

“MIRCEA CEL BATRAN” NAVAL ACADEMY

**THE 43rd SCIENTIFIC
CONFERENCE FOR STUDENTS**

CADET-NAV 2021

PROGRAMME



09th - 10th of April 2021
CONSTANTA

Organizing Committee

Captain (N) Assoc. Prof. Eng. Alecu TOMA, PhD

Captain (N) Assoc. Prof. Dinu ATODIRESEI, PhD

Captain (N) Assoc. Prof. Eng. Paul BURLACU, PhD

Colonel Assoc. Prof. Catalin POPA, PhD

Captain (N) Eng. Cătălin CLINCI, PhD

Commander (N) Assoc. Prof. Filip NISTOR, PhD

Commander (N) Assoc. Prof. Adrian POPA, PhD

LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Commander (N) Assoc. Prof. Florentiu DELIU, PhD

Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

LCDR Lecturer Daniel MARASESCU, PhD

Lieutenant (N) Eng. Ionuț Cristian SCURTU, PhD

Lieutenant (N) Eng. Sergiu ȘERBAN, PhD

Lieutenant Lecturer Eng. Ovidiu CRISTEA, PhD

Associate Prof. Andrei BAUTU, PhD

Lecturer Edith KAITER, PhD

CONTENTS

1. Navigation and Transport	5
2. Engineering and Management	37
3. Military Sciences and Information	59
4. Electrical Engineering	63
5. Weapons and Communications	80
6. Mechanical Engineering	86
7. Fundamental Sciences	98
8. Foreign Languages	106

I. SECTION: NAVIGATION AND TRANSPORT

Section Committee:

Chairman:

Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

Members:

Assoc. Prof. Eng. Romeo BOȘNEAGU, PhD

Lecturer Marius APETROAELI, PhD

Lieutenant Jr. Eng. Andra NEDELCU, PhD junior

1. Maritime transport of freight

Authors: stud. Mariana-Mădălina GEORGESCU, stud. Monica-Florentina EFTINĂ

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract** This document wishes to highlight the importance, advantages and requirements of maritime transport. It is known that maritime transport has had from its oldest economic, social, strategic, and in some cases, even political, important. It is the most economical mode of transport and has the largest volume of goods transported over significant distances. The total volume of goods transported by sea internationally is 90-95% of the total volume of goods transported. In order to achieve continued efficiency in this area, important steps have been taken to build the most economical and fast vessel, corresponding to an increasing variety of cargo in ports, using high-productivity port facilities in a specialized terminal.*

2. The Study of Hazards and Their Effects During Operation with Cargo to an Oil Tanker

Author: stud. Nicoleta-Cristina GRECU

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract** The work aims to analyze the study of hazards and their effects during cargo operation on an oil tanker. It covers shipping, types of oil tanker vessels, the role of tanker vessels in global logistics, the types of cargo carried, the rules on the operation of cargo on oil tanker vessels, the procedures for loading and unloading cargo. At the same time, the installations of oil tanker ships are analyzed, as well as the hazard characteristics of the cargo. The hazards identified during cargo operations,*

the measures and equipment to reduce hazards, and their effect on cargo operation, are presented.

3. Leadership and Personality: How to Generate Leadership Strength Through Character Traits

Author: stud Andreea-Georgiana MIREA

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The study aims to describe and explain the special importance of the personality traits of the leader in the exercise of effective leadership. We consider personality a complex, dynamic, open system in which its basic components: temperament, skills and character have interaction relationships, interdependence, mutual influence. The study demonstrates the essential role of character in the governance of other personality components and in the way the leader exerts social influence on the followers of the command bridge work team.

4. Imo Action to Reduce Ghg Emissions From International Shipping

Author: stud Andreea-Georgiana MIREA

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract For my presentation I will like to talk about the problem with GHG emissions. In this case IMO have some actions to reduce this emissions. In then extpresentation I will brings attention to the most important things to do to avoid GHG emissions and how to prevent in time this case. And in the final I have studied this problem and I put an analyse for the next years.

5. Solutions for the Transport of Liquefied Natural Gas by Inland Waterways

Author: stud. Răzvan Florian PANTAZI

Scientific Advisor: Prof. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The presented project aims to present the study of the transport of liquefied natural gas on the internal waterways of the Danube, with the help of ships specialized in this type of transport. The project presents both the advantages and disadvantages of liquefied gas transport, the characteristics of the navigable routes on the Romanian territory, the ways to eliminate the inherent risks, putting special emphasis on the types of transport ships and the protection of the environment.

6. Considerations Regarding the Marine Incident Investigation

Author: stud. Mihaela POPA

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract In my paper, I analyze maritime incidents and I will talk about the errors that underline accidents. This topic is critical because it highlights the importance of knowing the causes of incidents and combating them. It is important to know the background of marine accident investigations and the role of the surveyor/investigator, and also the human factor.

7. Technical Aids to Navigation (Automatic Identification System)

Author: stud. Ioan-Laurentiu TRUSCA

Scientific Advisor: Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract This paper it's about Automatic Identification System (AIS) ,about how it works and why this system is important on board. AIS is a shipboard broadcast transponder system in which ships continually transmit their ID, position, course, speed and other data to all other nearby ships and shore side authorities on a common VHF radio channel. Some of the benefits of the AIS are: Improved situational awareness; Unambiguous identification of radar targets; Overcome problem of “target swapping” when two contacts pass close together on the radar screen; Ability to “see” around bends or behind a landmass, to detect and identify other ships; Predict the place and time of CPA with other vessels (I've mentioned more benefits in the presentation). AIS shipboard elements are: an STDMA radio transponder with two VHF receivers and one transmitter, a control and display unit and one more GPS/DGPS receivers that provide position information. The AIS carriage requirements will apply to: all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and for all passenger ships irrespective of size. In some areas, such as inland rivers, which carry heavy commercial traffic, it is likely that port states will expand the AIS carriage requirements to include other craft, such as tugboat combinations for non-SOLAS vessels. And i've mentioned cautions that you should beware on my presentation.

8. Landing missions and Future Missions, Moon Importance.

Author: stud. Aurelian VASILE

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The missions on the moon and future missions that will take place on the moon's natural satellite and the role of the moon on life on earth.

9. Stars By Direct Observation Using the Alignments Method Using Celestial Maps

Author: stud. Petre-Mihai VASILE

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract - constellations

- main stars

- stellar magnitudes

- the name of the constellations

- local constellations

- main constellations

10. Types of Ballast Water Treatment Systems

Author: stud. Alexandru Mihai PETRE

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract In this paper we will present different **Types of Ballast Water Treatment Systems** from an oil tanker and the legislation to use it. We will describe the rules in force for implementation of WBTS on every ship and preparing the ship for installation. We will show how the ballast installation works and present some types of installations that we find at the ship's hull.

11. Multi - Cultural Awareness on the Command Deck

Author: stud. Maria-Andreea ANA

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract The study aims to describe and explain the essential importance of **MULTI-CULTURAL AWARENESS** in Shipping and in practicing effective leadership on the command deck/bridge. We focus our research on several objectives, like: to name the main factors which result in different cultural traits, to identify the main cultural dimensions and understand their significance, to recognize the ways of maintaining harmony in a multi-cultural environment, to develop and practice techniques in teamwork in order to avoid cross-cultural misunderstandings and conflicts on board.

12. Authority and Assertivity on Navigational Deck

Author: stud. Alin Nicolae ANGHEL

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The study aims at a scientifically argued debate on the essential role of authentic communication and the use of assertiveness in the performance of hierarchical and procedural professional activity on the bridge. The concept is analyzed as a transactional act that conveys meanings, less information, strongly imprinted by the personality traits of the interlocutors, members of the multicultural naval crew. It also emphasizes the essential role of building an authentic communication style through assertiveness, well-being, self-esteem, stress reduction, empathy and building positive interpersonal relationships, tasks for which the leader is especially responsible.

13. Implementation of MARPOL Annex VI Regulations for Ships Arriving in European Ports for Operation

Author: stud. Dumitru BISOCIANU

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract In this paper, a step-by-step analysis of the MARPOL convention has been made from a historical point of view, of the content predominantly on the current regulations of Annex VI. Alsohere, rule 13 – Nox emissions from naval diesel engines and rule 14 - Sulfuroxides (Sox) from naval diesel engines were analyzed in great detail. Next, the sulfur emission control areas and the methodology for estimating gas emissions from ships were analyzed, as well as the Environmental Ship Index (ESI). At the end of the paper, a case study was performed on the European Union Directives on sulfur content of naval fuel and pollution reduction techniques produced by ships by implementing Annexno. VI of MARPOL for ships arriving in ports of the European Union.

14. Considerations Regarding the Implementation Guidelines of the International Safety Management Code (I.S.M Code)

Author: stud. Bogdan-Alexandru CONSTANTIN

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The ISM Code is one of two features that have been designed specifically to address the human element in safety at sea – which continues to be cited as a causal factor in the majority of all transport accidents. The mandatory ISM Code provides an international standard for the safe

management and operation of ships and for pollution prevention. It places direct responsibility on shore side management to ensure that its ships operate to the prescribed level of safety. It is of the utmost importance that the ISM Code is implemented effectively and with the proper degree of commitment from all concerned, and that is one of the major challenges facing the shipping industry during the next few years. It has the potential to make a huge contribution to maritime safety.

15. The Carriage of Goods By Sea in Containers and Their Inspections

Authors: stud. Mariana-Mădălina GEORGESCU, stud. Monica-Florentina EFTINĂ

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *This paper aims to highlight that in the years following World War II, there has been diversification and modernization the technical-material base of shipping worldwide. Along with other modern means of transport the containers and the vessels of the container have appeared. The statistics drawn up by I.M.O. and most specialists consider that containerized transport will continue their gradual journey to the detriment of the other categories of maritime transport.*

16. Study of Ships Propellers Optimization

Authors: stud. Ana GEOGE, stud. Stefania-Crina DINU

Scientific Advisors: Assoc. prof. Eng. Mihail PRICOP, PhD, Lecturer Eng. George NOVAC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The purpose of the paperwork is to contribute to the improvement of the propeller performance. The content of this essay includes concepts for the evaluation and optimization of the systematic and accurate design, prototyping and control of complex distributed systems of propellers. These things are essential in the propulsion process of a ship. Using the Autopower software from the Theory and shipbuilding laboratory, for a given ship, the necessary propeller will be optimized, taking into account three parameters: propeller efficiency, propeller power and propeller diameter.*

17. Life Saving Appliances for a Oil/Chemical Tanker Type 3 of 40000 tdw

Author: stud. Dumitru-Laurențiu GHEORGHE

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract This paper acts as a guideline to life saving at sea during fighting major emergency situations for Masters, Officers and Ratings. The Company also supplies each vessel with the latest Flag State Merchant Shipping Notices, appropriate IMO and Flag State Publications, including SOLAS Convention and MARPOL 73/78 for reference. This paper contents a wide range of standards, to be employed on the purpose of improving the safety of shipping and of ensuring the best possible chance for survival in a distress at sea, providing for requirements such as: all lifesaving equipments are correctly maintained and regularly tested; all crew members are properly trained in the use of lifesaving equipment and are familiar with its locations; all crew members are familiarised with their distress duties and trained to follow the correct emergency procedures; all crew members have the responsibility to report any defective or missing item of lifesaving or safety equipment to a Safety (Safety Assistant) Officer or directly to the Master.

18. Maritime Safety Analysis for Containerized Shipping

Author: stud. Alin-Marius GURGU

Scientific Advisor: Prof. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The first part of the theme in which I tried to achieve the main important topics in everything that means safety, I have spoken a little about security and some economics, I thought this would also be important.

