experiences hot, dry summers and mild, wet winters. However, weather conditions can vary significantly, necessitating careful monitoring of weather forecasts to navigate through phenomena like storms, strong winds, and heavy rainfall. Furthermore, the Mediterranean Sea is one of the busiest waterways globally, accommodating vessels of all sizes, from fishing boats and yachts to commercial and military ships. Strict adherence to maritime regulations and vigilance regarding other vessels are imperative to ensure safe navigation amidst heavy traffic. Additionally, navigation in the Mediterranean Sea is governed by international and regional maritime regulations concerning safety equipment, communication, navigation, as well as restrictions pertaining to protected areas and maritime routes.*
Keywords: *Mediterranean Sea, navigation, ship, port.*

102. (ID 341) Different types of Tugboats Used in Salvage Operations

Author: stud. Ioana-Cosmina IGNAT
Scientific Advisor: Engineering Specialist Iulian CRETU
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Maritime rescue operations represent a crucial aspect of safe navigation, especially in unfavorable weather conditions. Tugboats and rescue equipment play a vital role in these operations, providing support and assistance to vessels in distress. The presentation will cover various types of tugboats used in rescue operations, along with their associated equipment.*
Keywords: *tugboats, maritime equipment, rescue operations*

103. (ID 346) Shipwrecking of Cruise and Passenger Ships

Authors: stud. Cosmina BADARAU, stud. Xandra Andreea BESLIU

Scientific Advisor: Lecturer Eng George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Shipwrecking of cruise and passenger ships, including the tragic Costa Concordia incident in 2012, highlight the major risks and devastating consequences of maritime accidents. Factors such as human error, technical failures and extreme weather conditions can contribute to such incidents. These tragedies have highlighted the need for high safety standards and adequate crew training in the maritime industry. The negative impact of ship groundings is not limited to loss of life, but also includes significant ecological damage to the aquatic environment and marine ecosystems. Preventive measures and better regulation are vital to minimise the risk of such tragedies and to protect both lives and the environment.*
Keywords: *shipwrecking, maritime safety, passenger ship.*

104. (ID 349) Warranty Surveying in the Offshore Industry
Author: stud. Costin MIHĂILESCU
Scientific Advisor: Lieutenant Lecturer Andra NEDELCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *With the evolution of offshore oil and gas exploration and the transition to renewable energy sources, underwriters have faced increasing risks associated with marine projects. These projects now involve complex structures and floating facilities, necessitating specialized insurance coverage. To safeguard their interests, underwriters introduced the role of Marine Warranty Surveyors (MWS) to assess and approve marine projects on their behalf. Initially, classification societies undertook this role, but as projects grew in complexity, specialized warranty companies emerged. MWSs ensure that operations adhere to industry standards and acceptable risk levels, providing expertise throughout the project lifecycle, including construction, installation, and commissioning. Underwriters mandate the appointment of an MWS for projects, with the scope of their activities agreed upon beforehand. While the assured party appoints the MWS, they must be acceptable to the underwriter. This unit aims to educate students on the principles, processes, and procedures involved in marine warranty surveying to fulfill the MWS's primary function effectively.*
Keywords: *offshore, warranty surveying, marine insurance*

105. (ID 351) Transportation of Lng and Lpg Cargoes by Sea
Author: stud. Tudor TRUPINĂ
Scientific Advisor: Instr.sup. eng. Andrei POCORA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The sea transportation of LNG (liquefied natural gas) and LPG (liquefied petroleum gas) cargoes is a critical aspect of the global energy industry. It involves the shipping of these highly valuable and volatile commodities across oceans, presenting unique challenges and risks. Specialized vessels equipped with advanced containment systems are employed to ensure the safe and efficient transport of LNG and LPG cargoes. Stringent safety regulations and industry standards govern these operations to mitigate risks such as cargo containment failure, fire, and environmental hazards. Understanding the complexities and protocols of transporting LNG and LPG cargoes by sea is essential for industry stakeholders to ensure the safe and reliable delivery of these vital energy resources.*
Keywords: *maritime transport; LNG; LPG*

106. (ID 352) Renaissance of Wind Propulsion in Maritime Transport
Authors: stud. Nicolas VILLAUME, stud. Barolo BASTIANU, stud. Sofiane PRUVOST
Scientific Advisor: Nicolas CHRISTELLE
Institution: École Nationale Supérieure Maritime
Abstract: *We have chosen the topic "Renaissance of Wind Propulsion in Maritime Transport" with an environmental and economical approach. Our goal is not only to promote France but also our Maritime Academy, notably through Niels Joyeux and the adventure of the company "Zéphir et Borée". This innovative company is developing a new generation of wind-powered cargo ships that are both efficient and sustainable. We believe that wind propulsion has the potential to revolutionise the maritime transport industry and help to reduce its environmental impact. We will focus on the environmental and economical benefits of wind propulsion. Then, we will discuss the latest developments in wind propulsion technology as well as presenting Zéphir et Borée. And, we will conclude with our recommendations for the future of wind propulsion in maritime transport.*

Keywords: *wind propulsion, Zéphir et Borée, wind-powered cargo ships, environmental impact, economical benefits*

107. (ID 357) The Study of Loading/Unloading Operations on Tanker Ships.
Author: stud. George-Iulian MILEA
Scientific Advisor: Prof. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *For a cadet starting on the deck of a ship, detailed knowledge of tanker characteristics is essential. These vessels come with specific features crucial for safe and efficient maritime operations. From the moment of embarkation, the cadet must engage in understanding and assimilating these technical specifics to ensure the ability to fulfill responsibilities successfully. By thoroughly familiarizing themselves with these details, the cadet can contribute to the smooth operation of the vessel and the maintenance of a safe and efficient maritime environment.*
Keywords: *tanker, safety operation, tanker operations, tank cleaning*

108. (ID 362) System of Search and Rescue from Greece
Author: stud. Andrei Catalin STAVILA
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Case study about the system of search and rescue from Greece*
Keywords: *search and rescue, Greece*

109. (ID 373) Study on Ship Certificates and Other Specific Commercial Vessel Documents
Author: stud. Marius Catalin COCOȘ
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study delves into the realm of vessel certificates and other essential documents pertinent to commercial maritime operations. It examines the various types of certificates required by international maritime regulations, including those related to safety, security, and environmental compliance. Furthermore, the study explores the significance of these documents in ensuring the*

seaworthiness, legal compliance, and operational efficiency of commercial vessels. By analyzing the regulatory framework and practical implications, this research sheds light on the complexities and challenges associated with managing vessel certificates and underscores their critical role in maritime transportation.
Keywords: *Vessel, certificates, commercial operations, transport*

110. (ID 320) Low Light Enhancing System
Authors: stud. Dalia MESHINSH, stud. Amalia-Elena MARIN
Scientific Advisor: Assoc. prof. Ciprian Ion RIZESCU, PhD
Institution: Politehnica București National University for Science and Technology
Abstract: *System for improving low light images using Matlab. This project proposes the development of a Low Light Enhancing System (LLES) tailored for real-time enhancement of dark images. Using MATLAB, the system employs an algorithm to enhance brightness, contrast, and clarity in real-time. It addresses challenges in various applications such as surveillance, night time monitoring and video conferencing. We conducted rigorous testing on dark images, the simulatioins offered surprising results and promising applications in fields where live image enhancement is critical.*
Keywords: *Low-light enhancing, dark images*

111. (ID 73) The Importance of Sports on Board
Authors: stud. Bogdan Ionut BURDUJA, stud. Daniel-Andrei CHITEALA
Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Sports on ships play a crucial role in maintaining the well-being and efficiency of the crew, contributing to a positive and healthy onboard environment. Here are some key reasons why sports are important on ships: Physical Health: Engaging in sports helps crew members maintain their physical health. The confined space and limited opportunities for exercise on a ship can lead to health issues such as obesity, cardiovascular problems, and muscle atrophy. Regular physical activity through sports helps combat these issues, promoting overall fitness.*
Keywords: *Sports on board*

112. (ID 212) Application of Mathematics in Maritime Industry
Authors: stud. Teodora MARINESCU, stud. Mihaela-Lavinia DASOVEANU
Scientific Advisor: Prof. Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation explores the indispensable role of mathematics in the maritime industry. From navigating vast oceans to ensuring vessel stability and optimizing routes, mathematics underpins every aspect of maritime operations. The presentation delves into various applications of mathematics, including navigation calculations, ship stability analysis, route optimization algorithms, cargo loading optimization, and weather forecasting models. Additionally, it highlights the importance of mathematical models in risk assessment and safety management at sea. Through engaging visuals and insightful how mathematics drives efficiency safety and profitability in the maritime sector.*

113. (ID 317) Icebreaker Ship's Structure and Its Role in Preventing Naval Incidents
Authors: stud. Mircea Gabriel MOLDOVAN, stud. Sebastian Marian SARANDI
Scientific Advisor: Lecturer Eng George NOVAC, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The floating ice has represented a great risk for ships for a very long time, especially in the arctic zones of the Earth. For such an issue, the icebreakers were designed to break it into smaller pieces in order to ensure the safe passage of other vessels as well as their own. This work is intended to give an in-depth analysis over the process of their building, showing how adapting some of their characteristics could lead to the avoidance of some future possible events as well as how some incidents could have been avoided.*
Keywords: *ship's geometry, naval engineering, ice collision*

114. (ID 49) Mine Counter Measures Operations on Minehunter " M 270 "
Author: stud. Anamaria ȚURCANU
Scientific Advisors: Captain Assoc. prof. Dinu ATODIRESEI, PhD Lieutenant Lecturer Andra NEDELCU, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Maritime mines represent a danger to the safety of territorial waters, but also to national security.MCM operations are an important factor in combating the danger caused by the mining of national waters, as well as in preventing an attack on the state by mining waters. MCM operations may include measures ranging from neuralyzing/destroying mine carrier vectors, dredging own recommended passes and roads, reducing the magnetic and acoustic signatures of own or allied ships, and placing minefields in areas of interest to prevent enemy surface vectors from launching mines or executing MCM.These can be achieved through the action of EOD divers and sea Dredging. These mine countermeasures will be carried out in Romania much more efficiently as a Minehunter has been purchased which is equipped with a 2093 sonar, a highly advanced SeaFox mine detection and disposal system and a barometric camera used for EOD divers. The dredging consists of actions carried out to search for, discover and neutralize mine hazards in maritime/river districts, access passes/recommended routes or in ports. MCM missions are intended to reduce the effectiveness of the enemy in executing mine clearance missions and the removal and clearing of discovered mines.*
Keywords: *MCM, EOD divers, Minehunter, SeaFox, Dredging*

115. (ID 256) Study on the Rescue of People on a Semi-Submersible Platform in the Exclusive Economic Zone of Romania

Author: stud. Alexandru SCARLAT
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study focuses on the critical aspect of rescuing individuals on a semi-submersible platform within Romania's exclusive economic zone. The research aims to analyze and evaluate the current protocols, challenges, and potential solutions related to emergency response and evacuation procedures in this specific maritime setting. By examining factors such as safety regulations, technological advancements, and coordination among relevant stakeholders, this study seeks to enhance preparedness and effectiveness in ensuring the safety and well-being of individuals in*

emergency situations on semi-submersible platforms in Romania's exclusive economic zone.
Keywords: *rescue, platform, protocols, safety*

116. (ID 376) Alternative Methods of Ship Positioning in Terms of Current Military Situation
Authors: stud. Eliza MITUŁA, stud. Julia NOWOTKA, stud. Jakub JURA
Scientific Advisor: Captain (N) Mariusz WĄŻ, PhD.
Institution: Polish Naval Academy
Abstract: GPS The working principle of Global Positioning System. Advantages and disadvantages of GPS. The threat of spoofing and jamming – what are those, why are they dangerous for navigational safety, how are they used during military operations, how to fight them back. DGPS – principle of operation, advantages and disadvantages, modern use. Alternative methods "back then" Short comment about calculated position, visual fix, usage of radar in terms of determining position, astronomical navigation – why they are less effective than GPS, why they came out of use. Alternative methods "now" The modern development of automated systems for determining position. Renaissance of terrestrial navigation – reasons. Global awareness of potential threats of miscalculated position. The importance of position's accuracy Military purposes of determining position – planning drones attacks (the Ukrainian example), programming autonomous vehicles. Civilian purposes – exploration of sea floor, hydrography, cartography, etc. Summary Why is the renewed development of terrestrial navigation possible. What is the future of maritime navigation. What actions should be taken to provide the safety of navigation, especially on the Baltic Sea

117. (ID 380) Meteorological Challenges and Solutions in Aviation over the Ocean
Author: stud. Alexandra PASCU
Scientific Advisor: Adrian PITICAR
Institution: "Henri Coanda" Air Forces Academy
Abstract: *Air traffic has become an important branch of public transportation over long distances all over the Globe. Thus, passing through the vicious movement of the oceanic air masses is inevitable.*

This paper follows the topics of hazardous phenomena that materialize over oceans, the challenges that pilots have to overcome if they encounter such events and procedures of prevention. Safe flight paths must be thoroughly planned ahead and updated according to the difficult marine meteorology. On that account, this paper emphasizes key points with regard to secure air travel through irregular and complicated processes and phenomena.

118. (ID 384) Intermodal Transport of Fertilizers

Author: stud. Costel BURLIBASA
Scientific Advisor: LCDR Instr. Dragos SIMION, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper examines segmented intermodal transport of urea along the route Port Izmail - Port Brăila - Port Constanța, focusing on the aspects of advantages, disadvantages, and factors influencing the efficiency and cost of this type of transport. Regarding the advantages, it is emphasized that intermodal river transport is a cost-effective option, especially for long distances, and has a reduced environmental impact compared to other modes of transport. Additionally, maritime transport is associated with lower costs over long distances, while rail transport adds speed and reliability, and road transport offers flexibility. However, there are also evident disadvantages, such as longer transport duration, dependency on weather conditions in maritime and river transport, limited infrastructure for river transport, and poor coordination between modes of transport in general. Moreover, rail transport involves higher costs than river transport, and road transport is associated with higher costs and a greater environmental impact. Factors influencing the cost and efficiency of this type of transport include distance traveled, volume of goods transported, type of barge used, and navigation conditions such as water depth and current speed. Challenges such as limited infrastructure, poor coordination between modes of transport, and complex regulations are important aspects to consider. In conclusion, segmented intermodal river transport along the route Port Izmail - Port Brăila - Port Constanța can be an economically and ecologically attractive alternative for bulk cargo transport. However, it is essential to properly consider its advantages and disadvantages, as well as the factors influencing its*

cost and efficiency, before making final decisions. Opportunities such as infrastructure development and increasing intermodal transport efficiency could contribute to improving this type of transport, along with supply chain digitalization.

119. (ID 387) The Implications of the Post-Pandemic Context in the Railway Staff Selection Process

Authors: stud. Marian SCARLAT, stud. Nicoleta PICHIU
Scientific Advisor: Lecturer Patrau Daniel DANECI, PhD
Institution: Maritime University Constanta

Abstract: *An important feature of all modern approaches is the idea that all human resources must be mobilized to achieve organizational objectives. A correct foresight of the personnel requirement must be permanently correlated with the predictable changes in the ambient environment - the conditions of the market, of public health, of the economy, competition, technology and finance. As a result of the instability of the current economic environment, railway companies are determined to organize themselves in a new way, looking for management methods through which they can control a crisis context, which upsets the existing theories. The importance and actuality of this theme are given by the rethinking of the strategic role of human resources at the level of organizations, people being considered the main competitive advantage they have. These developments increase the importance of recruitment and selection as a determining factor in ensuring the necessary human resources.*

Keywords: *selection, recruitment, railway transport, human resources*

II. SECTION: ENGINEERING AND MANAGEMENT

Section Committee:
Chairman:
Assoc. Prof. Alexandru COTORCEA, PhD
Members:
Assoc. Prof. Rita-Elena AVRAM, PhD
Assoc. Prof. Gheorghe GRECU, PhD
Stud. Andreea-Theodora IACOBESCU
Stud. Ilinca VOINESCU
Stud. Ștefania MIHAI
Stud. Fabiola RUSU
Room: Lp A5

1. (ID 50) Some Considerations on air Pollution in Ports
Authors: stud. Diana Elena CHIȚU, stud. Alexandra Ștefania LUCA
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Air pollution in ports represents a global issue with significant consequences for human health, marine and terrestrial ecosystems, as well as local and global economies. This problem is caused by a variety of sources, including intensive maritime traffic, handling of goods, and port operations. The impact of air pollution in ports is not limited to the surrounding environment. This issue can also have significant economic consequences, as it can affect port activities and lead to additional costs for public health and the environment. To reduce the impact of air pollution in ports, the implementation of efficient and sustainable solutions is necessary. Air pollution in ports is a complex problem with serious consequences for human health, the environment, and the economy. Addressing this issue requires concerted efforts at the local, national, and international levels to implement sustainable solutions and protect the environment and public health.*
Keywords: *pollution, port, issues, health, emissions, solutions*

2. (ID 53) Social and Economic Impact Analysis of Ports
Author: stud. Bianca MANOLACHE
Scientific Advisor: Assoc. Prof. Eng. Rita AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In the era of accelerated globalization, maritime ports are becoming vital nodes in the international trade network, with a significant impact on the social and economic development of the regions where they are located. These bustling hubs of maritime connections are not just mere points of departure and arrival for global goods, but also powerful catalysts for cultural exchange, economic growth, and community diversification.*
Keywords: *Maritime ports, globalization, economic development, cultural exchange, community diversification*

3. (ID 57) Container Terminals Operations
Author: stud. Isabela Maria BILIBOACĂ
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Container terminals are critical hubs in global trade, orchestrating the seamless movement of goods between ships, trucks, and trains. This abstract provides a succinct overview of their operational activities. It highlights vessel operations, container handling, yard management, and intermodal connectivity as core functions. Emphasis is placed on the role of technology, safety measures, and customer service in optimizing terminal efficiency and ensuring smooth cargo flow.*
Keywords: *Container, terminal, optimization, operational activity*

4. (ID 66) Fault Tree Analysis
Author: stud. Alina DEDU
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Fault tree analysis has proven to be a useful analytical tool for analysing the reliability and safety of complex port systems. Many theory analysis concepts have been used. Limitations on system reliability when components are dependent (i.e. are associated) are given. Algorithms for finding minimum cut sets and related sets, related bounds, along with various means of calculating the peak*

event probability are given, along with numerical examples illustrating the concepts. Risk analysis is an important activity to ensure that critical assets, such as port systems, nuclear power plants and many others, operate safely and reliably.
Keywords: *Fault, Bayesian network, Fault diagnosis system, Fault tree*

5. (ID 69) LNG Bunkering Technologies in Ports: An Empirical Application of SWOT Analysis
Author: stud. Cristina-Oana APOSTOL
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Liquefied natural gas (LNG) as a marine fuel is a valuable technological solution to make the maritime and port industry more sustainable. However, the progressive diffusion of LNG requires huge investments for bunkering and storage facilities in the port sector to develop an LNG supply chain capable of meeting the demand of LNG-powered vessels. Although this topic is attracting increasing attention from both academics and practitioners, no previous scientific contribution has provided a holistic and structured conceptual framework to disentangle the main advantages and disadvantages related to the various bunkering and storage solutions of LNG. This study investigates the four most promising LNG bunkering technologies (eg truck-to-ship, ship-to-ship, port-to-ship and terminal-to-ship, and mobile fuel tanks). The analysis focuses on relevant technical and managerial aspects, including storage capacity, bunkering efficiency, plant scalability, operational flexibility, economic and financial performance, social and environmental impact. The results reveal the managerial strengths, weaknesses, opportunities and threats of each technology solution, fueling the academic debate on the topic. Moreover, the paper provides empirical implications for public authorities and port managers, improving the knowledge of LNG bunkering and storage solutions available in the maritime and port field. operational flexibility, economic and financial performance, social and environmental impacts. The results reveal the managerial strengths, weaknesses, opportunities and threats of each technology solution, fueling the academic debate on the topic.*

6. (ID 79) Impact of Climate Change on Maritime Traffic
Author: stud. Iuliana-Alexandra PINTILIE
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This science project investigates the Impact of Climate Change on Maritime Traffic. The study delves into the effects of climate change on sea levels and weather patterns, analyzing how these changes may impact maritime transportation. With rising sea levels and altered weather patterns, the maritime industry faces challenges such as inundation of coastal areas, hazardous weather conditions, and changes in preferred maritime routes. Furthermore, the project explores adaptation strategies and initiatives within the maritime industry aimed at mitigating the impacts of climate change. By examining these factors, the project aims to provide insights into the dynamic relationship between climate change and maritime transportation, offering valuable information for adaptation planning and policy development in the maritime sector.*
Keywords: *Climate change, maritime traffic, sea level rise, weather patterns.*

7. (ID 80) Naval Fuels - Present and Future
Authors: stud. Andreea-Georgiana TURCU, stud. Alexia-Ioana PUIU
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Currently, for maritime ships, the predominant fuels are diesel and oil, which, although they are efficient, contribute to environmental pollution. An increasingly used alternative to them is Liquefied Natural Gas (LNG), due to the lower emissions of carbon dioxide and particles. Some of the fleets use biofuels, which are derived from renewable raw materials and reduce carbon emissions. Ethanol and white or green hydrogen represent viable options for the future. Ethanol derived from vegetable or seaweed sources is considered a renewable fuel. White hydrogen is considered a clean fuel and is produced from natural gas, and green hydrogen from the electrolysis of water using renewable energy, such as wind or solar energy, is considered a fuel with zero carbon emissions. The*

transition to more sustainable naval fuels is essential for reducing the impact on the environment.
Keywords: *Diesel, Oil, LNG, Bioflues, Ethanol, White Hydrogen, Green Hydrogen*

8. (ID 118) The Importance and Impact of Market Research in the Decision-Making Process of a Company
Authors: stud. Ioana Alexia PUIU, stud. Andreea-Georgiana TURCU
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The theme proposed in the following paper is the importance and impact of market research in the decision-making process of a company. Market research is crucial for companies in making strategic decisions. It provides information about customer needs and preferences, competition and market trends. This allows companies to optimize their products, services and marketing strategies, thus increasing the chances of success in the market. Without proper market research, companies could make decisions based on erroneous assumptions, wasting resources and risking failure in the competitive environment. This paper explores the methods and techniques of market research, its role in understanding customer needs and the competitive environment, and how the information obtained influences the strategic decisions of companies. It also examines the impact of market research on organizational performance and results, highlighting the link between the effective use of market data and the long-term success of companies.*
Keywords: *Market trends, companies, resources, impact of market*

9. (ID 134) The Effects of the war between Russia and Ukraine on the Shipping Industry
Author: stud. Melisa DENISLEAM
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The conflict between Russia and Ukraine has profoundly affected the shipping industry. Numerous Western countries, including the United States, have halted several ports and shipping*

operations with Russia. It had a significant impact on maritime transport in the Black Sea and the Sea of Azov, including the disruption of activities in Ukrainian ports and the export of agricultural products through the Black Sea. Consequently, shipments bound for Russia are now stranded in ports like Rotterdam, Netherlands. This has strained the storage and warehousing capabilities of these ports, exacerbating logistical challenges. Vessel delay is a significant operational risk in container shipping due to export control requirements that require goods to be inspected for prohibited dual-use (civilian/military).
Keywords: *war, port, export, vessel, shipping industry.*

10. (ID 135) Challenges in Handling Bulk Fertiliser
Author: stud. Denisa IBRAM
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Millions of tonnes of substances are shipped in bulk across the world's seas to serve the fertiliser industry. The paper focuses on the challenges in bulk fertiliser handling, with a special focus on unloading ports. It analyses the risks associated with discharging into the environment and proposes practical solutions to overcome these difficulties. The main aim of the study is to assess the loading process in ports and the potential impact of spillage into the water, to identify the most effective environmental technologies and practices, and to develop measures for responsible handling with the aim of minimising losses of unpacked fertiliser.*
Keywords: *fertiliser, cargo handling, port activities, environment impact*

11. (ID 147) The Role of Influencers in Brand Promotion and Building
Authors: stud. Maria-Adelina SERBAN, stud. Roxana-Georgiana VRABIE
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In the contemporary digital landscape, the role of influencers in brand promotion and building has become increasingly significant. Influencers, individuals with substantial*

social media presence and the ability to sway the opinions and behaviors of their followers, wield considerable influence in shaping consumer perceptions and preferences. This abstract delves into the multifaceted contributions of influencers in brand promotion and building. Furthermore, influencers facilitate direct engagement and feedback loops between brands and consumers. By actively interacting with their followers, influencers provide real-time insights and feedback on products or services, enabling brands to adapt and refine their offerings to meet consumer needs effectively
Keywords: *influencers, brand promotion, social*

12. (ID 150) Air Quality
Authors: stud. Maria-Adelina SERBAN, stud. Stela-Mihaela SERBANESCU
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Air quality in thermotechnics represents a crucial factor for the efficiency of heating, cooling, and ventilation systems. This aspect involves managing the optimal level of humidity, air purity, efficient air circulation, proper temperature, and energy efficiency of the systems. An appropriate approach to air quality in thermotechnics can contribute to the thermal comfort of building occupants, reduce energy consumption, and increase equipment durability. By implementing appropriate measures to manage air quality, a healthy and comfortable indoor environment can be ensured, with significant benefits in terms of thermotechnical system performance.*
Keywords**:** Air quality, thermotechnic, temperature, energy efficiency

13. (ID 154) Application for Plant Disease Detection Using Deep Learning
Authors: stud. Dragos-Florentin GOGOESCU, stud. Alexandru Mihai BARBU
Scientific Advisor: Assoc. Professor Ciprian Ion RIZESCU, PhD
Institution: National University of Sciences and Technology Politehnica Bucuresti
Abstract: *This paper presents an innovative application developed in MATLAB for plant disease classification and detection using deep*

learning techniques. The proposed model leverages Transfer Learning, building upon the pre-trained GoogleNet architecture to achieve robust and accurate results. Through extensive experimentation and training on datasets comprising tomato, bell pepper, and potato diseases, the model demonstrates high efficiency in identifying and classifying various plant diseases based on input images. The study focuses on enhancing agricultural practices by providing an automated, efficient, and reliable tool for early disease detection, allowing for timely intervention and improved crop yield. The Transfer Learning approach enables the model to leverage knowledge from a vast dataset, adapting it to the specific domain of plant diseases. Results showcase the effectiveness and potential impact of the developed system, offering a promising solution for precision agriculture and sustainable food production.

Keywords: *MATLAB, Plant, Disease, DeepLearning, CNN, Image Classification*

14. (ID 155) Types of Explosives Used in Military Navy

Authors: stud. Bianca-Gabriela ENE, stud. Georgian CHETA
Scientific Advisor: Lecturer Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study investigates the use of explosive types within the military navy, analyzing their diversity, capabilities, and importance in naval operations. By examining the explosives used, such as torpedoes, naval mines, and underwater demolition explosives, the study aims to provide a comprehensive understanding of their role in maritime military strategies and tactics. Explosives are essential elements in maritime military operations, being used for a variety of purposes, including attack, defense, and underwater work. The diversity of explosives used in the military navy reflects the specific needs of naval conflicts and other maritime operations. This study analyzes the types of explosives used, as well as their importance in the maritime military context: • The diversity of explosives used in the military navy, including torpedoes, naval mines, and underwater demolition explosives. • The specific capabilities of each type of explosive and their use in different operational scenarios. • The importance of safety and handling procedures for explosives in the maritime environment. • The role of explosives in achieving strategic*

and tactical objectives in naval warfare and other maritime operations. The study highlights the crucial role of explosives in the military navy, emphasizing their diversity and versatility in achieving military objectives. It also discusses the ongoing need for innovation and technological development in the field of explosives to address evolving threats and operational requirements in maritime conflicts. The discussions also include aspects related to the ethics of explosives use and their impact on the environment in naval operations.
Keywords: *navy, explosives*

15. (ID 157) Applications of Oceanographic Research Equipment in MCM Operations
Author: stud. Mihai CARAGAȚĂ
Scientific Advisor: Captain Assoc. prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This presentation will explore the applications of oceanographic research equipment in MCM operations, a vital component in ensuring maritime security and safety. Firstly, the presentation will begin by defining MCM operations and discussing the operations, such as minesweeping and minehunting. Secondly, the presentation will present oceanographic equipment such as currentmeters, magnetometers and discuss their operating principles, component parts. The paper will then continue with possible military applications of oceanographic equipment and their impact on the MCM operations. Finally, the presentation will conclude with a discussion on the roles of this type of equipment.*
Keywords: *Mine Countermeasures, Oceanography, Oceanographic equipment, MCM Operations*

16. (ID 159) Technical Solutions for Inland Waterway Transport
Author: stud. Florina GHEONEA
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In the scientific approach carried out, subordinated to the general objective of the works, is the fundamental one of some technical solutions for the transport on inland waterways. A range of information from bibliographic sources belonging to the mainstream*

of inland waterway transport publications has been documented. From this perspective, the research carried out was oriented towards the fulfillment of existing objectives at the European level in the transport activity on the fluvial-maritime Danube. Therefore, the paper contains innovative new conclusions regarding the energy efficiency of self-propelled ships and push barge convoys. These conclusions facilitate the optimization of both new projects and the existing inland fleet, thus representing an added value of the research carried out within this project.

Keywords: *Inland waterways, energetic efficiency, self-propelled ships, push barge convoys*

17. (ID 168) Pricing Strategies in Marketing: How to Set Competitive and Valuable Prices

Authors: stud. Cristian Cătălin GHIORGHIȚĂ, stud. Dumitru George Dragoș FAGET, stud. Cosmin Marian FILIP
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Price is a fundamental element of marketing and can have a significant impact on a business's success. Setting competitive and valuable prices is a challenge faced by all companies, regardless of the industry they operate in. This project aims to explore pricing strategies in marketing, with a focus on identifying and implementing the most effective methods for setting prices. The project will include an in-depth analysis of relevant literature, as well as case studies of companies that have successfully implemented effective pricing strategies. Additionally, various research methods will be employed, such as expert interviews and customer opinion surveys. The project will provide a series of practical recommendations for setting competitive and valuable prices. Furthermore, the most common pricing mistakes will be identified, and solutions for avoiding them will be offered. Implementing an effective pricing strategy can significantly contribute to increasing a business's profitability and competitiveness. This project will provide valuable information and resources to help companies make informed pricing decisions.*

Keywords: *pricing, marketing, competitive prices, value, profitability*

18. (ID 170) Analysis of the Advantages and Disadvantages of Using Artificial Intelligence in Port Operations

Author: stud. Iulia-Georgiana BARBU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Artificial intelligence (AI), in its broadest sense, is intelligence exhibited by machines, particularly computer systems, as opposed to the natural intelligence of living beings. As a field of research in computer science focusing on the automation of intelligent behavior through machine learning, it develops and studies methods and software which enable machines to perceive their environment and take actions that maximize their chances of achieving defined goals, with the aim of performing tasks typically associated with human intelligence. Such machines may be called AIs. AI plays an important role in port management, such as managing maritime traffic in real-time by analyzing traffic data and anticipating the demand for ships in a particular port, optimizing loading and unloading by analyzing real-time data and identifying bottlenecks and delays in processes, predictive maintenance by analyzing data from sensors and real-time monitoring equipment, supply chain management by providing real-time predictive analysis of loading and unloading demand, improving port security by analyzing data from sensors and cameras security.*

Keywords: *human intelligent, artificial, machines, port*

19. (ID 171) Measurement of Workplace Comfort Level

Authors: stud. Georgiana - Roxana VRABIE, stud. Simona - Maria CHIRESCU
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study explores the measurement of workplace comfort level, a crucial aspect of employee well-being and productivity. By examining various factors such as ergonomic design, environmental conditions, and social dynamics, this research aims to develop a comprehensive framework for assessing comfort levels in the workplace. Utilizing both quantitative and qualitative methodologies, data will be collected through surveys, interviews, and observations. The findings will not only contribute to enhancing employee*

satisfaction and performance but also provide valuable insights for organizations to create healthier and more conducive work environments.
Keywords: *Employee satisfaction, Productivity, Comfort level, Social dynamics, Workplace environment*

20. (ID 172) Comparative Study of the Potential Competitors of the Constanta Port
Author: stud. Bianca-Elena CHIFOR
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this presentation it is structured a detailed analysis of the potential competitors of the Constanta Port in the Black Sea and Adriatic Sea region. The purpose of this presentation is to assess and compare the key aspects of port infrastructure, connectivity, operational efficiency, and services offered by each port. Through a comparative analysis, the paper examines cargo handling capabilities, port facilities, access to road and rail transportation networks, as well as the logistical efficiency of each port. Additionally, aspects such as the volume of handled goods, the diversity of cargo types, and international maritime connections are examined.*
Keywords: *Port, general cargo, containers, terminal*

21. (ID 175) Establishing Criteria for Designing a Specialized Port Terminal Aimed at Reducing Atmospheric Pollution
Author: stud. Georgiana DANCI
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Globalization has intensified exports and imports, resulting in increased container traffic at port terminals. The implementation of sustainable strategic actions is essential for business models, with a focus on automation to optimize port operations. Ports function as logistical hubs, requiring economic, human, and technological resources. Optimizing port facilities is crucial for cost reduction and energy consumption. Port activities generate greenhouse gas emissions, making emission reduction a priority in port planning. To address this issue, mathematical models are used to optimize port*

operations and reduce emissions. However, there are challenges, especially in developing countries, where transitioning to cleaner energies requires additional investment and technological development. This study aims to optimize energy management in ports and develop strategies to reduce greenhouse gas emissions, there by contributing to port sustainability and global climate change mitigation.

Keywords: *optimization, sustainability, port terminal*

22. (ID 176) The Unconventional use of Gyrocompasses Aboard the Ship.

Authors: stud. Ovidiu-Alexandru SALANTA, stud. Alexandru RADU

Scientific Advisor: Lecturer Eng. Eduard DRAGOMIR, PhD.

Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Unconventional gyrocompasses present innovative solutions to traditional navigation challenges. Unlike their conventional counterparts, which rely on mechanical systems, these gyrocompasses utilize cutting-edge technology such as fiber-optic gyroscopes or MEMS (Micro-Electro-Mechanical Systems) to determine true north with remarkable accuracy. Their compact size and robustness make them ideal for various applications, including marine navigation, aviation, and even space exploration. One notable advantage of unconventional gyrocompasses lies in their ability to maintain orientation even in dynamic environments, such as during rapid maneuvers or in rough seas. This resilience enhances safety and efficiency in navigation, offering reliable heading information regardless of external conditions. Additionally, their digital interfaces enable seamless integration with modern navigation systems, providing real-time data and enhancing overall situational awareness for operators. As technology continues to advance, unconventional gyrocompasses promise to play a pivotal role in revolutionizing navigation across diverse industries, offering precise and reliable heading solutions in ever-evolving operational landscapes.*

Keywords: *the use of unconventional gyrocompass*

23. (ID 184) Use of Alternative Fuels in The Water Transport Logistics Chain

Authors: stud. Valentina GRECU, stud. Larisa-Elena GRECU
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The main purpose of this study is to provide a multidimensional and holistic overview of the challenge of greenhouse gas emissions (GHG) generated by maritime transport. This study analyzes a multitude of alternative fuels with potential for reducing emissions from global transportation, including fuel characteristics, production pathways, utilization technologies, energy efficiency, environmental performance over the life cycle, economic viability, and policies. Alternative fuels are essential for decarbonizing international transport. However, currently, there is no single route capable of providing a visible reduction in emissions across the entire fuel supply chain in a manner that is cost-competitive compared to conventional petroleum-based marine fuels.*
Keywords: *Fuels, emissions*

24. (ID 200) Nicotine – Risk or Pleasure

Author: stud. Bianca-Gabriela ENE
Scientific Advisor: Lecturer Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study highlights the risks to which a smoker is exposed and the impact that cigarette smoke has on the body. At the same time, the harmful substances contained in both classic cigarettes and Iqos are analyzed. An alarming increase in the number of deaths caused by nicotine addiction has been reported.*
Keywords: *smoker, cigarette, nicotine, Iqos, death.*

25. (ID 204) Transportation Modes Employed in Port Operations

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

Abstract: *Maritime ports are vital links in the global supply chain and international trade, handling up to 90% of the world's freight transport. They are strategically located on navigable bodies of water such as oceans, seas, lakes, and rivers, as well as artificial*

waterways like the Panama and Suez Canals. Ports accommodate various types of vessels, including cargo ships, cruise ships, and military vessels. The main activities at a maritime port terminal vary based on the port's purpose, types of vessels and goods, including containerized cargo, Ro-Ro vehicles, bulk and breakbulk cargo.
Keywords: *Maritime ports, global trade, freight transport, vessel types, cargo handling*

26. (ID 205) The Impact of Social Media on Consumer Behavior and Marketing Strategies
Authors: stud. Diana Elena CHIȚU, stud. Alexandra Stefania LUCA
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In today's digital era, social networks have become a wide-spread element in people's daily lives. These digital platforms have evolved rapidly, becoming not only means of connection and communication, but also powerful influencers of consumer behavior and marketing strategies. The impact of social networks on consumer behavior is complex and significant, influencing purchasing decisions and preferences. To remain relevant and competitive, marketers must deeply understand the impact of these platforms and adapt their strategies according to changes in consumer behavior. An approach centered on authentic content, collaborations with influencers, and active listening to consumer feedback can contribute to building a strong brand and increasing sales on social networks.*
Keywords: *digital, consumer, media, strategies, feedback, marketing*

27. (ID 209) Sustainability of Storage Activity in Port Logistics
Author: stud. Andra-Larisa POPA
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The literature highlights that cargo handling systems are a priority issue in warehouse logistics, both in the design phase and in operation. These systems are crucial in the global supply chain and in production. The paper highlights the main aspects related to the design and operation of warehouses, paying special attention to environmental impact. Topics covered include environmental storage, design elements, material handling systems and energy*

consumption of warehouses. The research focuses on the concepts of ecological storage, with an emphasis on the efficient integration of the energy factor in the process of designing warehouses. Another area of research proposed in the paper is to optimize warehouse design to reduce workload and use resources efficiently.
Keywords: *Warehouse, global chain, research, resources*

28. (ID 223) Impact of Most Innovative Technologies on Maritime Industry
Author: stud. Andreea-Catălina PASĂRE
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The maritime industry is witnessing transformations as disruptive technologies such as 3D printing, blockchain, e-commerce, and battery technology reshape its landscape. This research delves into the major impacts on maritime trade and industry of these innovations. The study analyzes the impact of each technology, exploring their potential to revolutionize traditional practices, improve operational efficiency, and change the competitive landscape for existing industries. By examining the intersections of technology and trade, this research offers valuable insights into how these disruptive forces are contributing to the evolution of the maritime sector, paving the way for a new era of connectivity, agility, and progress.*
Keywords: *Technologies, Maritime industry, Innovation*

29. (ID 242) Steel Cargo Shipment by Sea
Author: stud. Ruxandra-Cristina STOIAN
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *When steel cargo is transported by sea, it is vital to ensure both the safety of the cargo and the integrity of the vessel by properly preparing the vessel for loading and ensuring the safe handling and securing of the cargo. Steel, being of high value and susceptible to damage from rough handling or exposure to water and moisture, presents significant difficulties in stowage and securing. Incorrect stowage can cause damage to both hull and cargo. Damage can occur in adverse weather conditions, when hatch covers leak or when*

cargo moves during transport, and incorrect ventilation procedures can aggravate the situation. Damage can also occur before loading, either during storage of cargo or during transit from factory to ship.
Keywords: *steel, cargo, shipment, maritime, stowage, carriage, sea*

30. (ID 244) Perspectives Regarding the Reduction of The Number of Working Days Within Port Operators
Author: stud. Giulio COTROBAS
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Reducing working hours is once again one of the burning issues of the day, with a number of countries adopting a political framework for a 35-hour working week. At times the debate is intense. Reducing working hours is seen in some quarters as a way of redistributing employment and combating unemployment, as a way of setting in train activities aimed at making the production process more efficient or furthering the ability of people to choose for themselves the hours they work. Others see it as a something which will increase the cost of production, something which is therefore harmful in an era of tight competition and the internationalisation of trade. In order to obtain a clearer understanding of the subject and, in particular, to get beyond the terms of a debate rooted in purely ideological considerations rather than a sound grasp of reality, the Foundation considered it important to identify in the existing literature and in particular in studies describing companies' experiences with reduced working hours, the way in which such reductions were implemented and the results obtained as regards employment, productivity, and living and working conditions. The present study, which summarises national studies from five countries on the same subject, aims to contribute to the current debate on employment, the organisation of work and working conditions.*
Keywords: *reducere, 35 de ore*

31. (ID 260) Intelligent Locks Technology Research
Author: stud. Maria-Bianca CAVADIEA-STEJEREAN
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Research on intelligent locks has started later due to low social attention. In the context of smart transportation, the concept has become increasingly important. However, there is still no standard definition for this concept. The development of intelligent locks focuses on building an application model and innovative technologies, considering aspects such as control and monitoring, information systems, and vessel behavior. Criteria for evaluating the intelligent operation of locks include efficiency, security, management, and services for vessels. Technologies such as cloud computing, data analysis, and artificial intelligence are introduced to optimize the operation of intelligent locks. Key research aspects include communication platforms, interaction between lock and vessel, and self-learning optimization. The conclusion is that digitization and intelligence can improve navigation and lock management, providing capital and time advantages compared to building new locks.*
Keywords: *Intelligent locks, technology, navigation*

32. (ID 262) Towards a Green Port: Strategies for Sustainable Maritime Infrastructure

Author: stud. Marian-Cosmin DRAGAN
Scientific Advisor: Assoc. Prof. Eng. Rita Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation delves into the imperative shift towards environmentally friendly practices within port operations, encapsulated by the concept of a "Green Port." As global concerns regarding climate change and environmental degradation intensify, ports play a pivotal role in mitigating their ecological footprint and embracing sustainable development. Through a comprehensive review of current trends, policies, and innovative technologies, this text elucidates strategies for transitioning traditional ports into environmentally responsible hubs of maritime activity. Key areas of focus include the adoption of renewable energy sources, the implementation of eco-efficient infrastructure, the promotion of green logistics and supply chain management, and the engagement of stakeholders in collaborative sustainability initiatives. By synthesizing best practices and emerging trends, this text aims to provide port authorities, policymakers, and industry stakeholders*

with actionable insights to facilitate the transition towards a greener, more sustainable future for maritime infrastructure.
Keywords: *Green Port, Sustainable Development, Maritime Infrastructure, Renewable Energy, Eco-efficient Operations*

33. (ID 265) Analysis of The Digital Development of The Port of Constanta
Author: stud. Andrei-Cosmin MUȘAT
Scientific Advisor: Assoc. Prof. Eng. Rita Elena AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study presents a detailed SWOT analysis of the digital development of Port Constanța, highlighting the strengths, weaknesses, opportunities, and threats associated with the development of a digitized management system for port administration. The SWOT analysis extensively explores this topic, providing a profound understanding of the current situation and potential directions for improving port infrastructure from the perspective of digitalization.*
Keywords: *port infrastructure, modern technologies, development strategies, digital management*

34. (ID 273) Photovoltaic (PV) Type Solar Generators
Author: stud. Cosmin DOBRE
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Photovoltaic (PV) generation system capitalizes on solar energy by converting it into solar cells. They convert light into electricity by exciting electrons in a semiconductor at photon impact. The generated flux produces direct current (DC), which is then converted to alternating current (AC) by an inverter. Silicon, the main semiconductor, has insulating properties at room temperature and conductive properties when exposed to sunlight. PV system components include modules, inverters, controllers, batteries and auxiliary elements. Their modularity allows them to be adapted to different electrical requirements and used in stand-alone or grid-connected systems. The former are useful in areas without distribution infrastructure, while the latter feed surplus energy back into the utility grid. Understanding these systems is crucial for*

designing sustainable energy solutions, especially when integrating renewable energy into electricity grids.
Keywords: *Photovoltaic, Electricity, Modularity*

35. (ID 274) The Evolution of Marketing: From Traditional Concepts to Contemporany Digital Strategies
Authors: stud. Stela Mihaela ȘERBANESCU, stud. Antonia Daniela PETRUȚ
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This article presents a study of the evolution of marketing, moving from traditional concepts to contemporary digital strategies. During this transformation, the transition from newspaper and television advertising to content marketing and social media was noted. Measuring the impact of companies has become more accurate thanks to data analysis and artificial intelligence, while the user experience on mobile devices has become priorities in a world where connectivity is ubiquitous. In an age where consumers are informed and connected, relevance and authenticity are the keys to marketing success. Thus, from the simple beginnings to today's complex digital landscape, the evolution of marketing continues to surprise us and inspire us to always be aware of future trends and innovations. Ultimately, the evolution of marketing underscores its role as a strategic function, aligning business objectives with customer expectations to drive growth and build enduring brand loyalty.*
Keywords: *traditional concept, digital strategies, future trends*

36. (ID 278) Modern Port Operation Solutions in The Ro-Ro Terminal
Author: stud. Florentina-Denisa JERCAN
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper approaches the concept of "Smart port" in association with operations in a Ro-Ro terminal and explores various technologies used to optimise port operations. "Smart port" describes a port that integrates advanced technologies to improve the efficiency, safety, and sustainability of port operations. The paper*

aims to explore various aspects of port operations, such as port infrastructure, technologies and equipment, operational processes, and their efficiency within the Ro-Ro terminal and shows how these technologies are used to improve maritime traffic management and cargo handling. Based on the evaluation and illustration of these technologies, the paper highlights the advantages and benefits of those technologies and how they contribute to improved operational performance and increased competitiveness in the maritime industry.
Keywords: *Ro-Ro Terminal, Smart port, Operational efficiency*

37. (ID 285) Open-Source 3D Radar Simulation Systems
Authors: stud. Bogdan TODICĂ, stud. Bianca VARVARA
Scientific Advisor: Sup. Instructor LTC Liviu GĂINĂ
Institution: "Henri Coanda" Air Force Academy
Abstract: *In the realm of modern warfare, the integration of advanced radar technology plays a pivotal role in enhancing situational awareness and strategic decision-making. Open-source 3D radar systems represent a paradigm shift, offering unprecedented flexibility, customization, and accessibility to military operators and developers. By harnessing open-source principles, these systems provide real-time, high-resolution imaging of aerial and terrestrial targets with unparalleled accuracy. This abstract explores their technical specifications, implications on military operations, and defense strategies. Rapid prototyping, collaborative development, and integration with existing infrastructure empower defense forces to adapt swiftly to evolving threats. The open nature of these systems fosters innovation and knowledge sharing, driving continuous improvement and optimization of radar capabilities. In conclusion, open-source 3D radar technology revolutionizes military surveillance and reconnaissance, ensuring superiority in the modern battlefield environment.*
Keywords: *modern warfare, open-source, platform, technology*

38. (ID 288) Ensuring the Protection and Safety of Workers in the Port
Author: stud. Cristina Luiza COSTINESCU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study investigates the importance of ensuring worker protection and safety in the port environment. Ports are vital hubs for international trade, but they also carry certain risks for those involved in port activities. This research examines the main threats and risks to which port workers are exposed and looks at the strategies and measures needed to minimise them. Through an analysis of existing regulations and security practices, recommendations are proposed for improving working conditions and ensuring a safe and healthy working environment in ports. Finally, this study underlines the importance of collaboration between port authorities, employers and workers for the effective implementation of safety and security measures in ports in order to reduce risks and promote workers' well-being.*
Keywords: *port, workers, safety, protection, work, risks, protective equipment, monitoring*

39. (ID 289) Transportation and Handling of Petroleum Products in Specialized Ports

Author: stud. Andreea-Theodora IACOBESCU
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This research investigates the processes and practices associated with the transportation and handling of petroleum products in specialized ports. Focusing on aspects such as safety, efficiency, and environmental impact, the study explores current methods of transporting and handling petroleum products in specialized ports and identifies potential improvements or innovations to optimize these processes. Using both qualitative and quantitative methods, the research examines factors such as port infrastructure, available technologies, relevant regulations and policies, as well as risk management practices and environmental protection measures. The findings will contribute to a deeper understanding of the challenges and opportunities associated with the transportation and handling of petroleum products in specialized ports, thereby facilitating the development of more efficient and sustainable strategies for managing these vital operations in the oil industry and within the global context of environmental concerns.*

Keywords: *Petroleum products; Specialized ports; Transportation; Handling*

40. (ID 290) Adapting Ports to Climate Change
Author: stud. Delia-Iuliana DRAGNEA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ports are vital nodes in global transportation networks, serving as hubs for the movement of goods and people. However, they are increasingly facing challenges posed by climate change. This paper explores the impact of global warming on maritime operations and the strategies ports are employing to adapt to these changes. Rising sea levels, extreme weather events, shifting trade patterns, and environmental disruptions are among the key challenges faced by ports due to climate change. To address these challenges, ports are implementing measures such as upgrading infrastructure to withstand flooding, enhancing risk management systems, and adopting sustainable practices to mitigate carbon emissions. These adaptation efforts are essential to ensure the resilience and sustainability of port operations in the face of climate change impacts.*
Keywords: *climate change, global warming, maritime operations, rising sea levels*

41. (ID 292) The Concept of Sustainability in Port Practice and Performance Indicators
Author: stud. Raluca IANCU
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *As environmental awareness grows, ports need to improve their operational sustainability in relation to environmental regulations by meeting stakeholder expectations. Sustainable development and operation has become a major part of strategic and operational management in port activities, playing a very important role in achieving outstanding port services, including improvement of container terminal efficiency and economy, throughput and profitability. Therefore, in this paper I will highlight the importance of implementing sustainable practices in port management to*

enhance resilience and long-term competitiveness in the global maritime industry.
Keywords: *sustainability port practice and performance indicators*

42. (ID 295) Waste Management Solutions Resulting from Port Operations
Author: stud. Madalin PRUTIANU
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A present major problem for ports is arranging adequate reception facilities for ship-generated waste, as the lack of such facilities is a problem to many shipowners. To preserve the environment in and around the ports it is necessary also to deal efficiently with the port-generated waste. Although international conventions on the retention of waste on board ships for subsequent discharge to shore reception facilities have been ratified by most seafaring nations, a considerable part of the ship-generated waste still goes into the sea. Much of the waste generated in ports will also be dumped in quantities that at least affect the local marine environment. The handling of waste consists of two main phases collection and treatment. Waste has to be collected in every port and on board every ship, whereas generally only some wastes are treated and to a certain degree in ports and on board ships. This paper considers the different kinds of waste generated in both ports and on board ships, where and how it is generated, how it could be collected and treated. The two sources are treated together to show how some ship-generated waste may be treated in port installations primarily constructed for the treatment of the port-generated waste, making integrated use of the available treatment facilities.*
Keywords: *collection, treatment.*

43. (ID 310) Business Idea in A Container Terminal
Author: stud. Andrei TUDORACHE
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This idea explores an innovative business concept within the realm of container terminals, with a focus on addressing challenges related to bureaucracy, logistics, and documentation.*

Container terminals serve as pivotal nodes in global supply chains, yet they are often plagued by inefficiencies stemming from bureaucratic red tape, complex logistical operations, and meticulous documentation requirements. Our proposed business idea centers on leveraging technology-driven solutions to streamline terminal operations, optimize logistics processes, and simplify documentation procedures. Emphasizing organization and efficiently utilizing resources within the terminal are the keys to a successful business.This idea advocates for the embracement of entrepreneurial ventures to unlock latent potential within container terminals, propelling them towards heightened efficiency, competitiveness, and sustainability in the perpetually evolving realm of maritime logistics.
Keywords: *bureaucracy, logistics, documentation*

44. (ID 321) Software Solution for Employee Training on Cargo Storage in Ports

Author: stud. George Constantin ONICA
Scientific Advisor: Assoc. Prof. Andrei BAUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This research paper explores the utilization of software solutions for employee training in cargo storage within port operations. With the escalating volume of cargo handled at ports, efficient and safe training programs are imperative. Software solutions offer interactive, multimedia-rich content tailored to individual learning needs, enhancing retention and engagement. Real-time tracking of employee progress enables informed decision-making and adjustments to training programs. The Port of Singapore serves as a case study, demonstrating the effectiveness of software solutions in improving employee performance and safety. Overall, investing in innovative training solutions is essential for ports to remain competitive and ensure operational efficiency and safety.*
Keywords: *Port operations, employee training, cargo storage, software solutions, interactive learning, real-time tracking, continuous development, Port of Singapore, operational efficiency, safety.*

45. (ID 330) Dynamics of International Migration: Trends, Patterns, and Implications

Authors: stud. Camelia-Georgiana ION, stud. Maria IVĂNESCU, stud. Irina-Elena AXINTE
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *International migration is a complex and multifaceted phenomenon that plays a significant role in shaping societies, economies, and cultures worldwide. This abstract examines the dynamics of international migration, focusing on key trends, patterns, and their implications. It delves into the drivers of migration, including economic disparities, political instability, environmental factors, and social networks. The abstract also explores the diverse patterns of migration, such as labor migration, refugee flows, family reunification, and irregular migration, highlighting their distinct characteristics and impacts. Moreover, it discusses the implications of international migration for both sending and receiving countries, including economic development, cultural diversity, social integration, and policy challenges. By analyzing these dynamics, this abstract contributes to a deeper understanding of the complexities surrounding international migration and informs policymakers, researchers, and stakeholders in devising effective strategies to address its challenges and harness its potential benefits.*

46. (ID 331) Technical and Economic Aspects of Freight Transport on the Danube

Author: stud. Maria-Magdalena LUCA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Economic, transport and territorial aspects have to be in line so that this mode of transport could work properly. It is also necessary to have enough waterways that link the hinterland with sea ports. The Danube River that is the second longest river in Europe flows through ten European countries. In spite of its length, the volume of cargo has been lower than on the Rhine and its tributaries as the result of some aspects that have happened in the Danube countries since the1990s. The main objective of the document is to focus on the current situation of transport on the Danube, to analyse*

strengths and weaknesses and to prepare measures that could contribute to improving this situation.
Keywords: *Danube River, Strengths and Weaknesses, Bulk Goods*

47. (ID 334) Analyze the Freight Traffic Through Ports in the United States of America
Author: stud. Andreea Simona JURATU
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study examines the freight traffic patterns through ports in the United States of America. It analyzes the types of goods transported, traffic volumes, economic impacts, and implications for infrastructure and sustainability. By understanding these dynamics, policymakers, businesses, and stakeholders can make informed decisions to enhance trade efficiency and promote sustainable development.*
Keywords: *Analyzes, stakeholders, united states of America, traffic volumes*

48. (ID 342) The Impact of Blockchain Technology on Port Management and Operations
Author: stud. Antonio-Claudiu PISMIS
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The presentation investigates the impact of blockchain technology on port management and operations, with a focus on the Port of Rotterdam. Blockchain technology has the potential to revolutionize efficiency, transparency, and security in supply chains, cargo tracking, and transaction authentication. Implementing blockchain in ports presents significant opportunities for innovation and efficiency.*
Keywords: *Blockchain; Port; Efficiency; Transparency; Security; Supply Chain; Tracking; Authentification; Management; Operations*

49. (ID 350) The International Migration
Author: stud. Mihaela-Bianca MELCEA
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The international migration is a complex global phenomenon, characterized by the movement of people from one country to another in search of economic, social, or political opportunities. This process is influenced by factors such as economic inequalities, conflicts, climate change, and migration policies. Migration can bring benefits, such as increasing cultural diversity and contributing to the economic development of destination countries, but it can also pose challenges, such as social tensions and discrimination. Managing migration requires global approaches, cooperation between states, and respect for human rights to ensure safe, orderly, and legal migration.*
Keywords: *migration, international, global*

50. (ID 354) Containerized Grain Logistics Processes for Implementing Sustainable Identity Preservation
Authors: stud. Seyal AMET, stud. Selda GALIT
Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Grains are often exposed to unprotected environment during post-harvest logistics processes. Since grains are usually accommodated in silos on farms, when importing grains, they are transported to silos or yards at ports by heavy vehicles, and imported to another country (or region) by bulk carriers. Thereafter the grains are stored at silos and transported in bulk or tone-sacks by heavy vehicles. The grain quality often deteriorates due to unprotected storage and transportation environment through the logistics processes, whereby they become affected by insects, pests, rancidity, discoloration, and so on. This study examines a containerized grain logistics contributing to well-known identity preservation, analyzes the applicability in terms of logistics cost, and discusses potential effects on sustainability improvement by tracing and preserving the grains for a longer duration in well-protected spaces during the logistics processes. This study introduces the necessity of preservation containers to implement the containerized grain logistics to prevent quality deterioration. A comparative cost analysis is conducted to investigate the effect of the containerized grain logistics. According to the comparative analysis, conventional bulk logistics has benefits in shipping (76.2%) and storage costs (89%),*

whereas the containerized logistics has economic viability in tariff (23.2%) and infrastructure costs (51.2%).
Keywords: *grains; logistics processes; preservation containers; logistics cost*

51. (ID 355) Maritime management
Author: stud. Bianca-Alexandra IACOB
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Maritime management is an important branch of management dealing with the organization, coordination and control of maritime transport activities. It involves the effective management of human, material and financial resources to ensure maritime operations in a safe, efficient and profitable manner. Maritime managers must have a solid knowledge of shipping, maritime law, navigation technologies and maritime safety. They are responsible for route planning, crew management, vessel maintenance, compliance with international regulations and ensuring compliance with environmental standards. Maritime management is crucial to the smooth functioning of global shipping, playing a vital role in facilitating international trade and the transport of goods. Effective management in this area contributes to reducing operational costs, increasing efficiency and ensuring security in shipping.*
Keywords: *maritime, management, navigation, organization, activities*

52. (ID 360) Navigating the Nexus of Culture and Strategy: A Comprehensive Examination of Negotiation Techniques and Tactics in International Business
Authors: stud. Ioana-Octaviana MĂNĂILĂ, stud. Nicușor-Cristian COMĂRNICEANU
Scientific Advisor: Assoc. Prof. Gheorghe GRECU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This article offers a comparative review of negotiation tactics and strategies in international business that will reflect on the cultural background and intercultural communication. It commences the theoretical platform for understanding negotiation, culture, as well as intercultural communication. The discussion is then*

broadened to delve into the use of cultural difference as a bargaining tool and the need for cultural intelligence and adaptability in global business dealings. It illustrates the significance of the basics of bargaining such as use of negotiation tools and the necessity of planning, information sharing and strategically applying bargaining tactics through an analysis of negotiations strategies and tactics. Furthermore, it is put into practice by exploring the application of these strategies in various cultural contexts, illustrated by cross-cultural negotiation examples of real life, which also evidence the difficulties and the successes in negotiations. The article ends with the underlining of the strategic importance of cultural sensitivity and the elaboration of relevant negotiation methods to reach a successful international business agreement. Such research is ongoing to analyze the culture-strategy dynamic with the purpose to provide a remedy to the problem of ineffectiveness in international business negotiations in the culturally diverse global marketplace.
Keywords: *international business negotiations, cultural intelligence, intercultural communication, negotiation techniques and tactics.*

53. (ID 365) Analyzing Romania's Railway Infrastructure
Author: stud. Andreea-Mădălina BAGAIOF
Scientific Advisor: LCDR Instr. Dragoș SIMION, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Rail transportation presents significant advantages emphasized by the Romanian Government, particularly in the context of escalating energy costs and environmental concerns. This study examines the multifaceted benefits of rail transport, highlighting its superior energy efficiency compared to road transport, which proves economically advantageous amid rising fossil fuel prices and geopolitical uncertainties. Furthermore, the Ministry of Transport underscores rail transport's efficacy in facilitating mass passenger transit and large-scale commodity transport across various distances, thus reducing overall energy consumption. Moreover, rail transport's lower pollution footprint translates into reduced public costs associated with environmental protection efforts. Finally, the absence of extensive high-speed road networks in Romania accentuates the comparative speed and efficiency of rail transport over personal car travel. This abstract synthesizes the pivotal role of*

rail transport in addressing contemporary transportation challenges while highlighting its potential for sustainable and cost-effective mobility solutions.
Keywords: *Rail transport, energy efficiency, pollution.*

54. (ID 368) Container Terminal Automation
Author: stud. Ionut-Alin ENCIU
Scientific Advisor: Assoc. Prof. Eng. Filip NISTOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Container terminal automation revolutionizes port operations through robotics, AI, and IoT integration. Enhanced efficiency, safety, and sustainability are key benefits. Automation optimizes container handling, reducing errors, and enabling real-time data analytics for predictive maintenance. This transformation fosters a more agile and competitive global supply chain. This paper represents a chapter within the bachelor's thesis topic.*
Keywords: *Port, smart, container, terminal, robotic.*

55. (ID 371) Innovations and Technology for Sustainable Development of Seaports
Author: stud. Nicoleta TOMESCU
Scientific Advisor: Assoc. Prof. Eng. Elena-Rita AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The aim of this paper is to analyse the possibility of achieving sustainable development of seaports through the development and implementation of innovations and technology. The implementation of innovations in seaports affects the success of their operations, reduces business costs and creates conditions for maintaining a competitive position on the market, thereby affecting the economy as a whole. Moreover, innovations reduce negative effects on the environment affecting the ecological aspect and improving the quality of citizens lives. The development possibilities of seaports can also include innovations that are more focused on information and communication technologies. Innovations can address economic, environmental and social concerns and can give alternative guidelines for achieving sustainable development of seaports.*
Keywords: *Seaports, Sustainable Development, Innovations*

56. (ID 44) The Optimization of the Ship's Lighting System Using LED Technologies

Authors: stud. Briana-Ioana REGEP, stud. Mario-Petru GEAMALINGA, stud. Nicolas-Cristin BUTNARU
Scientific Advisor: Prof. Eng. Gheorghe SAMOILESCU, PhD.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper explores the impact of LED technology in the marine industry, highlighting its benefits in ship lighting. Energy efficiency, durability and light control capability are highlighted, as well as the positive impact on crew comfort and productivity. Methods are also proposed to improve ship performance through the use of intelligent lighting systems and electrical power distribution networks. It also discusses initiatives to facilitate the transition to LEDs and acknowledges the risks associated with this technology, emphasizing the need for careful implementation and rigorous testing.*

Keywords: *LED; technology; ship; installations; implementation*.

57. (ID 174) Study of the Operation of Synchronous Motors for Naval Propulsion Fed from Cycloconverters

Authors: stud. Alexandru RADU, stud. Ovidiu-Alexandru SALANTA
Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper discusses various aspects and trends in ship propulsion, with a focus on two propulsion systems: POD and AZIPOD. POD propulsion is widely used in the shipping industry, being used for cruise ships, oil tankers, icebreakers and supply vessels. This allows for space saving by moving the propulsion engines from the machine compartment outside the ship. The azimuth thruster replaces the conventional propulsion and steering system, performing both the propulsion and steering functions. The propulsion unit is located outside the ship's body and can be maneuvered unlimitedly. An advantage of azimuthal propulsion is that it can be completely electrically powered and that the Azipod is a traction propeller, unlike conventional propellers that push. These characteristics improve the energy efficiency of the ship. Thrusters can be operated at variable speeds by adjusting the frequency of the*

supply voltage using a cycle converter. Different types of cycle converters have also been presented, such as those with 6 pulses, 12 pulses and 12 pulses/3x2 phases. The electric system of POD propulsion includes a transformer, a frequency cycle converter and an electric motor. The transformer is used to divide the system into several parts and to change phase voltages for rectifiers used. The cycle converter controls the speed and torque of the motor by changing the constant frequency of the main generator to the variable frequency of the motor. The electric motor converts electrical power into mechanical power for propellers.
Keywords: *study of the operation for naval propulsion*

58. (ID 287) Advanced Methods for Strengthening Security in Computer Networks
Authors: stud. Alexandru-Bogdan MICLE, stud. Raul-Petru PLIC
Scientific Advisor: Lt.col. Eng. Vlad VASILE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project aims to optimize security in computer networks through an architecture that includes LAN, WAN, and DMZ, using various equipment and advanced security techniques. Layer 3 switches, firewalls, and security at the port and operating system level are utilized, including the use of strong passwords and their periodic change, deactivation of unused ports, and access through SSH. Windows benefits from stringent security policies. The firewall filters traffic, allowing only necessary connections, to protect the network against unauthorized access and attacks while maintaining operational efficiency.*
Keywords: *Security policies, firewall, switch-level security, Windows operating systems, operational efficiency*

59. (ID 18) Waste management in Romanian seaports
Authors: stud. Manuel-Ștefan NICOLAI, stud. Mălin CRIȘU, stud. Mădălin George ANA
Scientific Advisor: Lecturer Eng. Chim. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Keywords: *Port*

60. (ID 63) The Environmental Impact of Washing Waters from The Scrubbers of Commercial Ships

Authors: stud. Ștefania MIHAI, stud. Antonia-Laura RISTEA
Scientific Advisor: Lecturer Eng. Chim. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *A scrubber is a waste gas treatment facility where a gas stream is brought into intense contact with a liquid to allow certain gaseous components to pass from gas to liquid. Scrubbers can be used as a technique to limit gaseous emissions. The effects on the physico-chemical parameters of the water are: the increase in the concentration of salts, changes in the pH and the increase in the concentration of heavy metals. The increase in the concentration of heavy metals leads to an increase in the toxicity of sea water, affecting aquatic organisms. The uncontrolled discharge of wastewater can lead to the destruction of marine habitats, having a negative impact on biodiversity. Some directions regarding the reduction of environmental impact can be: advanced treatment of waste water, monitoring and optimization of diving technologies.*

Keywords: *Scrubbers, Pollution, Wastewater, Heavy Metals.*

61. (ID 335) IoT Under Threat: Unmasking Vulnerabilities for a More Secure Connected World

Author: stud. Nicoleta DĂNĂILĂ
Scientific Advisor: Lt.col. Eng. Vlad VASILE, PhD
Institution: "Nicolae Bălcescu" Land Forces Academy, Sibiu

Abstract: *In a digital era increasingly populated by Internet of Things (IoT) devices, ensuring impenetrable network security is paramount. This paper examines the vulnerabilities of such networks, unearthing the susceptibilities particularly prevalent within IoT devices. Our exploration, which unfolds through rigorous security testing and the methodical exploitation of vulnerabilities, sheds light on the potential weak spots that could be leveraged by cyber threats. The research delves into a dual-faceted approach identifying known vulnerabilities and pioneering the discovery of new exploitation avenues thereby evaluating the resilience of current defense mechanisms. By marrying theoretical vulnerability assessments with practical exploitation exercises, this study not only tests the fortitude*

of network security in the face of IoT-specific threats but also proposes refined strategies to fortify against them. Consequently, this paper contributes to the vital discourse on cybersecurity, advocating for a preemptive strengthening of defenses in our increasingly interconnected landscape.

Keywords: *Controlled Exploitation, Cybersecurity Resilience, Defense Mechanisms, IoT Security, Network Vulnerabilities*

62. (ID 343) A History of The Strategy - From Battlefield to Boardroom: The Journey of Strategic Concepts

Author: stud. Ioan Ștefan MILITARU

Scientific Advisor: Major Superior Instructor Gabriela NICOARĂ, Phd.