19. Considerations Regarding the Specificity of the Transport of Cereals in Bulk

Authors: stud. Georgiana - Alexandra HANZA, stud. Carmen NICOLAESCU

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The paper contains the study on the specific nature of bulk grain transport. Study of the cereals that influence the transport process, considering the following stages: Sliding of the cereals, Settling of the cereals, Heating of the cereals. Following the study of grain transport we are considering Provisions and interpretation of the International Code for the Safe Carriage of Bulk Cereals, Principle of IMO Rules for Cereals. Grain transportation was largely based on time testing, transportation schemes, services covering everything from transportation to consulting, cargo security, certification, delivery of goods according to market conditions, financial guarantees.

20. Management of Stacking and Mooring of Oversized and Project Cargo

Authors: stud. Dumitru-Gabriel IATAN, stud. Anamaria ION, stud. Anca-Stefania IOSIF **Scientific Advisor:** Lecturer Marius APETROAEI, PhD.

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract** In our presentation we will go through essential factors that influence the whole execution of a project cargo securing, loading and discharge and the stowage requirements that are to be met in order to have a proper operation on the board of a ship. Cargo or equipment that may be large, heavy or out-of gauge, requires specialised stowage, lifting, handling, may consist of high value or critical items and typically consists of a quantity of goods connected to the same project, which may be loaded from different ports. The importance of these factors are to be elevated and be taken into consideration on every type of cargo ships on the grounds of the damage done to the project cargo during transportation that can cost many millions of dollars, cause extensive delays and potentially lengthy and expensive litigation.*

21. Study Regarding Gas Free Operations in a Tanker Vessel

Author: stud. Radu-Constantin IONITA

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract** The gas free operation is one of the most important and complex operation onboard a tanker vessels while also presenting many risks. In this presentation I will include all the steps that need to be taken to have a good and safe gas free operation.*

22. Longitudinal Strength of the Ship

Authors: stud. Augustin-Dumitru SASU, stud. Ioana ŞMADICI, stud. Alexandra-Maria TOPLICEANU

Scientific Advisor: Assoc. Prof. Eng. Mihail PRICOP, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract** The present research contains an accurate analysis of the forces and moments acting on the ship structure and a broad representation of important characteristics and safety measures regarding longitudinal strength of the ship during its design and construction. Throughout history, there were many accidents and sinkings caused by the poor understanding of certain principles regarding the longitudinal strength of a ship. The techniques used in ship design and building has evolved continuously, navigation being much safer than ever in history. A problem*

that still persists it's represented by loading and unloading of cargo and safe handling of ships during these operations. Using Autohydro software from laboratory of The Theory and Construction of the Ship there have been simulated a series of tests on a ship consisting in variation of efforts of shear forces and bending moments on the length of the ship.

23. Study of the Influence of the Geometric Characteristics of the Ship on the Resistance to Advancement of the Ship

Authors: stud. Andrei Alexandru SIDOR, stud. Andra Georgiana SCURTU

Scientific Advisor: Assoc. Prof. Eng. Mihail PRICOP, PhD, Lecturer Eng. George NOVAC, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract *In this presentation we will study the types of external resistances that can affect the ship but also how many types of resistances are caused by the ship's own hull. Ship resistance is dedicated to providing a comprehensive and modern scientific approach to evaluating ship resistance. At the same time we will study the characteristics of the ship, the influence of the main dimensions of the ship on the resistance to advance and not only. To determine these influences on the ship's forward resistance we used Autoship software, the Autopower module, from the Ship Theory and Construction laboratory.*

24. Light Pollution.

Authors: stud. Andrei Alexandru SIDOR, stud. Andra Georgiana SCURTU

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract *About light pollution, measurement the effect of sky glow on a global scale. Effect on astronomy and reduce light pollution.*

Abstract

- light pollution : def
- the evolution of light pollution
- measurements
- effect on navigation and astronomy
- what we can do.

25. Black Holes in the Universe

Authors: stud. Ioana ŞMADICI, stud. Alexandra Maria TOPLICEANU

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract *Celestial navigation is the ancient and modern practice of geolocalization. For sailors, celestial navigation is a step up from dead*

reckoning. This technique uses the stars, moon, sun, and horizon to calculate the exact position. Throughout history, mankind had the desire to discover the mysteries of the unrevealed cosmos. Black holes are some of the strangest and most fascinating objects in outer space. Recent progress in black hole research is illustrated by several scientific theories and latter discoveries. From the cosmic expansion that marked the origin of the universe 13.8 billion years ago to an incredible observational challenge which shows us that a supermassive black hole exists at the center of our galaxy, our research contains information about the formation and growth of black holes and their captivating characteristics based on the theories of the great scientists of astronomy.

26. Individual and Collective Equipment

Author: stud. Ștefania BREAZU

Scientific Advisor: Cristina ALECSE

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract Life-saving equipment is a set of instruments for the rescue of persons from a sinking ship or when they fall overboard. It includes life-saving appliances and devices for their installation, assembly in a ship and launching. It can be used collectively (boats, rafts, life-rafts) and individually.

27. Alternative Mooring Systems

Author: stud Roberto Cosmin TIMARIU

Scientific Advisor: Prof. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The objective of the study is to find alternative mooring systems. The new methods could reduce mooring costs significantly, make the mooring process safer and, faster, and reduce maintenance costs. The study also aims to identify risks and limits of the alternative systems.

28. Abandon Ship Procedures

Author: stud. Ioan-Laurentiu TRUSCA

Scientific Advisor: Lecturer Dumitru Corduneanu, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract This paper is about abandon ship procedures and navigation accidents. What to do in case of an alarm and what equipments are usually used in case of abandon. Causes of emergency and navigation accidents: World seamanship defined as the following common causes of accidents and casualties - subjective and objective. Subjective causes of accidents include: Incomplete implementation of the activities in

preparation for the voyage; study of the area preliminary plotting, ship loading, poor control of the location of the ship and unknowing the area of its distribution; poor knowledge of local rules in the navigation area; absence of estimates of course and speed of the ship, etc. Objective causes of accidents include: heavy weather (storms); navigation in ice; hurricanes; reduced visibility, and others. Ensuring the safety of navigation and life at sea in the ocean (sea) and coastal areas is regulated in the following international documents: STCW 78/95 Convention – Standards of Training, Certification and Watchkeeping for Seafarers; International Convention Safety of Life at Sea, 1974 (SOLAS-74), and its Protocol of 1978; UN Convention on Law of the Sea of 1982; Principles concerning survival radio location devices: Emergency Position Indication Radio Beacon is usually located on the bridge deck. When afloat it will automatically transmit emergency signals giving the ship's position and identifications (MMSI code). The beacon are self powered by means of batteries and transmits signals to satellites 48 hours. GMDSS system ensures a global coverage 24 hours a day and contributes to help saving lives of seamen's in distress. Principles concerning survival radio location devices: search and Rescue Transponder are to be carried on board Survival Craft in an abandon ship situation by one of crew members. They will automatically transmit a sweep-signal when activated by another ship radar. This sweep-signal will influence other ship radars and indicate the position of the Survival Craft. There are 2 ps. on board of ship. And I've mentioned actions of officers, crew and passengers abandoning ship

29. The Ophiuchus Constellation

Authors: stud. Marius-Eduard VERZIU, stud. Adrian-Viorel IONIȚĂ

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: This paper presents and highlights the existence of a new sign, the 13th in number in the catalog of existing ones, named Ophiuchus, which would change all the already known data of the signs (specific days, their duration), dating back centuries, who was Ophiuchus, "the man with the serpent", which are his myths, which is his legend and the constellation with the stars specific to this sign.

30. Working in Multicultural Teams on the Control Bridge

Author: stud. Nicoleta Alina ALEXANDRESCU

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The study aims to describe and explain the peculiarities of working in multicultural teams focusing on: respect all cultures, avoid prejudice and preconceived notions, learn and understand the different: values, traditions, customs, and understand that we should not make judgments of value and to label principles, norms, attitudes specific to other cultures. The study also seeks to identify the dangers that some traits of different cultures may represent towards the safety of the Vessel. In conclusion, on command deck, the respect and the communication are most essential in working with other cultures.*

31. Leaderul de Nave – An Excellent Time Manager

Author: stud. Andrei BĂNUȚIU

Scientific Advisor: Assoc. Prof. Carmen Cojocaru, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *The study aims to describe and explain the importance of time significance and the advantages of Time Management in terms of operational Leadership on the Command Bridge. We emphasize the fact that Time Management involves: setting goals, setting priorities, setting realistic deadlines but also identifying activities that waste our time (delaying, inefficient planning and organization, lack of priorities, phone, indecision). Equally, the study describes attitudes beneficial to good time management such as: sustained work pace, without unnecessary interruptions, assertiveness, prioritization according to importance, compliance with deadlines.*

32. Intact Ship Stability Study

Authors: stud. Ligia Anamaria CHEIAUA, stud. Elena Teodora BANITA

Scientific Advisor: Assoc. Prof. Eng. Mihail PRICOP, PhD, Lecturer Eng. George NOVAC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *The purpose of the Code on Intact Stability for All Types of Ships Covered by IMO Instruments, hereinafter referred to as the Code, is to recommend stability criteria and other measures for ensuring the safe operation of all ships to minimize the risk to such ships, to the personnel on board and to the environment. The stability of a ship under specific loading conditions is considered sufficient when the ship can withstand, without undue inclination, any moment of inclination which may be caused by wind, inflation, ship's turn or passenger movement, taking into account the intended structure, size and use. of the ship, as well as the waters in which the ship is traveling. The understanding of a surface ship's stability can be divided into two parts. First, Intact Stability. This field of study deals with*

the stability of a surface ship when the intactness of its hull is maintained, and no compartment or watertight tank is damaged or freely flooded by seawater. The fundamental concept behind the understanding of intact stability of a floating body is that of Equilibrium. Loading or unloading riggings are absolutely common during the operation of the ship, which causes a change in displacement. This change of the displacement and weight distribution on board will lead to a change the position of the vessel in relation to the free surface of the water and its stability. Loading the mass will cause a series of changes to some of the features as follows: variation of the average draft, transverse metacentric radius variation, center of gravity height variation, variation of the height of the hull center and transverse metacentric height variation. To conduct this study, we used ships with different dimensional characteristics and Autohydro software.

33. A Study of Cyber Risk on Autonomous Ships

Author: stud. Elisabeta Geanina COJOCARU

Scientific Advisor: Lecturer Băutu Andrei, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *The current paper highlights the plans related to the automation and remote control of the ship, how it influences the naval operations, advantages-disadvantages, including the risks of exposure to new threats such as cyber attack. This study aims to answer certain questions, such as:*

- *Are autonomoums vessels like ly to appear?*
- *How exposed are them to cyber attack?*

What is the motivation of such creation?

34. The Polar Aurora

Author: stud. Cătălin-Alexandru GHEORGHE

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The universe is all of space and time and their contents, including planets, stars, galaxies, and all other forms of matter and energy. All these make the surroundings of our planet a place full of mysterious and incredible things and phenomena that people tryed to explain even since antiquity. They managed to create a system of navigation based on stars, planets and horizon used by sailors all around the world. They also analyzed things closer to the Earth, phenomena from our atmosphere like auroras. An aurora is a natural light display in the Earth's sky, predominantly seen in high-latitude regions (around the Arctic and Antarctic), and is the result of disturbances in the magnetosphere caused by solar wind.*

35. Navigation in Tropical Cyclones

Author: stud. Marius-Daniel GHEORGHITĂ

Scientific Advisor: Jr. Lieutenant Eng. Andra NEDELCU, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The purpose of the presentation is to understand the power and hazard of tropical cyclones. We'll touch more topics like conditions for its formation, the classifications of this storms according to wind power, signs of formation or approach of a cyclone to the ship, determination of hazardous and safety areas in its surroundings, maneuvers necessary to get rid of the danger of nature.

36. Study on the Organisation of Search and Rescue Services at the Black Sea

Author: stud. George GHIOCA

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Alecu TOMA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The study of this subject represents the bebeginning of the first maritime world organization on services for rescuing people in danger at sea. This theme presents the creation of the 1979 International Convention for the Search and Rescue at Sea (SAR `79), organized by the International Maritime Organization in Hamburg from 9 to 27 April 1979. This convection presents the reuglations amd obligations of each country on Earth with access to the sea ,that must be followed regarding the creation of these services operating in the territorial area including starting a joint operation with the neighboring state or states if the situation presents itiself that more then one state requires to participate in a commune mission regarding the search and rescue of persons in danger or missing, as wall as the level of organization on the search itself and the role of the main coordinator and the people who will lead the entire mission and how to be rescued and the taken over by the naval authorities of each country and establish the base line of the original accident and after to be handed over to the company`s representatives so that they can be safely sent to their home country.

37. The Great Conjunction 2020

Author: stud. Cristina-Aida GUIU

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract This paper's main objective is to present the Great Conjunction of Jupiter and Saturn including the history and future of the event. Occuring once every 20 years, the meeting from december 21 2020 was a special one, seeing as this the closest these two planets have ever been since 1623.

Besides it being a rare occurrence, another important aspect is the fact that it is not always visible, the last time it was able to be seen clearly, without any obstructions, was in 1226.

38. Study on the Size and Design of the Hull of Catamaran Vessels

Author: stud. Diana Elena HAPLIUC

Scientific Advisor: Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract A catamaran is a double-hulled vessel that is efficient and also generally pleasing to the eye. The catamaran has been developed with a number of variations in hull and combination of characteristics that must be determined and optimized. Stability, manoeuvrability, resistance through water and seaworthiness are the characteristics described to show the dynamic response of a double hulled vessel configuration. The challenges are associated with the design of these types, while aiming to maintain a focus on the catamaran as fundamental.

39. The Evolution of Individual and Collective Means of Rescue at Sea, Internationally. Regulations in the Field.

Author: stud. Raluca-Bianca IOSIF

Scientific Advisor: Lecturer Corduneanu Dumitru, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The present paper aims to present the evolution of individual and collective means of rescue at sea, internationally, as well as specific regulations in the field. Individual and collective rescues on board ships have played an extremely important role in saving and keeping crews alive in the event of a naval disaster, regardless of hydro-meteorological conditions. The means of rescue provide the crew with shelter from the weather, food and water rations, as well as many indispensable signalling and survival tools at sea.

40. Accidents of RO-RO ships –A Catalyst for Change

Author: stud. Cătălina-Ionela MIHAI

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The aim of this paper is to discuss about car carrier incidents, how those risks can be addressed, and provides helpful and practical advice for all seafarers and ship operators, or managers working with these ships. This topic aims to break down the of types of incidents that occur to car cargoes, listing the incidents, the cause of incidents, identifying any documentation needed and identifying any loss prevention steps that can be

taken. There have been a number of serious incidents involving car carriers and other Ro-Ro passenger ships over the years. These incidents were the catalyst for a number of radical changes to the way that these ships are operated and new design features to improve the stability and safety.

41. Operation of Oil Tanks at Offshore Terminals

Authors: stud. Ionuț-Răzvan PANAINTE, stud. Dumitru-Decebal TEGA

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper is about an analysis that consists in performing the operation of unloading or loading oil tankers offshore. This action is realizing through floating buoy anchored offshore for tanker ships to allow handling of liquid cargo such as petroleum products. This is used in areas where it is not available loading or unloading liquid cargo for examples the VLCC or ULCC, this vessels have massive capacity and the operation is difficult in the harbour. They are connected to the underwater pipelines leading to the shore installation.*

42. Inland Waterway Transport

Author: stud. Robert-Georgian POPOACĂ

Scientific Advisor: Lecturer Corduneanu Dumitru, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Inland waterway transport is, together with road and rail transport, one of the three main land transport modes. Vessels transport goods via inland waterways, such as canals, rivers and lakes, between inland ports and wharfs. Half of Europe’s population lives close to the coast or to inland waterways and most European industrial centres can be reached by inland navigation. The main international inland waterway network is the Rhine-Danube network, which, with its length of 14 360 km, represents nearly half of the inland waterways of international Importance. The most important basins are: -the Rhine basin, which is the most developed, maintained and utilised waterway for goods transportation purposes. It is characterized by the highest population and waterway density. Around 80 % of the overall inland waterway freight transport is carried on this river. - the Danube basin, which has the potential to guarantee river navigation between the North Sea and the Black Sea. Around 9 % of the overall inland waterway transports are carried out on the Danube and the Rhine-Main- Danube canal.*

43. Bulk Cargo Liquefaction

Authors: stud. Diana-Larisa PRICEPUTU, stud. Elena OLTEANU

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Liquefaction is a phenomenon in which a soil-like material is suddenly transformed from a solid dry state to an almost fluid state. Many bulk cargoes, such as nickel ore, iron ore fines and bauxite, may liquefy. Liquefaction of mineral ores, resulting in cargo shift and loss of stability, has been a major cause of marine casualties for many decades. This paper presents what is the bulk cargo liquefaction, the causes of this phenomenon, what are the risks for the vessel, which cargoes may liquefy and how disasters caused by liquefaction can be prevented.*

44. Fate of Hydrocarbons Discharged at Sea

Author: stud. Tiberiu-Eduard RĂSUOȚEANU

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *When oil is discharged into sea-water, it is subject to several processes including spreading, drifting, evaporation, dissolution, photolysis, biodegradation and formation of both oil-in-water and water-in-oil emulsions. Our present understanding of these processes, individually and in models, and our ability to express their rates quantitatively are reviewed, and suggestions are made for future research. Emphasis is placed on developing a deeper understanding of oil-water partitioning in dilute oil-in-water emulsions with a view to improving estimations of oil toxicity to marine biota.*

45. Waters in the Area of Competence of Romania

Author: stud Maria-Denisa ROSTOGOL

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this project is presented the area of competence of Romania, what it is composed of, and the navigation rules. Waters in the area of competence of Romania include: inland waters of the sea, territorial sea, contiguous area and exclusive economic zone. Inland sea waters shall comprise the aquatic area between the shore and the line from which the territorial sea of a maritime State is measured, which is entirely subject to national law, the area being part of the territory of the State. The specificity of the territorial sea, which sets it from inland maritime waters, is the harmless right of passage of foreign merchant vessels. This right requires*

that commercial neves be able to navigate through the territorial sea of another State without entering inland waters and cross the territorial sea to ports or from ports to the sea. In the exclusive economic zone, the riparian state has sovereign rights in terms of the exploration and exploitation, conservation and management of natural, biological and non-biological resources of the seas and oceans.

46. CTU Code

Author: stud. Larissa Mihaela SION

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper, as the title suggest it I will talk about the use of freight containers, swap bodies, vehicles or other cargo transport units substantially reduces the physical hazards to which cargoes are exposed. However, improper or careless packing of cargoes into/onto such units, or lack of proper blocking, bracing and lashing, may be the cause of personnel injury when they are handled or transported. In addition, serious and costly damage may occur to the cargo or to the equipment. The types of cargoes carried in freight containers has expanded over many years and innovations such as use of flexitanks and developments allow heavy, bulky items which were traditionally loaded directly into the ships’ hold (e.g. stone, steel, wastes and project cargoes), to be carried in cargo transport units. The person who packs and secures cargo into/onto the cargo transport unit (CTU) may be the last person to look inside the unit until it is opened at its final destination.*

47. Hydrometeorological Qualities in the Strait of Gibraltar

Author: stud. Alexandru-Bogdan STĂNESCU

Scientific Advisor: Captain (Navy) Assoc. Prof. Dinu ATODIRESEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This study analyses the hydro meteorological qualities in the Strait of Gibraltar. The Strait of Gibraltar is the most important barrier disconnecting the landmasses of Europe and Africa on the western Mediterranean extreme. This area is marked by unpredictable weather conditions due to the fact that the sudden changes of wind and sea currents are a regular occurrence. Overall, in this article you will find information about what would be considered as “standard” conditions according to statistics temperatures and weather in the Straits of Gibraltar. You will also find information about other factors to be taken into account when you are in this area.*

48. Propulsion System Using Voith Schneider Propeller

Authors: stud. Marius-Georgian ȘTEFAN, stud. Gabriel-Marian TEGA

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The next presentation will explain the benefits of a new type of propulsion system using the Voith Schneider Propeller. This type of system is based on a cyclorotor design which confers high maneuverability being able to change the thrust direction almost instantly.*

49. Bermuda Triangle

Authors: stud. Andrada-Nicoleta ȚĂRANU, stud. Anca-Mădălina RUSU

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We will present a little history related to the Bermuda Triangle, how far it stretches, why it received this name, why planes and ships disappear in this area, what is hidden on the ocean floor in this area, geographical coordinates*

50. Meteorological Analysis of a Voyage Planning With a Cargo Ship

Author: stud. Radu-Alexandru TUDORAN

Scientific Advisor: Lieutenant Jr. Eng. Andra NEDELICU, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The most important aspect of a voyage planning with a Cargo Ship is the weather on the entire voyage. It is necessary to know the weather in order to be prepared in case of storm or other meteorological events that can damage the integrity of the ship and the crew. The paper is based on how this analysis is done and what aspects are taken into account.*

51. A Study of Naval Accidents in the Baltic Sea Caused by Hydro-Meteorology

Author: stud. Alexandara-Nicoleta BARCAN

Scientific Advisor: Captain (Navy) Assoc. Prof. Dinu ATODIRESEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *This paper is a study of naval accidents caused by hydro-meteorological and geographical conditions on fishing vessels in the Baltic Sea. It also mentions some of the significant incidents corresponding to the area, but also some conclusions and recommendations regarding the reduction or avoidance of such situations.*

52. Unmanned Tugboats. Development and Perspectives for the Maritime Industry

Author: stud. Artem KURILOV

Scientific Advisor: Assoc. Prof. Vladlen SHAPO, PhD

Institution: National University “Odessa Maritime Academy, Ukraine

Abstract: *Tugboats are used to guide large ships into and out of ports. They operate in the relatively same environment, small distances, may be controlled remotely and their behavior is determined by a definite number of factors. Nowadays, when major companies are concerned with automation of every process, the problem of unmanned machinery is extremely relevant. Nonetheless, maritime industry struggles with picking up the latest trends due to the vessels size, the number of variables that influence the operation processes of them, etc. Tugboats can be used as the etalon for creation and adjustment of algorithms of autonomous ship behavior. A way of implementation of the modern approaches, using the contemporary learning algorithms like neural networks, Industry 4.0 and other concepts to speed up the process of developing self-operating vessels, starting from the researching level, is proposed. Propositions on corresponding specialist’s qualification enhancement are described.*

53. The Transport of Live Animals by Sea

Authors: stud. Cezar BĂICOIANU, stud. Ionuț EFTIMIE NICEA

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This project follows the export of livestock, such as sheep, cattle and goats, by sea, how is it done and more importantly how can animal welfare and shipping livelihoods be protected, risk factors of loading and unloading.*

54. Celestial Navigation from Antiquity till Today

Author: stud. Christina – Aliki FLEVARI

Scientific Advisor: Assoc. Prof. Veselka RADEVA, PhD

Institution: Naval Academy “Nikola Y. Vaptsarov”, Bulgaria

Abstract: *Millenia ago, our ancestors would gaze upon the stars, with eyes filled with awe and questions. Wondering what those bright spots were, the field of astronomy would start to emerge and consequently, due to the seafaring tendency of the great ancient civilizations, the branch of celestial navigation as well. The stars would remain the loyal guides of seafarers for many centuries, with the beginning of this heavenly bond to date back as early as the 3rd millennium B.C. However, this enduring relationship between celestial bodies and seafarers has been abruptly interrupted in the*

last decades. The rapid technological advancements have vastly supplanted its practice and usefulness today. Is celestial navigation still relevant in our days? In this article we will examine the field, in both history and future.