Institution: National Defence University „Carol I", Bucharest, Romania

Abstract: *This article presents an evolutive history of the concept of "strategy" from the Antiquity to the nowadays and also how this concept was precepted in military and was taken over by the civil environment. Using the document analysis method, the present article offers a view of the strategy route: from the Bible's stories - where the main strategy was to have God by your side – to the ancient Greeks, Frontinus' "Strategemata", Sun Tzu, Strategikon treaty, Machiavelli, Jomini and Napoleon and the concept at present. All these periods have in common two marvelous causes – the conflict and survival – and offer a spectacular chance to analyse the methods the strategy has been evolving at the level of mentality. Machiavelli claimed that "you have to know how to color your actions" - fact that was borrowed in the economic environment later – consequently, the purpose of this article is to present a short history of the strategy and the manner some of the strategies were imported and used in the civil environment. From the study, it can be concluded that the origins of the strategy stands in the past and the concept has been evolving since then with the implications of the modern consequences of the aplicability (of the strategy) and the main goal of the strategy is to reach the great heights of succes or survival, as the case may be, both in the military and in the civil, economic, environment.*

Keywords: *strategy, history, armed forces, civil environment, economic environment, logistics, Jomini, Napoleon, conflicts, war.*

63. (ID 271) Wind Farm Feasibility in Romanian Coastal Zones
Author: stud. Cristian POPA
Scientific Advisor: Captain Assoc. prof. Dinu ATODIRESEI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The current project aims to conduct hydrographic and oceanographic research necessary for installing a wind farm in the Romanian coastal maritime zones. The first part of the project will outline the general aspects of constructing a wind farm. Here, I will present operational principles, decision criteria for selecting a wind farm site, and its configuration. The second part will continue with an analysis of the zones along the Romanian littoral of the Black Sea in terms of wind potential. In this section of the project, we will analyze environmental characteristics, soil structure, and the amount of current that can be produced per square meter in the study area. Subsequently, we will determine the hydrographic and oceanographic parameters necessary for installing a wind farm. In conclusion, I will present the research findings to determine the feasibility of installing such wind farms in Romanian coastal zones.*
Keywords: *Analysis of the Installation of a Wind Farm, Hydrographic Research, Feasibility*

64. (ID 318) Designing and Implementing an Advanced Positioning System for Mobile Targets
Authors: stud. Andrei-Ioan CHEPTEA, stud. Alexandru Gabriel BOLOCAN
Scientific Advisor: Assoc. Prof. Eng. Ciprian Ion RIZESCU, PhD
Institution: Politehnica București National University for Science and Technology, Faculty of Mechanical Engineering and Mechatronics
Abstract: *This scientific work involves the conception of a two-axis system with a camera to determine the spatial position of an object. The device's body is 3D printed using various materials. Two stepper motors have been implemented to drive the turret, providing precise and swift movement to the mechanism. The turret can be detachable for versatile usage according to needs. This project exemplifies the*

utility of additive printing technologies, enabling the production of personalized and unique tools that can be designed according to specific requirements.
Keywords: *target tracking, mobile target, turret, 3D printing*

65. (ID 379) Identification and Analysis of Risks Associated with Handling and Storage of Goods in Ports
Author: stud. Andreea FLOREA
Scientific Advisor: Assoc. Prof. Alexandru COTORCEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The following work investigates the identification and analysis of risks associated with the handling and storage of goods in ports. This paper is structured into distinct parts, each part highlighting the essence of the topic through exact data obtained at the time of the study's inception and original conclusions derived from them. The general part presents the role of ports in the global logistics chain, providing statistics on the flow of goods through ports and discussing the types of goods commonly handled. The implementation of modern technologies for monitoring and anticipating risks, including the role of artificial intelligence, is examined. Risks associated with the handling and storage of goods classify potential risks, analyzing their economic and operational impact, and discussing techniques and strategies for risk assessment and management. Additionally, relevant case studies of ports with effective risk management practices and examples of accidents associated with the handling of goods in ports are explored. Risks associated with handling and storage are analyzed at a specific port operator, detailing the operator's activities, types of goods handled, associated risks, and measures taken to mitigate these risks. Furthermore, the use of technology and innovation in the industry to reduce risks is examined. Finally, conclusions are provided.*
Keywords: *Ports, cargo handling, storage, risk identification, risk analysis, risk management, artificial intelligence, technology, case study*

66. (ID 388) Ways to improve sustainability using ports in Europe, America and Asia as examples
Author: stud. Andreea-Daniela BURHAI

Scientific Advisor: Assoc. Prof. Eng. Elena-Rita AVRAM, PhD
Institution: *"Mircea cel Bătrân" Naval Academy, Constanta*
Abstract: *The paper aims to identify environmental sustainability initiatives implemented in ports in South America, Europe and Asia. The sustainability of these ports in is based on adapting and improving port practices to reduce their impact on the environment and local communities, while maintaining operational efficiency and competitiveness. This refers to the use of sustainable technologies and practices to reduce polluting emissions, manage waste efficiently, conserve marine biodiversity and promote the use of alternative energy. Ports want to contribute to climate change mitigation, protect fragile ecosystems and provide a healthier and safer environment for local communities and future generations by adopting sustainable development policies and strategies.*

III. SECTION: MILITARY SCIENCES AND INFORMATION

Section Committee:
Chairman:
Prof. Ion CHIORCEA, PhD
Members:
Assoc. prof. Ionuț-Cristian SCURTU, PhD
Assoc. prof. Florin NISTOR, PhD
Stud. Adelin COTESCU
Stud. Sergiu FLEȘERIU
Stud. Maria POP
Stud. Mihaela FLORIȘTEANU
Room: LI126

1. (ID 11) The Role of Social Media in Contemporary Military Actions
Author: stud. Andrei-Vasile RUS
Scientific Advisor: Associate Professor, Corneliu PREJA, PhD
Institution: Babeș-Bolyai University
Abstract: *Since the invasion of Ukraine that occurred on 24th of February 2022, the impact of social media on the intelligence domain in case of an armed conflict had been seen. Social media can be and effective tool for gathering intelligence that could be vital for the development of the conflict and for the decision makers. The analysis of the use of social media in the Ukrainian invasion can be taken as an example for other military organizations on how social media should and shouldn't be used.*
Keywords: *SOCMINT, military, war, intelligence, analysis*

2. (ID 12) Importance of Military Doctors During Hostilities
Author: stud. Iliyana YORDANOVA
Scientific Advisor: Captain II rank Stefanova STANISLAVA
Institution: Naval Academy "N.Y. Vaptsarov"

Abstract: *Military medical professionals are a key component during military operations and play an important role in the theater of operations. Every armed conflict requires the presence of teams of military doctors who, side by side with their army colleagues, put their lives at risk daily to perform manipulations in order to alleviate the suffering of the casualties and significantly reduce their count. The present study aims to showcase the importance of military doctors in armed conflicts and list the main difficulties they face in fulfilling their tasks. Theoretical analysis is used as a scientific approach to achieve the goal. As a result, some basic skills are identified, which should be developed above all along the lines of the military training they have to undergo.*
Keywords: *military doctors, military operation, importance, conflict, first aid*

3. (ID 64) Modafinil
Author: stud. Maria Antoanela BADEA
Scientific Advisor: Capitan Marius Emilian ANDREIANA
Institution: Medical Military Institute
Abstract: *This paper examines the challenges posed by sleep deprivation and the search for effective wakefulness-promoting medications, with a specific focus on modafinil. It begins by elucidating the critical need for sustained alertness in various professional domains, such as the military, transportation, emergency response, and healthcare, amidst the backdrop of circadian rhythms' influence on cognitive function. Distinguishing between total and partial sleep deprivation, the discourse navigates through factors influencing individual responses to sleep loss, emphasizing the accumulative effects of chronic sleep debt, particularly in shift work settings. Transitioning to pharmacological interventions, traditional stimulants like amphetamines and caffeine are scrutinized for their limitations, paving the way for the exploration of modafinil as a promising alternative. Delving into its pharmacokinetics, mechanism of action, dosage recommendations, and potential drug interactions, the paper underscores modafinil's efficacy in enhancing wakefulness without engendering typical stimulant-related side effects. Empirical evidence from studies, including those conducted within military contexts, is synthesized to*

validate modafinil's utility in real-world scenarios, particularly in mitigating cognitive impacts of sleep deprivation. The discourse meticulously appraises modafinil's safety profile, minimal propensity for abuse or dependence, and ethical considerations surrounding its use, especially in healthcare settings where patient safety and professional integrity intersect. Culminating with a balanced synthesis of findings and ethical deliberations, the paper underscores the imperative for judicious utilization of modafinil across diverse occupational landscapes. By synthesizing evidence-based insights into a coherent discourse on sleep deprivation management and wakefulness promotion, underpinned by meticulous scholarly referencing, this paper contributes to the understanding of effective strategies in addressing the challenges posed by sleep deprivation.
Keywords: *Sleep deprivation, medication, drugs, amphetamines, caffeine, cognitive function, performance*

4. (ID 70) The Personality of the Leader and Building Excellence in the Military Field
Author: stud. Anamaria-Daniela BÎRZAN
Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD
Institution: ”Mircea cel Bătrân” Naval Academy
Abstract: *In military operations, the role of leadership and the complexity of individual personalities significantly influence the achievement of excellence. This brief explores the correlation between leader personality traits and the cultivation of military excellence. This abstract investigates the interplay between leadership traits and the cultivation of excellence within the military context. It explores various dimensions of leadership, including emotional intelligence, strategic vision, and ethical conduct, and their impact on unit cohesion, morale, and operational effectiveness. Moreover, it examines the significance of adaptive leadership in navigating complex and unpredictable scenarios inherent to military operations. By understanding the nuanced relationship between leadership personalities and military excellence, this presentation provides valuable insights into leveraging leadership personality traits to foster a culture of excellence and resilience within military organizations.*

Keywords: *The Personality, Excellence, Millitary Field, Leader, Subordinates, Strategies, The Power of Example*

5. (ID 122) Maritime Surveillance Using UAVs
Author: stud. Maria-Gabriela CULCEA
Scientific Advisor: Assoc. Prof. Eng. Paul BURLACU, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This paper explores the use of aerial drones for surveillance in maritime districts, analyzing the advantages and disadvantages in this context. It contains examples of Unmanned Aerial Vehicles (UAVs) that are commonly used for maritime surveillance missions, such as the DJI Phantom series and the Parrot Anafi. In addition, this paper looks at the technical aspects and operational considerations of using drones for surveillance of a maritime district, as well as how authorities can detect possible threats and effectively apply security measures in a short period of time.*
Keywords: *Unmanned Aerial Vehicles, Surveillance, Maritime district*

6. (ID 144) Enhancing Burn Recovery: The Impact of Fish Skin Treatment on Healing Efficiency, Pain Management, and Cost Reduction
Author: stud. Stefan-Ionut ZAHAR
Institution: Military Medical Institute
Abstract: *This study evaluates sterilized tilapia skin as a biological dressing for first to third degree burns, against traditional methods. A literature examination through the National Library of Medicine with search terms: fish skin graft, tilapia, tilapia skin grafts, burns, and wound was conducted and a total of 5 studies indicate tilapia skin treatment accelerates reepithelialization, reduces dressing use, analgesic needs, and patient discomfort as per various scales like BSPAS (Burns Specific Pain Anxiety Scale). The use of tilapia skin not only stimulates the healing process across different burn degrees but also reduces the risk of infection and decreases patient discomfort. These findings suggest the potential for tilapia skin to be integrated into standard burn care protocols, offering a cost-effective and readily available treatment option. Further studies are*

recommended to explore long-term outcomes and the biological mechanisms behind the observed benefits.
Keywords: *Reepithelialization, tilapia skin graft, biological dressing, BSPAS (Burns Specific Pain Anxiety Scale).*

7. (ID 153) Preventing HIV/AIDS in the Armed Forces: Challenges and Approaches
Author: stud. Letiția-Elena MITITELU
Scientific Advisor: Assist. Prof. Andreea Marilena PĂUNA, PhD
Institution: Institute of Military Medicine
Abstract: *The Human Immunodeficiency Virus (HIV) infection and the Aquired Immunodeficiency Syndrome (AIDS) remain a global health concern. This review provides insight into the epidemiology, impact and management of HIV/AIDS with a primary focus on military populations. Furthermore, this review examines comprehensive HIV/AIDS prevention programs implemented by organizations like the US Department of Defense (DOD) or the Defense HIV/AIDS Prevention Program (DHAPP). These types of organisations have intervened with education initiatives, condom distribution and stigma reduction through innovative interventions such as Popular Opinion Leaders (POL) Intervention and condom enhancement initiatives. This review synthesizes research findings that underscore the importance of sustained efforts to combat HIV/AIDS and protect the health and well-being of military personnel.*
Keywords: *HIV/AIDS; military population; prevention; treatment;*

8. (ID 156) Exchange of Experience in the Military Environment - The Fundamental Strategy of the Implementation of National Security Reforms
Authors: stud. Olga STANȚIER, stud. Alexandru TANASIEV
Institution: "Alexandru cel Bun" Military Academy of Armed Forces
Abstract: *The global security environment is constantly changing and evolving, requiring a constant adaptation of military strategies and approaches. Implementing national security reforms is a complex process, requiring a strategic approach based on the exchange of experience and best practice between nations. This*

article explores the crucial importance of international cooperation and knowledge-sharing among military personnel in achieving effective transformations in the national security architecture. The paper examines the major challenges facing countries in their efforts to modernise military capabilities and align with international standards in this field. It highlights the substantial benefits of disseminating the experience gained in reform processes, presenting concrete examples of best practices successfully implemented in different countries. At the same time, obstacles encountered in the knowledge sharing process and ways to overcome them through robust cooperation mechanisms are addressed. Finally, the article highlights the need for a coherent strategy for the exchange of experience in the military environment to facilitate the effective implementation of national security reforms, thus contributing to the consolidation of a stable and predictable global security environment.

Keywords: *exchange of experience, reforms, international cooperation, security environment.*

9. (ID 165) Optimization of Action Strategies on the Battlefield

Authors: stud. Alexandru RANEȚCHI, stud. Alexandru TANASIEV
Institution: "Alexandru cel Bun" Military Academy of Armed Forces

Abstract: *The theoretical ideas of tactical thinkers suffer drastic upheavals due to the events currently taking place on the battlefield. Military regulations are turned upside down. The effects of these revisions occur due to the evolution of technology and weaponry available. This article itself contains two primary ideas, namely: the evolution of means available on the battlefield and the adaptation of infantry subunit action tactics to these. In this train of thought, it was proposed to develop that pertains to the ability to perceive and act in line with technological evolution, therefore about the main factor of armed conflict, "the soldier". Over time, it has been firmly demonstrated that "infantry subunit action tactics" have constantly been re-evaluated ad infinitum. The study can be redefined once the basic rule of continuous and in-depth research of ongoing wars is respected, identifying the successful and unsuccessful actions of the forces. Those actions analyzed correctly and logically elucidate the*

main problems that led to those results in certain military actions. Last but not least, evaluating an ongoing war also explains those stringent needs to rectify the management of using available forces and means. We also conduct this study, based on the war in the neighboring state of Ukraine.

Keywords: *subunits, weapons, organizational structure, development, battlefield, war, research, information.*

10. (ID 195) Utilization of Medical Knowledge and Kits During Combat Operations

Author: stud. Pavlina GEORGIEVA

Institution: "Nikola Vaptsarov" Naval Academy

Abstract: *The report aims to present several new methods and technologies developed so far that can be used during military operations, as well as aiming to reveal the current knowledge of medical personnel and how their skills can develop in the process. The questions raised in the study touch upon the novelties in the world of military medicine that can be used both in military hospitals and on the battlefield during tactical operations, while also shining light on how the current devices for treating soldiers can be replaced with newer technologies in order to facilitate the work of military doctors on the battlegrounds, as well as to speed up the treatment of their patients. Through surveys, both personal and those from a number of doctors who have devoted their lives to the discovery of nanotechnology for the rapid treatment of intoxications, important information is given as to how many of the military medical staff and cadets are familiar with this type of new technology that can be used not only in clinics but also on the battlefield. The recent report aims to present several new methods and technologies that could be used during military operations while revealing the current knowledge of medical personnel. Recently, a new technology for constructing a 'second skin' for severe burn victims was discovered. Through telemedicine, it facilitates continuous connections with the attending physician, the patient, and the rapid response center. By improving the ways of military medicine through the introduction of new methods and discoveries, using the appropriate funding and conducting the necessary training of military doctors, the result*

would be better than the current state of medical practice on the battlefield.

Keywords: *military operations, intoxications, burns, nanotechnology, telemedicine, artificial leather*

11. (ID 197) Nalbuphine

Author: stud. Vlad Daniel BELEGA
Scientific Advisor: Assoc. Prof. Mihail-Silviu TUDOSIE, PhD
Institution: Military Medical Institute

Abstract: *Battlefield injuries (BFIs) inflict severe pain on combatants, often leading to chronic conditions like neuropathic pain and degenerative arthritis. Throughout history, analgesics have been crucial for alleviating the suffering of wounded soldiers. The development of opioids, such as morphine, revolutionized pain management in conflicts. However, concerns about addiction and side effects have prompted the search for safer alternatives. Nalbuphine, a semi-synthetic opioid, emerged as a promising option due to its unique pharmacological profile. Acting as a partial mu receptor agonist and kappa receptor antagonist, nalbuphine provides effective analgesia with reduced risk of respiratory depression. Its balanced effects make it suitable for combat settings where maintaining consciousness and respiratory function is vital. Comparatively, ketamine, a dissociative anesthetic, offers potent analgesia but may induce hallucinations and emergence reactions. Both nalbuphine and ketamine have distinct advantages and considerations, influenced by factors such as side effects, expertise required for administration, and tactical considerations. Studies have demonstrated the efficacy and safety of nalbuphine in combat trauma, showing comparable analgesic efficacy to morphine with fewer side effects. Moreover, nalbuphine's safety profile extends to the pediatric population, making it a valuable asset in prehospital and battlefield scenarios. In conclusion, nalbuphine presents a promising option for managing pain in combat situations, offering effective analgesia with a favorable safety profile. Its use signifies a significant advancement in addressing the unique challenges of pain management in military settings, contributing to improved care for wounded soldiers on the battlefield.*

Keywords: *Nalbuphine, Battlefield, pain, respiratory function*

12. (ID 234) Navigating Geopolitics: Understanding and Analysing Red Lines in Contemporary Politics and International Relations

Author: stud. Ș. C., stud. M. B.
Scientific Advisor: C. T.
Institution: "Mihai Viteazul" National Intelligence Academy

Abstract: *The following article delves into the multifaceted concept of "red lines" and its significance in various domains, including politics, international relations, and military sciences. The concept of "red lines" refers to an imaginary boundary, a metaphorical border, established by a leader or a state. Crossing the red line is seen as a breach of a critical threshold, often leading to a change in the dynamics of politics and power, diplomatic tensions, or even military intervention. By analysing historical examples and contemporary case studies, this material will follow its narrative discourse beginning with the signing of the Red Line Agreement in 1928 and reaching the complexity of the current geopolitical situation. This paper aims to provide a comprehensive understanding of the complexities surrounding red lines and their implications on diplomacy, conflict resolution, and the maintenance of order in an interconnected and globalised world.*

Keywords: *Red lines, political sciences, international relations, diplomacy, military sciences, boundary, power dynamics, Red Line Agreement, 1928, North Korea, diplomatic strategies, war prevention.*

13. (ID 249) Production of Fake News with the Help of Artificial Intelligence

Author: stud. Florin BRĂDEAN
Scientific Advisor: Instr. Sorin LICA
Institution: Police Academy" Al. I. Cuza" Bucharest

Abstract: *As time has progressed, the term "intelligence" has been a human-specific noun, intended to represent the intellectual capacity of a human being. This capacity allows individuals to perceive the elements upon which the surrounding world is based, by their ability to acquire and store relevant information, and subsequently act upon it. Recent times have revealed the existence of a second type of intelligence alongside the traditional human intelligence: artificial*

intelligence (AI). AI represents a new paradigm of thinking and action similar to that found in humans, but it operates autonomously through machine learning algorithms. Machine learning has emerged as the cornerstone of AI, enabling algorithms to adapt to incoming information and even generate new data. While this capability holds immense potential for societal benefit, it also poses significant risks, including the potential to inflict harm on the human population. One such example is the proliferation of disinformation and manipulation, fueled by AI-generated content. In today's landscape, distinguishing between real information and AI-created content has become increasingly challenging. This paper aims to explore the multidimensional relationship between AI and fake news, examining the technological evolution of artificial intelligence, its methods for creating and disseminating disinformation, and strategies to counteract its influence. Special emphasis will be placed on the impact of fake news on the general population, particularly during critical events such as political elections or emerging pandemics. Case studies will be presented to illustrate the effects of AI software on democratic societies, where information is ostensibly free but where the consequences of misinformation are borne by the consumer.

Keywords: *disinformation, fake news, misinformation, information, artificial intelligence.*

14. (ID 264) The Future of the Sino-American Economic Conflict: Impact and Relevance to the Global Economic Security

Author: stud. A.-E. A.
Scientific Advisor: C. T.
Institution: "Mihai Viteazul" National Intelligence Academy

Abstract: *This paper aims to present the possible outcomes regarding the economic conflict between the People's Republic of China and the United States of America. In the present context, economic conflicts represent an emerging threat to the stability of our alliances and general welfare. The impact of the economic clash between two powerful states can be a source of concern and uncertainty, therefore analysis of future trends and scenarios can be a useful tool in preventing negative effects, whether they are economic or not. By using the multiple scenarios method and more*

exactly, the structural organisation technique, the present work is exposing the Best Case Scenario, Worst Case Scenario, Business as Usual and the Wildcard or the Outlier, when analyzing the Sino-American economic relations. Furthermore, the objectives of this paper are the following: to present the general aspects of the conflict and the impact on economic security and to raise awareness regarding the harmful consequences that could emerge from a seemingly minor dispute. The results materialized from this research are relevant with reference to our strategic security as a U.S. ally and can represent a starting point in developing a larger foresight study related to this topic.

Keywords: *China; USA; economic conflict; foresight studies; economic security; trade war*

15. (ID 267) Hybrid War: The Power of Words in An Era of Propaganda and Disinformation

Author: stud. I-A F

Institution: "Mihai Viteazul" National Intelligence Academy Bucharest

Abstract: *In contemporary society, the signification of "war" has gradually altered its original meaning, from a physical battlefield that exists in conventional warfare to an online front, an even more perilous place, regarding the number of victims and its consequences. The Internet has recently become "land of all possibilities", used as a channel of communication and interconnection with the outside world, as well as a mechanism of public distortion upon what reality is and a specific way to induce genuinely tinkered and oriented ideas towards certain goals. Disinformation, as it is called nowadays, proves to be a weapon hard to face. The only shield against becoming the "pray" of this unjust practice lies in its early detection and awareness. Likewise, propaganda is a new disposal of spreading, relatively swiftly, data in order to diminish one's credibility or to enhance the popularity of a state or non-state entity. These two practices represent the pillars hybrid war is fundamented on, consolidated by the word' force and the gullibility every online consumer has in the matter of online-disseminated piece of information. In a world where the usage of unconventional practices to support the aims of a hybrid war is in a*

ceaseless ascendant process, the paper "Hybrid War: The Power of Words in An Era of Propaganda and Disinformation" describes an attempt to rise an alarm signal towards the online baits. Widely dedicated, this paper comes with the hope that, once with a comprehensive effort in acknowledging the emergence and rapidity with which these phenomena spread, as well as their outcomes, each of us, as virtual navigators, will be able to contribute to reduce their negative impact. Subsequently, the paper will provide an objective and clear picture of what online means, with its benefits and drawbacks, with its safe and dangerous spots, as well as a guideline of how to defend against a potential hostile online campaign.
Keywords: *disinformation, propaganda, hybrid warfare, battlefield, online, words*

16. (ID 279) What a Military Conflict Represents for a Future Officer
Author: stud. Andreea-Maria GRĂMADĂ
Scientific Advisor: Major Gabriela-Florina NICOARĂ
Institution: National Defense University
Abstract: *When analyzing wars and conflicts, there is often a tendency to view them as unfolding through distinct stages, starting from domestic political tensions, escalating via protests and demonstrations, and ultimately leading to violence and warfare. Conversely, the conventional view of conflict resolution suggests a reverse trajectory, beginning with intense armed confrontation and gradually reducing through war fatigue, negotiations, and eventual peace. However, this simplistic perspective fails to capture the intricate dynamics of conflict. This article argues for a more nuanced understanding of conflict, emphasizing the importance of examining processes of escalation and de-escalation. Rather than viewing conflict as a linear progression, it is crucial to acknowledge the diverse shifts and fluctuations in the use of coercion and pressure throughout its duration. Furthermore, the winding down of conflict does not always follow a straightforward path of de-escalation; conflicts may conclude even at their peak of violence. By focusing on the current state of research in the field of escalation and de-escalation within the study of civil wars and conflicts, this article aims to highlight areas where our understanding remains*

incomplete. It calls on scholars to delve deeper into these phenomena, identifying gaps in knowledge and suggesting avenues for further exploration.

Keywords: *political tensions, reverse trajectory, negotiations, escalation, de-escalation*

17. (ID 284) The Impact of War and Political Violence on Health

Author: stud. Denitsa TEODOSIEVA

Institution: Nikola Vaptsarov Naval Academy

Abstract: *War and political violence have profound consequences on human health, encompassing both emotional trauma and physical manifestations. This abstract delves into the intricate web of health implications stemming from these harrowing experiences. Emotional trauma emerges as a central facet, encompassing a spectrum of psychological disorders such as post-traumatic stress disorder (PTSD), depression, and anxiety. These conditions often manifest long after the cessation of hostilities, permeating individuals' lives and impeding their ability to function optimally. In addition to emotional scars, the physical toll of war and political violence is staggering. From direct injuries sustained during conflict to the indirect consequences of disrupted healthcare systems and inadequate access to essential services, the physical ramifications are manifold. Combat-related injuries, including amputations, traumatic brain injuries, and chronic pain, not only inflict immediate suffering but also engender long-term disabilities that challenge individuals' quality of life. Moreover, the reverberations of war extend beyond the battlefield, infiltrating communities and societies at large. Displacement, loss of livelihoods, and destruction of infrastructure exacerbate health disparities and hinder access to healthcare, particularly for vulnerable populations such as women, children, and the elderly. The resultant strain on healthcare systems further compounds the challenges of addressing both physical and mental health needs in post-conflict settings. To mitigate the health consequences of war and political violence, comprehensive interventions addressing both emotional and physical dimensions are imperative. This necessitates not only the provision of medical treatment and psychosocial support but also broader efforts aimed at promoting peace, fostering reconciliation, and rebuilding resilient*

healthcare infrastructures. By acknowledging and addressing the multifaceted nature of the health crisis engendered by conflict, stakeholders can work towards restoring health and well-being in affected populations, fostering a path towards healing and recovery.
Keywords: *War, Health consequences, Emotional trauma, Physical manifestations*

18. (ID 286) The Impact of Chat GPT on a Platoon
Author: stud. Rareș-Iulian ROTARU
Scientific Advisor: Major Ana-Maria MERLUȘCĂ
Institution: National Defense University "Carol I" of Bucharest
Abstract: *In light of the rapid digitization of military operations, there is growing interest in the effects of Chat GPT technology on platoon dynamics. This study investigates the effects of Chat GPT, a cutting-edge artificial intelligence platform, on efficiency, decision-making, and communication within a platoon. The paper evaluates Chat GPT's potential to enhance coordination and responsiveness in the battlefield by examining its real-time processing and synthesis of complex information. It also addresses the moral and security issues that arise when incorporating AI into military operations, emphasizing the necessity of strict security procedures. The results of the study show that, even though Chat GPT can provide a lot of advantages in terms of decision support and operational effectiveness, caution is necessary to strike a balance between technological innovation and operational safety and data protection.*
Keywords: *Chat GPT, military operations, AI.*

19. (ID 293) Navigating New Waters: The Strategic Role of Ai in Underwater Warfare and Naval Intelligence
Author: stud. Adrian-Daniel PALCO
Scientific Advisor: Col. Dragoș-Andrei IGNAT
Institution: Alexandru Ioan Cuza" Police Academy
Abstract: *In this time and age, the rise of artificial intelligence in every domain is as compelling as ever, but the opinions are divided. Some believe that this will bring about a new industrial revolution, along with its social and economic implications, while others are looking into the future with concern, warning about the use of such powerful machines in the military field and, therefore, changing the*

course of the world. The use of artificial intelligence in terrestrial military operations is not unknown anymore, as there are already AI-driven drones, UAVs (Unmanned Aerial Vehicles), and autonomous vehicles being used in military conflicts remotely at the moment, but the global superpowers are more and more interested in an arms race that does not only include nuclear capabilities to ensure supremacy but also aiming to implement the most sophisticated, evolved and capable AI into the military, to gain global domination. And as there is above, so is below. Although evolving more silently for the public eye, the advent of AI technologies in naval and underwater operations is gaining more significance, as it shifts towards automated systems, to enhance operational efficiency and strategic advantage. The development of AI-driven unmanned underwater vehicles (UUVs), including autonomous underwater vehicles (AUVs) and remotely operated vehicles (ROVs) can be used in order to achieve a more sophisticated means of gathering intelligence, and also, in a strategic use for underwater warfare. Complex tasks with minimal human intervention, undetectable AI-driven vehicles used for intelligence gathering and therefore strategic advantages, and elaborate AI algorithms for decision-making and data analysis are only some of the aspects to be taken into consideration when thinking about how artificial intelligence is going to change the world as we know it, and therefore, the need for acknowledgment is greater than ever, especially from a naval military perspective, which is hidden from our very own eyes, below open waters and dark seas.

Keywords: *intelligence; operations; strategic; military; artificial intelligence*

20. (ID 298) From Challenges to Change: UK's Post-World War II Evolution

Authors: stud. Stefan DUMITRU, stud. Tiberiu RIZEA
Scientific Advisor: Assoc. Prof. Isabela-Anda DRAGOMIR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy

Abstract: *The post-World War II period checked a transformative period for the United Kingdom because it set out on travel and innovation. This paper points to talk about the challenges confronted by the UK in this urgent time, especially analyzing the economic,*

military, and constitutional dimensions of the changes. We'll investigate the numerous ways in which the consequence of the worldwide struggle required critical alterations, forming the nation's direction towards a cutting edge and advanced state. The article concludes with the thought that the challenges and openings confronted in this transformative time moved the UK into a position of unmistakable quality on the worldwide arrange.
Keywords: *travel, innovation, changes, nation, quality*

21. (ID 305) The Battle for Influence: Understanding and Combatting Psychological Warfare Tactics
Author: stud. Mihai ANDRIESCU
Institution: Academia de Politie "Alexandru Ioan Cuza"
Abstract: *PsyWar, also known as psychological warfare, is a concept that has gained significant attention and relevance in recent times. PsyWar involves the use of various communication techniques to influence the attitudes, emotions, and behaviors of a target audience. This can be done through propaganda, misinformation, and other psychological tactics. Understanding the mechanisms and implications of PsyWar is crucial in today's world, where information is constantly being manipulated and weaponized. Education about PsyWar can empower individuals to critically analyze media and propaganda, and to recognize and resist psychological manipulation. By delving into the history, tactics, and ethical considerations of psychological warfare, individuals can become more informed in an increasingly complex information environment.*
Keywords: *weaponized information, propaganda, informed citizens, misinformation, tactics*

22. (ID 308) The Art of Deception
Authors: stud. Gabriel LEIZERIUC, stud. Ilinca VOINESCU
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD
Institution: "Mircea cel Batran" Naval Academy
Abstract: *Contrary to the cinematic allure of using enemies, this paper transcends the realm of fiction to delve into the timeless and pervasive elements of deception and manipulation. Steeped in history, the concepts of deception and manipulation have persisted*

for millennia, shaping the fabric of societies, military strategies, and marketing methodologies. This study contends that these enduring principles serve as the bedrock of contemporary society, influencing dynamics across diverse fields. Drawing from historical texts such as Sun Tzu's 'The Art of War,' authored over 2600 years ago, this paper elucidates the enduring relevance of deception in shaping modern military strategies. Simultaneously, the exploration extends to the writings of Baltasar and Machiavelli, highlighting the universality of the art of deception across epochs and contexts. Deception, as unveiled in this study, emerges as a dual force capable of not only controlling adversaries but also transforming them into allies. This paper serves as a guide to deception, offering insights derived from an in-depth examination of well-known events that have subtly woven manipulation into the fabric of collective consciousness. By shedding light on these historical instances, the study aims to enhance awareness of the pervasive nature of manipulation, prompting readers to critically evaluate and discern instances where they may unwittingly become subjects of deceptive practices.
Keywords: *community; intercultural context; communication*

23. (ID 313) Optimization of Engine Cooling Systems of a Military Ship
Authors: stud. Lavinia Irina BLĂJUȚ, stud. Cătălin-Nicolae UDREA
Scientific Advisor: Lecturer Eng. Ionel POPA, PhD
Institution: "Mircea cel Batran" Naval Academy
Abstract: *This paper describes a comprehensive approach to optimizing a military ship's engine cooling system, given the need for reliable and efficient performance in variable and demanding operational environments. The project focuses on detailed analysis of operational requirements, evaluation of the existing cooling system and implementation of advanced cooling and control technologies to provide innovative solutions. The objective is to improve the efficiency, durability and adaptability of the engine cooling system, thus contributing to the enhancement of the maritime operations capability of the military forces. By optimizing this critical system, the project aims to ensure that military vessels are equipped with advanced cooling technologies capable of coping with the complex*

and dynamic demands of the military naval environment to ensure maximum mission performance.
Keywords: *Cooling systems, military ships, technologies*

24. (ID 316) Emotion and Efficiency: The Role of Emotional Intelligence Among Military Logisticians
Author: stud. Ștefania-Bianca NEDELCU
Scientific Advisor: Lieutenant Colonel advanced instructor Daniela-Elena HRAB, PhD
Institution: "Carol I" National Defense University
Abstract: *This research aims to investigate the role of emotional intelligence, among personnel of military logistics, given its crucial role in ensuring the army's optimal performance by providing the needed resources. Emotional intelligence is the ability to perceive and understand our own emotions and others in order to manage our reactions and therefore to be a balanced person, both in personal and social life. Every day, we are confronted with decisions, ranging from simple choices like what to eat or wear to more complex ones such as financial planning based on our needs. These decisions represent our management of various resources. Perhaps we've all experienced how our mood, influenced by pleasant or unpleasant emotions, can impact our decision-making abilities. This phenomenon extends to all aspects of life, including all domains of work. But where does this mood originate? Is it by default, or should we prioritize our mental well-being to maintain equilibrium in order to make optimal choices, both personally and professionally? This article seeks to address these questions by examining relevant literature. Thus, it presents the correlation between mastering our emotions, in other words being an emotional intelligent person, and the efficiency of military logistics personnel.*
Keywords: *emotion, efficiency, decision, emotional intelligence, military logistics;*

25. (ID 319) Operational Toxicology in the Context of Submarines
Author: stud. Andrei-Iulian STATE
Scientific Advisor: Assoc. Prof. Mihail-Silviu TUDOSIE, PhD
Institution: Institute of Military Medicine

Abstract: *In today's military context, submarines have been proven to be a valuable asset to any military owing to their versatility in combat, being used for activities such as clandestine operations, mine reconnaissance and deployment of nuclear weapons. However, despite its political advantages, it is important to bear in mind that the living conditions of such ship can render its crew susceptible to life-threatening medical conditions. For instance, according to studies conducted in the United States Navy, supposed diesel exhaust from the submarine contaminates the hermetically-sealed interior for a considerable period, submariners may experience symptoms of chemically-induced pneumonitis, as well as intoxication with substances such as carbon monoxide and hydrogen sulfide. Secondly, some medical reports suggest that crewmen may be susceptible to heavy metal poisoning due to the usage of materials such as lead and cadmium for components. It is also noteworthy that in the case of nuclear submarines, sailors may well be exposed to varying quantities of ionizing radiation, leading over time to hematopoietic diseases such as leukemia. Considering these aspects, it is of utmost importance that we assess methods of prevention and treatment for these maladies that involve materials which can be easily stored inside the constrained spaces that submarines possess.*
Keywords: *Submarine, Diesel Exhaust Fumes, Heavy Metal Poisoning, Ionizing Radiation, Leukemia*

26. (ID 328) The Pivotal Role of Women in Shaping and Strengthening Military Forces

Authors: stud. Stefania-Sorina MOCANU, stud. Bianca BARANGA
Scientific Advisor: Lieutenant Colonel Senior Instructor Daniela-Elena HRAB
Institution: National Defence University "Carol I"

Abstract: *This paper delves into the indispensable contributions of military women within contemporary armed forces, examining their evolving roles and impacts on military operations and organizational dynamics. Through a comprehensive review of scholarly literature, statistical data, and case studies, this study elucidates the multifaceted dimensions of women's involvement in the military, ranging from combat roles to leadership positions. Drawing upon feminist theoretical frameworks and sociological analyses, it*

explores the historical context and persistent challenges faced by women in the armed forces, while also highlighting the transformative effects of gender integration policies and cultural shifts. Additionally, this paper examines the intersectionality of gender, race, and ethnicity in shaping the experiences of military women, underscoring the need for intersectional approaches to studying and promoting gender equality in military contexts. Furthermore, it critically evaluates the efficacy of diversity initiatives and gender mainstreaming strategies in fostering inclusive military cultures and maximizing operational effectiveness. By synthesizing empirical evidence and theoretical insights, this paper offers a nuanced understanding of the pivotal role of military women in contemporary armed forces and provides recommendations for advancing gender equality and diversity within military institutions.
Keywords: *Military women; Innovation; Leadership; Gender diversity; Important role*

27. (ID 329) Packaging as an Essential Element in Military Logistics. Definition, Standards and Comparison with Marketing Practices
Authors: stud. Maria IORDACHE, stud. Miruna-Geanina HUȚANU, stud. Bianca-Florentina ILIEȘ
Scientific Advisor: Lieutenant Colonel Associate Professor Daniela-Elena HRAB, PhD
Institution: "Carol I" National Defence University
Abstract: *Packaging constitutes an essential component of our daily activities and exerts a significant influence on how we purchase and consume products. Its role extends beyond the simple protection of goods during transportation; it also functions as a tool to captivate the attention of potential buyers. In this academic work, we delved deeply into the concept of packaging, exploring definitions proposed by various authors, examining the historical evolution of this concept in military context, and highlighting key aspects of packaging in diverse contexts. Our analysis focused on the perspective offered by various authors regarding the functions and implications of packaging in the evolution of society and consumer habits. Special attention was given to comparing packaging in the marketing domain and packaging in the logistics supply chain, emphasizing their*

distinct and complementary roles. By comparing packaging from the perspectives of marketing and logistics, we highlighted the similarities and differences between these two critical domains. Packaging in marketing was analyzed as an essential strategic tool for creating a strong product identity, influencing purchasing decisions, and contributing to the development of customer relationships. On the other hand, packaging in logistics focused on the efficiency and effectiveness of the supply chain, ensuring the optimal transportation, delivery, and handling of products. We also dedicated a segment of the analysis to examining the current situation of packaging in contemporary context. We addressed the challenges faced by the packaging industry, such as the need to adopt biodegradable, recyclable, and sustainable materials. Additionally, we analyzed the way packaging responds to new trends, such as e-commerce, as well as the development of emerging technologies like smart packaging.