55. Liquefied Petroleum Gas as an Alternative Source of Propulsion for Container Ships

Authors: stud. Cornel-Adrian MANOLE, stud. Mădălina Mariana GEORGESCU

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This project is regarding the effects of the current propulsion sources on container ships over the environment and ecosystems at large, factoring the emission of greenhouse gasses (GHG) and what the world can do to balance the effects of global warming by finding alternative sources for fuel and propulsion. We also emphasize the use of LPG as a new type of fuel and considering the implications of retrofitting a ship with such a system and compare it to a standard heavy fuel oil combustion engine.*

56. Technology of LEO Satellite Communication Systems and the LT-3100S System

Author: stud. Costin-Andrei MORUN

Scientific Advisor: Lieutenant Lecturer Eng.Ovidiu CRISTEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *In this presentation I chose to talk about the Technology of LEO satellite communication systems and the LT-3100S System. I analyzed the advantages and disadvantages of using these technologies. This work presents the different approaches to the configuration of the different communication systems based on the Leo and the SEO. It compares their advantages and disadvantages and analyzes their economic viability. And also I chosed to present The LT-3100S GMDSS system which is designed for the Iridium GMDSS safety services and can be used as the primary product of satellite communications on ships, covering the basic communication needs of the ship-to-shore connectivity. The LT-3100S GMDSS system also provides voice, SMS, data, Vessel tracking and other Iridium services with competitive transmission time rates, making it the perfect satellite product on board any ship.*

57. Leadership and Assertiveness on the Main Deck. Levels of Leadership Assertiveness

Author: stud Cătălin DINESCU

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, Ph.D

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper has the purpose to distinguish types of power and authority onboard by offering as a solution an effective bthe practice of assertiveness. We define the power of the leader as being due to the hierarchical position he occupies and by which he takes decisions and ensures that they are fulfilled by using the means of persuasion, manipulation or coercion. The leader's authority targets the professional and psychological qualities of the leader's personality, which the followers value. Assertiveness is the ability to be in tune with yourself (feeling, thinking, doing), expressing one's own opinions, respecting each other's point of view. The efficiency of the ship leader is to achieve the balance between authority and assertiveness in the naval crew and leads to correct attitudes towards authority and rules.*

58. Different Types of RO-RO Vessels and Their Specification

Author: stud. Cătălin DINESCU

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper I will write about the main types of RO-RO vessels, what they carry, why their cargo affect the stability of the ship. There are a lot of advantages of this types of vessel, they gained immense popularity with private car owners and holiday makers. It has greatly contributed to the prospect and growth of tourism. With the help of a RO-RO vessel an individual can easily take their car from one country to another via sea. This ship can also combine well with other transport development, for example, containers. The application of customs-sealed units allows frontiers to be crossed at the earliest possible time. So, it helps increase the effectiveness and speed for the shipper.*

59. Romania's Sea and River Ports

Author: stud. Costin-Mersin ENACHE

Scientific Advisor: Lecturer Dumitru Corduneanu, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The port of Constanta is located in the city Constanta, Romania, on the west coast of the Black Sea, 179 nautical miles from the Bosfor Strait and 85 nautical miles (157 km) from the Sulina Arm, and through it the*

Danube spills into the sea. The port of Tulcea is one of the largest and most important Romanian river ports. Located in the town of Tulcea on the right shore of the Danube, between kilometers 70 and 73.5, including the industrial sector and the commercial one, the port is an important source of income for the city.

60. Celestial Fix

Author: stud. Georgi DIMITROV

Scientific Advisor: Prof. Dimitar DIMITRAKIEV, PhD

Institution: Naval Academy “Nikola Y. Vaptsarov”, Bulgaria

Abstract: Fixing is one of the most important duties of the navigator during his watch. There are different kinds of fixing. One of them is celestial fixing. This is a part of the celestial navigation and it is also commonly used in the navigation. It can be done by observation of different astronomical objects such as planets, stars e.t.c. The purpose of my presentation will be description of this method.

61. The Free Surface Effect of Liquid Cargo

Authors: stud. Cătălin-Alexandru GHEORGHE, stud. Cătălin Ionuț BECULESCU

Scientific Advisor: Assoc. prof. Eng. Mihail PRICOP, PhD, Lecturer Eng. George NOVAC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: In this study was analyzed the free surface effect of liquid from holds, for multiple ship loading conditions, on the initial metacentric height and on the static stability diagram. Free surface effects should be taken in consideration whenever the level of filling in a tank is less than 98%. Two types of holds/tanks from the ship were considered: holds with fixed filling levels (e.g bulk liquid cargo, water ballast), at which the effect of free surface must be determined for the real level of filling which must be utilized in every hold/tank; and also tanks with variable filling levels (e.g consumable liquids such as fuel oil, diesel and fresh water, as well as liquid cargo and water ballast during liquid transfer operations), to which the correction of the free surface is the maximum value reached between the filling limits for every tank, accordint to the instructions for use.

62. Electronic Chart Display System

Author: stud. Gabriela GHIORGHIU

Scientific Advisor: Cristina ALECSE

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Navigating a ship with an Electronic Chart Display and Information System (ECDIS) is fundamentally different from navigating with paper charts. Ecdis is a computer-based navigation system that complies with IMO regulations and can be used as an alternative to paper navigation charts. Integrating a variety of real-time information, it is an automated decision aid capable of continuously determining a vessel's position in relation to land, charted objects, navigation aids and unseen hazards. The presentation is about bridge work-processes and maintenance that should be done, pros and disadvantages of using an Electronic Chart Display and Information System.

63. Space Meteorology and Oceanography: Present and Perspectives of their use in Navigation

Author: stud. George HAGI, stud Silviu HAGI

Scientific Advisor: Captain (Navy) Assoc. Prof. Dinu ATODIRESEI, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: In our paper we will discuss about global monitorization of weather, oceans, seas and rivers and the impact of space in these areas and if it can offer us an overall better navigation. The activity of the Sun's surface creates a type of weather called space weather. Does it damage the satellites that give us information about the weather? If yes, how can we improve our technology to have a better navigation?

64. Economic Impact of Covid-19 and Recovery of the Shipping Industry

Author: stud Silvia HANGANU

Scientific Advisor: Lieutenant (Navy) Eng. Sergiu ȘERBAN, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: In 2020 the entire world was surprised by the Coronavirus Outbreak. COVID-19 has had a major economic impact on global shipping, affecting all shipping sectors from passenger ships to container vessels and oil tankers. When we talk about an economic impact in a certain field we can either have an increase or a decrease in economic operations and/or profits caused by certain factors. The Covid-19 virus has had and still has a negative impact on the maritime industry, which has led to countless economic losses. In 2021 there is a recovery of the activities of cargo and tanker companies, however passenger ship operations are still blocked. They are expected to gradually restart operations in June 2021, but this timestamp has already been pushed several times.

65. Navigation Equipment and Systems in the Control Room

Author: stud. Paul-Danuț HOMORANU

Scientific Advisor: Lieutenant (Navy) Eng. Sergiu ȘERBAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The equipment and navigation systems that are found in the control room, their use and operation. Their operation and necessity on board the ship.*

66. MV Bright Field - Case Study of a Maritime Accident Due to Poor Communication

Authors: stud. Cristi-Stelian IANCA, stud. Malina-Raluca MARIN

Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The present paper deals with problems that appear when communication onboard ship in different working situations is not properly fulfilled. After a classification of reasons related to mis-communication leading to marine accidents, the paper concentrates on a specific case: the 1996 accident of MV Bright Field where problems related to communication failure due to different cultural background between crew and pilot are the source of the case.*

67. Study Regarding the Influence of Meteorological Factors on Navigation Radar

Author: stud. Ștefania-Bianca IOICA

Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The paper reviews the influence of gaseous absorption and of precipitation of various forms in the atmosphere on the performance of centimetre-wave radar equipment, special reference being made to the phenomena to be expected at a wavelength of 3 cm, in view of the wide use of this wavelength for marine navigational radar. The greatest adverse effect is caused by widespread heavy rain, which leads to serious reductions of detection range, particularly in tropical-equatorial regions. The influence of super-refraction in the atmosphere is also discussed, and it is shown how skip effects may occur at times at certain ranges.*

68. Sanitary Safety Measures on Board a Passenger Ship During the Voyage

Author: stud. Roberto Ionuț MAGUREANU

Scientific Advisor: Assoc. Prof. Eng. Romeo BOȘNEAGU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Sanitary safety measures on board a passenger ship during the voyage are some of the most important measures to be taken into account when planning a voyage with a passenger ship. Compared to any other cargo carrier in which the crew is reduced (mostly less than 20 sailors), passenger ships are intended to transport a considerable number of passengers of the order of hundreds or even thousands, in addition to the crew which is usually three times larger than that present in cargo ships.?? Given the large number of passengers, it is necessary to implement very strict health safety measures in order to prevent any medical problems of a communicable nature that could spread among passengers.

69. Considerations for the Inspection and Transport of Liquid Vegetable Goods

Author: stud. Cristian NEDELUCU

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract At one time the shipments of fish (whale) oils far exceeded those of vegetable/animal oils. As new processing methods and increased efficiency for both vegetable (grains) and animal farming increased, so did the volume of trade in vegetable oils and fats, to a point which now rivals that of many chemicals. In this module we address the complexity of bulk vegetable/animal/marine oil cargo surveys. Many of the same principles should be used when surveying packaged edible cargoes as found in tank containers (tanktainers) being the subject of the requirements of the IMDG Code (Dangerous Goods Code).

70. Role of Navigation Systems on Board Ships

Authors: stud Ionuț-Răzvan PANAINTE, stud. Dumitru-Decebal TEGA

Scientific Advisor: Lieutenant (Navy) Eng. Sergiu ȘERBAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract The navigation systems concepts are driving future navigation system planning. They display information on the screens on the strength of ship sensors and have been designed to make easy the work of maritime officers. This paper includes the loch is used to measuring the depth water, distance travelled by vessel and the speed of the vessel. The navigation system which are unaffected by ferromagnetic materials is the gyrocompass, it has role to find geographical direction. Another important navigation system is the Ecdis is used for nautical navigation as an alternative to paper nautical charts and marine radar is used to land obstacles, ships, which helps with information about the speed and distance of the obstacles or other ships. A communication navigation system is GMDSS which is used to

increase safety and make it more easier to rescue distressed ships or aircraft. This equipment and navigation systems is continues and this is beneficial for the ship, crew and cargo.

71. Operating issues associated with cargo unloading system for oil/chemical tanker

Author: stud. Sebastian PĂUN

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *The theme is focused on the technical aspects associated with the loading unloading system on oil chemical tanker vessels. The theme will include system schemas and loading procedures and a dedicated chapter emision VOC.*

72. Global Satellite System

Authors: stud. Florin-Daniel SĂLCIANU, stud. Iustin-Ioan SEVERIN

Scientific Advisor: Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper everything about a satellite system will be presented. For clarity, certain important satellites and their uses are included. Some listed keywords contain:*

- *Mode of operation*
- *Gps System*
- *Galileo Satellite System*
- *Quasi-Zenith Satellite System*

As a result of this document, general knowledge regarding satellites is to be achieved in a most effective manner. In addition, the processes in relation to the data upload of this technology will become easier to comprehend and increasingly facile to utilise. What is unique about this paper is the fact that a survey has been conducted in order to emphasise with the general public. Data has been gathered in order to more meaningfully pick subjects to talk about. To conclude, the audience will most definitely regard satellites as being crucial in today’s society.

73. Considerations Regarding the Construction and Operation of Mobile Drilling Units

Author: stud. Ștefana SAVA

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper will have presented the main notion of Drilling Units; the classification; examples for MOPU and FPSO; the advantages and the*

disadvantages of the drilling units, as well as the offshore structures, regarding specific zone of exploitation. Considering the capacity of those structures, the paper will be addressed to the topic of marine construction of mobile offshore production units.

74. The Carriage of Methanol

Author: stud Andrei-George STAN

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The carriage of methanol in bulk is becoming common in the offshore oil and gas industry, and although there is technical documentation on methanol handling, guidance for offshore carriage by sea is limited. Methanol (Methyl Alcohol, CH₃OH) is a wood alcohol used in oil and gas production to prevent hydrate formation, which often occurs in gas condensate fields. Injection of methanol into the well downhole zone of gas hydrate fields not only causes decomposition of gas hydrates in that downhole zone of the well but also improves downhole zone filtration characteristics. Methanol is a hazardous chemical with significant toxic, flammable, and reactive properties that can adversely affect human health and the environment when not properly handled. The assigned product tanks should be protected by cofferdams which should be inerted by means of water or nitrogen.*

75. Practical Considerations Regarding Stacking and Mooring of Containers.

Authors: stud. Marius-Georgian ȘTEFAN, stud. Gabriel-Marian TEGA

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The main aim of merchant ships is to transport various goods by sea to their destinations safely without any loss or damage in route. For this purpose, it is essential to take adequate countermeasures to prevent cargo shifting and overloading in addition to ensuring proper ship operation.*

76. Influence of Human Factor in Maritime Accidents

Author: stud. Lăcrămioara Georgiana STOIAN

Scientific Advisor: Assoc. Prof. Carmen COJOCARU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Defective human behavior has proven to be the leading cause of maritime accidents. Summarizing the causes associated with them, if we leave aside the unfavorable weather conditions and technical problems, whether we are talking about communication errors, inadequate lookout,*

lack of experience and training or misuse of technology, all these are various human errors. The following scientific paper aims to highlight the importance of knowledge and understanding of the legal framework by seafarers and the close relationship between this aspect and the occurrence of naval accidents.

77. Integration of Eye-Tracking and Assistant Based Speech Recognition for the Interaction at the Controller Working Position

Author: stud. Teodor SALOMEA

Scientifics Advisor: Lecturer Eng. Irina Beatrice ȘTEFĂNESCU, PhD, Eng. Oliver OHNEISER, PhD

Institution: Universitatea Politehnica, Bucuresti

Abstract: Supporting current digitization activities in air traffic management, DLR developed prototypes to apply assistant based speech recognition and eye tracking at the controller working position. Currently, speech recognition output is shown to the ATCO in aircraft radar labels and needs manual acknowledgment even if output is seldomly wrong. This thesis analyses how eye tracking helps replacing the need for this manual confirmation. If the ATCO visually scanned displayed output as detected by an eye tracker and did not intervene in a certain amount of time, the output shall directly be inserted into the ATC system. If the ATCO did not scan the output, visual saliency of aircraft labels is gradually escalated to drag ATCO's attention. The implemented system uses color-coded frames according to dwell times and de-highlights output as soon as it was notified by the ATCO. Hence, manual ATCO workload can be reduced without strong disruptions of workflows.

78. The Propeller

Authors: stud. Anna Elena USTINOV, stud. Elena OLTEANU

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: A propeller is a device with a rotating hub and radiating blades that are set at a pitch to form a helical spiral, that, when rotated, performs an action which is similar to Archimedes' screw. The rotational motion of the blades is converted into thrust by creating a pressure difference between the two surfaces. A given mass of working fluid is accelerated in one direction and the craft moves in the opposite direction. Propeller dynamics, like those of aircraft wings, can be modelled by Bernoulli's principle and Newton's third law. Most marine propellers are screw propellers with

helical blades rotating on a propeller shaft with an approximately horizontal axis.

79. The Role of Ventilation in Preserving the Quality of Goods Transported by Sea

Author: stud. Anna Elena USTINOV

Scientific Advisor: Lecturer Marius APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract *The primary purposes of ventilation are to minimize damage to the cargo and to ensure the safety of the crew and vessel. This is achieved by minimizing the formation of sweat by dew point control, removing hazardous gases which may be emitted by the cargo, preventing excessive heating of the cargo, and removing taint. Ventilation is the supply of fresh air into a space. On bulk carriers, this generally means the provision of fresh air into the cargo holds, which is achieved through either natural or mechanical means. In broader terms, ventilation is understood to be all the steps taken to prevent damage to cargoes from condensed moisture within the cargo holds. One such option for preventing condensation within a cargo hold is the method of air conditioning of the cargo hold atmosphere by the use of a dehumidifier in an internal circulation mode, which does not fit in the narrow definition of ventilation.*

80. Considerations Regarding International Code for Ships Operating in Polar Waters (Polar Code)

Author: stud. Vasile IVAȘCU

Scientific Advisor: Lieutenant Chief Instructor Andrei POCORA, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *IMO's International Code for Ships Operating in Polar Waters (Polar Code) is mandatory under both the International Convention for the Safety of Life at Sea (SOLAS) and the International Convention for the Prevention of Pollution from Ships (MARPOL). The Polar Code covers the full range of design, construction, equipment, operational, training, search and rescue and environmental protection matters relevant to ships operating in the inhospitable waters surrounding the two poles. The Polar Code [entered into force](#) on 1 January 2017. IMO's Maritime Safety Committee has also, in 2019 (MSC 101), approved guidance for navigation and communication equipment intended for use on ships operating in polar waters. The guidance includes recommendations on temperature and mechanical shock testing, and on how to address ice accretion and battery performance in cold temperatures.*

81. Considerations Regarding International Code for Ships Operating in Polar Waters (Polar Code)

Author: stud. Alexandru George POPA

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Diploma paper **Operating procedures with cargo on a chemical tanker** deals with issues of special construction features, adapted to the simultaneous and safe transport of a large number of goods with various features on environmental aggression, specific to chemical tankers; with an emphasis on detailing the operations prior to the operation of the goods, the operations during the loading and unloading of the goods, as well as the risks in the operation of the chemical goods. The paper is structured in three distinct chapters: Current state of maritime transport and current status of chemical/hazardous cargo Presentation of a chemical tanker ship Chemical tanker cargo procedures. The purpose of this work is to present to the personnel responsible for the operation, installations and equipment existing on board in accordance with Annex II Marpol and all procedures related to the operation of the goods and residues. These procedures must be strictly applied in their organization, as well as in the preparation of the equipment and personnel serving them.*

82. MSC Gulsun

Authors: stud. Diana Lorena PRAJESCU, stud. Mihnea PARASCHIV

Scientific Advisor: Lecturer Carmen ASTRATINEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: ***MSC Gülsün** at the time of her launch in 2019 is currently the world's largest container ship. Built by Samsung Heavy Industries (SHI) in South Korea. She is almost 62m (203ft) wide and 400m (1312ft) long. With a cargo system designed by MacGregor International AB the ship has a capacity of 23,756 containers (23,756 TEU) in rows of 24 across. Gülsün is registered in Panama and operated by the Mediterranean Shipping Company based in Geneva, Switzerland and The Netherlands. MSC Gülsün is the first of a new class of 23,000+ TEU vessels to be added in 2019-2020 to the global shipping network of MSC, a world leader in transportation and logistics.*

83. Sustainable Transport

Author: stud. Nicolae-Liviu POTRA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Every day, thousands of vehicles are running all over the world... Our life nowadays depends on means of transport, especially due to the long distances. We are using means of transport in almost each activity, and they*

help us transporting people (cars, buses, trolleybuses), or different sorts of things, like food, clothes, furniture, and all kind of equipments required in various activities. As we already know, the environment should be protected, so we have to come with modern technologies, more efficient and friendly with the nature. Today we are talking about friendly means of transport (electric car, hybrid car, electric bus, trolleybus, solar bus, trams, electric trains and electric ship).

84. Docking Procedures of a Ship

Authors: stud. Robert-Ionuț DEACU, stud. Alexandru-George MITEA

Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The present paper presents the docking procedures of a ship, trying to answer different sorts of questions related to it: what does dry docking stands for, why are ships subjected to dry docking, at what time intervals, under what regulations, are there exceptions for dry docking a ship? The paper will also present pictures of different works done for a ship in Singapore dry docks*

85. Ship Manoeuvring and Directional Control

Authors: stud. Alexandru PIRIU, stud. Victor SOLOMON

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We choose to talk about the ship maneuvering and directional control. Understanding the factor of maneuverability of a vessel is extremely important to a designer or a seafarer, along with other aspects such as structural design, machinery, propulsion, stability and seakeeping. Depending of the type of vessel, the maneuvering can be made with a rudder, a thruster (s) or both. Many of the modern ships today use a combination of rudder and tunnel thrusters in order they have more precise direction and more precise maneuvering in the harbor.*

86. Types of Alarms on Ships

Author: stud. Ionuț PRENTU

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *An alarm device or system of alarm devices gives an audible, visual or other form of alarm signal about a problem or condition. Alarm devices are often outfitted with a siren. An alarm can help us to tackle an emergency or to avoid an emergency situation efficiently and in the right way. Alarm systems are installed all over the ship's systems and machinery to notify the crew on board about the dangerous situation that can arise on the ship.*

II. SECTION: ENGINEERING AND MANAGEMENT

Section Committee:

Chairman:

LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Members:

Assoc. Prof. Eng. Mihai BEJAN, PhD

Lecturer Eng. Rita AVRAM, PhD

1. Analysis of Ways to Reduce Delays in Port Logistics

Author: stud. Ana GUERITEE

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *There are various types of delay factors that could affect the efficiency and effectiveness of the dry bulk cargo operation, especially in port. Hence, it raises the concerns of the stakeholders, as some of them can significantly affect their actual transport plans and cost them extra money to handle the cargo. Due to uncertainty of the most significant delay factor in some dry bulk ports, therefore, this study aims to evaluate the most significant delay factors that causing delays in dry bulk cargo operation. Meanwhile, sub-criterion of “weather and time” is selected as the most significant sub-cause of delay creation in similar port. This study contributes the practical technique and valuable findings to the port and its stakeholders, where it may alert the them to measure the factors that affect their operational performance and business. Also, it introduces the usage of practical and systematical analysis technique for assisting the seaport operator or interested parties in analyzing the potential contributors of a condition in the port settings.*

2. Statistical Analysis of Containerized Transport Following the Covid-19 Pandemic

Author: stud. Liliana-Alexandra HRISTU

Scientific Advisor: Col. Assoc. Prof. Cătălin POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This study presents general details about container transport and what consequences occurred during the pandemic. In order to have a broader understanding, we started by comparing maritime transport with the other types of transport and the budgets that are allocated to them, especially in Romania but also in the world. This is followed by the division*

of maritime transport into each category of ship, how much and how many times they have been used in recent years. Finally, we compared the old statistics with those during the Covid-19 pandemic and made observations on them.

3. Analysis of Port Exploitation Technologies for Solid Bulk Goods

Author: stud. Daniela IONECIU

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *În this paper i will present the organization of a bulk cargo terminal. I described the loading and unloading of goods in a terminal, the development of specialized bulk transport, handling equipment and ship types. Currently solid or dry bulk goods are any materials that can be shipped to the factory it self, mine, field or location of origin of the material and generally involve the use of cranes, silos, bunkers or conveyor belts for storage. The term dry bulk transport is used to distinguish bulk carriers from liquid bulk carriers, such as chemical, oil or liquefied gas carriers. The infrastructure of a port that operates bulk goods consists of: roads, km of railway, transport pipelines (especially petroleum products), quays, locks, bridges, docks, beacons.*

4. Short Sea Shipping in Today’s Europe: A critical Review of maritime transport policy

Authors: stud. Carmen-Andreea LISCAN, stud. Alina-Patricia STOICA

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *During the last two decades, the European Union has led the promotion of Short Sea Shipping (SSS) corridors as an alternative to road transport. The need of establishing a level playing field between transport modes as well as of reducing congestion and other environmental damages from road transport have been pointed out as the main motivations of this promotion. Although other regions are currently evolving action policies to establish and encourage SSS corridors, these are recent and based on the European experience (the first US initiative was developed in 2002). Thus, Europe has come a long way in encouraging SSS. Therefore, it provides a proper scenario to analyze the success and failures of its policies after more than 20 years, in order to provide lessons to other regions and for the future. Here a review of the role of SSS in the European Maritime Transport Policy is presented. The main reasons of its promotion are explained, together with the two different sets of policies: those to fund specific infrastructure and those to fund SSS operations. A critical discussion on*

those policies concludes the article. The main purpose of this study is to provide to researchers and policymakers with an analytical review of the SSS transport policy with the aim of forming the basis of future research on SSS policy and competitiveness.