Keywords: *packaging; marketing; logistics; transportation; supply chain*

28. (ID 338) Relationship between motivation-perfomantion and satisfaction

Author: stud. Elena ZAHARIA
Scientific Advisor: Associate Professor Carmen COJOCARU, PhD
Institution: "Mircea cel Batran" Naval Academy

Abstract: *The relationship between motivation, performance, and satisfaction has been a focal point in various disciplines, ranging from psychology to organizational behavior. These abstract endeavors to provide a synthesized perspective on the intricate interplay among these constructs. Motivation serves as the driving force behind individual behavior and actions, influencing the level of effort and persistence exerted towards achieving goals. Intrinsic motivation, arising from internal desires and interests, and extrinsic motivation, driven by external rewards or avoidance of punishment, both contribute to shaping performance outcomes. However, the complex nature of motivation necessitates a nuanced understanding of its impact on performance. Performance, the observable outcomes of behavior, serves as a tangible manifestation of motivation. High levels of motivation are often associated with enhanced performance,*

characterized by increased productivity, creativity, and goal attainment. Conversely, fluctuations in motivation can lead to variability in performance levels, highlighting the dynamic nature of this relationship. Moreover, satisfaction emerges as a crucial component in the motivation-performance continuum. Individuals who perceive their performance as aligned with their personal goals and values are more likely to experience satisfaction. This satisfaction, in turn, reinforces motivation, creating a positive feedback loop that enhances overall performance outcomes. Conversely, discrepancies between performance and expectations can lead to feelings of dissatisfaction, potentially undermining motivation and subsequent performance. Understanding the intricate relationship between motivation, performance, and satisfaction is essential for optimizing individual and organizational outcomes. By fostering an environment that nurtures intrinsic motivation, provides meaningful feedback, and aligns performance expectations with individual goals, organizations can cultivate a workforce that is not only motivated but also satisfied with their achievements. Additionally, recognizing the dynamic nature of these constructs allows for the implementation of targeted interventions aimed at enhancing motivation, performance, and ultimately, overall satisfaction. In conclusion, this abstract underscores the importance of exploring the multifaceted relationship between motivation, performance, and satisfaction. By delving into the underlying mechanisms and dynamic interactions among these constructs, researchers and practitioners can gain valuable insights into optimizing individual and organizational performance in diverse contexts.

Keywords: *motivation, performance, satisfaction, behaviour, relationship*

29. (ID 339) Pattern of Leadership

Author: stud. Rareș-Alin PROCACI
Scientific Advisor: Associate Professor Carmen COJOCARU, PhD
Institution: "Mircea cel Batran" Naval Academy

Abstract: *Leadership patterns are fundamental to understanding the complexities of organizational dynamics and human behavior in various contexts. This abstract aims to provide a comprehensive*

overview of the patterns of leadership, elucidating their significance, manifestations, and implications. Leadership patterns encompass a diverse array of behaviors, styles, and approaches exhibited by individuals in positions of authority or influence. These patterns often emerge from a combination of personal traits, experiences, and situational factors, shaping the manner in which leaders interact with followers and navigate challenges. One prominent pattern is transformational leadership, characterized by vision, inspiration, and empowerment, which fosters innovation and organizational change. Conversely, transactional leadership emphasizes contingent rewards and punishment, focusing on task accomplishment within established parameters. Furthermore, situational leadership theory posits that effective leadership adapts to the specific needs and readiness levels of followers, utilizing a flexible approach ranging from directive to delegative behaviors. Servant leadership emphasizes empathy, stewardship, and service to others, prioritizing the well-being and development of followers. The emergence of distributed leadership patterns highlights the importance of shared influence and collaborative decision-making within organizations, leveraging the diverse expertise and perspectives of team members. Moreover, authentic leadership emphasizes genuineness, transparency, and ethical conduct, fostering trust and credibility among followers. These patterns intersect and evolve within the dynamic landscape of organizational culture, shaping norms, values, and performance outcomes. Understanding the patterns of leadership enables organizations to cultivate effective leadership development programs, enhance team dynamics, and foster a culture of innovation and inclusivity. By recognizing and leveraging the diverse array of leadership patterns, organizations can adapt to changing environments and achieve sustainable success.

Keywords: *flexibility, unpredictable situations, innovation, adaptability, patterns*

30. (ID 344) Sexual Violence in Armed Conflict

Author: stud. Hanna VORMAIR
Scientific Advisor: Prof. Mihaela Trișcă ZEGREANU, PhD
Institution: "George Emil Palade" University of Medicine, Pharmacy, Science and Technology of Târgu Mureș

Abstract: *Sexual violence is an untalked topic, that seems to be avoided in society, but the avoidance of it does not equal the unexistence of the phenomenon. In my thesis, I investigated the crime of sexual abuse in the context of war, a widespread crime that was not only the crime of passion but also psychological warfare. Sexual abuse in wartime, like other crimes against human rights, has its consequences. The punishment's aim has changed over time because we can observe that nowadays instead of giving the appropriate punishment for the delict, and rendering him harmless so he can find his place in society after prison, modern justice only eliminates the abuser while keeping society safe from crimes. By understanding the origins of sexual abuse, and its role in the war as a form of civilization destroyer, humiliation, and pleasure, looking at the psychological and legal basis we can expand our horizons, gaining knowledge of a crime that is still present in the society.*
Keywords: *Sexual violence, War*

31. (ID 347) Logistics: Bridging Civilian Profitability and Naval Readiness

Author: stud. Andreea-Georgiana CEAUȘ
Scientific Advisor: Major Gabriela NICOARĂ
Institution: Carol I National Defence University

Abstract: *The overall objective of logistics is to provide all the necessary resources in order to fulfill various missions, plans or actions. Logistical activity is common to both economic and military fields, so this article aims to highlight relevant issues in both areas, with a focus on the logistical impact on achieving the objectives. On the one hand, by analyzing the logistics strategies approached by two highly profitable companies on the Romanian logistics market, the article presents the link between logistic performance and profit in the civil sector. On the other hand, this article aims to narrow the broad scope of military logistics by focusing specifically and accurately on naval logistics, addressing its sensitive points and its underlying principles. Whether it's generating profit in the private sector or ensuring the readiness of naval forces to maintain national and international maritime safety, logistics plays a crucial role in the current context, enhancing its influence on achieving mission objectives.*

Keywords: *logistics; objectives; civil sector; naval logistics; profit; safety*

32. (ID 366) Enhancing Sonar Performance: Leveraging Tactical Decision Aid Software for Maritime Operations

Author: stud. Ioan-Adrian ALRADI
Scientific Advisor: Mr. Scientific Researcher III Eng. Roxana-Gabriela DAMIAN, PhD
Institution: Naval Academy "Mircea cel Bătrân"

Abstract: *This paper explores how Tactical Decision Aid (TDA) software enhances sonar performance in modern maritime operations. Through literature review and case studies, it underscores TDA's benefits like real-time analysis, improved decision-making, and heightened situational awareness for naval personnel. Challenges like algorithm complexity and human-machine interaction are discussed, highlighting the transformative potential of TDA in enhancing maritime security and operational efficiency underwater.*

Keywords: *Tactical Decision Aid, enhance maritime security*

33. (ID 367) Understanding How Underwater Environments Shape Sonar Performance

Author: stud. Daiana-Maria VĂDUVA
Scientific Advisor: Mr Scientific Researcher III Eng. Roxana-Gabriela DAMIAN, PhD
Institution: Naval Academy "Mircea cel Bătrân"

Abstract: *The Black Sea is a large, deep-sea basin with a complex and variable acoustic environment. This paper delves into the influence of underwater environments on sonar performance, examining variables such as water temperature, salinity and pressure. Through this exploration, insights are gleaned into how these factors intricately impact sonar operations, with a particular focus on the conditions prevalent in the Black Sea. By comprehending these environmental nuances, valuable insights are offered to enhance sonar effectiveness in specific underwater scenarios, potentially advancing maritime surveillance and security strategies.*

Keywords: *acoustic environment, sonar performance, sonar operations, salinity, temperature, pressure*

34. (ID 369) Airborne Electromagnetic Bathymetry Method
Author: stud. Ioan BULBOACA
Scientific Advisor: Captain Assoc. prof. Dinu ATODIRESEI, PhD
Institution: Naval Academy "Mircea cel Bătrân"
Abstract: *Airborne electromagnetic bathymetry (AEM) is a modern method that is revolutionizing underwater exploration. Using electromagnetic pulses, it reveals hidden geological structures, sediment composition and underwater resources with exceptional accuracy. This presentation highlights AEM Bathymetry's versatility across disciplines, its real-time mapping capabilities, and ongoing efforts to optimize accuracy.*
Keywords: *Airborne Electromagnetic Bathymetry*

35. (ID 370) Factors Influencing Behavior, Discipline, and Work Quality in a Crew
Author: stud. Antoneta LUPU
Scientific Advisor: Associate Professor Carmen COJOCARU, PhD
Institution: "Mircea cel Batran" Naval Academy
Abstract: *Understanding the factors that influence behavior, discipline, and work quality within a crew is crucial for effective team management and productivity. Factors such as communication effectiveness, conflict resolution strategies, and leadership practices play significant roles in shaping crew behavior, discipline, and work quality. Additionally, external factors such as environmental conditions, task complexity, and resource availability can also influence crew dynamics.*
Keywords: *Behavior, Discipline*

36. (ID 1) Improvement of Military Medical Evacuation
Author: stud. Todor TACHEV
Scientific Advisor: LTCR Stanislava STEFANOVA
Institution: “Nikola Vaptsarov” Naval Academy, Varna, Bulgaria
Abstract: *The aim of the research is the discovery of an effective method for MEDEVAC aimed at preserving the individual and his vital signs as a whole. Currently, established practice focuses on*

preserving only one of these components - vital signs, without integrity. The methodology involved researching scientific publications on the subject and finding statistical consistency in successful medical evacuations. The results are proven with concrete facts for information, demonstration, training and actual military medical evacuation activities by air, sea and land. The conclusions outline perspectives for the future through a systematic analysis of the needs of the armed forces.
Keywords: *Improvement of military medical evacuation*

37. (ID 185) Study of Shielding of Electronic Devices Against Electromagnetic Disturbances
Authors: stud. Bogdan GRIGORE, stud. Adelin LĂCĂTUȘ
Scientific Advisor: Prof. Eng. Vasile DOBREF, PhD
Institution: Naval Academy "Mircea cel Batran"
Abstract: *In our contemporary society, electronic devices have become ubiquitous, serving as essential tools in various aspects of our lives. However, their seamless operation is often hindered by electromagnetic disturbances, posing significant challenges to reliability and performance. This paper delves into the intricate realm of shielding electronic devices against such disturbances, recognizing it as a critical endeavor in ensuring their continued functionality. The investigation begins with an in-depth exploration of electromagnetic interference (EMI) and its detrimental effects on electronic devices. By understanding the nature of these disturbances, we can grasp the urgency of implementing effective shielding mechanisms. The subsequent emphasis on the importance of shielding underscores its role in mitigating EMI effects and preserving device integrity. To address this pressing issue, a comprehensive analysis of diverse shielding materials and techniques is conducted. Traditional materials like conductive metals and metal-coated polymers are scrutinized for their ability to impede electromagnetic waves effectively. Additionally, cutting-edge approaches such as metamaterials and ferrite-based shielding are investigated for their potential to elevate shielding efficiency to new heights. Moreover, this study delves into the nuanced design considerations essential for crafting robust shielding solutions. Factors including material thickness, enclosure design, and*

grounding techniques are meticulously examined to optimize shielding performance. Furthermore, the integration of computational modeling and simulation techniques offers a glimpse into the future of predictive shielding design. Through an exhaustive review of pertinent literature and case studies, this research aims to illuminate the contemporary landscape of shielding techniques. By identifying state-of-the-art methods and emerging trends, this study strives to propel the development of electronic systems capable of withstanding the formidable challenges posed by EMI. Ultimately, the culmination of these efforts contributes to the realization of resilient and dependable electronic devices in our interconnected world.

Keywords: *electromagnetic, electronic, device*

38. (ID 89) The Defend Forward and Hunt Forward Operations of U.S. Cyber Command in the Context of International and National Cybersecurity

Author: stud. Dimitar DIMITROV
Scientific Advisor: Assist Professor Evgeni ANDREEV, PhD,
Institution: Naval Academy "Nikola Vaptsarov"

Abstract: *This article delves into the pivotal role of the United States Cyber Command's Hunt Forward and Defend Forward operations in bolstering both international and national cybersecurity. An in-depth examination is provided of the primary functions and objectives of these strategic initiatives. Hunt Forward operations, a key component of the 2018 U.S. Cyber Command strategy, focus on proactive monitoring of cyber threats, particularly those originating from major adversaries such as China, Iran, and Russia. These operations aim to strengthen the defense of American cyber infrastructure by closely observing cyber attacks targeting countries that are primary objectives of U.S. adversaries. By analyzing the methods, techniques, and procedures employed in these attacks, Hunt Forward operations enhance the readiness of the Cyber Command and affiliated agencies to respond to similar threats against U.S. systems. Defend Forward, another essential principle of the 2018 strategy, takes a proactive approach to countering cyber threats by operating within adversaries' networks. This strategy enables the U.S. to disrupt threats at their source, thereby enhancing the nation's*

cybersecurity posture and resilience. This article presents an analysis of some of the most notable examples of the power of Defend Forward and Hunt Forward. Among these examples is Operation "Glowing Symphony" in 2016, led by Joint Task Force ARES, which successfully dismantled the Islamic State's multilingual propaganda machine. This operation demonstrated the potential of U.S. defend forward operations in cyberspace, as well as the value of international collaborations in cybersecurity. Furthermore, the paper highlights the findings from various Hunt Forward operations conducted in over 20 countries worldwide. These operations have yielded crucial intelligence, including hundreds of different forms of malicious code and software, as well as thousands of indicators of compromise (IoC). One particularly significant mission took place in early 2022 in Ukraine, where the U.S. Cyber Command analyzed numerous cyber attacks, including the destructive WhisperGate, to improve its own security and aid partners in strengthening their cybersecurity defenses.

Keywords: *United States Cyber Command, Hunt Forward, Defend Forward, cyber strategy*

39. (ID 179) Technologies and Techniques Enabling War Trauma Evacuation Using Submarine Drones and Their Civilian Applications

Author: stud. Vlad CONTESI
Scientific Advisors: Marius-Emilian ANDREIANA, Lt. jg Silviu POPA, PhD student
Institution: Institute of Military Medicine, Bucharest

Abstract: *As a consequence of the incapacitating effects of kinetic weapons blood loss is and has been for the longest time the most prevalent cause of mortality and morbidity in military victims of trauma. Current measures to reduce capability loses regarding personnel are aimed at stopping and replenishing the loss in blood volume following injury and ensuring rapid evacuation to definitive care. The proliferation of handheld portable anti-aircraft weaponry such as the FIM-92 Stinger is expected to limit helicopter evacuation options in all physical theatres of war. Given the isolated nature of naval operations and the high emphasis on aerial countermeasures during maritime operations the necessity of an efficient, safe and*

reliable mode of transporting casualties between roles of care is expected to arise should any large-scale conflict erupt overseas in the near future. To this problem we are proposing the development, implementation and doctrinal integration of submarine evacuation through the deployment of small two-person submersible drones. As contemporary innovations in biomedical sensors bring effective telemedicine closer to the patient, the possibility of automation regarding war casualties transport starts to become realisable. In this paper we will analyse the possible implementation of biosensors and intensive care procedures in the field of Tactical Evacuation Care in low-personnel environments. Given the advantages that casualty evacuation automation would bring to the field we argue that implementation of such designs should be started as soon as possible in order to benefit from as large a volume of data regarding casualty treatment as possible in leu of the moment that AI is to be implemented as the sole operator of such transport vessels. We will also analyse the impact of such a technology in civilian transport of critical patients given the overcrowding nature of traffic lanes in the bustling cities of the 21st century given the fact that most of them have been founded around large rivers of which only the surface is used at the moment.

Keywords: *Tactical evacuation care, REBOA, Automation, Submarine, Stirling Engine*

40. (ID 377) Stress Factors in the Daily Routine of the Cadets

Author: stud. Ema DOBREVA
Scientific Advisor: Major Rositsa NEDEVA, PhD
Institution: "Nikola Vaptsarov" Naval Academy

Abstract: *The topic of stress is extremely comprehensive and relevant. The daily life of a modern person is full of various stress factors. Coping with stress is a key point in our development, so finding effective ways to relieve stress are of paramount importance. This report presents a study of the impact of daily stress on cadets studying at Nikola Vaptsarov Naval Academy (NVNA). The aim of the present study is to track the level of stress resistance of trainees by means of psychological methods. To achieve the goal, the following tasks are set: conducting research with psychological self-assessment questionnaires to establish the level of motivation*

according to the daily achievements of the cadets. Data collection methods used: a psychological questionnaire containing 42 statements relating to a person's mental characteristics, to some typical experiences and ways of acting related to work and learning. The research group consists of cadets studying for the needs of the Navy and cadets studying in the specialty "Medical Assurance of the Armed Forces". The obtained results will allow to determine the leading stressors in the daily life of the cadets and the effective strategies for dealing with stress.

Keywords: *stress in everyday life, cadets, coping strategies, motivation, achievements*

41. (ID 381) Command and Control Communication Systems in Romanian Maritime and Aerial Operations

Author: stud. Rareș IORGA
Scientific Advisor: Lecturer Daniela NAGY, PhD
Institution: "Henri Coanda" Air Forces Academy

Abstract: *Effective communication systems play a pivotal role in the command and control (C2) of maritime and aerial operations, ensuring the coordination, synchronization and dissemination of critical information among military units. This paper investigates the integration and utilization of communication systems within the Romanian Armed Forces, focusing specifically on maritime and aerial domains. The analysis encompasses a review of the sophisticated communication infrastructure employed by the Romanian Navy and Air Force, designed to facilitate real-time situational awareness, decision-making, and mission execution. Emphasizing the interconnectedness of maritime and aerial operations, the abstract explores the seamless interoperability between naval vessels, aircraft, command centers, and allied forces. Leveraging advanced technologies such as secure data networks, satellite communication, and encrypted radio systems, Romanian military units demonstrate their capability to maintain robust C2 capabilities in diverse operational environments. Through strategic investments in communication technology and rigorous training programs, the Romanian Armed Forces underscore their commitment to enhancing operational effectiveness, safeguarding national interests, and promoting regional security and stability. "Command*

and Control: Communication Systems in Romanian Maritime and Aerial Operations" encapsulates the imperative role of communication systems in modern military operations and highlights Romania's dedication to maintaining a proficient and responsive defense posture in the maritime and aerial domains.

IV. SECTION: ELECTRICAL ENGINEERING

Section Committee:
Chairman:
Prof. Gheorghe SAMOILESCU, PhD
Members:
Lecturer Leon PANĂ, PhD
Lecturer Eduard DRAGOMIR, PhD
Stud. Alexandru BEREA
Stud. Liviu ZAMFIRACHE
Stud. Alexia IOSIF
Stud. George NIȚĂ
Room: LI356

1. (ID 36) Use of Gallium Nitride Transistors in Power Electronic Systems in Electric Drives

Authors: stud. Gilda Elizabeth FAIFER, stud. Mălina Alexandra MATEI
Scientific Advisor: Prof. Vasile DOBREF, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The project outlines the advancements and applications of Gallium Nitride (GaN) transistors in modern power electronics. GaN transistors, including Metal-Oxide-Semiconductor Field-Effect Transistors (MOSFETs) and High Electron Mobility Transistors (HEMTs), offer superior performance, high efficiency, and compact size compared to traditional silicon-based transistors. GaN MOSFETs excel in power switching applications, while GaN HEMTs are ideal for high-frequency and high-power applications. The document discusses their respective structures, operations, advantages, and applications, ranging from telecommunications and electric vehicles to RF amplifiers and radar systems. Ongoing research focuses on improving device performance, reliability, and cost-effectiveness, with potential applications in 5G wireless networks and aerospace systems.*
Keywords: *GaN Transistors*

2. (ID 37) The Study on the Tehnical-Economical Analysis of the Maritime Vessel

Authors: stud. Liviu-Gabriel ZAMFIRACHE, stud. Darie Ioan MIRCEA
Scientific Advisor: Prof.eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The use of electric, hybrid, or dual propulsion is considered efficient alternatives for achieving a balance between environmental and economic requirements. The focus has been on the efficiency of electric energy using the foundations of existing technology, which represent an economical way of utilizing energy. Various aspects have been analyzed: energy efficiency indicators, rational use of energy resources, energy consumption telemanagement system specific to ships, technical measures aimed at improving the energy efficiency of the vessel, new ways of reducing pollution, and the use of ecological means in the maritime domain.*

Keywords: *electric propulsion, efficient alternatives, energy efficiency, reducing polution*

3. (ID 60) Marine Systems and Equipment Prognostics and Health Management: A Systematic Review from Health Condition Monitoring to Maintenance Strategy

Authors: stud. Denisa Ștefania ROȘU, stud. Mircea Gabriel LUNGU
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Prognostic and health management (PHM) is a critical means of optimizing resource allocation and improving the efficiency of intelligent operations and maintenance (O&M) of marine systems and equipment (MSAE). PHM generally consists of four technical processes, namely health monitoring (HCM), fault diagnosis (FD), health forecasting (HP), and maintenance decision (MD). In recent years, a large amount of research has been implemented into each of these processes. However, there is no systematic review comprehensively covering the technical framework. This article presents a revision of the maritime PHM framework to address this gap. First, the essential HCM methods frequently observed in the*

academic literature are systematically introduced. Then, commonly used FD approaches and their applications in MSAE are summarized, and the implementation process of intelligent methods is systematically introduced. After that, HP technologies were reviewed, including health indicator (HI) construction, health stage division (HS), and popular remaining useful life (RUL) prediction approaches. Subsequently, the evolution of maintenance strategies in the maritime field is reviewed. Finally, the challenges of implementing PHM for smart ships are formulated.

Keywords: *marine; monitoring of the operating status; health management; forecast; fault diagnosis*

4. (ID 65) Status of Combustion-Based Power Sources

Authors: stud. Marius-Nicolae BÂRLĂDEANU, stud. Iulian-Valentin VASILUTA
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Compared with conventional fuels are renewable fuels with clean emission levels equal to 0 or almost 0. Also get a considerable saving of fuel, noise levels and low temperatures of the engine and great flexibility arrangements. Although steady performance of the system is known, however, some doubts remain regarding the ability to react to changing load requirements in the maritime field. Our results revealed the need for coordination between making available, absorption torque AC motor, and total load requirements of the system. The main result of this simulation is that both acceleration and deceleration maneuvering will be executed as fast as by a ship powered with renewable sources, namely fuel cells as well as conventional powered ships. This paper contains explanations as detailed on material requirements, standards and mathematical formulas used for running dynamic model. The paper describes the dynamics simulation of molten carbonate fuel cell (MCFC). The tool used is generic and can be used in order to use the scheme of maneuver and control to handle any other ships with an integrated electric propulsion system. The module is a real fuel cell power plant, developing complete and independent power 625 kW AC 450 central volts. The MCFC fuel cell is using low-sulfur fuels. The fuel cell module is set up from a stack of individual cells. Each cell*

having an anode and a cathode, separated by a ceramic matrix filled with electrolyte carbonate. DC current produced is proportional to the degree of electrochemical reaction, according to Farraday's law.
Keywords: *MFC fuel cells, AC motor, system*

5. (ID 76) Failures and prevention of electrical systems of refrigeration plant for ships' galley
Authors: stud. Alexandru DOVLEAC, stud. Vlad DEDIU, stud. Vlad ICHIM
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A ship's galley refrigeration system should be checked periodically like any other system. Temporary or total failure causes spoilage of crew food, which has a major impact on the life and condition of the crew. In this paper, the elements of the installation that are prone to repeated failures or permanent failures are presented and the steps of installation maintenance to prevent these failures are outlined.*
Keywords: *Ship galley refrigeration system*

6. (ID 77) Vibro-acoustic investigations for the maintenance of marine electric motors
Author: stud. Alexandru-Nicusor POPONETE
Scientific Advisor: Lecturer Tiberiu PAZARA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Marine cranes possess electric motors which are subject to failures and early fatigue. Maintenance of these motors can be carried out invasively (e.g. by defectoscopy) which means disassembly of the motor or it can be carried out non-invasively (e.g. vibration measurements, noise measurements). In this paper, the advantages of non-invasive maintenance using vibro-acoustic analysis of the motors are presented.*
Keywords: *Vibro-acoustic, maintenance, marine, electric, motor*

7. (ID 91) The Use of Electricity Through an Automated System
Authors: stud. Emilian DANCIU, stud. Alexandru Cristian MERTICARIU
Scientific Advisor: Captain Assoc. prof. Paul BURLACU, PhD

Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper investigates the use of electrical energy through an automated system, focusing on the characteristics and behavior of electrical consumers. The aim of this research is to understand and monitor electric consumption under various conditions using an automated system implemented in Matlab-Simulink. Through this system, maximum, minimum, and average consumption of the consumer can be determined in different scenarios. The objectives of the project include characterizing the consumer, modeling it in Matlab-Simulink, determining the electrical energy consumption, and constructing daily, monthly, and yearly load curves. The working hypothesis revolves around the idea that a typical electrical energy consumer comprises multiple types of loads, and load curves can be constructed to illustrate its consumption and efficiency under various usage conditions.*
Keywords: *Electrical energy, Automated system, Efficiency, Consumers, Consumption*

8. (ID 92) Magnetic levitation
Authors: stud. Georgian-Dumitru POȘTARU, stud. Teodor-Marian CRÎNGAȘU, stud. Serkan ISMAIL
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *A permanent magnet can be levitated simply by placing it in the vicinity another permanent magnet that rotates at 200 Hz. This effect surprisingly can be easily reproduced in the laboratory with readily available components. Here, we investigated this new type of magnetic levitation experimentally and clarified basic physics. Using as a rotor magnet a spherical Nd-Fe-B magnet with a diameter of 19mm, I captured the detailed movement of the levitating spherical Nd-Fe-B magnets, so-called floating magnets, as well as the influence of rotation speed and size the magnet. on levitation. I found that as levitation occurs, the frequency of the floating magnet locks with the rotor magnet and visibly that the magnetization of the float is oriented close to the axis of rotation and towards similar pole of the rotor magnet. This is in contrast to what would could wait by the laws of magnetostatics, since it is observed that the float its aligns the magnetization essentially perpendicular to the rotor magnetic*

field. Moreover, we found that the size of the float has a clear influence on of levitation: the smaller the float, the higher the rotor speed required to achieve levitation and the further the point moves levitation. Despite the unexpected magnetic setup during levitation, I checked that magnetostatic interactions between rotating magnets are responsible for creating the balance position of the float. Hence this type of levitation magnetic does not rely on gravity as a balancing force to achieve a equilibrium position. Based on theoretical arguments and a numerical model, we show that a constant vertical field and improved eddy current damping are sufficient to produce levitation from rest.
Keywords: *levitation, magnetic, maglev*

9. (ID 93) Study of Electricity Quality
Authors: stud. Bogdan George SANDU, stud. Casian Rareș DROB
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this article, we will discuss the impact of electricity quality on the performance, durability, safety, and economic cost of electrical equipment. We will introduce various factors that influence the quality of electrical energy, such as voltage fluctuations, frequency deviations, and harmonic distortions. Additionally, we will explore different technologies and methods that can be utilized to enhance the quality of electrical energy, including active filtering, reactive power compensation, and automation and control systems. Finally, we will conclude with case studies and examples of innovative projects that have effectively improved the quality of electrical energy in various industries, emphasizing the significance of continuous research and development in this field.*
Keywords: *electricity, energy, quality*

10. (ID 94) Analysis of PID Controllers Using OpenModelica
Authors: stud. Ionuț SILION, stud Andrei-Samuel ZAMFIR
Scientific Advisor: Lecturer Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Control systems aboard maritime vessels are based on integrated systems, particularly automatic control systems. For a better understanding of their operation, the study of automatic*

systems theory can also utilize OpenModelica software due to the following advantages: it allows modeling of hybrid systems, it is flexible, simulation is efficient and precise, and last but not least, it is open-source software. OpenModelica includes powerful tools for the development and analysis of automatic system models. These tools enable users to identify and resolve issues in their models, perform sensitivity analyses, and optimize the performance of automatic systems. In this paper, we analyzed a PID-type automatic controller using OpenModelica, highlighting tuning parameters and how they influence the controller's operation, taking into account the characteristics of the controlled process.
Keywords: *Openmodelica, PID*

11. (ID 96) Simulation of a Sequential Process Using WEG Clic Edit
Authors: stud. Andrei-Samuel ZAMFIR, stud. Ionuț SILION
Scientific Advisor: Lecturer Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Controlling a sequential process using CLW programmable relays and WEG's CLIC EDIT software offers the advantage of flexibility due to the large number of inputs and outputs (both digital and analog), as well as other implemented features such as PID control, arithmetic functions (addition, subtraction, multiplication, and division), extensive programming capability, external modules that can be attached, alongside the ability to act as a master in a Modbus communication network. In this study, we analyzed the implementation of a control system for a process on board a maritime vessel using CLW programmable relays, CLIC EDIT software, Variable Frequency Drive (VFD), as well as Pump Genius control software. The advantages of the system include high reliability, reduced maintenance costs, and decreased system component expenses.*
Keywords: *CLIC EDIT, Sequential Process*

12. (ID 106) Aspects of Multiculturalism in the Engine Room
Authors: stud. Andrei Cosmin RAILEANU, stud. Radu-Vasile VAVILOV

Scientific Advisor: Assoc. prof. Carmen Luminita COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study argues for building the level of "blame free" 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, absence of labels and over-generalizations, absence of discrimination and prejudice prevail. Respect and non-critical attitude, acceptance of diversity create the premises for productive and effective interpersonal and professional relationships*.
Keywords: *empathy, discrimination, attitude*

13. (ID 110) Power and and Authority in Naval Operational Leadership
Authors: stud. Razvan-Marian SIMIONICA, stud. Ionut-Antonio ONEA
Scientific Advisor: Assoc. prof. Carmen Luminita 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.*
Keywords: *leadership, social, authority*

14. (ID 113) Automatic Direct Starting of the Induction Motor with PLC LOGO!
Author: stud. Andrei ZAHARIA, stud Armand Cristian TRIFU
Scientific Advisor: Lecturer Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this work, we practically implemented the direct start of the squirrel-cage asynchronous motor through the Siemens LOGO! programmable logic controller (PLC). The direct start, also known as DOL (Direct On-Line), involves the direct connection of the motor*

to the power supply, through electrical equipment such as automatic circuit breaker, contactor, and thermal relay. The LOGO PLC emits signals to the electrical equipment to connect the motor to the power supply and initiate the start-up sequence. Additionally, the LOGO PLC monitors motor parameters during operation to ensure safety and process efficiency, as well as the ability to provide signaling signals to communicate the motor's status to other external systems or devices. The LOGO PLC operates based on the LOGO! Soft Comfort program.
Keywords: *PLC, DOL, asynchronous motor, LOGO! Soft Comfort program*

15. (ID 115) The Analysis of the PMG Excitation System of Low and High Voltage Synchronous Generators.
Authors: stud. Maximilian LAMASANU, stud. Daniel DAMCALIU
Scientific Advisor: Lecturer Leon PANA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Synchronous generators are fundamental components of power generation systems, providing crucial electricity supply across various domains. The excitation system of these generators plays a pivotal role in maintaining voltage stability and ensuring efficient power transmission. The objective of this analysis is to comprehensively understand the functioning and performance characteristics of the PMG excitation system, elucidating its role in grid stability and power generation efficiency. We will also present the two types of excitation rotary and static, comparing them and determining which is more efficient.*
Keywords: *generator PMG excitation*

16. (ID 117) Leadership in the Engine Room - process of social influence
Authors: stud. Răzvan-Gheorghe ANASTASE, stud. Vlad-Silvian DINCU
Scientific Advisor: Assoc. prof. Carmen Luminita COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study aims to demonstrate that achieving effective leadership uses a series of positive social influence mechanisms that*

lead to collaborative behaviors, competition for common goals. The leader, as a social actor, determines in the members of the work team in the engine room, the development of those behaviors through which the common objectives of the ship's mission are achieved. The mixed model of leadership in the engine room explains the relationship between subjective factors (personality of the leader) and objective factors (characteristics of the specific work situation in the machinery department) in achieving social influence, being more effective from a practical point of view.
Keywords: *leadership, behaviors, objectives*

17. (ID 125) State Monitoring of Mechanical and Electrical Equipment for Offshore Platforms Based on PHM
Authors: stud. David Daniel IONITA, stud. Catalin CALIN
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Certain mechanical and electrical equipment is deployed offshore for a long time, such as various drilling platforms, intelligent breeding platforms, wind power equipment etc. This kind of mechanical and electrical equipment requires certain procedures in order to keep its high reliability and reduce its failure rate considering that it runs non-stop in a harsh high-salt and high-humdity environment.*
Keywords: *offshore platforms, mechanical equipment, electrical equipment, fault diagnosis, safety measures, reliability increase, data, motors, electricity, voltage, signal*

18. (ID 126) Mitigation of Harmonic Distortion in Naval Power Systems
Author: stud. Florin Adrian STEFANESCU
Scientific Advisor: Lecturer Eduard DRAGOMIR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The mitigation of harmonic distortion in naval power systems involves strategies to reduce or eliminate the adverse effects of harmonic distortion, which occurs when non-linear loads introduce unwanted frequencies into electrical systems. Harmonic distortion can negatively impact the performance, efficiency, and*

reliability of naval power systems, posing risks to sensitive equipment onboard ships.
Keywords: *harmonic distortion, naval power system, strategies*

19. (ID 127) The specifics of interpersonal relationships in the Engine Department
Authors: stud. Armand Cristian TRIFU, stud. Florin Adrian STEFANESCU
Scientific Advisor: Assoc. prof. Carmen Luminita COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study proposes a pertinent analysis of the specifics of interpersonal relationships on board the ship, 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 improve dysfunctional relationships in order to increase the effectiveness and safety of naval missions*
Keywords: *naval crew, focusing, safety*

20. (ID 132) The Electric Propulsion System of Naval Vessels
Authors: stud. Lavinia-Irina BLĂJUȚ, stud. Eduard-Florian BLAJ
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper presents the role of electric propulsion system in the context of naval vessels, highlighting the advantages and challenges associated with its use. The benefits of electric propulsion system in terms of energy efficiency, reliability, and adaptability to specific requirements of military missions are examined. Additionally, are proposed methods for optimizing the performance of military vessels through the implementation of intelligent technologies in the field of electric propulsion and associated infrastructure. Furthermore, initiatives to promote the adoption of modern electric propulsion systems within the Naval Forces are discussed, taking into consideration potential risks and the necessity of careful approach in the implementation and testing process.*
Keywords: *Propulsion, optimizing, performance, Naval Forces*

21. (ID 138) Solar Energy: The Impact in the Development of Ship Propulsion and the Naval Field

Authors: stud. Alexandru LAZAR, stud. Eduard MANATUICA
Scientific Advisor: Scientific Researcher 3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Our project is based on solar energy, as the future renewable source and as an alternative to classic fuels. The work subjectively approaches two themes: solar energy and the first ship to use a solar energy management facility to contribute to its safe movement.*

Keywords: *Renewable source, Solar cels, Classic fuels, solar energy*

22. (ID 158) The Importance of the Leader's Personality Traits in the Effectiveness of Leadership Within the Automotive Department.

Authors: stud. Cosmin-Adrian DORE, stud. Adrian-Ștefan MATEI
Scientific Advisor: Assoc. prof. Carmen Luminita COJOCARU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study aims to describe and explain the particular importance of the leader's personality traits in exercising effective leadership. We consider personality as a complex, dynamic, open system in which its basic components: temperament, abilities, and character, have relationships of interaction, interdependence, and mutual influence. The study demonstrates the essential role of character in governing the other personality components and in how the leader exerts social influence on followers in the team within the automotive department.*

Keywords: *Leadership, personality, traits, automatice departments*

23. (ID 162) Marine Systems and Equipment Prognostics and Health Management: A Systematic Review from Health Condition Monitoring to Maintenance Strategy

Authors: stud. Leonard BUTNARU, stud. Adelin TIPU, stud. Adrian BISOCIANU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Prognostics and Health Management (PHM) represents a crucial approach for optimizing resource allocation and enhancing the efficiency of intelligent operation and maintenance (O&M) in marine systems and equipment (MSAE). This article presents a comprehensive review of the PHM framework in the maritime field, addressing four key technical processes: Health Condition Monitoring (HCM), Fault Diagnosis (FD), Health Prognosis (HP), and Maintenance Decision (MD). Firstly, it systematically introduces essential HCM methods prevalent in academic literature. Subsequently, it summarizes commonly used FD approaches and their applications in MSAE, detailing the implementation of intelligent methods. The review then covers HP technologies, including the construction of Health Indicators (HI), Health Stage (HS) division, and popular Remaining Useful Life (RUL) prediction approaches. Furthermore, it examines the evolution of maintenance strategies in the maritime domain. Finally, it outlines the challenges associated with implementing PHM for intelligent ships. This review aims to fill the existing gap in understanding the comprehensive technical framework of PHM in the marine industry.*
Keywords: *electrical equipment, mechanical equipment, maritime field, maintenance operations, fault diagnosis, PHM, ships,*

24. (ID 163) The Study of Enhancing Ship Efficiency Through Photovoltaic Panels

Authors: stud. Iulian COCIUBEI, stud. Darius PUSCASU
Scientific Advisor: Assoc. prof. eng. Ionuț-Cristian SCURTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This paper discusses the potential for increasing the efficiency of ships through the integration of photovoltaic panels as renewable sources of energy. The main aim of the study is to develop and evaluate sustainable and safe solutions for maritime operations, especially in critical situations such as diesel generator failures, when the ship faces a lack of electrical power and risks the safety of the crew. Our research method involves a theoretical analysis of the capacity of photovoltaic panels to provide the necessary energy at sea, assessing available technologies and their integration into ship structures, considering space constraints. The main results of the study include identifying the potential benefits of using photovoltaic*

panels in maritime operations, as well as examining the efficiency of panels based on weather conditions. Our conclusions suggest that integrating photovoltaic panels into ship design could represent a promising solution for increasing energy efficiency. This approach could also provide a higher level of safety for the crew in emergency situations when traditional sources of energy are not available.
Keywords: *photovoltaic, renewable energy, crew's safety, weather conditions impact*

25. (ID 166) Leadership and Mentoring in the Naval Industry - a Comparative Analysis
Authors: stud. Daniel FOCUȚĂ, stud. Cosmin-Andrei GRĂDINARU
Scientific Advisor: Lecturer Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The study enrolls the two concepts in the broader sphere of the social influence phenomenon, proposing to describe the notions of leadership and mentoring through identification, categorical differentiation, or postulating a relationship of partial coincidence of the spheres of the two notions. We are looking for plausible answers to the question of whether the ship leader is perceived as a mentor and to what extent the effectiveness of leadership increases as a result of the specific personality traits of the mentor.*
Keywords: *Leadership, Identification, Partial coincidence, Mentor, Effectiveness*

26. (ID 177) Analysis of the use of filters to reduce electromagnetic interference
Authors: stud. Razvan-Gheorghe ANASTASE, stud. Vlad-Silvian DINCU, stud. Sezer ABDURAMAN
Scientific Advisor: Lecturer Iancu CIOCIOI, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Ensuring the electromagnetic compatibility of electrical and electronic equipment on board marine vessels is a continuous process that starts from the design phase of the vessel, given the fact that this equipment can disturb each other by generating electromagnetic interference. An important aspect in ensuring the electromagnetic compatibility of the equipment on board is the*

quality of the supply voltage ("Power Supply Quality") considering what is affected by electromagnetic disturbances transmitted through conduction. In this paper we have analyzed filtering as an anti-disturbance method of rejection of electromagnetic interference transmitted by conduction on both power lines and signal lines.
Keywords: *filtering, disturbances, interference*

27. (ID 178) Review of Condition Monitoring and Fault Diagnosis for Marine Power Systems
Authors: stud. Petrica Valentin TABAC, stud. Andrei Alin BERTEA
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This study presents a comprehensive review of the evolution of Condition Monitoring and Fault Diagnosis (CMFD) in marine power systems, categorizing its development into three distinct periods. Through an examination of research content, current state, and limitations within each period, the study offers insights into the pivotal role CMFD plays in ensuring ship safety. Drawing from research achievements and engineering insights, the authors present notable application cases of CMFD in various ship types, including engineering ships, salvage ships, container ships, and ro-ro ships equipped with solar photovoltaic systems. Additionally, the study outlines prospective research directions for CMFD in marine power systems, taking into account current research status and the emerging trends towards intelligent and environmentally sustainable ship technologies.*
Keywords: *electrical equipment, mechanical equipment, monitoring, fault diagnosis, power systems, electrical engineering, ships*

28. (ID 183) Gyrocompass
Authors: stud. Alexandru DIACU, stud. Robert-Cristian ANGHEL
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Preparing the gyrocompass for normal operations requires activation at least 5 hours prior. After powering on the switch, the gyrocompass system determines initialization mode, either warm or cold, depending on the gyrosphere's condition. The rotation status of*

the gyro rotor is monitored through phase current. In warm start mode, operation begins when the phase current is below 0.35 A and all indicators are normal. In cold start mode, operation begins after the phase current drops below 0.35 A. Automatic and manual alignment functions are inactive during standby. After approximately 2 hours, the gyrocompass is ready for operations.
Keywords: *gyrocompass, powering, rotation, gyrosphere, alignament, operations*

29. (ID 192) The Use of Diodes and Thyristors in the Naval Industry
Authors: stud. Iulian-Valentin VASILUȚĂ, stud. Marius Nicolae BÂRLĂDEANU
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The use of thyristors and diodes in the naval industry can be varied and essential. These electronic devices are used to control and manage electrical power in various systems on board ships. In most cases, where thyristors and power diodes are used, due to the operating regime or the existence of energy storage elements in the circuit, there is a possibility of exceeding the maximum voltage value. For this reason different protection methods are used to combat it. Moreover, both have uses, aplications and advantages that will be described. The presentation will also include pictures belonged to the subject.*
Keywords: *Diodes, Thyristors, Electrical*

30. (ID 201) Remote Care Software Platform for Maritime Industry
Author: stud. Mihnea Sebastian BURLACU
Scientific Advisor: Prof. Ionut Manuel ANGHEL, PhD
Institution: Technical University of Cluj Napoca
Abstract: *The adoption of remote care solutions is increasingly growing, especially in ensuring accessible healthcare services, vital signs monitoring and support for isolated persons and older adults. In the maritime domain the need to monitor the health state of the mariners at a regular interval of time, to allow doctors to remotely assess their condition and to plan for intervention has led to conduct*

research activities to design and implement new Internet of Things (IoT) platforms. This paper proposes a platform aimed at addressing the unique healthcare needs of seafarers through remote patient monitoring of their activities (effort, type, etc.) and health parameters (e.g. heart rate, Spo2, etc.). By leveraging the capabilities of modern smartwatch/fitness trackers and smartphone technologies to collect such real time data, the platform employs neural network algorithms to create a predictive analysis of potential health risks that can be used by doctors to draw conclusions and act through remote intervention. With features such as patient-specific care professional access, health analytics insights, and seamless communication channels, the system addresses the current needs in the domain for maritime healthcare delivery.
Keywords:

31. (ID 202) Autonomous Inspection and Maintenance Planner for Electrical Grids
Author: stud. Mihnea Sebastian BURLACU
Scientific Advisor: Prof. Ionut Manuel ANGHEL, PhD
Institution: Technical University of Cluj Napoca
Abstract: *In the realm of electrical engineering, ensuring the reliability and safety of power grid infrastructure is paramount. With the ever-present need for efficient inspection and maintenance, traditional methods often fall short in addressing the complexities and challenges inherent in large-scale electrical grid operations. To address these shortcomings, we introduce an innovative solution: the Autonomous Inspection and Maintenance Planner for Electrical Grids (AIMPEG). AIMPEG leverages cutting-edge technology, including unmanned aerial vehicles (UAVs) equipped with specialized sensors and robotic manipulators, to revolutionize the inspection and maintenance processes. Through advanced algorithms and real-time data processing, AIMPEG enables autonomous mission planning, path optimization, obstacle avoidance, and task execution, all while adhering to industry standards and regulations. By integrating with existing electrical grid infrastructure and workflows, AIMPEG offers a comprehensive solution that enhances efficiency, safety, and reliability in electrical grid operations. With AIMPEG, we envision a future where the*

maintenance of electrical grids is not only streamlined but also proactive, ensuring uninterrupted power supply and minimizing downtime for critical infrastructure.
Keywords:

32. (ID 208) Intense Electromagnetic Field Generators: Applications in the Military Field
Authors: stud. Andreea-Gabriela NEAGU, stud. Razvan IORDACHE
Scientific Advisor: Prof. Vasile DOBREF, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Intense Electromagnetic Field (EMF) generators represent a burgeoning frontier in military technology, offering multifaceted applications that promise to revolutionize modern warfare. This paper explores the various aspects of EMF generators, elucidating their underlying principles, operational mechanisms, and diverse applications within the military domain. We delve into the fundamental physics governing EMF generation, discussing the latest advancements in technology that enable the creation of increasingly potent fields. Moreover, we examine how these generators can be harnessed for a plethora of military applications, including but not limited to communication disruption, electronic warfare, directed energy weapons, and strategic defense systems. This paper aims to elucidate the pivotal role of intense EMF generators in shaping the future landscape of military operations.*
Keywords:

33. (ID 215) NILM Dashboard: A Power System Monitor for Electromechanical Equipment Diagnostics
Authors: stud. Raul Mihail STAN, stud. Alexandru BALAN
Scientific Advisor: Prof. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper introduces the NILM Dashboard, a machine intelligence and graphical platform utilizing Non-intrusive Load Monitoring (NILM) data for real-time electromechanical system diagnostics. Using signal processing, it disaggregates load activity, presenting time-based insights and statistical indicators. The software networks multiple NILM devices for simultaneous*

monitoring of loads on different electrical branches. A user-friendly interface offers analysis tools for energy scorekeeping, fault detection, and operating state determination. Demonstrated on data from two United States Coast Guard (USCG) Cutters, the NILM Dashboard proves effective in enhancing complex system monitoring and management.

Keywords: *electrical engineering, electrical systems, signal processing, diagnostics, electromechanical systems, NILM, power systems*

34. (ID 216) Intelligent Fault Diagnosis Methods Using Deep Learning Theories

Author: stud. Ramona PETREA
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Fault diagnosis (FD) is essential for ensuring the reliability and safety of complex systems across industries. Traditional FD methods often struggle to handle the complexity and variability present in real-world data. The advent of deep learning has brought about significant advancements in this field. This abstract provides an overview of intelligent FD methods leveraging deep learning theories. Convolutional neural networks (CNNs) and recurrent neural networks (RNNs) are emphasized for their ability to automatically extract intricate features from raw data, enabling accurate fault detection and classification. Techniques such as data augmentation, transfer learning, and ensemble methods are discussed for enhancing the performance and robustness of deep learning-based FD systems. Additionally, the abstract explores the integration of deep learning with other intelligent techniques, such as fuzzy logic and reinforcement learning, to further improve fault diagnosis accuracy and interpretability. Overall, intelligent FD methods employing deep learning offer promising solutions for addressing the challenges posed by complex systems, contributing to enhanced reliability and efficiency across diverse application domains.*

Keywords: *Fault Diagnosis, Deep Learning, Convolutional Neural Networks (CNNs), Recurrent Neural Networks (RNNs), Intelligent Systems*

35. (ID 226) Naval Electronic Warfare System Development

Authors: stud. Cătălin-Nicolae UDREA, stud. Liviu-Andrei GÎRLEA
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Naval electronic warfare systems are essential for modern maritime defense, enabling the detection, analysis, and counteraction of electronic and cyber threats. This session explores the current status, advantages, and challenges of these systems. It also examines the evolution of naval electronic warfare technology and its crucial role in ensuring maritime security and operational effectiveness. Through focused discussions, the session aims to provide insights into the importance and future developments of naval electronic warfare in the 21st century.*

Keywords: *Naval, warfare systems, maritime security*

36. (ID 231) Decarbonisation of the navigation system

Author: stud. Stefan BIBICU
Scientific Advisor: Scientific Researcher 3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Decarbonisation of the navigation system is a crucial initiative to reduce greenhouse gas emissions and combat climate change. Here are some strategies and technologies that could be implemented to achieve this goal. Use of alternative fuels: Replacing fossil fuels with renewable and cleaner energy sources is an essential step for the decarbonisation of maritime transport. Technologies such as green hydrogen, biofuels, synthetic fuel blends and renewable energies such as wind and solar power can be used to power ships. Electrification of the fleet: switching to electric or hybrid engines can significantly reduce greenhouse gas emissions. For example, using lithium-ion batteries or fuel cells to power electric motors can be an efficient solution for smaller ships or for use in ports and urban areas Use of energy efficiency technologies: Implementation of energy efficiency technologies such as efficient propulsion systems, optimal route management, fuel saving systems and optimization of ship design can help reduce fuel consumption and thereby carbon emissions.*

Keywords: *decarbonisation, renewable energies, hybrid, engines*

37. (ID 236) Marine Systems and Equipment Prognostics and Health Management: A Systematic Review from Health Condition Monitoring to Maintenance Strategy

Authors: stud. Mihai-Alexandru NEDELCU, stud. Dan Cristian IANCU
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Health prognostication refers to the field of marine systems and equipment health forecasting and management (MSEPHM) which focuses on predicting and assessing the health of marine systems and equipment. This topic is discussed in the systematic review entitled "Marine systems and equipment forecasting and health management: a systematic review from health monitoring to maintenance strategy". The systematic review provides an overview of the current state of MSEPHM research and development. It covers various aspects such as health monitoring, fault diagnosis, forecasting and maintenance strategies for marine systems and equipment. In the context of health forecasting, the review discusses the use of data-driven approaches, machine learning algorithms and sensor technologies to monitor the health of marine systems and equipment. These approaches analyze real-time data and historical information to predict potential failures or degradation of systems and equipment. The purpose of health prognostication is to enable proactive maintenance strategies by predicting the remaining useful life of components, identifying potential failure modes and optimizing maintenance schedules. By accurately assessing the health of marine systems and equipment, operators can make informed decisions about maintenance actions, thereby improving operational efficiency, reducing downtime and minimizing the risk of unexpected breakdowns. The systematic review provides information on the latest advances, challenges and future directions in the field of health forecasting in marine systems and equipment. It serves as a valuable resource for researchers, practitioners and stakeholders involved in the maintenance and management of marine systems and equipment.*

Keywords: *Prognostics and Health Management, Remaining Useful Life, Kurtosis, Sensor Signals, Safety, Monotonic Trend, Health Prognostics*

38. (ID 237) Renewable energy on ships

Author: stud. Alexandru FLOREA
Scientific Advisor: Scientific Researcher 3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Solar energy offers numerous advantages, including reduced greenhouse gas emissions, energy independence, and global availability, making it an increasingly important component of the global energy mix. Despite challenges such as weather dependency and high initial costs, evolving technologies and support from governments and communities drive its adoption. Renewable energy on ships, particularly solar and wind energy, presents opportunities to reduce emissions and utilize sustainable resources. While solar energy provides clean and abundant power, challenges such as installation costs and variability in production exist. Nevertheless, advancements in solar technology make it a viable option for powering ships, contributing to a more sustainable maritime industry.*

Keywords: *Renewable energy, Solar energy, Energy independence, Renewable energy on ships, Sustainable resources*

39. (ID 238) Electromagnetic Field and Noise Measurements for the Merchant Ship Albatros

Authors: stud. Alexandru Cosmin CRUTESCU, stud. Sebastian Andrei POSIRCA
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The study delves into an examination of the outcomes derived from measurements aimed at evaluating the electromagnetic power density at various points situated on a ship. Moreover, it scrutinizes the level of noise originating from distinct broadcasting stations and the strength of the radiated electric field emitted by a station operating at 250 MHz. By conducting this analysis, the paper unveils the origins of both natural and artificial electromagnetic disruptions, elucidating the constituent elements associated with each source.*

Keywords: *merchant ship, electromagnetic field, intensity of the electric filed, power density, noise levels, data, generating sources*

40. (ID 247) Marine Systems and Equipment - Health Condition Monitoring

Authors: stud. Medina-Mihaela DIACONU, stud. Robert-Gabriel ONETE
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The project, "Marine Systems and Equipment - Health Condition Monitoring (HCM)", focuses on the health monitoring of Marine Systems and Equipment (MSAE) through the measurement of various condition parameters such as temperature, pressure, and level. These parameters are acquired from a multitude of sensors installed on the MSAE, supplemented by external sensor data and information. HCM forms the foundation of Prognostics and Health Management (PHM), providing essential health condition information that underpins three subsequent processes. This project aims to optimize the operation and maintenance efficiency of MSAE, thereby enhancing their reliability and longevity.*

Keywords: *Marine Systems and Equipment (MSAE), Health Condition Monitoring (HCM), Prognostics and Health Management (PHM), Sensor Data, Operational Efficiency*

41. (ID 263) Analysis of the Protections of the Asynchronous Motor Operated with the Frequency Converter of the Anchoring Installation

Authors: stud. Daniel DAMCALIU, stud. Maximilian LAMASANU
Scientific Advisor: Lecturer Leon PANĂ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This study examines the protective measures implemented in asynchronous motors operated with frequency converters in anchoring installations. Through comprehensive analysis and experimentation, various protection mechanisms, including overcurrent protection, overvoltage protection, and thermal protection, are evaluated for their effectiveness in ensuring the safe and efficient operation of the motor system. Findings reveal the significance of proper protection strategies in mitigating risks associated with frequency converter operation, thereby enhancing the reliability and longevity of the motor system in anchoring applications.*

Keywords: *asynchronus, frequency, protections*

42. (ID 272) Induction Motor
Author: stud. Luiza-Gabriela BOUROS
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper is inquisitive about enforcing and controlling a changed six-section induction motor (MSPIM) whilst fed from a three-section deliver both thru an inverter or with an immediate grid connection loaded via way of means of a centrifugal pump. The essential objectives of the use of the MSPIM are to beautify motor reliability and decrease torque pulsation. A three-to-six section transformer has been designed, carried out, and hired to permit the SPIM to be pushed from a three-section deliver. It is most advantageous to apply the three-to-six section transformers included with three-section inverter on the use of the six-section inverter to generate decrease values of harmonics and decrease steady-kingdom blunders of pace and decrease the beginning present day and due to the fact additionally it isolates the number one circuit from the secondary, and the price can be decrease in comparison to the layout of a unique six-section inverter. Dynamic fashions of SPIM, three-to-six section transformer, and three-section variable pace power are derived. Then, a scalar (V/F) closed-loop manipulate of SPIM is hired, and the outcomes are discussed. Fine-tuning of PID controllers is used to maintain the motor pace monitoring the reference value. A low byskip clear out out is attached to lessen the ripple of voltage and present-day waveforms. An experimental setup has been constructed and carried out to test the opportunity of controlling SPIM via way of means of a variable pace power device fed from a three-to-six section transformer. It is discovered that the proposed approach may be successfully used to power the SPIM from a three-section deliver.*
Keywords: *PWM; six-phase induction motor; three-and six-phase transformers*

43. (ID 276) Arduino Applications in Military Domain
Author: stud. Cristian ȘANDOR

Scientific Advisor: Lecturer Cornelia-Victoria ANGHEL-DRUGĂRIN, PhD
Institution: Babeș-Bolyai University Engineering Faculty
Abstract: *Arduino creates, manufactures and maintains electrical hardware and software, making next-generation technologies that interact with the real world accessible to people around the world. Our products are easy to use, powerful and simple, suitable for a wide range of users including designers, students and professional developers. Our project offers several application areas within the military such as security and soldier monitoring.*
Keywords: *Arduino, apps, electronics, sensors, bluetooth.*

44. (ID 277) Classification and use of Industrial Electric Ovens
Authors: stud. Cosmin-Andrei GRĂDINARU, stud. Daniel FOCUȚĂ
Scientific Advisor: Lecturer eng. Eduard DRAGOMIR, Ph.D.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Industrial ovens are energy-technological installations that impart specific physical or chemical properties to materials, crucial for further processing or final product development. Widely used in metallurgical, steel, and machine-building industries, these furnaces vary in function and application.*
Keywords: *Industrial ovens, Metallurgical industry, Energy systems, Heat treatment*

45. (ID 281) Implementation of a Monitoring System for a Data Center
Author: stud. Elena-Ariana MANDA
Scientific Advisor: Lt. Col. Adrian MIHĂILEANU
Institution: Academia Forțelor Terestre "Nicolae Bălcescu" Sibiu
Abstract: *This paper presents the development of an integrated monitoring system designed for a data center, using the ESP32 microcontroller to manage data collection from certain sensors. By implementing this system, the main focus is on providing an efficient and high-precision solution for monitoring environmental conditions and the presence of disruptive factors within the data center. The collected data from implemented sensors are sent real-time to Blynk platform, allowing remote monitoring and alerting administrators in*

case of exceeding established critical thresholds. The proposed implementation enhances the security and operational efficiency of the data center, ensuring an optimal environment for equipment and stored data.
Keywords: *ESP32, IoT, cloud, data center, sensors*

46. (ID 282) The use of Deep Learning Algorithms in Voice Signal Processing
Author: stud. Raul-Petru PLIC
Scientific Advisor: Assist. prof. Annamaria SÂRBU, PhD
Institution: Academia Forțelor Terestre "Nicolae Bălcescu" Sibiu
Abstract: *This paper presents an innovative method for processing voice signals using deep learning algorithms. The main focus is on analyzing audio data to extract significant audio features. By employing deep neural networks, remarkable results in classifying and identifying the subject that is speaking are achieved. This approach holds potential in various fields, including cybersecurity and military communications. The obtained results demonstrate the effectiveness and the potential of deep learning processing algorithms in voice signal analysis.*
Keywords: *deep learning, voice signal analysis, neural network, audio signals, signal processing*

47. (ID 303) Residential Photovoltaic Systems
Authors: stud. Rares-Valentin HARAS, stud. Cosmin-Adrian DORE
Scientific Advisor: Assoc. prof. Florentiu DELIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Photovoltaic panels are devices that convert light energy into electrical energy using the photovoltaic effect. Comprised of photovoltaic cells typically made of crystalline silicon, these panels generate electricity when sunlight strikes them, releasing electrons that flow through an electric circuit. The efficiency of these panels, typically ranging from 15% to 25%, depends on various factors such as sunlight intensity, temperature, and semiconductor material used in the solar cells. The advantages of implementing such systems include harnessing renewable energy, reducing greenhouse gas emissions, ensuring reliability, flexibility, autonomy, and lowering electricity costs. In Romania, financial support is provided for*

photovoltaic systems by the Environment Fund Administration (AFM). To become a prosumer, individuals need to own a renewable energy production facility, such as photovoltaic panels, and meet certain criteria. The implementation of such a project involves assessing the energy balance of the household, selecting appropriate components like solar panels and inverters, estimating costs, and simulating the system's energy production. By considering various factors such as government incentives, energy consumption, and electricity bill savings, the investment in a photovoltaic system can be amortized in a few years, contributing to a sustainable and cost-effective energy solution.

Keywords: *Photovoltaic systems, renewable energy, prosumers, solar panels, inverters, energy balance, investment amortization*

48. (ID 323) Wind and Current Interaction Modeling

Author: stud. Cristian Dumitru DEAC
Scientific Advisor: Lecturer Calin CENAN, PhD
Institution: Technical University of Cluj Napoca

Abstract: *This research investigates the intricate interplay between wind patterns and ocean currents to develop precise predictive models for sailboat navigation. Through a combination of field measurements, numerical simulations, and data analysis, the study aims to comprehensively understand how wind and currents influence sailing performance and route planning. By examining the complex dynamics of wind and current interactions, the research seeks to enhance the accuracy of predictive models, thereby improving navigation strategies for sailors. The findings from this research have the potential to advance our understanding of marine environmental factors and optimize sailboat navigation techniques for enhanced efficiency and safety.*

49. (ID 324) Biodegradable Electronics for Marine Applications

Author: stud. Cristian Dumitru DEAC
Scientific Advisor: Lecturer Calin CENAN, PhD
Institution: Technical University of Cluj Napoca

Abstract: *This research explores the development of biodegradable electronics tailored for marine applications, including sailboats. The study focuses on the design and fabrication of electronic components*

and systems using biocompatible materials and eco-friendly manufacturing processes. By drawing inspiration from sustainable practices and natural degradation mechanisms, the research aims to create electronic devices that minimize environmental impact and can safely degrade in marine environments at the end of their lifecycle. Through a combination of material science, device engineering, and environmental testing, the study evaluates the performance, reliability, and biodegradability of biodegradable electronic prototypes in simulated marine conditions. The findings from this research have the potential to advance sustainable engineering practices in maritime industries, reduce electronic waste pollution in marine ecosystems, and promote the adoption of biodegradable technologies in sailboat electronics.