5. Energy Efficiency Management in Port Activity

Author: stud. Alice-Andreea GRĂDINARU

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** In recent years, increasing energy efficiency has become a highly discussed topic, especially for areas whose activity is significantly dependent on the use of technology. The port industry makes no exception, constantly investing in innovative technologies to participate in the transition from a carbon-intensive port industry to a low-carbon port model. In this context, this presentation aims to analyze operational strategies (e.g. peak shaving, operations optimization), technology usage (e.g. electrification of equipment, cold-ironing, energy storage systems) and energy management systems (e.g. smart grid with renewable energy) for optimizing port and terminal energy efficiency and environmental performance. It is important for ports to take energy efficiency in consideration after performing preliminary fiscal, scientific and environmental examinations and it is also essential to boost energy efficiency awareness and encourage staff to take an active role in the process.*

6. Import-Export Operations for Containerized Goods

Author: stud. Adnan-Dylber ARSIM

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** What makes container transport so important? Certainly not the object itself. The container is an aluminum or steel box, welded with screws and rivets, with a wooden floor and two huge doors at each end. The value of this object lies not in what it is, but in the way it is used. The container is basically a means by which goods are moved from anywhere, with a minimum of costs and complications on the road, which revolutionized the transport industry and changed the world economy. Now, an entire industry has emerged, requiring unprecedented investment in ships, containers, terminals, offices and information technology to manage complex logistics systems. Every day, in every major port, thousands of containers arrive and leave by truck and train. The loaded trucks pass through the gates of the ports, where the scanners read the unique number on each, and a*

computerized system compares them to determine where to unload. This process is almost identical throughout the world. Containers were immediately taken over by land transport, and reduced loading time and transshipment costs reduced freight charges. With the construction of huge ships made especially for the easier handling of containers, freight rates began to fall, and the speed of moving goods from one means of transport to another, made the goods enter an endless circuit, which it starts from Asian factories, reaches stores in America or Europe and back.

7. Current Status and Trends of the Environmental Performance in European Ports

Author: stud. Alexandra ALEXE

Scientific Advisor: Prof. Eng Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Air quality, port waste and energy consumption emerged as the three major environmental priorities of the European port sector in 2013. The research also reveals the diversity of European ports in terms of size and physical environment.*

8. Statistical Analysis of the Evolution of the Maritime Market for Container Transport on the Singapore-Hong Kong Route

Author: stud. Alexandra ALEXE

Scientific Advisor: Col. Assoc. Prof. Cătălin POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In terms of container shipping, economic development is of particular importance for both international and global trade. In 2019, the global container trade expanded at a rate of 1.1%, down from 3.8% in 2018 bringing a total to 152,000,000 TEU. Much of the growth was driven by activity on non-continental East-West, South-South and intra-regional trade routes.*

9. Nautic Sport & Luxury Club

Authors: stud. Alexandra BICA, stud. Oana Gabriela ENE

Scientific Advisor: Lecturer Daniela Simona NENCIU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In order to face the competition manifested on the tourist market, the Nautical Sport & Luxury Club Complex from Mamaia Nord - Năvodari resort has permanently adapted its marketing strategies to the requirements and exigencies manifested among the clients. Competitive services provided at the level of the Complex can be provided only by a well-trained and specialized staff, with appropriate skills and performance. Creating a skilled*

workforce in tourism requires basic education, vocational training, and continuing education in the workplace. At the level of the Nautical Sport & Luxury Club Complex should be adopted, within the personnel policy, strategies for attracting qualified workers in the field, strategies for retaining employees, strategies for increasing the quality of services provided by them by ensuring professional training achieved through qualification courses and strategies to increase competitiveness by providing facilities to high-performing workers. The success of the business carried out at the level of the Nautical Sport & Luxury Club Complex will certainly depend on the investments in human resources and on the strategies adopted in order to increase the quality of the services of the hotel workers and to increase the quality of the tourist services. The strategy of renewal and innovation of the tourist offer is also a solution for the development of the activity carried out at the level of the complex and for the increase of its competitiveness and attractiveness. In this area, the innovation could aim at initiating gastronomic tourist programs related to fish dishes, the real and creative capitalization of the local cultural potential, the traditions of the area or the introduction in the tourist packages, of a day trips in the Danube Delta.

10. A Carbon Footprint Assessment on Construction and Maintenance Operations for the Port of Gothenburg

Authors: stud. Alexandra-Petronela BURDUCCEL, stud. Andreea-Veneția MUNTEANU, stud. Andreea-Mădălina PAPAZARCADE

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Ports are an industry that emits high levels of CO₂ emissions. The purpose of this thesis is to minimise CO₂-eq emissions from the Port of Gothenburg. Four main objectives are used to achieve this purpose. The first is mapping ports, with respect to CO₂-eq emission related activities and reduction targets. Four ports are selected in this report, located in Antwerp, Gothenburg, Los Angeles and Valencia to determine different emission reduction actions. Such actions are a combination of technical development, using same equipment but more efficiently or by change of behaviour. Since no ports have estimated CO₂-eq emissions from construction and maintenance operations before, this report serves as a foundation or inspiration for further development of CO₂-eq calculations. The conclusions from the mapping and carbon footprint serve as a foundation for the development of guidelines, which operates as emission reduction potential areas. This is the last objective, including suggestions for guidelines on how to reduce CO₂-eq emissions in port operations.*

11. Port Security: Between Necessity and Innovation

Author: stud. Diana-Georgiana BACIU

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** Immediately after the devastating September 11th attacks in New York, in recent years there has been a continuous need to increase security in the whole world, including the maritime sector while allowing for the free movement of people and commerce. This topic is very important not only because of the port functions but also because of their specific role, as control points, in the regional, national, and European security. Such being the case, several standards have been developed and improved regarding the protection of port users and the public, as well as the protection of the maritime vessels that are being operated. Despite all the regulations imposed, for example, The International Ship and Port Facility Security (ISPS) Code which was created by the International Maritime Organization (IMO) to define the minimum responsibilities for ship personnel and port operators, security of the maritime industry, and the domain it operates within include both physical and digital paradigms such as their susceptibility to potential attacks. Therefore, this paper aims to present the introductory notions and regulations regarding port security and to highlight the current issues related to them, and also give an insight as to the technologies that are best suited to secure ports, increasing rather than compromising their efficiency.*

12. Study on Ensuring the Protection of the Marine Environment in the Area of the Romanian Black Sea Coast. Means and Processes of Depollution.

Author: stud. Sibel ELIAZ

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** The aim of the paper is to provide the future engineer with the basic knowledge on the study of insurance and protection of the marine environment in the area of the Romanian Black Sea coast. This paper starts from the need to discover new methods of depollution of the marine environment. EU marine policy and legislation require that the impact of pressures on marine waters be reduced by 2020 in order to achieve or maintain good ecological status. The Romanian coast, located exclusively in the Pontic biogeographical region, has a length of 244 km, to which is added the actual marine part, included in the Black Sea bioregion made up of associations of marine, coastal and dune ecosystems. The marine part covers an area of approximately 5,400 km², if we take into account only*

territorial waters. Currently 24.5% of this area has the status of protected natural area.

13. A Review of Energy Efficiency in Ports: Operational Strategies, Technologies and Energy Management Systems

Author: stud. Ana-Maria-Loredana GÂDOIU-MAREȘ

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Many ports and terminals endeavor to enhance energy efficiency as energy prices have increased through years and climate change mitigation is a key target for the port industry. Stricter environmental regulations are adopted by authorities to limit pollutants and GHG emissions arising from energy consumption. Increasingly, port operational strategies and energy usage patterns are under scrutiny. To ingrain sustainability and environmental protection of ports, the use of innovative technology appears as a critical conduit in achieving a transition from a carbon-intensive port industry (dependent on fossil fuels) to a low-carbon port model by harnessing renewable energy, alternative fuels (e.g. LNG, hydrogen, biofuel), smarter power distribution systems, energy consumption measurement systems. In this context, this paper conducts a systematic literature review to analyze operational strategies (e.g. peak shaving, operations optimization), technology usage (e.g. electrification of equipment, cold-ironing, energy storage systems) and energy management systems (e.g. smart grid with renewable energy) for improving the energy efficiency and environmental performance of ports and terminals. Research gaps and future research directions are identified. Analysis shows that there is a great potential for ports to achieve further energy efficiency and researchers have many impactful research opportunities.*

14. Safety Management and Risk Management in Port Logistics

Author: stud. Laura-Maria GOMOLEA

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The essential feature of health and safety management in the port industry is the control of health and safety risks. The techniques for controlling these risks are essentially the same as for controlling other risks, such as financial and environmental risks. Safety management should therefore form part of an organization’s operational system and should essentially have the same quality management approaches as apply to environmental and safety risks. Safety management in port areas implies the identification of the most significant hazards and the systematic assessment*

of the risks posed by those hazards in foreseeable circumstances. In ports, the hazards associated with docking structures, lifting and handling devices, flammable and explosive substances, access to ships and ship stores, working with containers and hazardous substances form some of the general hazard groups that should be considered.

15. Logistics Activity and Logistics Chain

Author: stud. Darina-Maria IONESCU

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Logistic system provides support for supply and sales activities, having as its main functions: planning and managing logistics activities in the sales process, planning and management of supply activity, inventory management and control. Logistics is seen as a strategic resource for the organization, a source of competitive advantages and a competence that connects the company with its customers and suppliers world-wide for more and more organizations through two interrelated flows- the flow of goods and information. Also, Logistic is an area of evolution, which has undergone and is undergoing numerous changes due to the characteristics of the economic environment in which it is inserted. This has led to the development of logistics outside the enterprise and the design of a supply chain.*

16. Sources of Pollution in Shipping and Port Activity

Author: stud. Denisa-Iolanda LĂLUȚ

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Ports have long been gateways for global trade and are critical to economies around the world. They are hubs of economic activity; they are also major sources of ship pollution, vehicle emissions, dust and noise. Ports are often close to heavily populated urban areas - which can mean exposing millions of inhabitants to additional pollution. As city environmental agencies look to improve air quality, air pollution from ships and ports stimulates control measures. The environmental impact of shipping includes air pollution, water pollution, acoustic, and oil pollution. Also, is known that ships are responsible for more than 18 percent of some air pollutants. In this regard, present paper analyzes sources of pollution due to shipping and port activities.*

17. Comparative Studies of two Natural Biodegradable Materials Used in Petroleum Product Depollution

Author: stud. Anca Ana-Maria MIHALCEA

Scientific Advisor: Lecturer Eng, Manuela Rossemary APETROAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Over the years, the marine environment has become a vast field of human activity, thereby enduring the negative consequences of the excessive technical and economic development of society. Hydrocarbon pollution is the most prominent form of marine pollution. The main fault lies in shipping, either through operational leaks or navigation accidents. Among the techniques for removing/cleaning the film of oil pollutant formed on the water surface, there is an increasing use of absorbent materials, which retain and encapsulate, almost instantly, petroleum products. The identification of depolluting materials should be a priority for current research. Native, natural, biodegradable and non-toxic absorbents must be found which, by their use, are efficient both from a practical and an economic viewpoint. Our preliminary studies aim to identify a new absorbent, biodegradable material (Lythrum Salicaria), with a possible purification potential, comparable to a natural, standardized material, currently successfully used in petroleum products depollution (Spill-Sorb).