50. (ID 340) The Embedded System Raspberry Pi: Access Point Creation Using the GNU/Linux Operating System

Authors: stud. Stefanou PANAGIOTIS, stud. Alexandros DIMOPOULOS
Scientific Advisor: Lecturer Alexandros DIMOPOULOS, PhD
Institution: Hellenic Naval Academy

Abstract: *This thesis explores the utilization of the GNU/Linux operating system on a Raspberry Pi device to create an access point. It delves into the necessity of access points over conventional routers, emphasizing benefits such as enhanced signal range and increased connection capacity. A comparative analysis between access points and routers is presented alongside an introduction to the Raspberry Pi, elucidating its features and technical specifications. The paper examines the utility of Raspberry Pi in contrast to traditional computers, focusing on factors such as power efficiency, compactness, portability, and the robust community backing the project. Additionally, it details the process of installing the GNU/Linux operating system on the Raspberry Pi, elucidating its architecture and security measures. Furthermore, the study investigates the installation process of the GNU/Linux operating system on the Raspberry Pi, emphasizing its user-friendly nature and accessibility across all proficiency levels. Challenges encountered when using the Raspberry Pi as an access point are identified, along with corresponding solutions and recommendations for network*

security and performance optimization. Moreover, the architectural and programming aspects of the Raspberry Pi are scrutinized, highlighting its potential for educational and innovative applications in embedded systems and the Internet of Things (IoT). The paper underscores the significance of integrating open-source technologies and fostering contributions to project development and enhancement. Finally, the study concludes with a discourse on the future trajectory of the Raspberry Pi and its potential ramifications on education, technology, and society. It underscores the importance of ongoing learning and experimentation in computing, positioning the Raspberry Pi as an enabler of these pursuits.
Keywords: *access point; GNU/Linux; Raspberry Pi: Internet of Things (IoT)*

51. (ID 363) The Construction and Functionality of the Marx Generator.
Author: stud. Vlad Mihai CONSTANTIN
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This project explains how a Marx generator was constructed, step by step, using pictures. It will also go into detail about the principles behind the generator's functionality. The project will also describe each component utilized in the circuit and it's topology.*
Keywords: *Marx Generator, Circuit, Electricity, Capacitor, Potential.*

52. (ID 374) Active Steering
Author: stud. Elena-Raluca ZAMFIRESCU
Scientific Advisor: Prof. eng. Gheorghe SAMOILESCU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Active steering, a pivotal component of modern navigation, enhances vessel maneuverability and precise control. This encompasses various systems such as hydraulic jet propellers and controllable-pitch propellers. Proper maintenance is paramount to mitigate common issues like water leaks or electric motor malfunctions. Mathematical modeling plays a crucial role in optimizing system performance, ensuring accurate and secure*

navigation across diverse conditions. Additionally, advancements in active steering contribute significantly to maritime safety and efficiency.
Keywords: *active steering, navigation, maneuverability, precise control*

53. (ID 82) The RADAR System and its Dependence on the Sustainable Electrical Sources
Authors: stud Mircea Gabriel MOLDOVAN**,** stud. Sebastian Marian SARANDI
Scientific Advisor: Scientific Researcher 3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The radar apparatus represents a salient system that is found onboard on commercial as well as on military ships which provides navigational and security services. Primarily it was used to detect aircrafts and ships of the enemy, by using electromagnetic waves that were issued by antennas. In a period of time, they were received back as such to give information about the position, speed and the material of the object. With the progress of technology and international relations, so appeared the problem of a continuous maintaining the radar's function for protection against dangers in a specific area. This work presents the main issues that had to be tackled with, as well as the solutions, accompanied by technical explications to a better understanding upon one of the most used techniques in the actual commercial, transportation, political and war situation.*
Keywords: *radar, security services, international relations, military ships*

54. (ID 375) Internet of Things in the Maritime Industry
Author: stud. Gabriela-Estera IANCU
Scientific Advisor: Lt. Instr. Alexandru POHONȚU, PhD student
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The Maritime Industry stands on the cusp of a transformative era with the integration of Internet of Things (IoT) technologies. This abstract explores the potential, advantages, and challenges associated with employing IoT solutions in maritime*

operations, with a specific focus on utilizing the Arduino Uno WiFi Rev2 microcontroller.
Keywords: *The Arduino Uno WiFi Rev2, efficiency, sensors, data analytics, microcontroller*

V. SECTION: WEAPONS AND COMMUNICATIONS

Section Committee:
Chairman:
LCDR Assoc. prof. CRISTEA Ovidiu, PhD
Members:
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Lieutenant jg. POPA Silviu, PhD student
Stud. COMĂNESE Lorena
Stud. COTORA Dragoș
Stud. CHIRIAC Ștefania
Stud. PETRE Robert
Room LI125

1. (ID 13) Simulation Over the Impact of a Sting Ray Torpedo Against a Submerged Medium-Sized Submarine

Authors: stud. Nicolae CARACOSTEA
Scientific Advisors: Lecturer eng. Gheorghe ICHIMOAEI, PhD., Assoc. prof. eng. Ioan-Cristian SCURTU, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *One of the promising acquisitions within the Naval Forces' Acquisition Program consists of two non-nuclear diesel-electric Scorpène submarines produced by Naval Group. These acquisitions would significantly enhance the Romanian Naval Forces' presence in the Black Sea. However, before entering in our Fleet's service, it is imperative to thoroughly research their defensive capabilities. Hence, the idea of simulating the impact of a torpedo on the mentioned submarine emerged, with the aim of assessing the efficiency of both the current torpedoes in service and the resistance of these modern submarines to impacts. The geometries were created using Ansys Discovery, followed by describing the materials used, as well as their resistance and proper characteristics, meshing and the final setup. External factors were also taken into account during the simulation. Factors such as hydrostatic pressure, depth, temperature and salinity of the water significantly influenced the impact of the torpedo on the submarine's body.*

Keywords: *Ansys; Simulation; Submarine; Torpedo; Engineering*

2. (ID 17) Chemical Weapons in the Romanian Navy
Authors: stud. Robert BOCA, stud. Maria-Ioana GHEORGHE, stud. Theodor-Gabriel CREȚU
Scientific Advisor: Lecturer Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Keywords: *Weapons*

3. (ID 26) Cybersecurity: Cyber Threat Intelligence
Authors: stud. Andrada-Evelina ENE
Scientific Advisor: Lecturer Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Cybersecurity is becoming more and more necessary with the advancement of technology, so it is also becoming more and more extensive. To safeguard cyberspace and the systems that run on it, Cybersecurity entails putting tools, processes, and structures in place. Its goal is to protect against situations that could cause the practical and legal rights to property to become misaligned. To protect the digital environment, this calls for harmonizing a variety of institutions, practices, and resources. Of all the subdomains that cybersecurity has, one of the most relevant nowadays is Cyber Threat Intelligence, because even though we need to know how to defend ourselves from cyberattacks, it is necessary to be able to prevent them and to limit the possible damage. The process of creating Cyber Threat Intelligence involves the collection and analysis of information and includes knowledge about vulnerabilities, hacker tactics, and compromise signs to help businesses anticipate and mitigate assaults. Business knowledge about the techniques, methods, and strategies employed by adversaries online is provided by Cyber Threat Intelligence, a proactive approach to cybersecurity. The collection and application of data is a practical aspect of threat intelligence work. Before applying the intelligence in question, it is imperative to determine its exact nature and the context in which it is used. In order to effectively supplement Cybersecurity defense, it is essential to apply the relevant threat intelligence and assess its usefulness. This research presents the importance and efficacy of Cyber Threat Intelligence in cyberspace and how powerful is*

intelligence and the analysis for it. In order to explain properly this subdomain of Cybersecurity this paper provides an overview of the threats that may arise and the correct way to share the intelligence, following the evolution of this field. So the purpose of this paper is to inform about the importance of proactive defensive methods and making decisions being well informed.
Keywords: *intelligence, cybersecurity, threat*

4. (ID 30) Phishing Persistence, Timeless Tactics in Cyber Era
Authors: stud. Ciprian MIHAI
Scientific Advisor: Lecturer Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This paper, as a comprehensive guide to the dynamic field of cybersecurity, highlighting the critical role of understanding, prevention, and mitigation in the face of evolving cyber threats, with a specific emphasis on the intricate landscape of phishing. Cybersecurity, an amalgamation of "cyber" and "security," is a multifaceted discipline devoted to fortifying digital ecosystems against an array of evolving threats. This study provides an insightful overview of the broad field of cybersecurity, emphasizing its dynamic nature and the continuous adaptation required to safeguard against digital perils. The study further delves into the taxonomy of cyber threats, elucidating various attack types such as malware, ransomware, denial-of-service attacks, and advanced persistent threats. A substantial portion of the study is dedicated to exploring the intricate realm of phishing, a pervasive and sophisticated cyber-attack technique that exploits human psychology and trust. The phishing study case defines and dissects the multifaceted nature of this deceptive practice, covering its manifestations through channels like email, spear phishing, vishing, smishing, social media, pharming, and clone phishing. This not only unravels the deceptive web woven by phishers but also emphasizes the imperative need for a comprehensive and proactive approach to mitigate the risks associated with phishing attacks. The paper concludes by outlining strategies for phishing prevention, encompassing skepticism, source verification, multi-factor authentication, regular software updates, and incident response planning. Additionally, it provides detailed recommendations for individuals and organizations to adopt in the*

aftermath of a suspected phishing incident, focusing on password changes, enhanced account security, malware scans, financial account monitoring, reporting incidents to legitimate entities, ongoing education and legal consultation if needed.
Keywords: *Phishing*

5. (ID 61) Types of explosives used in the military navy
Authors: stud. Bianca-Gabriela ENE, stud. Georgian CHEȚA
Scientific Advisor: Prof. Cristina Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Keywords: *Types of explosives used in the military navy*

6. (ID 95) Survey of Cyber Protection Technologies and Methods Used in Maritime Communications
Authors: stud. Alexandru-Stefan POPA
Scientific Advisor: Captain eng. Cătălin Paul CLINCI, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This project is due to highlight the importance of cyber security in maritime navigation. Within it, specific cyber threats and ways to protect are explored as the connection between ships and shore using the network is more and more important to this industry. Technologies such as cryptography, firewalls and intrusion detection/prevention systems are essential in this context. Network segmentation and staff education are also addressed as crucial methods of protection. Through the analysis of case studies and practical examples, successful implementations and lessons learned from previous incidents are demonstrated. This presentation highlights the continued need for efforts and investment in maritime cyber security to ensure safe navigation and protect data and personnel in the maritime industry*
Keywords: *Cyber security; cyber threats; network; safety; maritime communications.*

7. (ID 104) Maritime Innovation: Optimizing Ship Operations with Drone Technology
Authors: stud. Cristina TAIFAS
Scientific Advisor: Lecturer Viorel COSTACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *In the past two years, the Romanian Naval Forces has frequently faced the identification and neutralization of drifting mines problem, especially those that reached the Romanian coastline and endangered people's lives. For this reason, a maritime drone has been acquired to facilitate easier mine identification and reduce the risks involving neutralizing it. Hence, the idea of analyzing both the advantages and disadvantages of implementing maritime drones for naval tactical missions has emerged. This study considers the characteristics of UAVs capable of executing other tactical missions, their effectiveness in transforming tactics and military operations, components, operational principles, and the opportunities for their use in surveillance, research, and naval search missions, with the aim of demonstrating that UAV's implementation onboard may become imperative in naval tactical exercises and missions, as military regions utilize increasingly modern and hard-to-detect combat means, as well as ensuring continuous monitoring of naval traffic and existing navigation hazards.*
Keywords: *drones; ships; tactics; efficiency; reconnaissance*

8. (ID 108) The Impact of the Human Factor on Information Security

Authors: stud. Mihaela POPOVSCAIA
Scientific Advisor: Igor ZAVALSKI
Institution: Alexandru cel Bun" Military Academy of the Armed Forces
Abstract: *This article develops the idea of the contribution of natural persons to the threat of information security, which has currently become a very acute problem. The methods of direct and indirect action on the security of the information space are analyzed, as well as the impacts of these actions are theoretically demonstrated. It addresses how the behaviors, actions and decisions of individuals influence the integrity and confidentiality of information within organizations and information systems.*
Keywords: *information security, protection methods, physic persons*

9. (ID 233) Research on Wireless Connectivity Via Wifi Router for Bluerobotics Navigator Board

Author: stud. Marian-Valentin MOISĂ

Scientific Advisors: Lecturer eng. Elena-Grațiela ROBE-VOINEA, PhD, Scientific Researcher 3 Alexandru PINTILIE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper describes how to use a WiFi router to create wireless communication to the BlueRobotics Navigator Board. Underwater robotics relies heavily on the Navigator Board, which usually needs physical connections to interface. Our method seeks to improve mobility and flexibility by facilitating wireless communication. Using both proprietary software and off-the-shelf WiFi technologies, we were able to create a dependable wireless foundation. We confirm the effectiveness of our technique by extensive testing, including measurements of latency, throughput, and signal dependability. This accomplishment has the potential to advance applications related to underwater robots by enabling remote control and monitoring without the need for physical tethering.*
Keywords: *Wireless, connectivity, underwater robotics*

10. (ID 259) Artillery Firing Trajectory Calculus Program
Authors: stud. Cosmin-Andrei GRADINARIU
Scientific Advisors: Lecturer eng. Elena-Grațiela ROBE-VOINEA, PhD, Scientific Researcher 3 Alexandru PINTILIE, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This paper aims to introduce a Python-based graphical user interface (GUI) tool for simulating and visualizing artillery projectile trajectories. It aims to offer an accessible way to analyze projectile motions using essential physics concepts, including gravity and initial velocities. Leveraging Python's QtDesigner for the GUI and Matplotlib for graphical data representation, users can input variables like ship velocity and distance to the target, obtaining real-time visuals of the trajectory.*
Keywords: *Python, Artillery Calculator, projectile motion*

11. (ID 254) The Crucial Role of the Flying Boat in Search and Rescue Operations
Authors: stud. Florin-Theodor TĂNASE
Scientific Advisor: Lecturer Dumitru CORDUNEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *This article focuses on the importance of flying boats in search and rescue (SAR) operations at sea. Flying boats, with their unique capabilities and characteristics, are indispensable assets in maritime SAR missions due to their long endurance, amphibious operations, versatile landing options, all-weather capabilities, stability, reliability, and multi-role capabilities. This project aims to explore and highlight the key roles that flying boats play in SAR efforts, including their ability to cover vast oceanic expanses, access remote or inaccessible areas and transport SAR equipment and personnel.*
Keywords: *search rescue capability stability reliability ocean operations*

12. (ID 382) Improving Communication between Instructor and Student to Optimize Onboard Armament
Authors: stud. Dragoș TUDOR, stud. Mihai PĂDUROIU
Scientific Advisor: Oliver CIUICĂ
Institution: "Henri Coanda" Air Forces Academy
Abstract: *This paper explores the critical roles of onboard armament knowledge and instructor-student communication in air force training. It highlights the necessity for in-depth understanding of weapon systems for military personnel and underscores the significance of effective communication strategies in training environments. By examining the intersection of technological expertise and interpersonal skills, the research suggests that a combined focus on these areas enhances training effectiveness and operational readiness. The findings advocate for a unified training approach, emphasizing the balanced development of technical proficiencies and communication abilities to improve the efficacy of air force training programs.*

13. (ID 385) Using the VERA-NG Radar Complex to Increase the Speed and Accuracy of Target Detection
Author: stud. Dmytro HRONSKYI
Scientific Advisor: Prof. Vladlen SHAPO, PhD
Institution: Naval Institute, Odessa

Abstract: *During two years of war in Ukraine, it became obvious that the use of wireless data transmission, radio-electronic combat systems against enemy drones, control systems for own drones, radar systems, anti-aircraft, anti-missile defense systems is extremely important. The Netherlands transfers the VERA-NG radar complex from Czech ERA company to Ukraine. The VERA-NG is intended for early warning and passive surveillance of targets and air defense. Its ELINT software manages the collection, storage and data analysis. VERA-NG provides reliable tracking and identification of air, sea, underwater and surface targets. It is necessary to study the possibilities of interaction between various devices and systems using different data transmission networks. It is hugely important to study the characteristics of VERA-NG and other products of the ERA company by cadets of military technical specialties related to air defense, data transmission, etc. in the academic disciplines like "Antennas and Radio Waves Propagation", "Networks Administration".*

14. (ID 386) Use of Cisco Secure DDoS Protection Technology to Protect Military Information Systems from Cyber Attacks

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

Abstract: *Hackers try to destroy military information systems using DDoS attacks. One of possible solutions for protection is Cisco Secure DDoS Protection. It gives automatic, adaptive, real-time protection. Ukrainian military sector uses the "Delta" software for notification and awareness on the battlefield. The "Virage" software is used for displaying data about manned and unmanned aviation. "Kropyva" software allows planning, calculations and orientation. LOGFAS is the set of modules, which allows information collection, storage, processing, analysis, display and distribution in logistics.*
Naval Institute performed the following. "Basics of cyber security" academic subject for technical specialties (master level) is realized in 2021 (full time cadets), 2022/2023, 2023/2024 (correspondent cadets) academic years. "Networks' administration" academic subject for 2 technical specialties for 4th year full time cadets:

2022/2023, 2023/2024 academic years. "Cyber hygiene" module in the "Informatics" academic subject for 2nd year full time all specialties cadets: 2023/2024 academic year.

VI. SECTION: MECHANICAL ENGINEERING

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Stud. Denis BĂRBIERU
Stud. Ionel PETCU
Stud. Ștefania POPA
Stud. Adrian BISOCIANU
Room: E122

1. (ID 180) Calculus of Volume Hull and the Displacement of a Ship Using C++ Programming Language

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

Abstract: *It is difficult to calculate the volume hull and the displacement of a ship: takes time and is susceptible to errors for students and the filling time into a table takes quite some time. 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 of the areas of the surfaces of the water lines were read and calculated from the lines plane of the shape of the ship, drawn in the AutoCAD utility, in the form of a vector). 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: *volume hull; displacement; ship; C++; programming language*

2. (ID 181) Comments Regarding the Flooding of Category I Compartments in the Case of Corvettes Type Ships
Author: stud. Bianca-Ștefania STOIAN
Scientific Advisor: Assoc. prof. Mihaela-Greti MANEA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Corvettes by the specific missions in which they are exposed at risk of flooding certain categories of compartments. The damaged vessel is affected not only in terms of structural integrity but also its nautical qualities are affected. For the work under the title "Comments regarding the flooding of category I compartments in the case of corvettes type ships", the following steps have been taken: the geometry of the ship has been analyzed; the buoyancy of the ship was studied and the main characteristic sizes were calculated; the study of the stability of the ship at large angles of inclination was carried out. In its content, the paper analyzes the consequences of the vessel's draught, the angles of longitudinal and transverse inclination, as well as the modification of the numerical values of the metacentric heights.*
Keywords: *flooding; compartments; nautical-qualities; geometry.*

3. (ID 245) Technology Design for The Execution of The Pump Rotor Shaft Equipping the Closed-Circuit Cooling System of the Main Engine for A 55000 Tdw Oil Tanker
Author: stud. Catalin-Ionut BARABASA
Scientific Advisor: Lecturer eng. Aurelia CHIOIBAȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Aspects regarding oil tankers A tanker is a specialized vessel that carries crude oil and petroleum products. They are generally built for 10 to 40 tanks. Large tankers transport oil from the extraction site to refineries and smaller tankers transport refined products from refineries to the distribution network. Access difficulties in the ports served, as well as ship accidents resulting in massive pollution of the marine environment, lead to a limitation of*

the loading capacity of a maximum of 150,000 tdw. This paper will present data on a 55000tdw capacity vessel. The engine cooling system is an auxiliary system whose purpose is to maintain a temperature regime suitable for good engine operation. A temperature of approximately 2000°C inside the cylinders will cause a process of deterioration of the lubrication process and as a result the mechanical properties of the conjugated parts will decrease which will lead to seizure or destruction of the component parts. So, the cooling system has the role of transmitting 20-30% of the heat of the engine parts to the environment, ensuring the most favorable temperature, i.e. approximately 85-90°C.
Keywords: *shaft, rotor, centrifugal pump*

4. (ID 299) Influence of Turbocharger in Ship Propulsion.
Author: stud. Mihai MAESCHI
Abstract: *In today's presentation, we'll delve into the influence of turbochargers on two-stroke marine engines. These engines, the workhorses of modern shipping, rely on turbochargers to achieve peak performance. Imagine a two-stroke engine as a powerful pump, propelling massive ships across vast oceans. Turbochargers function as ingenious devices that supercharge this process. They operate by compressing incoming air, essentially cramming more oxygen into the engine's cylinders. This seemingly simple action has a profound effect. The increased air density allows for significantly more fuel to be burned, resulting in a dramatic rise in power output. This translates to greater thrust for the ship, enabling faster and more efficient voyages. But the benefits of turbochargers extend beyond raw power. They also play a crucial role in optimizing fuel efficiency. By enabling more complete combustion of fuel, turbochargers ensure that less fuel is wasted. This translates to a significant reduction in operating costs for shipping companies and a lessened environmental impact. However, it's important to acknowledge that challenges can arise at part load. When a ship isn't operating at full capacity, the exhaust gas flow might not be sufficient to optimally spool up the turbocharger. This can hinder its effectiveness. Fortunately, advancements are being made to address this issue. Techniques like strategic turbocharger deactivation are being explored to ensure optimal performance across varying engine loads.*

Keywords: *Turbocharger Two-stroke Engine Air Fuel Turbine*

5. (ID 322) Aspects of Cargo Ship Construction
Author: stud. Daniel Catalin CATRINA
Scientific Advisor: Lecturer eng. Aurelia CHIOIBAȘ, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Freighters can be built to carry several categories of general cargo or can be specialized for certain types of cargo. Those for general cargo are built with one or more shelterdocks. The shelter deck is a platform located immediately above the upper deck covering a structure without an opening in the side. These superstructures can be continuous or discontinuous. In order to be able to load and unload cargo, general cargo freighters are equipped with biggies and naval cranes. In order to facilitate the loading-unloading operations, the modularization of the goods is used, which is achieved by packaging, palletizing, containerization. Containers weighing several tens of tons can also be transported by specialized ships called container ships. In these types of ship, the engine room can be located at the stern, center or bow of the ship.*
Keywords: *build, ship, construction*

6. (ID 327) Wave Energy in the Black Sea
Author: stud. Iustin MOȘNIAGU
Scientific Advisors: Lecturer Eng. Elena-Grațiela ROBE-VOINEA, PhD, Scientific Researcher 3 Eng. Alexandru PINTILIE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The purpose of this paper was to investigate the technical, economic, and environmental potential of wave energy capture in the Black Sea, from both mechanical and navigation perpesctives. After researching the geographic area, the energy potential of waves in the Black Sea will be analyzed, and a simplified method for calculating the energy produced by the wave energy capture installation will be proposed. Then, the development of the prototype in the AutoCAD 3D program, capable of extracting energy from waves, along with a demonstrative model and animation, will be presented. The feasibility of implementing these installations in the Black Sea will be evaluated, considering economic, social, and environmental aspects.*
Keywords: *Wave energy*

7. (ID 345) Ship Digital Twin: Purpose, Challenges, Applications and Perspectives

Authors: stud. Angelos VASILOPOULOS, stud. Efthimios PARIOTIS
Scientific Advisor: Assoc. prof. Pariotis EFTHIMIOS, PhD
Institution: Hellenic Naval Academy

Abstract: *In the present study, the application of the digital twin technology in the maritime sector is investigated highlighting the status of technology, challenges, applications, and prospects. Initially an extensive literature review is presented, discussing the various approaches and definitions of digital twins proposed by the scientific community, during the last decades, focusing on maritime applications. In addition, the basic elements necessary for the development of a digital twin are defined, analyzing their role and contribution to Digital Twin. Next, the criteria used for selecting and configuring the key components of the digital twin, including sensors, communication networks, protocols, simulation models, are presented, focusing on their adaptation to the demanding maritime applications. A methodology is developed to systematically classify the criteria used to build a digital twin for marine applications, with the aim to propose a roadmap for the development and implementation of the technology by all stakeholders (scientific community, IoT industry, shipyards, shipping companies, crew, policy makers). Moreover, the study focuses analyzing the technological and business challenges that affect and control the widespread adoption of digital twins in shipping industry. The current and future dynamics of shipping for the adoption of new technologies are evaluated, anticipating the applications that will dominate and the potential for the exploitation of digital twins in maritime sector. The study emphasizes the importance of data security and the need for reliable techniques for managing and analyzing the large volumes of data generated by digital twins, while also addressing the technological challenges faced in their implementation and operation. Based on this analysis, it proposes various solutions and strategies to achieve the optimal utilization of digital twins, encouraging innovation and technological advancement in the shipping industry. Finally, modern research and pilot projects concerning digital twins in shipping and related*

industries are presented, with the scope to demonstrate the potential of introducing Digital Twin Technology in real life applications on a wide scale soon.
Keywords: *digital twins, energy systems, simulation models*

8. (ID 361) Analysis and Interpretation of CFD (Computational Fluid Dynamics) Results
Authors: stud. Denis SEITCEA, stud. Maria Gabriela TEOFAN
Scientific Advisor: Prof. Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Keywords: *Mesh Convergence, what is CFD, Governing Equations of CFD*

9. (ID 364) Calculation and construction of the propulsion system for a port-container tanker.
Author: stud. Toma-Ionuț DOBRE
Scientific Advisor: Lecturer Narcis VOLINTIRU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This thesis explores the design and construction of propulsion systems for container tank ships, focusing on enhancing system efficiency. Beginning with an analysis of current propulsion technologies, it identifies key areas for innovation and improvement. A detailed examination of a reference ship provides context, guiding the selection and calculation of an optimal propulsion system, including the main engine and shaft line considerations. Safety and reliability in system operation are emphasized, highlighting the importance of maintenance and safety protocols. Concluding with technical insights, the study presents actionable conclusions aimed at improving propulsion efficiency and performance, contributing significantly to the field of maritime engineering.*
Keywords: *propulsion, improvment, reliability, maintenance*

10. (ID 372) Hydrodynamic Analysis of Usv's Hull with Computational Fluid Dynamics
Author: stud. Sabina-Andreea DIACONESCU
Scientific Advisor: Assoc. prof. eng. Ionuț-Cristian SCURTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Nowadays the unmanned surface vehicles (USV) are employed on a large scale, from military to industry implementations, from battlefields to smaller units that people may be play outdoor. The military industry for USVs recorded an exponentially growth worldwide associated with both oceans and shallow waters. They are used in missions that are dangerous for humans. The USVs have a complex cross-section shape of the hull. This paper explores the hydrodynamic consequences of its shape, in a comparative approach, using Computational Fluid Dynamics (CFD).*
Keywords: *hydrodynamic, CFD, USV, hull, Trimaran, k-ω SST, LES (Large Eddy Simulation)*

11. (ID 378) Python App for Submarine Immersion Control
Author: stud. Cătălin-Costin VLAD
Scientific Advisors: Lecturer eng. Elena-Grațiela ROBE-VOINEA, PhD, Scientific Researcher 3 eng. Alexandru PINTILIE, PhD.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This paper presents a Python application that calculates the required ballast for a submarine to achieve neutral buoyancy based on various input parameters. The application utilizes the PyQt5 framework to create a graphical user interface (GUI) where users can input the temperature, mass, and volume of the submarine. The ballast calculation accounts for the density of water, which varies with temperature according to an empirical formula. The core functionality of the application involves computing the water density at the given temperature and determining the ballast mass needed to balance the submarine's weight with the buoyant force. Additionally, the application plots a graph displaying the relationship between ballast and temperature, allowing users to visualize how the required ballast changes with temperature fluctuations. The calculated results, including water density, ballast mass, and ballast volume, are displayed in the GUI. The developed application provides a user-friendly tool for submarine operators to accurately calculate the required ballast for achieving neutral buoyancy under varying temperature conditions. The integration of graphical visualization enhances the understanding of the temperature-ballast relationship,*

enabling informed decision-making for safe and efficient submarine operations.

VII. SECTION: FUNDAMENTAL SCIENCES

Section Committee:
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Lecturer Cristina TUDOR, PhD
Stud. Andreea NEAGU
Stud. Bianca ENE
Stud. Eduard ȘTEFAN
Stud. Valentin MISIUC
Room: E121

1. (ID 7) Application and Strategic Importance of Medical Education in the Army

Author: stud. Yoanna GABROVSKA
Institution: "Nikola Vaptsarov" Naval Academy

Abstract: *The application of medical kits in the army, designed specifically to meet the demands for quick and efficient aid is a factor of extreme importance for the welfare of the soldiers and officers. As proven by historical data, the lack of first aid and low supply of analgesics is a problem during combat operations, as the outcome is greatly dependent on their availability. The basic medical education in military personnel is another challenge that must be overcome, as self-assistance is crucial in the heat of a battle. What is an easily preventable injury or untimely death can be averted with simple knowledge, as life support and limb-saving techniques to help the wounded and the injured can significantly increase the chance of survival until medical help is available. The US Army has developed modern and more proficient training programs for tactical combat casualties, the most recent ones already implemented throughout the*

Defense Department. By following some examples of their programs, this study conducted among doctors and military personnel of the Bulgarian Naval Academy aims to highlight the importance of proper pre-hospital care and first aid from non-medical staff by introducing ideas for renovating the current self-help and buddy-aid programs.
Keywords: *self-help, medical aid, military history, modernization, combat, casualties*

2. (ID 9) Measures to Combat Accidental Pollution in Port of Constanta
Authors: stud. Alexia-Mădălina IOSIF, stud. Georgiana-Raluca SOARE, stud. Andreea-Iuliana GRIGORESCU
Scientific Advisor: Lecturer Eng. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In our presentation we will talk about how sea water can be polluted in Port of Constanta. Chemically speaking, this can have several changes that we should see and above all prevent. We will talk about how these changes can be stopped.*
Keywords: *pollution, harbour, chemicals*

3. (ID 14) Importance of Atmosphere Analysis in Confined Spaces of Military Ships
Authors: stud. Andreea TOMA, stud. Gabriela GROSU, stud. Eduard ȘTEFAN
Scientific Advisor: Lecturer Eng. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Analysis of the atmosphere in the confined spaces of military vessels is essential to maintain a safe working environment and to ensure the efficient operation of equipment and systems. This analysis is crucial for crew safety, the operability of electronic and weapon systems, fire prevention, and effective confined space management. Military ships play a vital role in projecting power and maintaining security in strategic areas of the globe, and analysis of the atmosphere in the enclosed spaces of these ships is becoming an essential element in achieving this goal. By constantly monitoring air quality and implementing appropriate preventive measures, it is ensured that the crew can operate in safe and healthy conditions, thus maximizing the operational efficiency and durability of the*

technological systems. Atmospheric analysis is not just a technical measure, but a vital component of modern maritime operations, having a direct impact on the success and safety of naval operations.
Keywords: *Safe working, atmosphere analysis, military ships, naval operations*

4. (ID 20) Black Sea Pollution
Authors: stud. Mircea APOSTOL, stud. Mihai MITROI
Scientific Advisor: Lecturer Eng. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Black Sea Pollution*
Keywords: *Polure*

5. (ID 21) Logic Bomb
Author: stud. Daria-Mihaela FLORIȘTEAN
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *LOGIC BOMB Cybersecurity refers to protecting computer systems and networks from cyber threats. It includes security measures to prevent unauthorized access, protect personal data, and avoid cyber-attacks. A logic bomb is a piece of malicious code that is secretly introduced into a computer network, operating system, or software application. It remains dormant until a certain condition is met. When this condition is fulfilled, the logic bomb is triggered, causing damage to a system by corrupting data, deleting files, or wiping hard drives. Logic bombs are cunning and can cause serious harm. By taking necessary precautions, you can easily avoid them, along with other malware threats. These prevention strategies can keep you and your devices safe: Use trusted antivirus software. Do not download anything you do not know or trust. Perform regular system updates. Logic bombs have caused damage to major companies both in Europe and America. A study over the last 3-5 years shows that most attacks have been motivated by hatred, revenge, or for financial gain. For example, in 2019, David Tinley, a contracted employee, pleaded guilty to programming logic bombs into the software he created for Siemens Corporation. The software was intentionally designed to malfunction after a certain period, requiring the company to hire him to fix it for a fee. The logic bombs*

remained undetected for two years but were discovered when he was out of town and was forced to provide the administrative password for his software. Finally, I'd like to highlight the fact that the logic bomb represents a serious threat to the security of information systems, with the potential to cause significant damage when activated under certain conditions. It is essential to take appropriate protective measures to prevent and detect these threats, thus ensuring the integrity and security of data and the information system.
Keywords: *logic, bomb, attacks, cybersecurity*

6. (ID 22) Zero Trust
Author: stud. George-Cosmin MARAVELA
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cybersecurity is a growing concern in the digital age, and Zero Trust is a security model that addresses this issue. This model focuses on the authentication, authorization, and constant verification of any user or device trying to access the resources under its protection. Zero Trust was popularized by Forrester Research in 2010 and has become a fundamental approach to cybersecurity. Zero Trust brings several advantages, including greater security, protection against internal threats, flexibility and scalability, continuous monitoring, limiting the impact of attacks and easier compliance. However, implementing Zero Trust can be complex and costly, and users may have difficulty managing identities and adapting to existing technologies. A Case Study of Company X shows that implementing Zero Trust can bring remarkable results, such as decreasing security incidents and increasing employee awareness. In conclusion, the implementation of the Zero Trust at Company X has led to a significant reduction in security breaches and an increase in employee awareness of cyber risks. This proactive and granular approach to security has strengthened the cybersecurity culture in the organization and strengthened the resilience of the company in the face of digital threats.*
Keywords: *Zero trust, low risk, awarness*

7. (ID 23) Hardware Hacking

Authors: stud. Alexandru-Marian BARBU, stud. Bogdan-Cristian HANU, stud. Hakan FUCIGI-MEMEDALI
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity is about keeping digital information safe from unauthorized access and cyber threats. It involves various types like network and endpoint security, working together to protect data integrity and ensure system availability. Hardware hacking explores tinkering with electronic devices to uncover hidden features or enhance performance. In the cybersecurity world, aspects like confidentiality, integrity, and availability are crucial. Malware, or harmful software, poses a threat, with various types targeting data and device security. Understanding these threats helps implement effective protection measures. The chapter on hacking distinguishes between ethical hacking, done legally to test security, and unethical hacking, which involves illegal actions. Cybersecurity measures, such as encryption and firewalls, are vital for defense. In hardware hacking, techniques like modifications and emulation showcase creative exploration of electronic devices. While it offers innovation opportunities, ethical and legal concerns must be considered for responsible practices. Concluding, the dynamic fields of cybersecurity and hardware hacking intersect at the nexus of technology and security. As these areas evolve, balancing exploration with ethical and legal considerations is essential for constructive progress in this ever-changing landscape.*

Keywords: *Cybersecurity, hacking, hardware hacking*

8. (ID 24) Zero-Days in Cybersecurity

Author: stud. Maria-Alexandra POP
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity (IT security) is the area in which it aims to protect information systems, networks and data against unauthorized access, cyberattacks and other digital threats. Zero days (known as 0-days) is a vulnerability or software hole in a computer system, previously unknown and unresolvable to the developer/software user. The attacker/Exploit uses the created hole, it is also called zero-days*

exploit or zero-days attack. Zero days is based on two things: a vulnerability or an exploit. Developers/users are not aware of the existence of a buoyancy until the attackers exploit it. Until the development of a patch to fix the problem/hole exploited can take days or even months, therefore attackers are free to execute zero-days attacks. The vulnerability is not known to the public, although it is known to the attackers who exploit it. There is no way to recognize holes/vulnerabilities by software users and even antivirus programs. Attackers use an exploit code that creeps through the hole in the software to plant a virus or other malware on a computer or device. A significant problem is related to ordinary platform users, as they are not in a hurry to install new patches released by developers to remedy threats coming from platform vulnerabilities. Wherefore, zero-days are a significant challenge for cybersecurity, highlighting the need for proactive approach and continuous investment in innovation and education to protect users and organizations against cyber threats.

Keywords: *zero-days, cyber, exploit, patch*

9. (ID 25) Backdoor

Author: stud. Ioana-Alexandra BUZDUGAN
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *The paper examines the impact of cybersecurity on information systems, with a focus on safeguarding them against unauthorized access and malware attacks. Cybersecurity is a field dedicated to protecting information systems, networks, software and data against unauthorized access, damage or unintentional changes and involves knowledge in protecting computer resources. The study highlights the main purpose of cybersecurity, which is to ensure the integrity, confidentiality, and availability of digital data and resources in the face of various cybersecurity risks. Malware, also known as "malicious software", it is a program created with the intention of infecting the computer of a specific user and causing damage in various ways. It explores the types of malwares used by cybercriminals and pays special attention to backdoor attacks; hidden tools used to access remote systems without authentication. In the study, notions about backdoor are defined, ways to prevent these*

attacks are proposed, methods of spreading are examined, statistics on the rate of attacks are analyzed and the risks associated with the systems accessed by this method are highlighted. The study concludes with the development of effective cybersecurity strategies, adapted to technological developments, to ensure the resilience of information systems in the face of current cyber threats.
Keywords: *cybersecurity, malware, backdoor, attacks, information*

10. (ID 27) Nowadays Deep Web Challenges
Author: stud. Ionut-Nicușor STANCIU
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Cybersecurity encompasses various sectors such as network security, application security, information security, endpoint security, cloud security, identity and access management, security operations, and risk management. These sectors work together to protect systems, networks and data from digital attacks in order to ensure the confidentiality, integrity, and availability of information in our digital realm. This paper underlines the role of Cybersecurity as a critical defense mechanism against digital threats, including those lurking within the deep web's shadowy corners aiming to protect computer systems, networks and data from unauthorized access, ensuring confidentiality, integrity and availability. The Deep Web chapter, an organic expansion of the internet, comprises unindexed content beyond conventional search engines, serving different purposes such as privacy, academic research, restricted access and unfortunately, illegal activities. The Browser tools, instruments of the Deep Web, offers unparalleled privacy and hides user information and search history while the Dark Web, a hidden part of the Deep Web, facilitates encrypted communication and illicit transactions, predominantly in Bitcoin. The study emphasizes the Deep Web varied content, the harbors notorious markets like The Silk Road, illustrating its darker facets and legal implications. Nowadays digital landscape involves crucial element against a spectrum of digital threats in order to ensure the CIA Triade through an detailed fusion of technologies and strategies. Operating across sectors such as network security, application security, and identity management, cybersecurity evolves to counter the ever-changing cyber landscape,*

fortifying our digital domain while addressing the challenges posed by the Deep and Dark Web.

Keywords: *deep web, dark web, silk road, illegal market, hidden information, tor browser, hackers*

11. (ID 28) Cyber Defence Precision through Proactive Penetration Testing

Author: stud. Ovidiu-Andrei BOALCĂ
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cyber Defence Precision through Proactive Penetration Testing In this paper, we debate the role of Cybersecurity as a multifaceted discipline, aiming, preventing and mitigating the impact of cyberattacks, ranging from basic viruses to complex ransomware assaults. It encompasses protection across systems, applications, devices, and confidential information, impacting both individuals and organizations. With the ever-evolving landscape of cyber threats, cybersecurity plays a critical role in safeguarding digital assets, maintaining operational continuity, and preserving the integrity of computer systems. Security Operations spotlights incident management, digital forensics, and intrusion detection, ensuring asset security, logging events, and analyzing security incidents. Software Development Security addresses security implementation in software systems, including hazard assessment and vulnerability identification in source code. Penetration testing known as pen testing is a systematic process aimed at assessing the vulnerability landscape of a program to potential threats, involving the evaluation of various aspects such as network services, applications, client-side functionalities, wireless setups, and social engineering tactics. These assessments can be conducted internally or externally to simulate real-world attack scenarios being crucial in identifying vulnerabilities within an organization's infrastructure and applications, mirroring tactics used by malicious entities. By uncovering weaknesses, organizations can proactively fortify their security posture, protecting sensitive information and mitigating potential consequences like data breaches and brand damage. Penetration testing services provide organizations with proactive defense mechanisms against evolving threats through identifying,*

assessing and mitigating vulnerabilities during simulated attacks, these services help organizations strengthen their cybersecurity strategies and safeguard sensitive information effectively where each type of penetration testing involves distinct methodologies, objectives, and scopes to address specific security concerns effectively. In the realm of penetration testing, different types of testers bring unique perspectives and approaches to security assessments. Ethical cybersecurity experts committed to discovering and rectifying vulnerabilities lawfully, contributing invaluable insights to the cybersecurity ecosystem are known as White Hats while Black Hats are engaging in hacking endeavors with malicious motives, operating beyond legal and ethical norms for personal gain or other motives. Finally, the Grey Hats operate in an ethical grey area, engaging in activities that may be considered unethical or unauthorized but without malicious intent, often prompting fixes for discovered vulnerabilities. In summary, the adoption of penetration testing services for organizations served as a proactive strategy in order to identify, assess, and mitigate vulnerabilities. This approach not only safeguards against potential threats but also ensures resilience in the face of the ever-evolving cyber landscape.

Keywords: *Cybersecurity, Penetration testing, White Hat, Black Hat, Grey Hat, vulnerabilities*

12. (ID 29) Cryptography, a Timeless Provocation

Author: stud. Dragoș-Gabriel COTORA
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity and cryptography play pivotal roles in safeguarding digital information and communication systems from malicious threats in the interconnected landscape of the modern world, focusing on protection computers, networks, and data from unauthorized access, attacks, and damage, while cryptography serves as a fundamental tool within this realm. Cryptography, the art and science of secure communication, has emerged as a cornerstone in the realm of information security. This paper delves into the multifaceted world of cryptography, exploring its historical evolution, fundamental principles, and contemporary applications. From ancient techniques like substitution ciphers to modern*

asymmetric key algorithms, cryptography has evolved to address the dynamic challenges posed by cyber threats. The study examines the essential components of cryptographic systems, such as encryption algorithms, key management, and cryptographic protocols, highlighting their role in ensuring confidentiality, integrity, and authenticity of data. As society becomes increasingly reliant on digital communication, cryptography's significance in protecting sensitive information, securing transactions, and preserving privacy has become more pronounced. The chapter Quantum cryptography, an avant-garde branch of quantum information science, harnesses the principles of quantum mechanics to revolutionize secure communication, leveraging the unique properties of quantum particles, such as superposition and entanglement, to establish secure communication channels immune to classical eavesdropping methods. The case study delves into quantum key distribution (QKD), a cornerstone of quantum cryptography, elucidating how it enables the creation of cryptographic keys with unprecedented security, relying on the inherent properties of quantum systems. While quantum cryptography holds promise for unbreakable encryption, the paper also addresses the challenges and ongoing developments in implementing practical quantum communication networks. As quantum technologies continue to advance, quantum cryptography emerges as a beacon of hope in the pursuit of fundamentally secure communication systems for the future. Quantum cryptography and classical cryptography take different approaches to securing information. A comparison between classical and quantum cryptography are made, first based on the generation of keys using mathematical algorithms and security, linked to the complexity of the mathematical problems in contrast with quantum cryptography which exploits the principles of quantum mechanics and uses functions such as superposition and entanglement for key generation and distribution. Its security is theoretically unbreakable and is based on the laws of physics rather than mathematical complexity. Quantum systems offer the advantage that eavesdropping attempts are immediately detected due to the inherent interference caused by the act of measurement or interception. In conclusion, cryptographic research has proven to play an essential role in securing information and communications in an increasingly interconnected digital world.

Keywords: *cybersecurity, Cryptography, quantum Cryptography*

13. (ID 31) DarkHotel Challenges

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

Abstract: *DarkHotel Challenges Abstract Starting with the appearance of computers and their further development, the idea of online security became more and more important where the IT specialists had to think about a series of countermeasures against online threats, in order to make the internet a safer place for users. This is when terms, such as "cybersecurity", "social engineering", "phishing", started being used. In this paper, Cybersecurity plays an important role through the measures that are being taken in order to eliminate potential threats within the online environment in regards to national and international law. It is a field that is not limited at all. Hackers, the individuals that know everything there is about busting in to any network or database, by means of viruses, come up with new ways to endanger the online field, which means new domain new threats. The chapter DarkHotel, emphasizes the idea of a name of an online espionage gang, operating in the shadows since 2007, which targets business people travelling in Asia. DarkHotel has been known in the security industry for compromising the networks of some of the most prestigious hotels in the Asia-Pacific region for over a decade. But what has helped the group defend that crown is its constant evolution. The threat group, which was given the name "Darkhotel" based on its preference for attacks against hotel Wi-Fi networks and the volume of targeted infections that occurred as business travelers were checking into their hotel rooms, was classified by Kaspersky Lab as an APT (Advanced Persistent Threat), posing a great danger for corporations and governmental organizations.*

Keywords: *cybersecurity, threat, hotel, network*

14. (ID 32) Cryptojacking Unmasked: Protecting Your Digital Wealth

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

Abstract: *Aiming to ensure the confidentiality, integrity and availability of information, the paper underline the importance of Cybersecurity domain in order to protect networks, devices, and data from unauthorized access. In today's interconnected world, it is vital due to the integration of computers and the internet into various aspects of daily life. The field encompasses diverse categories, addressing cyber threats like cybercrime, espionage, hacktivism, malware, phishing, and more. The chapter Cryptojacking, explain the malicious cryptomining and its hidden online threat, exploiting computer resources with the goal of mining cryptocurrency through web browser downloads or untrustworthy mobile applications, targeting various devices. Understanding cryptocurrencies is essential, as cryptojacking exploits devices without consent for clandestine cryptocurrency mining. The main motivation is financial gain, with operations designed to remain hidden, causes adverse effects on system performance and lifespan. Cryptojackers use various methods, including malware and drive-by cryptomining, to exploit computers. Preventive measures involve proactive implementation of security protocols, such as disabling JavaScript or using specialized programs like "No Coin" and "MinerBlock." According to the 2021 "Threat Landscape" report by ENISA, cryptojacking incidents have surged, targeting entities like the U.S. Defense Department and UK government sites. Recent attacks focus on host-based strategies, with increased sophistication targeting APIs, open-source code and cloud infrastructures where notable vulnerabilities include JavaScript package repositories and Log4Shell breaches. Given this, it can be concluded that cybersecurity is crucial for safeguarding digital assets, and understanding and countering cryptojacking threats are vital components of this evolving landscape.*
Keywords: *Cybersecurity, Cryptojacking, cryptomining, security, safeguarding*

15. (ID 33) Distributed Denial of service Attacks

Authors: stud. Andrei BĂTRÂNEANU, stud. Robert-Alexandru EVSEI, stud. Alexandru BAICU
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Cybersecurity is an ever-evolving field that plays a pivotal role in protecting digital assets, information, and systems from a myriad of threats in the interconnected world. This abstract delves into the multifaceted landscape of cybersecurity, encompassing its key principles, challenges, and emerging trends. The foundation of cybersecurity lies in the triad of confidentiality, integrity, and availability, which form the bedrock for safeguarding data and ensuring its rightful use. As technology advances, so do the tactics employed by cyber adversaries, ranging from sophisticated malware and ransomware to social engineering attacks. Addressing these challenges requires a comprehensive approach that combines advanced technologies, robust policies, and a vigilant human element. In recent years, the rise of artificial intelligence and machine learning has significantly impacted cybersecurity strategies. These technologies empower defenders to analyze vast datasets, detect anomalies, and respond swiftly to evolving threats. However, the same innovations also present new avenues for cybercriminals, underscoring the need for ongoing adaptation and innovation. Cybersecurity is paramount for safeguarding computer systems against malware and Distributed Denial of Service (DDoS) attacks. Essential solutions encompass antivirus software, firewalls, and intrusion detection systems. Key aspects include protecting personal data, cyber threat prevention, network and infrastructure security, data integrity conservation, and fostering cybersecurity education and awareness. The critical role of cybersecurity in countering malware threats and DDoS attacks is emphasized, acknowledging the substantial risks they pose to information systems' integrity and functionality.*
Keywords: *Cybersecurity, Malware, DDoS Attacks.*

16. (ID 34) Expanding Functions Past Their Domain of Definition
Authors: stud. Silviu-Andrei PAP, stud. Bianca SFARGHIU
Scientific Advisor: Prof. Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Every step of our lives, we are being constantly restrained by all kinds of limitations, be they of inner, due to lack of sufficient knowledge, or exterior origin, as a result of univeral laws of physics or society-imposed ones. In the realm of mathematics, however, given*

one abides to its broad laws, the only restraints are to be atributed to the former. In that sense, get ready to embark on a journey that ought to expand your horizon and transcend reality as you know it. Take factorials of reals, exponentiate to complex numbers, extend the logarithm function bellow zero and more!
Keywords: *Mathematics, exponentiate, logarithm, complex numbers*

17. (ID 43) Identifying Connected Circular Elements in An Undirected Graph
Authors: stud. Filip-Marian ARHIRE, stud. Armand-Constantin BEIU, stud. Marcus JIPA
Scientific Advisor: Lecturer Paul VASILIU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Our project highlights a practical and efficient solution for identifying and extracting all cyclic components from an undirected graph. This is achieved through a program developed in the Dart programming language, focusing on performance and code readability. Furthermore, we have integrated this functionality into an Android mobile interface, enhancing the usability and accessibility of the application for users.*
Keywords: *Graph theory, Graph traversal, Cycle detection algorithms, Circular paths, Undirected graph*

18. (ID 46) RootReveal: Navigating the Depths of Cybersecurity Shadows
Author: stud. Alexandra-Ștefania ZAHARIA
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In our contemporary digital era, the centrality of information security has become increasingly pronounced, given the ubiquitous integration of technology into our daily lives. This paper seeks to explore the multifaceted landscape of cybersecurity, with a specific emphasis on unraveling the intricate tactics employed by rootkits a persistent and evolving threat that employs sophisticated techniques to infiltrate computer systems. As technology permeates various facets of society, the escalating risk of cyber threats, including but not limited to data breaches and identity theft, underscores the urgent need for robust cybersecurity measures. In*

this context, the study delves into the intricate subdomain of rootkits, shedding light on their sophisticated methods of breaching systems and establishing persistent footholds. These rootkits, categorized under malware, pose significant risks such as unauthorized access and the compromise of sensitive data. One of the challenges in combatting the menace of rootkits lies in the legal domain, where the complexity of these threats makes it difficult to enact effective legislation. This creates an opportune environment for profit-driven hackers who exploit the concealment capabilities of rootkits to harbor and deploy dangerous software without easy detection. Addressing rootkit threats necessitates a comprehensive reevaluation of how we approach networked computing. Implementing techniques such as adjusting permission levels becomes imperative in fortifying systems against these insidious intrusions. However, this proactive stance introduces its own set of challenges, as the integration of new security methods may inadvertently create complexities and vulnerabilities that hackers can exploit. In conclusion, while technological breakthroughs remain pivotal in the ongoing battle against rootkit threats, finding a comprehensive and enduring solution proves to be a complex and multifaceted endeavor. The continual evolution of security measures must navigate the intricate landscape of potential weaknesses within security software, requiring a vigilant and adaptable approach to counter the ever-emerging challenges in the realm of cybersecurity.
Keywords: *cybersecurity, malware, rootkit*

19. (ID 51) Computer Virus in Cybersecurity
Authors: stud. Denisa-Ștefania CHIRIAC, stud. Alina-Lorena COMĂNESE, stud. Maria VOLOȘENIUC
Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In today's interconnected world, where technology governs every aspect of our lives, the need for robust and comprehensive cybersecurity measures has become paramount. Cybersecurity covers how to defend devices and services from electronic attacks by unfortunate actors such as hackers, spammers and cybercriminals. The computer virus, a program that installs itself, without the will of the user, causes damage to both the operating system and the*

(physical) hardware of the computer. This theme deals extensively with the emergence of viruses in computers, which are a problem of general interest, affecting the vast majority of the population using the technology. In the first part of the paper, we look at transmission modes, detection methods, as well as some essential features to better understand how these evil digital entities work. Then we will investigate the impact that viruses have on computer systems through some statistics. It can be concluded that viruses are able to affect and modify legal system files, running in parallel with infiltrated applications. They have been a real problem since the moment of their appearance and continue to cause various distortions even today.

Keywords: *cybersecurity, electornic attacks, operating system*

20. (ID 97) Coordinates and Their Applications

Author: stud. Mihnea-Stefan POPA
Scientific Advisor: Assoc. Prof. Anda OLTEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation delves into the fundamental concepts of coordinate systems and their applications in understanding antenna radiation patterns. Beginning with Cartesian coordinates in two and three dimensions, the discussion transitions to polar and cylindrical polar coordinates, exploring their significance in describing points in a plane and space. From the simplicity of Cartesian systems to the versatility of polar coordinates, each system offers unique advantages for spatial analysis. Through this exploration of coordinate systems and their connection to antenna radiation patterns, the presentation aims to provide a foundational understanding for engineers, scientists, and enthusiasts alike. Whether analyzing fluid dynamics, designing waveguides, or optimizing antenna performance, a solid grasp of coordinate systems proves invaluable.*

Keywords: *Cartesian coordinates, Polar coordinates, Antenna radiation patterns*

21. (ID 112) The Role of Mathematics in Technological Progress and Cybersecurity

Author: stud. Alexandru FÎNTÎNĂ

Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *The mathematic science has a big impact on different innovative domains like IT or cybersecurity. Firstly, the evolution of digital systems has done by Alan Turing who set the stage for modern cryptography by his contributions to computational theory and code-breaking during World War II. Secondly, mathematics serves as the base of modern cryptography, pivotal in safeguarding IT systems and data. It facilitates the development of encryption algorithms, secure protocols such as TLS/SSL, digital signatures, and key management systems. Additionally, mathematical techniques play a critical role in cryptanalysis, into the identification and mitigation of system vulnerabilities. In the same way, science of numbers improves technology which enables global connectivity, facilitating communication and collaboration across borders. Also, it promotes cultural exchange between different nations. To sum up, mathematics is the most important part for IT industry and for increasing the word's security by making more advanced all the areas of life.*
Keywords: *Cryptography, pivotal IT, safeguarding IT systems, TLS/SSL, code-breaking, computational theory*

22. (ID 146) Software Solution for Training Employees on Cybersecurity on Commercial Ships
Author: stud. Andi Ionel ANTOHI
Scientific Advisor: Assoc. Prof. Andrei BĂUTU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *In this project, I will address the training and evaluation activities of the crew of commercial ships for cybersecurity norms. I will analyze where the training takes place and what are the necessary steps and costs, as well as the regulations in force.*
Keywords: *training and evaluation activities, cybersecurity, advantages and disadvantages, risks*

23. (ID 160) Cold Ironing Tehnology Impact
Author: stud. Bianca-Elena IONESCU
Scientific Advisor: Assoc. Prof. Eng. Elena-Rita AVRAM, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *COLD IRONING tehnology is a new concept that supplies electricity from the shore of a berthed vessel while its main and auxiliary engines are turned off. The implementation of this tehnology in Port of Constanta also brings benefits such as reducing the noise level, reducing harmful carbon dioxide emissions both in the port area and in the comercial area, reducing vibrations for more comfortable conditions for carrying out port activities in optimal conditions, additional energy creates opportunities for local balancing of electricity networks. The source mmay be grid power grom an electric utility company, but also possibly an external remote generator. These generators may be powerd by diesel or renewable energy sources such as wind, water or solar.*
Keywords: *cold ironing, engine, vessel, electricity, shore, wind, source, networks*

24. (ID 186) Chaos in Weather Patterns

Authors: stud. Antonia-Ramona MÎȘU, stud. Alexandra-Maria LAZU, stud. Cristian-Alexandru COBZARIU
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Chaos in weather patterns paints a vivid portrait of Earth's ever-changing climate. Delving into this complexity through the lens of mathematics, we uncover the mysteries of weather dynamics and forecasting challenges. Exploring chaotic behavior in weather systems unveils a realm of mathematical models capturing nonlinear interactions between atmospheric components. These models, powered by complex algorithms, simulate feedback loops and emergent patterns, revealing the intricate dance of weather phenomena. Yet, forecasting remains a delicate balance, navigating uncertainty and the sensitivity of initial conditions. While computational strides enhance short-term predictions, the enduring complexity of climate dynamics poses long-term forecasting challenges. Understanding chaos is paramount for deciphering climate change trends and informing proactive policy decisions. Therefore, understanding the nature of chaos enhances climate science by enabling humans to predict and adjust to the dynamic cycles of the Earth's climate.*

Keywords: *chaos, weather patterns, mathematics, algorithms, climate dynamics*

25. (ID 188) Optimizing Fuel Consumption
Author: stud. Stefan-Alexandru ROSU
Scientific Advisor: Scientific Researcher3 Radu MANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Optimizing fuel consumption in the naval industry by introducing air lubrication systems is an innovative and ecological strategy. This type of technology works on the principle of supplying air to the lower part of the ship's hull, with the aim of producing a layer of air bubbles that it would help reduce friction between the ship's hull and the water. This creates a uniform and controllable layer of air over the entire keel of the vessel, which is the best configuration for reducing friction between the hull and the water. The proven drag reduction means less propulsion power required, lower costs, less fuel consumed, and also less carbon dioxide emitted into the atmosphere.*
Keywords: *fuel consumption, less carbon dioxide emitted, air lubrication*

26. (ID 248) Harmony in Numbers and Notes: The Interplay of Mathematics and Music
Authors: stud. Antonia-Ramona MÎȘU, stud. Alexandra-Maria LAZU
Scientific Advisor: Prof. Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *Mathematics and music are two closely related domains, manifesting deep connections that transcend their separate appearances. From rhythmic and harmonic structures to abstract concepts such as proportion and symmetry, these two disciplines have traveled together through history. Ancient civilizations, such as the Babylonians and Greeks, were among the first to explore their intersection. Pythagoras and other famous mathematicians made essential contributions, developing ideas about proportions and musical harmonies. Today, mathematical structures are deeply incorporated into music, from notation to music theory, grounded in principles such as frequency and duration. Contemporary*

innovations, such as electronic music composition and spectral analysis, further extend these connections, opening new horizons in the exploration and understanding of both domains. In summary, the blending of mathematics and music represents a sophisticated merging of reason and emotion, logic and creativity. This connection serves as a source of inspiration for both mathematicians and musicians.

Keywords: *music theory, mathematics, innovation*

27. (ID 261) Conic Sections: Applications in Daily Life in Algebra, Analytical and Differential Geometry.

Authors: stud. Antonia DANCA, stud. Anissia Nicole MANGU, stud. Alexandra MICU
Scientific Advisor: Lecturer Eleonora RĂPEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This presentation aims to showcase the pervasive presence of conic sections in our everyday experiences, from the objects we encounter to the technologies we rely on and the structures that shape our environments. Through concrete examples and illustrations, it highlights the importance of conics in various aspects of life and invites appreciation for their role in both the mundane and the extraordinary.*

Keywords: *conic sections, daily life, mathematics*

28. (ID 266) Mathematics in Artificial Intelligence: Unveiling the Core Fundation

Authors: stud. Antonia DANCA, stud. Anissia Nicole MANGU
Scientific Advisor: Prof. Dan LASCU, PhD Habil.
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *This project aims to showcase how Artificial Intelligence has emerged as a transformative force reshaping industry, societies, and our daily lives. At the core of AI lies mathematics, providing the theoretical foundations and practical tools necessary for developing intelligent systems. This presentation explores the intricate relationship between mathematics and AI, unveiling how mathematical concepts and techniques underpin the capabilities of AI algorithms.*

Keywords: *artificial intelligence, mathematics, intelligent systems*

29. (ID 280) Innovations in Fraud Detection and Prevention Using Artificial Intelligence

Authors: stud. Maria-Cornelia SĂRARU, stud. Valentin MUNTEAN
Scientific Advisor: Col. Prof. Marilena MOROȘAN, PhD
Institution: National Defense University "Carol I" of Bucharest

Abstract: *The swift evolution of contemporary society, along with globalization and technological advancements, has fundamentally transformed the landscape of global, regional, and national security. With the increasingly pronounced integration of artificial intelligence into all aspects of our lives, the need for constant adaptation of specific structures and activities becomes increasingly evident. Continuous transformation has become essential to ensure that society is prepared to respond to the new challenges and threats posed by the current environment, characterized by rapid and complex changes. Through this research, we aim to make a significant contribution to understanding and managing the risks and opportunities associated with the integration of artificial intelligence into the security domain. By investigating these aspects, we hope to provide new perspectives and innovative solutions to address the increasingly complex challenges of contemporary security.*

Keywords: *innovative perspectives, artificial intelligence, evolution, security, integrations*

30. (ID 332) Treatment of waste water from ships

Authors: stud. Robert BOCA, stud. Maria-Ioana GHEORGHE, stud. Theodor-Gabriel CREȚU
Scientific Advisor: Lecturer Eng. Chim. Cristina-Andreea TUDOR, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *Treatment of waste water from ships*

31. (ID 359) Signal Reconstruction Using Groebner Bases

Author: stud. Andreea-Georgiana RADU
Scientific Advisor: Assoc. Prof. Anda Georgiana OLTEANU, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta

Abstract: *We present a new method for signal reconstruction from multiple sets of samples with unknown offsets. We rewrite the*

reconstruction problem as a set of polynomial equations in the unknown signal parameters and the offsets between the sets of samples. Then, we construct a Grobner basis for the corre-¨sponding affine variety. The signal parameters can then easily be derived from this Grobner basis. This provides us with an elegant solution method for the initial nonlinear problem.
Keywords: *Groebner bases, signal reconstruction*

32. (ID 193) Logistic Management During the Blockage of the Ever-Given Vessel in the Suez Canal
Authors: stud. Andrei VITALIA, stud. Alin VLAD, stud. Alin LUPU
Scientific Advisor: Col. Prof. Marilena MOROȘAN, PhD
Institution: National Defense University "Carol I" of Bucharest
Abstract: *The grounding of the container ship Ever Given in the Suez Canal from March 23 to March 29, 2021, was an unprecedented event with significant and long-lasting consequences for global supply chains. This study analyzes in detail the impact of the incident on logistics management, providing a comprehensive overview of the strategies adopted by companies to mitigate disruptions and maintain their operations.*
Keywords: *container ship, Suez Canal, unprecedented event, logistics management, strategies adopted.*

VIII. SECTION: FOREIGN LANGUAGES

Section Committee:
French:
Assoc. prof. Laura CIZER, PhD
Lecturer Camelia ALIBEC, PhD
Stud. David MANOLESCU
Stud. Ramona PETREA
Stud. Maria VOLOȘENIUC
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Lecturer Dana ZECHIA, PhD
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Lecturer Edith KAITER, PhD
Stud. Valentina GRECU
Stud. Larisa GRECU
Stud. Rareș VASILE
Stud. Iaris MORARU
Room: LPA5

1. (ID 2) Winston Churchill – A Triumphant Journey from Childhood to World Leadership

Authors: stud. Denis-Ionut-Catalin CHIRITA, stud. Valentin Daniel SMEIANU
Scientific Advisor: Assoc. Prof. Brandusa-Oana NICULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *The political context of the last century brought to the surface many important personalities who shaped the world as we know it today, such as Franklin D. Roosevelt, Charles de Gaulle and Harry S. Truman. Amongst these great giants a "British bulldog" stands out with his achievements. Winston Churchill was a major figure in history who had many military and political successes. A freedom fighter, Winston Churchill earned his prestige during the Second World War, taking part in all the important events of the 1940s. The British Bulldog fought bitterly against a major problem: the freedom of the ordinary citizen which was threatened by the state*

which was beginning to encroach more and more into the private life of the ordinary man who had no possibility to defend themselves. In the last years of his life, he experienced a decline in both his political career and his health, being far from the man he once was, but this did not affect his legacy, that of a strong, principled man, in front of whom no one had a word to say. This paper aims to present some details about Churchill's life and political ascension, his leadership skills, and post-war global legacy.

Keywords: *prime minister, political career, leadership skills, global legacy*

2. (ID 3) Rosa Parks: The Quiet Courage that Ignited a Civil Rights Revolution

Authors: stud. Iustin Mihai ACATRINEI, stud. Marian Ovidiu DUTESCU
Scientific Advisor: Assoc. Prof. Brânduşa-Oana NICULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu

Abstract: *The year 1955 experienced a large-scale civil rights mobilization which was led by the malcontented African American citizens of the USA despite The Jim Crow Laws, also known as "separate but equal" rule, that were adopted and implemented especially in the southern side of the country where 77% of the total African Americans population was located. This racial categorization that had its roots all the way back from 1896 was challenged when a woman who belonged to the ethnic minorities named Rosa Parks refused to yield her bus seat to a white man, an action for which she would be later punished by the police officers with a 10$ fine, plus other 4$ court fees. This was the last straw for the ethnic minority population that had been oppressed over the years. As a result, on December 5, 1955, Montgomery Bus Boycott began. The paper aims at describing the ever-changing American Society during the first minorities civil rights mobilization, the context which led to it and the effects of this phenomenon.*

Keywords: *Montgomery Bus Boycott, racial segregation, Jim Crow Laws, the Civil Rights Movement.*

3. (ID 5) The Green Berets – Spartans of Modern Warfare

Authors: stud. Florian Gheorghe POPA, stud. Dennis Nicolae ANTONIE
Scientific Advisor: Assoc. Prof. Brandusa-Oana NICULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu

Abstract: *The continuous challenge of warfare has consistently posed a problem to society, while the military, having always required highly trained elite units, has undergone a permanent transformation. The U.S. Special Forces have had a significant impact on the nature of warfare by introducing unconventional tactics, adaptability and flexibility, being able to perform highly precision missions in the most intense weather and environmental conditions, while managing high levels of physical and mental stress. Some of these American warriors are the Green Berets. That is a pure example of dedication, sacrifice, and resilience that a person must have to receive the green beret. Ever-since their existence, the Green Berets have been tasked with high-risk types of missions: unconventional warfare, counterterrorism, counterinsurgency, special reconnaissance, and direct action. The legacy of the Green Berets is defined by excellence, where their unwavering commitment to elite training and versatile expertise has left an indelible mark on military history. This paper aims to emphasize the big role played by the Green Berets in the American military history, while maintaining America's security to a high level, and contributing significantly to international efforts in maintaining global stability.*

Keywords: *Green Berets, Special Forces, Elite Units, Warfare*

4. (ID 6) Vikings in "The New World": Navigating Myths and Realities in The Usa and England

Authors: stud. Gabriel BACTER, stud. Dumitru Eduard MIHALACHE
Scientific Advisor: Assoc. Prof. Brandusa-Oana NICULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu

Abstract: *The Vikings are well-known for their adventures and their free spirit that led them in numerous expeditions across the sea. At the beginning, the Vikings took their military campaigns very close to their home because they were farmers, and the love of land was something too precious for them. As time passed, Viking began to sail*

their great ships to new locations such as England and even America, as it can be seen provided by the evidence found in the Northern part. Furthermore, some myths about the legendary journey of Leif Erikson are very popular among Viking supporters. More than that, the Viking invasions in the English countries made such a big impact that until nowadays it is possible to see the big cultural effect after 11th centuries. Not only that they had plunder England, but they even managed to settle in some parts of the land, having an agreement with the local king, King Alfred. Because the soil was very rich, they managed to build some wealthy and strong Viking regions and became familiar with their new neighbours. This paper aims to present the historical reality of the brave warriors, the unknown truth about their impact on modern society and to bust some myths.
Keywords: *the Vikings, England, America, ships, myths, and realities*

5. (ID 8) The War in Afghanistan: Unraveling the Complex Web of the Usa's Involvement
Authors: stud. Adrian GAITANARU, stud. David GHITA
Scientific Advisor: Assoc. Prof. Brandusa-Oana NICULESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *This paper explores the war in Afghanistan, focusing on its geopolitical dynamics, social and cultural impacts, and economic consequences. It traces the conflict's origins from the 9/11 attacks to subsequent the USA intervention and the start of the Global War on Terror, examining evolving alliances with neighboring nations. Addressing the social aspects, the study illuminates cultural shifts within Afghanistan, emphasizing changes in the cultural landscape influenced by the American military presence. Simultaneously, it assesses the economic aftermath, examining the impact on Afghanistan's economy, natural resource utilization, and persistent challenges such as opium production. This paper aims to offer a comprehensive understanding of the diverse effects of the war in Afghanistan on its politics, society, and economic sector.*
Keywords: *American intervention, cultural changes, nation-building, economic challenges, democracy*.

6. (ID 15) Epic Riffs & Neon Dreams: Decoding the 80s Revolution

Author: stud. Lavinia-Irina BLĂJUȚ
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *This project embarks on a journey through the captivating world of 1980s music, a decade marked by a wide range of genres, technological innovations, and cultural shifts that have a lasting impact on listeners even today. Employing a multidisciplinary approach drawing from musicology, cultural studies, and technological analysis, this study seeks to examine the long-lasting impact of 1980s music on the musical landscape as well as its profound social influence. From the catchy tunes of synth-pop to the raw energy of punk rock and the pulsating rhythms of new wave, the 1980s heralded an era of artistic exploration and boundary-pushing innovation that reshaped the contours of popular music. Furthermore, by delving into archival materials, dissecting pivotal musical works, and analyzing cultural phenomena like the rise of MTV and the ascendance of the music video, this project seeks to illuminate the cultural significance of 1980s music, tracing its evolutionary trajectory, dissecting its enduring allure, and honoring its vibrant legacy in both music and popular culture.*

Keywords: *Music, Artists, Cultural impact*

7. (ID 54) The Path to Living an Authentic Life. A Journey of Vulnerability and Self-Acceptance

Author: stud. Andrada CUCORANU
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *Acceptance is the ultimate key to living an authentic life. But it is so easy to lose oneself to other people's expectations that personal verity can seem out of grasp. Authenticity is about being our true self, acting, behaving, and feeling in ways that align with our values and internal states, irrespective of other people's approval. Not living authentically can impact our mental and physical well-being in the long term. The aim of this presentation is to raise awareness about the importance of living authentically, to pinpoint*

the many areas of one's life this can have an effect on, and to offer some guidelines on how to lead an authentic life.
Keywords: *authenticity, self-awareness, self-acceptance*

8. (ID 56) The Space Race - A Battle Between Ideologies
Authors: stud. Silviu-Andrei PAP, stud. Sebastian PARMAC
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *After the Second World War, tensions between the two great powers, the USA and USSR rise, as their ambition to prove their own political system becomes stronger than ever before. Thus, a cold war is born, giving birth to a fierce competition to prove one's technological superiority. The USA takes a lead in most fields, but the Russians seem to have put most of their faith in one domain, outside the bounds of this Earth...How will the West fare in this cruel competition, what new technologies will this arms battle create, and who will reign victorious? It started with the launch of the first artificial satellite, Sputnik, by the Soviet Union in 1957, which shocked the United States and led to an increased focus on science education and space research. This period of intense competition between the two superpowers resulted in unprecedented achievements in space technology and had a profound impact on science, politics, and society as a whole. The Space Race remains a significant part of human history and continues to inspire the next generation of space exploration.*
Keywords: *Cold War, Competition, Space Race, Artificial satellite, Sputnik, Space exploration*

9. (ID 58) Unveiling the Deep Mysteries of the Ocean
Author: stud. Andreea CIOBANU
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *About 70 percent of our planet is covered in water, but what we know about it barely scratches the surface. We have explored less than five percent of Earth's oceans. Beneath their swell, lies a largely unexplored universe, an alien world within our own. The surprising secrets of the deepest sea creatures are yet to be discovered, many of them being still unknown to us - both in kind and*

number. That is why, in this paper, we will try to unveil some of these mysterious creatures living in the deep sea, while stressing out the importance of protecting the oceans and our planet.
Keywords: *underwater, mysteries, unknown world, creatures*

10. (ID 59) The Enduring Legacy of Shackleton: Exploring the Relationship between Resilience and Leadership
Authors: stud. Monica Andreea TĂNASE, stud. Maria-Ramona ENACHE
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *In the Navy, resilient leadership calls for a captain embodying a unique blend of relentless determination, compelling resilience, and unwavering calm amidst turbulent seas. This necessitates a leader capable of plotting a course towards collective goals, inspiring and guiding the crew towards excellence, and navigating the ship through even the fiercest storms. Among such leaders stands Shackleton, whose courageous spirit and daring actions illuminated a path of hope for his crew, guiding them through adversity towards ultimate victory.*
Keywords: *Leadership, Navy, Resilience, Challenging situations, Adaptive State*

11. (ID 62) Humanistic Considerations on the Use of Human Enhancement (He) Technologies in the Military"
Author: stud. Mario-Rudi CURELET
Scientific Advisor: Gabriela MIHAILA-LICA
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *War is an awful cost to pay for the prospect of peace. However, each country has an ethical commitment to protect its citizens from unreasonable animosity and dangers to their security. There is no question that war continuously speaks to the disappointment of nations to communicate appearing common regard for the inborn respect of the human individual. The issue of the utilization of HE in the military is pertinent nowadays since the Worldwide War on Dread (GWOT) and the quick rise of developing innovations have driven to a never-before-seen sort of topsy-turvy fighting. The rise of these advances can debilitate the exceptional*

presence of the planet. In turn, the esteem that a country places on human respect in numerous ways is a gauge of what sorts of rights it will ensure to its citizens, which impacts their capacity to fulfill fundamental human needs and contribute to the common great. Military culture looks to instill ethics, such as boldness and equity, in troopers and to maintain specific military values, such as honor and magnanimous benefit. These excellencies and values can be debilitated if HE in the military are utilized for corrupt purposes. Paternalism, restraint, undue impact, and constrained independence are all components that can weaken the nobility of officers. However, these dangers can be overcome through an ethical system fundamental to morally surveying the utilization of HE in the military.