18. Study on Technique of Measuring the Efficiency of Hybrid Straddle Carrier

Author: stud. Mirela BERTESCU

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The Kyoto Protocol entered into force in 2005, and actions to prevent global warming are highly desirable in many industrial sectors in Japan. Green House gas in the port's logistics activity is emitted by the ship during anchoring and cargo gear during cargo handling operations for the ship and so on. The Kashii Park Port container terminal in Fukuoka-Japan addresses this issue by using low-emission handling equipment, such as the hybrid rider-type carrier (HSC). The hybrid SC (HSC) model is introduced at the beginning of the 21st century as part of the reduction of greenhouse gases in the container handling application. However, it is necessary to measure its effectiveness for its optimal use. In this paper, we studied the effect of HSC which used a combined system of battery-powered system and electric generation system in reducing energy consumption and gaining renewable energy. The energy efficiency of the HSC is estimated by analyzing the actual operating data at the container terminal.

19. The Basics of Audio Engineering

Authors: stud. Liviu-Gabriel MITROI, stud. Alexandru-Mihaita DEDIS

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Our scientific papaer wants to show the people the basics of audio engineering, starting with an introduction in the musical production. It will explain what mixing and mastering is based on, the plug-ins, hacks and terms and all the items constituting the whole process of making a song.*

20. Interdisciplinary Approach to Environmental Issues in Maritime Logistics

Author: stud. Cristina-Mihaela NEACȘU, stud. Georgiana ZAHARIA

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Sustainability issues in the field of shipping, port and maritime logistics, commonly known as the maritime transport and logistics industry, have historically received less stakeholder attention as compared to aviation and overland freight sectors. However, as International Maritime Organization (IMO) regulations on ships and port/city interaction has increased , the stakeholders in the industry have gradually started paying attention to sustainability issues, across all the sectors, such as, aviation, land transport, and supply chain. As a result, the industry has accumulated a significant body of academic research outcomes over the last two decades. This articol aims to examine the various themes in recent sustainability studies, particularly relating to shipping, port, and maritime logistics, and identify and discuss the key topics emerging in sustainability in the industry. It will contribute to increasing industry stakeholders’ understanding of the current situation in sustainability, assist them in the design of appropriate managerial insights and help them develop appropriate sustainability policies for the industry.*

21. Improving the Security of Containers in Port Related Supply Chains

Authors: stud. Anamaria-Georgiana PETCU, stud. Alexandra-Oana NIJLOVEANU

Scientific Advisor: Commander Assoc. Prof. Filip NISTOR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *An increasing part of goods are transported using containers Authorities demand increased freight visibility in order to assure compliance with the regulations and to avoid import of illicit goods. The paper discusses the technological possibilities to improve the integrity of containers in port related supply chains. Possible solutions are adding*

monitoring equipment, such as e-seals and tracking devices, monitoring the environment using cameras, improved gate processes. The optimal use of these technologies requires sharing of information between different stakeholders.

22. Modern Management Systems

Author: stud. Andra-Larisa POPA

Scientific Advisor: Cornel GRIGORUȚ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Management is a term derived from English and adopted as such with a very complex semantics, which designates the science of organization management and their scientific management. The management system can be defined as a coherent set of elements, principles, rules, methods, decision-making, organizational, informational procedures, etc. through which the modeling and execution in a specific manner of all or most of the functions of the management process for a company is ensured, in order to increase the economic profitability. So, the development of science and technology requires the development of new methods of quality management, of course with existing methods and quality management systems new approaches. Management systems are constantly advancing, and as managers should be increasingly more modern. Thus, we can apply different methods: by objectives (MPO), by projects (MPP), by products (MPPr), by budgets (SCB), by exception (SCE), by systems (MPS), by innovation (MPI) and by consensus (MPC).

23. Optimal Logistics Networks: the Case of Italian Exports to Russia

Authors: stud. Alexandra ALEXE, stud. Mirela BERTESCU

Scientific Advisors: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD, Eng. Dragoș SIMION, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: This paper is based on the concept of "logistical excellence" and presents a critical analysis of Italian case studies. This shows how some Italian companies are involved in foreign trade, and which have also changed their network design to achieve excellent performance. One of the most interesting results of this analysis is that in some cases, the objectives behind them made decisions that were too large and created an "overperformance" and also generated network projects that were too expensive and complex. When compared to a balanced analysis of the needs of customers and logistics operators.

24. The Role of Mathematics in the Development of Logical Thinking

Authors: stud. Seyal AMET, stud. Alexandru BURLACU

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** Thinking is defined as the cognitive process of the central island in reflecting the reality that, by abstracting and generalizing coordinated mental actions, extracts and processes information about categorical and determinant relationships in the form of concepts, judgments, and reasoning. In order to expand his understanding of phenomena that are within his marginalized senses, man uses - along with other ways of knowing - the knowledge of mathematics. Problems of mathematics are closely linked by enrolling them in practice, but also by solving them. Mathematical knowledge has a special contribution to the development of logic and logical creation, to the development of the receptivity of pupils in the primary cycle. By learning mathematics, a series of attitudes are created: to use personally and actively, to use analogies, to analyze a problem and to decompose it into simple problems, as well as a series of math skills: the ability to selectively perceive, the ability to move from the differential to the whole or vice versa, the plurivalent of thinking, the ability to put a concentrated effort.*

25. Preliminary Estimation of the Carbon Footprint in a Container Terminal

Author: stud. Andrada ANDREI

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** Maritime shipping is the world's most carbon-efficient form of transporting goods - far more efficient than road or air transport. Yet, if shipping were a country, it would be the sixth biggest in terms of emissions. In port logistics, not only does the energy consumption generate carbon emissions, but other business activities do as well. This paper firstly characterizes the sources of carbon emissions in the terminal and then measures the carbon footprint.*

***Key words:** container terminal, emissions, carbon footprint.*

26. The Study on the Desensitization and Refueling of Ships on the Romanian Black Sea Coast

Author: stud. Alexandru Eduard ATANASOF

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Drainage is the operation of unloading, of removing a failed ship from land. The decommissioning operation consists of detaching a ship from the landfill and towing or towing it to deep water, restoring its buoyancy. Backflow is the operation of lifting a sunken ship from the bottom of the water and putting it afloat. Before choosing the embankment method, it is necessary to know the position of the sunken ship and the damage suffered by its hull (water holes) by drawing up a draft.*

27. Comparison Between two European Ports

Authors: stud. Mălina-Cristina BĂLAN, stud. Ștefania BURLAN

Scientific Advisor: Commander Assoc. Prof. Filip NISTOR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The paper proposes a comparison between port of Constanta and port of Piraeus. The port of Constanta in Romania is located on the west coast of the Black Sea. It occupies an area of 3,926 hectares. At the same time, the port of Piraeus in Greece is located southwest of the Acropolis and occupies an area of 3,900 hectares. The port of Constanta is the largest port in Romania and the fourth largest in Europe, the port of Piraeus is the largest port in Greece. Both are seaports, tourist ports, only the port of Constanta is a river port. Another similarity between the two ports is that both have good connections with all modes of transport. The paper will present the port terminals, the categories of port services specific to both ports, the analysis of S.W.O.T. (strengths, weaknesses, opportunities and threats), port statistics, as well as development projects for each port.*

28. Analysis of the Possibilities of Using Renewable Energy Sources in the Activity of Port Operators

Author: stud. Claudia BULGARU

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This study starts from the need to discover new ways to produce renewable energy that have the least possible impact on the environment. The paper aims to highlight the energy potential in the Romanian coast, either wind or sea waves or currents, and the possibility of obtaining this energy in terms of inclusion in existing utilities, related to the marine space of Romania. The world's oceans and seas have always been exploited in terms of navigation, transportation and the oil sector. The aim was to conduct research studies on offshore wind. This study took into account the comparison of the data provided by a meteorological model, with data from the weather stations along the Romanian coast, respectively the weather station off the Black Sea, located on the Gloria oil rig.*

29. The Romanian Offshore Energy Potential

Authors: stud. Elena-Mădălina CHIRILĂ, stud. Diana NEACȘU, stud. Iordana OLTEANU, stud. Nicoleta-Diana TRACHE

Scientific Advisor: Lecturer Eng. Rita AVRAM, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The paper will present an analysis of the Romania offshore energy resources. In Europe, wind power projects have been considered a competitive market. However, this is not yet the case in the Black Sea, where no offshore wind farms are currently operating. At the same time, the gas resources of the Black Sea are so great that, if exploited, offshore resources could propel Romania into the position of the largest producer of natural gas in the EU and will bring benefits not only for the country's energy security but also economic benefits. The paper will look over the most suitable location for the development of wind energy projects in the coastal areas of Romania, as well as, the planned or developed offshore wind and gas projects in the Black Sea.*

30. Assessment of the Energy Performance of Warehouses with Autonomous Vehicle Storage and Retrieval System

Author: stud. Cristina-Mihaela CLISERU

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Autonomous warehousing is moving beyond traditional crane-based AS/RS technologies on the way to autonomous vehicle (AV) based AS/RS (AVS/RS) technologies. AVS/RS proposes substantial flexibility with respect to throughput capacity in the transfer of unit loads in high density storage areas due to having opportunity in changing the number of AVs in the system. Because of recent trend in ecological concern, an efficient AVS/RS warehouse design should not only consider minimization of cycle time of a transaction to process but also consider the minimization of energy consumption in the system. Currently autonomous systems are already capable of eliminating the human presence in solving many tasks performed by logisticians and have the ability to improve over time. In this study, we explore energy minimum AVS/RS warehouse design providing maximum utilization of resources in the system.*

Keywords: *Automated warehouse, AVS/RS, AS/RS, Warehousing*

31. Collision Avoidance Using ECDIS and AIS

Author: stud. Ștefan-Octavian COJANU

Scientific Advisor: Lieutenant (Navy) Eng. Sergiu ȘERBAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The Electronic Chart Display and Information System (ECDIS) is already a well known key navigation equipment for its high efficiency and reliability. Nowadays the collision avoidance systems are a more and more important analysis matter in the interest of safety of navigation. This study is based on ECDIS and AIS collision avoidance system and after evaluating the statistics and how this equipment work, the paper will conclude with the feasibility of the system.*

32. The Impact of Innovation on Dock Labour: Evidence from European Ports

Author: stud. Theodora DOLJENCO-MIHAI

Scientific Advisor: Commander Assoc. Prof. Filip NISTOR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The market environment of ports and terminals is continuously pushing terminal operators to achieve higher levels of dock labour performance. This paper proposes an original conceptual framework to identify, classify and evaluate innovative initiatives of terminal operators addressed to enhance dock labour performance. We link the innovation concept to a market-driven perspective on the organization of dock work in light of changing market requirements. The conceptual approach not only considers technological innovations, but also organisational and regulatory innovations. The framework is used to analyse a set of innovative initiatives of terminal operators in European seaports. The findings reveal that innovative initiatives can have very different characteristics and ramifications when looking at the type of innovation, the boundaries of innovation, the nature of the actors involved, the (expected) magnitude of impact and the impact of labour performance.*

33. Ship Damage Stability Study

Authors: stud. Simona-Mihaela DUMITRACHE, stud. Alina PLÂNGE, stud. Georgian Teodor POTERAȘU

Scientific Advisor: Assoc. Prof. Eng. Mihail PRICOP, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This study analyzed the effect of liquid-free surfaces in warehouses, for several loading conditions of a ship, on the initial metacentric height and on the static stability diagram. Free surface effects should be taken into account whenever the level of filling in a tank is less than 98%. Two types of on-board storage / tanks were considered: warehouses with fixed filling levels (eg. bulk liquid cargo, water ballast), in which the effect of the free surface must be determined for the actual level of filling to be used in each warehouse / tank and tanks with variable filling*

levels (eg. consumable liquids such as fuel oil, diesel, and fresh water, as well as liquid cargo and water ballast during liquid transfer operations), where the free surface correction is the maximum value achieved with in the filling limits provided for each tank, in accordance with the operating instructions.