Keywords: *War, technologies, human enhancement, paternalism, Military culture*

12. (ID 71) "Les Figures de Proue dans La Marine. Focus Sur Le Navire-École Mircea."

Author: stud. George-Petruț SANDU
Scientific Advisor: Associate Professor, Laura CIZER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *Cet ouvrage est né de la passion pours l'architecture du navire-école Mircea dont la figure de proue est la partie la plus importante de l'architecture et de l'histoire du navire, a figure de proue sont les premières à affronter les vagues et le contact avec la mer. On attache à cette figure de proue des qualités comme courage, endurance, force d'affronter les défis en concordance avec la personnalité du prince roumain dont ce navire porte le nom. L'ouvrage est structurel en trois parties. La première partie porte sur la figure de proue en général, la deuxième partie sera consacrée au navire-école Mircea et à ce que la figure de proue représente pour ce navire, et la dernière partie sera dédiée à la comparaison avec d'autres navires, au niveau des similitudes et des différences.*

Keywords: *figure de proue, navire-école, mer, marine, comparaison*

13. (ID 72) Mythes Celebres Sur Le Marins

Author: stud. Denis BARBIERU
Scientific Advisor: Associate Professor, Laura CIZER, PhD.

Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Les mythes marins sont des éléments fondamentaux de nombreuses cultures à travers le monde. Un mythe est un récit fabuleux de nature sacrée qui incarne la foi d'une nation. Les mythes présentés dans cet ouvrage reflètent les croyances populaires sur les marins, telles que: de gros buveurs et pas éduqués. Une autre croyance populaire est que tous les marins savent nager, sont tous des explorateurs et qu'ils rencontrent la piraterie partout où ils voyagent. Ces mythes sont souvent entrelacés avec des éléments de folklore et de superstition. Cet ouvrage se propose de verifier si ces mythes sont vrai ou faux.*
Keywords: *mythes, marins, folklore, superstitions*

14. (ID 83) The Study of Octopuses
Authors: stud. Octavian-Andrei BURTEA, stud. Alin Ionuț ENACHE
Scientific Advisor: Lecturer, Edith-Hilde KAITER, PhD.
Institution:"Mircea cel Bătrân" Naval Academy
Abstract: *The project explores the fascinating and complex world of octopuses, these mysterious and intelligent sea creatures. By investigating their unique anatomy, complex behavior and extraordinary environmental adaptations, the project reveals a detailed picture of their life and role in the marine ecosystems. The research focuses on examining the innovative modes of hunting and defense, camouflage and communication strategies, as well as their implications for scientific research and biotechnology. Through this project, a deep understanding of the world of octopuses and their importance in the conservation and understanding of marine ecosystems is emerging.*
Keywords: *octopus*

15. (ID 87) The Recent History of The British Armed Forces: A New Millennium, New Challenges – From 2000 To Now
Author: stud. Vlad-Adrian POP
Scientific Advisor: Assistant Professor Lucia-Larissa MORAR, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *The 20th century can be called the "century of conflicts". Starting with the two World Wars, and continuing with the*

Postcolonial Wars, the British Armed Forces have gone through an extensive transformation process that continues in the present. The end of the Second World War was the beginning of other conflicts which needed different approaches, in some cases more peaceful ones. Furthermore, these new contexts requested significant changes, both in the training part and in the field of military technique and equipment. From the mass army with obsolete features at the start of the First World War, now the British can feel safe and proud with a smaller modern force consisting of professionals. These days, flexibility is one of the most essential attributes of a military institution. The ones which do not pass the test of time, will not improve their capabilities.

Keywords: *defense, flexibility, evolution, conflicts, theatre of operations*

16. (ID 98) L'histoire du Pompon Rouge

Author: stud. Maria-Teodora CUREA
Scientific Advisor: Associate Professor, Laura CIZER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *La Marine de France a un symbolisme très riche qui est spécifique à tous les états qui ont ouverture à la mer ou à l'océan. Cet ouvrage traite du pompon rouge, un symbole représentatif des Forces Navales de France. De nombreuses légendes autour de ce sujet se sont répandues de génération en génération. Traditionnellement, le pompon rouge a une histoire résonnante pour la population civile en général et pour les marins et leurs familles en particulier, étant également considéré comme porte-bonheur pour ceux qui le touchent. Sa fabrication s'effectue conformément aux exigences techniques imposées par la réglementation militaire en vigueur. Finalement, le pompon rouge ainsi que le col bleu représentent la fierté et le sérieux de la Marine française.*

Keywords: *marine, France, pompon rouge, symbole, tradition*

17. (ID 101) Les Bérets des Commandos - Une Tradition Glorieuse au Sein De La Marine Nationale De France

Authors: stud. Matteo Constantin DAMASCHIN, stud. Maria-Denisa CHIRIAC
Scientific Advisor: Associate Professor, Laura CIZER, PhD.

Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Le présent ouvrage traite des bérets des commandos de la Marine française. Depuis des décennies, les commandos de la Marine française portent fièrement leurs bérets distinctifs, symboles de leur dévouement et de leur expertise. Chaque béret, d'une couleur unique, raconte une histoire de courage, d'honneur et de tradition maritime. Le béret rouge des Commandos Marine incarne l'esprit d'élite, le béret vert des nageurs de combat reflète leur maîtrise des opérations amphibies. Ces symboles rappellent leur rôle crucial dans la défense des intérêts maritimes de la France, perpétuant ainsi une tradition glorieuse au sein de la Marine nationale.*
Keywords: *bérets, commandos, Marine nationale, France, tradition*

18. (ID 107) Maritime Navigation: Between Simple Invention and Economic Revolution

Authors: stud. Alexandru FÎNTÎNĂ, stud. Cristian-Alexandru COBZARIU
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Maritime navigation is one of the most important sciences and inventions of the entire world. First of all, the economy of most of countries depends on it due to its stability and innovative ways of transportation. For instance, many centuries ago it was the most valuable step to increase state power. On the other hand, this procedure is based on some rules like maps using, routes planning, communication and laws of International Maritime Organization (IMO). In addition, civil and military navigation have a big influence on society because it is a cheap and strong modality to understand geography of the planet and take the best decisions for humanity. In the same time, there were people who made revolution in this domain, such as: Christopher Columbus, Vasco da Gama, Marco Polo, Amerigo Vespucci who discovered new trade routes. All in all, marine navigation is a fundamental segment of global development, which has significant influence on the world economy, society and history.*
Keywords: *Navigation, IMO, trade routes, global economy*

19. (ID 116) The Gains and Pleasures of Horror Cinematography
Author: stud. Andreea Georgiana IVANCIU
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The present paper explores the psychology behind the enjoyment of horror films, challenging the notion that fear is strictly negative. It explores how horror movies offer a unique pathway to experiencing pleasure, drawing from psychological theories, neuroscience, and cinematic analysis. By investigating the mechanisms through which horror films provoke emotional responses and why individuals seek out such experiences, the paper sheds light on the genre's allure. Ultimately, the study aims to deepen our understanding of human psychology, entertainment preferences, and the cultural significance of horror cinema.*
Keywords: *Horror cinematography, fear, psychology theories*

20. (ID 128) Unvealing the Hidden Battle: Understanding Ptsd in Military Personnel
Authors: stud. Bogdan DOBROTA, stud. Robert-Sebastian POPA
Scientific Advisor: Lecturer, Edith-Hilde KAITER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *This presentation provides a comprehensive exploration of the impact of Post-Traumatic Stress Disorder (PTSD) in the life of military personnel. It delves into symptoms, causes, and consequences of PTSD in the context of military service, examining its effects on relationships, work performance, mental, and physical health. The symptoms can appear several years after trauma exposure, returning home playing a crucial role for the military man. We will discuss about how many soldiers superficially address this issue, reaching an advanced stage that can even lead to suicide.*
Keywords: *PTSD, military personnel, trauma, symptoms, causes, health, deployment, combat exposure, returning home, awareness, suicide*

21. (ID 129) Les Grades De La Marine Nationale De France. Lexique Et Petites Histoires
Authors: stud. Ema-Diana CALIMAN, stud. Darie-Ioan MIRCEA
Scientific Advisor: Associate Professor, Laura CIZER, PhD.

Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Cet ouvrage propose un vol d'oiseau historique sur l'évolution des grades navals dans la Marine Nationale de France. Profondément enracinée dans le patrimoine maritime et les traditions militaires de chaque pays, la progression de ces grades a été façonnée par les changements de stratégies de guerre navale, de l'histoire, ainsi que par des développements plus larges dans l'organisation militaire. De l'influence des amiraux dans la conduite des flottes navales aux officiers subalternes en formation, chaque grade a joué un rôle distinct dans l'histoire maritime de ces pays. Cet ouvrage retrace le parcours historique et étymologique des noms de grades.*
Keywords: *grade, Marine nationale, histoire maritime, etymologie, France*

22. (ID 136) Royal Protocol: Navigating Military Rules and Etiquette in The British Royal Family
Authors: stud. Stefan-Robert UNGUREANU, stud. Hristofor BIBELEA
Scientific Advisor: Gabriela MIHĂILĂ-LICĂ
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *The project delves into the intricate world of military rules and etiquette within the British Royal Family. When royal family members wear military uniforms, they demonstrate respect, tradition, and honor, showcasing their dedication to their military roles and the importance they place on upholding military traditions. Some interesting aspects of this topic include the significance of specific military regalia worn by the royals, like medals and insignia, and the historical background of these symbols. Additionally, the strict adherence to protocol at military events and ceremonies underscores the royal family's commitment to honoring the armed forces. Key military rules and etiquette observed by the British Royal Family include standing at attention during the national anthem, saluting senior officers, and following a precise dress code when in military attire. These rules aim to maintain the honor and dignity of the military institution and demonstrate the royal family's dedication as representatives of the armed forces. Overall, "Royal Protocol: Navigating Military Rules and Etiquette in the British Royal Family"*

offers a fascinating insight into the intersection of royalty and the military, highlighting the traditions, customs, and protocols that shape this unique aspect of royal life.
Keywords: *Respect, traditions, honor, family, military rules*

23. (ID 139) L'équipe Nationale De Foot de France. Reflets de <<L'AUTRE FRANCE>>
Authors: stud. Constantin Nicolae MIHOLCA, stud. Marcus Stefan JIPA
Scientific Advisor: Associate Professor, Laura CIZER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Cet ouvrage se propose de retracer l'histoire de jouers de l'équipe nationale de foot de France depuis 1904 jusqu' à nos jours (2022). On démontre que l'histoire de ce sport au ballon rond est bien une composante de l'histoire de l'immigration issue de l'ancien empire colonial français de France aussi bien que la géographie des terres d'outre mer. En dépit tout, le Onze national de France restent un modèle ethnoculturel parfait où la couleur qui compte - selon M. Hildago - reste "le bleu, blanc, rouge".*
Keywords: *équipe, foot, immigration, L'Autre France, outre mer*

24. (ID 140) Leisure Activities On-Board Ship
Authors: stud. Hakan REFIGEAN, stud. Constantin Laurențiu CAZACU
Scientific Advisor: Lecturer Raluca APOSTOL-MATES, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Social life on board any vessel is vital according to my perspective since it can offer sailors a specific level of entertainment, alike the 'normality' they are used to when they are ashore. After a difficult day of work, between two ports or during long passages, any seafarer should have the opportunity to participate in some leisure activities in the recreation room, in the gym, on main deck, in the galley, doing things that they don't usually do: watching a movie, playing an instrument, playing video games, exercising, playing basketball/football, cooking. These activities could be done with some fellow seamen or alone, but they help relaxing and reinforcing the mental state of the individual. The present paper deals with different on-board leisure activities.*

Keywords: *Sports, Leisure activities, On-board*

25. (ID 142) The Power of Compass
Author: stud. Ozgean OMER
Scientific Advisor: Lecturer Raluca APOSTOL-MATES, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The compass is an essential navigational tool that revolutionized maritime exploration. The present paper explores the rich history of how humans have harnessed the Earth's magnetic field to navigate the vast oceans. From ancient civilizations to modern-day expeditions, we uncover the importance of the compass and its role in shaping our understanding of the world.*

26. (ID 145) Satellite Navigation Systems
Authors: stud. Daniel SMARANDESCU, stud. Larisia-Maria PEPTANARIU
Scientific Advisor: Lecturer Raluca APOSTOL-MATES, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The present paper deals with a brief introduction in the history of the first satellite navigation systems and their main uses. After presenting some methods of determining the position using at least three satellites we chose to present two different satellite navigation systems: Navstar-GPS and DGPS, and emphasize on the facilities offered by satellite navigation receivers.*
Keywords: *satellite, navigation, system, positioning, navigation receivers*

27. (ID 149) Cooking as Therapy-A Journey to Self Discovery
Authors: stud. Andreea-Ștefana SMÎNTÎNĂ, stud. Andreea-Maria PIOARĂ
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Our paper delves into the therapeutic aspects of cooking, exploring its profound impact on mental well-being. Cooking as therapy represents more than just preparing food, so we investigate how culinary activities serve as a powerful tool for psychological healing and self-discovery. By examining the interplay between cooking, mindfulness and emotional expression, our paper uncovers*

the transformative potential of culinary. The presentation will encompass various elements, including introduction to cooking therapy and how it works, followed by the presentation of its therapeutic advantages as a pathway to improving mental health and emotional achievement.
Keywords: *Cooking Therapy, Mental health*

28. (ID 152) Read Other People's Mind
Authors: stud. Edna Adriana ANTON, stud. Vlad Andrei ICHIM, stud. Rares Valentin HARAS, stud. Alexandru DOVLEAC
Scientific Advisor: Lecturer Mariana BOERU, PhD.
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Reading other people's mind. What if I tell you that is possible and there are no superpowers requiered? The mystery of human emotions and thoughts has been lingering in human nature since the oldest ages. We are getting closer and closer to unvealing its secrets. With that in mind, we are going to explore a super tool that can clues us in, called Microexpressions. We are going to go through its many forms, the precise definition, the characteristics of each one of them and, for a taste of power, a demonstration of how to put your new skill in practice.*
Keywords: *Microexpression, emotion, behaviour*

29. (ID 206) Military Eating Habits: We Eat What We Are
Authors: stud. Florina MUSCĂ, stud. Iulian LUNGU
Scientific Advisor: Lecturer, Edith-Hilde KAITER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Has it ever happened for you to have a bad mood and make your inner self feel better by eating some chocolate? Or the desire to eat something just because of boredom? Or maybe, a very commmon thing, have you ever experienced the pain of a breakup and cope the crying with ice cream? Is it true that you consider this things normal or haven't paid a lot of attention to those? This is the topic i am going to discuss about, eating disorders, and the way in which food is related to our feelings. Even if it doesn't seem a great deal, or there are heavier problems on this earth, keeep in mind that eating disorders are among the deadliest mental illnesses. Eating disorders, known as unhealthy eating habits, often occur due to body shaming,*

the fear of gaining weight, the attempts to be accepted in society and to fit in the criteria for the perfect body. Finding comfort in food makes the individual to obsess over something other than fear and panic or sadness and guilt. Moreover, these problems are increasing as well in the military population.
Keywords: *eating disorders, feelings, mental illness, body shame, unhealthy*

30. (ID 207) L'influence de L'anglais Sur Le Français. Céder ou Résister?
Authors: stud. Ramona PETREA, stud. David MANOLESCU
Scientific Advisor: Associate Professor, Laura CIZER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *Cet ouvrage a pour but de mettre en lumière les anglicismes, emprunts de mots ou de structures provenant de l'anglais dans la langue française. On discute les types d'anglicismes, leurs équivalents français proposés par l'Académie française et autres instances gouvernementales (la loi Toubon). Enfin, on pèse le pour et le contre pour estimer leur efficacité à long terme dans la langue française.*
Keywords: *anglicisme, français, anglais, Académie française, loi Toubon*

31. (ID 240) Modifed Cars - Vehicles for Self-Expression
Author: stud. Bianca-Alexandra IACOB
Scientific Advisor: Lecturer Corina SANDIUC, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The present paper aims at providing some insights on how cars can be modified to become a form of art and a means of self-expression. Car modification covers several aspects such as: car tuning, retrofitting, suspension upgrade, paint job, etc. For the purpose of this paper, special attention will be given to the audio sound system enhancements. Music can sound differently depending on what kind of speakers one chooses to equip a car with. Whether we speak about SPL (sound pressure) or SQ (sound quality), subwoofers or hairtricks, we have to admit that a new sound system can change the way we view cars and car tuning, and even music in itself.*

Keywords: *modified cars, car tuning, self-expression, sound system*

32. (ID 250) Intercultural and International Debate on Marine Communication

Authors: stud. Alexandru SCARLAT, stud. Alexandru BOTAS
Scientific Advisor: Lecturer Raluca APOSTOL-MATES, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *This project investigates how seafarers interpret the English language and its function as a common language. It looks that individuals with non-English speaking backgrounds (NESBs) seem to have more trouble speaking the language. They also lack the curiosity to explore any potential cultural, religious, ideological, or political aspect because of an "aversion" to English. The project also aims to assess the value of a common coded language, such as the Standard Maritime Communication Phrases (SMCP), by considering seafarers' opinions on the English language competency of their industry peers and the level of proficiency expected of different ranks.*

33. (ID 255) Symbols in Our Lives vs. Symbols in the Army

Author: stud. Maria-Teodora CUREA
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *Throughout history, mankind has always been curious about the meaning of our existence, so the questions soon began to appear. This fact has prompted various attempts to find answers across different subjects, giving rise to the concept named "symbolism". From ancient times, human beings have been looking for explanations by prayer, stargazing and even studying the flora and fauna. Consequently, this is the reason why nowadays symbols have become increasingly significant in our lives. In this project, I aim to approach and speak about the origins of several symbols that are mostly present in our journey to comprehensiveness and wisdom, and, also to draw a parallel with their meaning in the Military Forces.*

Keywords: *meaning, symbols, Military Forces, wisdom, answers*

34. (ID 270) A Dive into the Shipwrecks of the 20th Century and Their Consequences

Author: stud. Dragos Marian BALUTA
Scientific Advisor: Lecturer Camelia ALIBEC, PhD
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *In the 20th century the vast majority of ships had become very strong and very well engineered complex machines nothing as the likes of wooden ships that had been previously used. In this era, there have been many rivalries between shipping companies like the White Star Line and Cunard Line for putting out big massive ocean liners capable of crossing the Atlantic in a few days, but also arms races between nations such as the UK and Germany for creating big and very powerful battleships for propaganda purposes. We will go over how some of the most prevalent and most known but also less known ships in this era sank to the bottom of the ocean and how it affected both the public and the shipping industry. We will analyze some shipwrecks of the century and the consequences that emerged from here, starting off with the sinking of the Cunard Line ocean liner RMS Lusitania and continuing with the German battleship Bismarck, the sinking of the submarine U-864, and last but not least, the largest maritime disaster in the history of the world, the sinking of the ocean liner Wilhem Gustloff towards the end of WWII.*

Keywords: *maritime disasters, shipwrecks, ocean liners, shipping industry*

35. (ID 283) Extraordinary Until Proven Otherwise

Authors: stud. David-Alexandru MIHAILA, stud. Denisa STANCIUC
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Abstract: *This paper aims to study how common and uncommon astronomical events, human activities and imagination were perceived as extraterrestrial life all throughout the rise of the modern man. Infamous examples of extraterrestrial life ''proof'' such as the Roswell incident, LGM-1 signal, the battle for Los Angeles and the USS Nimitz Encounters have been subject to bountiful discussion and speculation until proven otherwise by reasonable explications.*

Keywords: *Extraterestrial life; LGM-1; Fermi Paradox; Speculation; Extraordinary*

36. (ID 296) Centuries of Evolution: The United States of America's Journey from Beginning to Modern Times

Authors: stud. Grațiela GRIGORE, stud. Georgiana STRĂINU
Scientific Advisor: Assoc. Prof. Isabela-Anda DRAGOMIR, PhD
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Abstract: *Since ancient times, the world has faced numerous changes. From the first discovery of time keeping by the Egyptians to the most recent, mind-blowing breakthroughs regarding time and discoveries regarding our Universe, the world kept evolving and getting more creative. One country that has constantly adjusted to different changes under difficult situations and circumstances is the United States of America. This paper aims to discuss the history of America from the discovery of the continent until the modern times of today, emphasizing the different periods that the population had faced. It illustrates and draws a comparative study of the cultural changes that occurred: how the social standards changed with time, which traditions wore off and which have remained until now, and how the social norms formed and changed over time. A second point this paper explores the evolution and transformation of the US economy and how it impacted the world. Last, but not least, together with the cultural and economic changes come technological changes, which will also be investigated historically. The conclusion of the paper provides an overall analysis of these aspects in the United States and what this country might promise for the future.*

Keywords: *United States of America, evolution, history, cultural changes, economy, technology.*

37. (ID 306) Words lie. Your face doesn't.

Authors: stud. Gabriel LEIZERIUC, stud. Andreea Teodora IACOBESCU
Scientific Advisor: Lecturer Edith-Hilde KAITER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

Abstract: *In a world marked by linguistic diversity, communicating across languages and cultures remains difficult. Dr. Paul Ekman, an anthropologist, proposes a plausible answer to this problem: the*

universal language of facial expressions and movements. With over 6,500 languages spoken worldwide, different cultures display distinct nonverbal communication indicators, such as peace signs. Ekman's comprehensive cross-cultural research on emotions shows seven globally identifiable facial microexpressions: joy, sadness, anger, contempt, fear, and surprise. These ephemeral expressions, visible for only a few minutes, allow genuine peeks into people's actual emotions. The interconnectivity of our emotions and facial expressions is so strong that people may purposely elicit emotions by mimicking certain expressions.

Keywords: *linguistic diversity, nonverbal communication, interconnectivity, cultural environments.*

38. (ID 325) Les Langues qui Nous Unissent

Author: stud. Gabriel LEIZERIUC
Scientific Advisor: Associate Professor, Laura CIZER, PhD.
Institution: "Mircea cel Bătrân" Naval Academy

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 et l'expérience que j'ai eue lors du cours de perspective de genre au Portugal en juin 2023. 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, le Portugal 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*

39. (ID 326) Distress Messages: History, Situations, Use
Author: stud. Andrei APOSTOL
Scientific Advisor: Lecturer Raluca APOSTOL-MATES, PhD
Institution: "Mircea cel Bătrân" Naval Academy
Abstract: *The present paper deals with one very important part of navigation communication: distress messages. We intend to propose a short presentation of the usage of distress messages for each situation they have to be used in and the effects they have both in the transmitter and the receivers.*

40. (ID 333) Princess Diana
Authors: stud. David HULEA, stud. Ina-Gabriela CURCA
Scientific Advisor: Gabriela MIHAILA
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *Princess Diana's life was a tapestry of remarkable achievements and tragic events that left an indelible mark on the world. Renowned for her compassion and empathy, she dedicated herself to various humanitarian causes, including HIV/AIDS awareness and landmine eradication, using her platform to advocate for marginalized communities. Diana's approachable demeanor and genuine connection with people shattered royal stereotypes, earning her the title of the "People's Princess." However, her untimely death in a car accident in 1997 shocked the globe and sparked intense scrutiny. Conspiracy theories proliferated, alleging foul play and cover-ups involving the British royal family and intelligence agencies. The aftermath of her passing prompted profound reflection on issues of trust, media intrusion, and the responsibilities of power. Despite the controversies surrounding her death, Diana's legacy persists as a symbol of compassion, activism, and the enduring pursuit of truth and justice in the face of adversity.*
Keywords: *achivements, people, conspiracy theories*

41. (ID 348) Bridging Divides – Harnessing Cultural Diversity in Conflict Resolution
Author: stud. A.-M. B.-N.
Scientific Advisor: C.T.
Institution: “Mihai Viteazul” National Intelligence Academy

Abstract: *This paper delves into the nuanced and intricate nature of cultural diversity intending to elucidate how cultural underpinnings determine conflict perceptions and conflict resolution strategies. In the era of globalization, the recognition and comprehension of cultural differences in conflict resolution become crucial for mediators, negotiators, and all those involved in the process. Acknowledging conflict as a ubiquitous element across various spheres of human interaction, from personal disputes to global conflicts, this approach posits that cultural perceptions may convert conflict from a potentially destructive force into an opportunity for growth and understanding. By exploring the range of cultural responses to conflict, from its definition to the methods and processes of management and resolution, the study demonstrates the important role of cultural awareness in bridging the divide. Special emphasis is placed on developing negotiating tactics that respect cultural diversity while promoting inclusive and sustainable solutions. The findings emphasize the importance of intercultural communication skills in conflict resolution and propose methods that are "sensitive" to cultural context. The contribution of this work lies in enriching the existing literature and providing practical perspectives for improving conflict resolution practices in culturally diverse environments, as well as recommending directions for future research.*
Keywords: *conflict, negotiation, cultural diversity, conflict resolution*

42. (ID 353) L'Intelligence Artificielle- une Opportunité Pour La Criminalité Organisée?

Author: stud. Alexandra ISERESCU
Scientific Advisor: Lecteur Universitaire Ligia CORNECIU
Institution: Alexandru Ioan Cuza Police Academy

Abstract: *Le monde contemporain- un univers complexe, pas encore totalement compris par la vieillesse et un vrai défi la génération Z et X. Si auparavant le téléphone était une chose à laquelle quelques personnes avaient accès, aujourd'hui les smartphones sont partout et on parle même d'intelligence artificielle. Le droit devrait réglementer les situations émergentes qui interviennent de nouveau dans la société. Ainsi, les droits et les libertés fondamentales de l'homme pourraient être protégés face à l'immixtion de l'IA et des nouvelles technologies dans la vie quotidienne. En ce qui concerne la*

criminalité, la plus grande menace reste la criminalité organisée qui trouve toujours de nouvelles modalités d'opération et qui est devenue un véritable souci pour le monde entier La mafia d'aujourd'hui se présente comme une véritable organisation, capable de s'infiltrer dans les structures de l'état de droit, ce qui augmente la corruption et réduit considérablement la confiance des citoyens dans la justice. Les organisations criminelles semble à s'orienter vers une activité en accord avec les tendances contemporaines- utiliser l'IA à leur avantage. Le travail suivant se propose de rendre claire la liaison entre la recrudescence de la criminalité organisée et le contexte actuel, tout en soulignant les mesures qui seront mises en œuvre dans un avenir proche pour adapter la législation aux situations créées par l'intelligence artificielle, un nouvel outil pour les infracteurs. Pour cela, j'ai expliqué les concepts essentiels du système juridique roumain, le rapport avec les normes de l'UE, le domaine de la criminalité organisée et du trafic de personnes en particulièr, aussi que les initiatives du Parlement Européen visant à limiter et contrôler l'intervention de l'IA dans la vie des citoyens.

Keywords: *criminalité organisée, DIICOT, intelligence artificielle, trafic de personnes, pédopornographie, normes européennes*

43. (ID 356) Royal Signal Corps

Author: stud. Anisia-Teodora FUGARU
Scientific Advisor: Assist. Prof. Alina NEGOESCU, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu

Abstract: *Effective communication has always been of vital importance in armies across the world, especially in wars. With good communication, commanders can order soldiers what tactical and strategic actions they need to perform. Soldiers in the field, in turn, can tell their commander what is happening in front of them. Wherever large combat units go, soldiers from Signal Corps march alongside them. This article follows the reason this delightful military branch has received such a powerful importance during combat. First of all, it will explore the inspiring beginning of radio communications' mission and the beautiful evolution of all the equipment used all over the years. Second, it highlights the most common personal role radio, used by all the armed forces. Finally, the paper discusses some essential rules in radio communications,*

for example basic radio voice procedures and procedural words. Moreover, the paper focuses on the signal officer as a good leader in combat. All these considered, the essay mentions that radio communication led by a capable and intelligent signal officer is the key to a successful transmission between soldiers fighting in wars.
Keywords: *radio, PRR, combat support, military officers*

44. (ID 358) Cyber Lexicon: Charting English's Odyssey in The Digital Realm
Author: stud. Florin-Ștefan PAPA
Scientific Advisor: Assist. Prof. Daniela DURALIA, PhD
Institution: "Nicolae Balcescu" Land Forces Academy of Sibiu
Abstract: *"Cyber Lexicon: Charting English's Odyssey in the Digital Realm" explores the dynamic interaction between the English language and digital technology in the modern age. This essay looks into the evolution of English within the context of the digital landscape, tracing its journey from traditional linguistic forms to the innovative expressions born out of online communication platforms. Through an interdisciplinary approach, this paper investigates the impact of digital technology on language dynamics, communication patterns, and cultural expressions. By examining the birth of internet slang, emojis, and other digital linguistic phenomena, this paper illuminates the ways in which English has adapted and thrived in the digital era. Furthermore, this essay explores the implications of digital communication for linguistic standards, literacy, and cultural identity, offering insights into the evolving nature of language in an increasingly interconnected world. Through comprehensive analysis and critical inquiry, "Cyber Lexicon: Charting English's Odyssey in the Digital Realm" aims to deepen our understanding of English's ongoing odyssey in the digital realm and its significance for contemporary society.*
Keywords: *cyber lexicon, digital revolution, linguistic evolution, cultural expression*

IX. SECTION: STUDENTS' EXPERIENCES IN INTERNATIONAL EXCHANGES

Section Committee:
Chairman:
Colonel Assoc. prof. Cătălin POPA, PhD
Members:
LCDR Marius CUCU, PhD
Alexandra MIHAIU
Stud. Gabriel HRĂNICERU
Stud. Casian DROB
Stud. Irina AXINTE
Stud. Alexei PÎRȚU
Room: Aula Magna

1. (258) International Training Week: a Journal from the North Atlantic Ocean

Authors: stud. Maria-Teodora CUREA, stud. Darie-Ioan MIRCEA
Scientific Advisor: Colonel Assoc. prof. Cătălin POPA, PhD
Institution: "Mircea cel Bătrân" Naval Academy, Constanta
Abstract: *This project will emphasize on our one-week Erasmus experience – a period of military training amidst the waves of Spain's North Atlantic, Pontevedra. From mastering the secrets of sailing to honing our military skills, each day was a blend of adrenaline and learning. But what truly made it so special? The people we met along the way and who brought different perspectives, feelings of camaraderie, and friendship to our journey. We are inviting you to listen to our interesting story about the escapade through a world that we recently discovered and we hope that you too will desire to try this type of experience.*
Keywords: *Erasmus, North Atlantic, military skills, experience, training*

2. (383) Students' Experiences in International Exchanges - Enhancing Military Professionalism: Exploring

Author: stud. Mihai PĂDUROIU
Scientific Advisor: Cosmina ROMAN
Institution: "Henri Coanda" Air Forces Academy
Abstract: *The main purpose of this paper is to explore the impact of participating in the Erasmus program on improving international relations among students and enhancing linguistic skills. Additionally, the Erasmus program provides a unique opportunity for students to develop their ability to communicate with students from other nations and also it helps them to understand the structure of different military forces. This paper provides significant contributions in bringing plausible arguments for the benefits of the Erasmus program to both personal and academic development.*

Erasmus+ International Experiences

- Erasmus+ International experience in Italian Naval Academy (INA) –Diacu Alexandru
- Erasmus+ International experience in Helmudt Schimdt University, Germany – Cozma Leonard
- Erasmus+ International experience in Military University of Technology, Poland – Țuțuianu Ioan
- Erasmus+ International experience in Polish Naval Academy, Poland – Hrăniceru Cristian
- Erasmus+ International experience in Bulgarian Naval Academy, Bulgaria – Damaschin Matteo
- Erasmus+ International experience in Lithuanian Maritime Academy – Diaconu Medina

EMILYO International Modules and other International events

- International Week to Spanish Naval Academy, Spain - Curea Teodora
- BioSafety and bio-terrorism in Applies Sciences Military School, Turin, Italy - Soimu Leonard
- Leadeship Seminar, United States Naval Academy - Popa Alexandru
- Maritime Security module in Hellenic Naval Academy - Blăjuț Lavinia

- Robotics modules, in French Airforce and Spaceforce Academy, France Robotică - Luca Andrei

Incoming students in Romanian Naval Academy – promotion of sending institutions

- Military Academy ”Alexandru Cel Bun” Republic of Moldova – Caraion Serghei
- Nikola Vaptsarov Naval Academy, Varna, Bulgaria – Radoslav Dimitrov
- Military University of Technology, Poland – Jakub Dyba
- Batumi Navigation Teaching University, Georgia – Nika Melikishvili
- University of Vlora, Albania – Jasirei Sulaj

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