34. Decarbonization of Maritime/Naval Transport

Authors: stud. Bianca-Petruța DUȚU, stud. Alexandra GHERMAN

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Decarbonization is the reduction of carbon dioxide emissions by using low-carbon energy sources, resulting in lower greenhouse gas production in the atmosphere. Starting from this definition, we will approach the subject of decarbonization to find solutions for the lowest possible pollution for maritime / naval transport. Rapid decarbonisation is becoming increasingly necessary as the transport sector moves towards electricity, increasing the demand for electricity. Therefore, greater energy efficiency becomes a priority for meeting emission targets and improving global air quality and temperature.*

35. Environmentally Friendly Technical Solutions in a Containerized Terminal

Author: stud. Cristina GORGOANĂ

Scientific Advisor: Prof. Eng. Florin NICOLAE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *A port or a terminal is always associated with various adverse environmental impact. Sustainability practices in port operations are critical issue to achieve port sustainability involving economic, social and environmental issues. There are different tools and standards to measure environmental performance; such as ISO 14001, ISO 14031, EMAS. But incorporating environmental sustainability into the Balanced Scorecard gives comprehensive, internally-developed environmental performance management tool to improve ecological sustainability. Container terminal play an important role in transportation of containerized goods in global supply chain. The main energy consumer in a container terminal are operational equipment and vehicles used in the terminal to handle containers. The purpose of this paper is to enhance our understanding on environmental practices in the green container terminal operation.*

Keywords: *Environmental impact, port sustainability, container terminal operation.*

36. Study of the Efficient Use of Cargo Handling Assets of a Port Container Terminal in the Context of Multimodal Transport

Author: stud. Demirel IAIA

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Summary:*

The topic of the diploma project entitled "Study of the efficient use of cargo handling means of a container port terminal in the context of multimodal transport"

- 1. Organization and conduct of activities in a container port terminal. Case study;*
- 2. The particularities of multimodal transport;*
- 3. Means of handling and transferring containers in a specialised port terminal;*
- 4. Management of efficient (optimal) and safe use of container handling and transfer means;*
- 5. Conclusions*

37. Electronics Technician

Author: stud. Alexandru MARGALINA

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *My scientific paper deals with engineering information and will contain data about the role of the electronic technician on board the ship. The electronic technician, tests, maintains and repairs the ship's electronic equipment. This may include: the command and control system, the communication systems, the information systems, the radar, the sonar and the navigation equipment.*

38. Automating Manufacturing Systems with PLCs- Logical Sensors - Sensor Wiring: Sinking / Sourcing

Author: stud. Marius Dănuț Ovidiu OCNERU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *When we talk about sources and sinking, we refer to the output of the sensor which acts as a switch. In fact, the sensor output is normally a transistor, which acts as a switch (with some voltage loss). A PNP transistor is used for the output source, and an NPN transistor is used for the sinking input. When we talk about these sensors, the temporary power supply is often changed with PNP, and the sinking with NPN.*

39. Marine Power Supply Management System

Author: stud. Marius Dănuț Ovidiu OCNERU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The power supply management system performs control and protection diesel-generators as well as power supply management. Each diesel-generator is equipped with its own PMS system (PMS - Power ManagementSystem) which is connected to a control panel. The control panel has the role of allowing reading and setting the generator parameters. These operations can be performed and centralized by an operator's workstation. This system performs the following functions:- automatic or manual connection of the generator to the on-board network;- automatic synchronization;- frequency adjustment;- power measurement (3 phases);- coupling and disconnecting consumers;- monitoring the critical parameters of the generator: overvoltage, overload;frequency increase, etc.*

40. Artificial Intelligence on Board

Author: stud. Liviu Andrei PĂUN

Scientific Advisor: Assoc. Prof. Andrei BĂUTU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *I will explain why the artificial intelligence is not only more efficient but even safer. I will talk about different types of artificial intelligence, and the vast variety of fields that it can be applied to, including ships and handling dangerous cargo and supplies on chemical tankers. The history of A.I. is very interesting and its ascending path is proof that in the near future it will become a common use in many fields. Recent studies have assessed its applicability in maritime shipping with the goal to improve security of manned ships but also to develop fully autonomous ships. In this paper I will present the current status of AI integration in navigation and I will discuss advantages and disadvantages.*

41. Maintenance of on-Board Systems

Author: stud. Elena-Mădălina PORUMBOIU

Scientific Advisors: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD, Eng. Dragoș SIMION, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The verb "to maintain" becomes synonymous with "a purpose to continue to exist" and so this need to extend life is the essence of maintenance work. The need for maintenance naturally arises to oppose the forces of degradation and may be the result of an intervention following an equipment maintenance or repair plan. Also, reducing costs and making the*

industrial process more profitable can be achieved only by combining various factors like increasing the reliability of the machine, increasing safety in operation, reducing operating costs. All of these will lead to a total cost efficiency.

42. The Displacements Calculus of a Beam

Authors: stud. Andreea STOICA, stud. Andreea-Catalina BUTNARIU

Scientific Advisor: Assoc. Prof Eng. Mihai BEJAN, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The strength of materials considers the bodies deformable under the action of external loads, establishes the calculus equations for strength studies, their rigidity and stability in order to achieve safe technical constructions in operation. The objective of this paper is to determine the bending displacements of a beam using three different methods. There are two effects produced in the beams, displacements normal to the axis and the rotation of the axis in a plane perpendicular to the moment vector, more precisely around the direction of the bending moment. If this last mentioned axis coincides with one of the main central axes of the cross section of the bar, then a simple bending occurs. All aspects approached in this paper highlight issues regarding the dimensioning, verification and determining of the maximum load, in case of simple bending.*

43. Carbon Footprint Measuring in Supply Chains

Author: stud. Cristiana Larisa STAN

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Over the last few years, the fight against climate change has become one of the main topics of international debate. Hence, consumer behaviour has begun to change as they have started to assess the environmental impacts of the products and services they buy. Although various methods exist for measuring environmental (e.g. carbon) impacts, there is no international consensus about the most appropriate one. In addition, calculations can also be affected by limited data availability and uncertainty surrounding the value of key variables. This paper proposes a conceptual framework for measuring and analysing the carbon footprint in supply chains. This research contributes to the knowledge and practice of green supply chain management, at the corporate level, by providing robustness. This aids the decision-making process by identifying strategies in order to reach the efficiency that can be achieved by reducing CO₂ emission over the supply network. The framework is validated using real data from a supply chain belonging to the agro-industrial sector. Finally,*

these results and experience is generalized in order to show the difficulties and challenges in the measuring task.

44. The Importance of Sport in Maintaining a Healthy Lifestyle

Author: stud. Dragoş Petrişor VERZIA

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Health must be maintained in a person's top priorities. One of the best ways to keep your health up for any kind of challenges it may come across, it is to practice constant sport, in any method you are comfortable with. Doing constant work on this lane has several major benefits. From maintaining a constant pulse, good blood pressure, elimination of toxins through sweat and many other changes that your body makes during and after the effort. Physical activity in young years contribute to body development and to acquire good habits since an early age. And as old latins say „Men sana in corpore sana”.*

45. Does National Scale Economic and Environmental Indicators Spur Logistics Performance? Evidence From Uk

Authors: stud. Vlad CUCIUREANU, stud. Alexandra – Daniela GHEORGHITA

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The aim of this study is to examine the association between national economic and environmental indicators with green logistics performance in a time series data of UK since 1981 to 2016. The research used autoregressive distributed lag method to understand the long-run and short-run relationships of national scale economic (foreign direct investment (FDI) inflows, per capita income) and environmental indicators (total greenhouse gases, fossil fuel, and renewable energy) on green logistics. In the short run, the research findings indicate that the green logistics and renewable energy have positive relationship, while fossil fuel is negatively correlated with green logistics operations. On the other hand, in the long run, the results show that FDI inflows, renewable energy sources, and per capita income have statistically significant and positive association with green logistics activities, while foreign investments attracted by environmental friendly policies and practices adopted in global logistics operations, which not only increase the environmental sustainability but also enhance economic activities with greater export opportunities in the region.*

46. The Court of Auditors

Authors: Adrian DIACU, Florina DRĂGHICI, Flavia-Ioana FLOREA

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The main task of the Court of Auditors is to audit the accounts and oversee the implementation of the budgets of the institutions of the European Union. It aims to improve financial management of EU money and to report to EU citizens on how EU money is used.*

47. Transport of Cargo in Containers

Authors: stud. Mihai SOTIR

Scientific Advisor: Prof. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *International shipments of goods, especially in the maritime sector, are mainly based on container transport. These containers are made in standard sizes and can be transported efficiently over long distances and transferred from one means of transport without being opened. Standardised containers have transformed the shipping and transport industry, allowing the transport of goods by rail, road and ship easily, as the containers can fit onto different forms of transport with ease. The standardisation of containers has helped increase efficiency and economies of scale when transporting the approx. \$3tn of trade which goes through our transport systems each year, from aerosol cans to zebras! The idea of using some type of shipping container was not completely novel. Boxes similar to modern containers had been used for combined rail- and horse-drawn transport in England as early as 1792. The US government used small standard-sized containers during the Second World War, which proved a means of quickly and efficiently unloading and distributing supplies. However, in 1955, Malcom P. McLean, a trucking entrepreneur from North Carolina, USA, bought a steamship company with the idea of transporting entire truck trailers with their cargo still inside. He realized it would be much simpler and quicker to have one container that could be lifted from a vehicle directly on to a ship without first having to unload its contents. His ideas were based on the theory that efficiency could be vastly improved through a system of "intermodalism", in which the same container, with the same cargo, can be transported with minimum interruption via different transport modes during its journey.*

48. Impact of Navigation Safety on Port Operations

Authors: stud. Geanina Andreea ENE

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Transport is the activity of moving people, goods, signals or information from one place to another. The term comes from the latin “transportation“, trans (fish) and porter (wear, carry). Transport is the activity that has arisen with the existence of man. The physical limits of the humanbody is terms of the distance that could be traveled on foot and the quantity of goods that could be transported have, over time, resulted in the discovery of a variety of routes and means of transport. It Facilitates access to natural resources and simulates trade.*

49. Impact of navigation safety on port operations

Authors: stud. Ana - Maria CAZAN

Scientific Advisor: LCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The main chapter of the chosen theme is maritime legislation.*

Law no. 108/2009 for Romania's accession to the 2001 International Convention on Civil Liability for Oil Pollution Damage (BUNKERS), adopted in London on March 23, 2001 Article 1(1) Romania accedes to the International Convention on Civil Liability for Damage Caused by Consumption of Petroleum Consumption from Marine Vessels (BUNKERS), adopted in London on March 23, 2001, by the Final Act of the International Conference on Liability and Compensation for Damage. caused by hydrocarbon pollution from seagoing ships, London, 19-24 March 2001.(2) The accession is made with the declaration provided in art. 2.

III. SECTION: MILITARY SCIENCES AND INFORMATION

Section Committee:

Prof. Ion CHIORCEA, PhD

Members:

Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

1. Incursion in the Issue of Psychoanalytic Interrogation, During the HUMINT Process

Author: stud. Aidar-Tolga CIORABAI

Scientific Advisor: Lecturer Florentina HĂHĂIANU, PhD

Institution: „Henri Coandă” Air Force Academy, Braşov

Abstract: *Romania is a country that is making remarkable progress in the process of consolidating democracy. Knowing very well the tumultuous history of the activity of DGSP and, implicitly, of DIA, through the prism of the existing political regime in that period, it can be argued that certain methods used were extremely harsh, for example the interrogation carried out in order to brutalize physically and mentally the person being investigated. Today, the phenomenon of extracting information directly from humans can be determined by the phrase Human Intelligence. Psychoanalytic interrogation is a method that has the ability to achieve the goals of such an action, being much more effective than the techniques used in the past. Thus, the present material presents, following a qualitative analysis, the defining elements and perspectives of the extremely complex act that is reflected by the psychoanalytic interrogation within the HUMINT process, from a democratic system of security.*

2. Geopolitical and Geostrategic Analysis of the Conflicts in Afghanistan

Author: stud. Marian COSTEA

Scientific Advisor: Lecturer Edith Kaiter, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This presentation is about the importance of Afghanistan both from a geostrategic point of view and from a geopolitical point of view. I tried to include the history of this state, the military conflicts but also Romanian's involvement in these conflicts. This state being difficult to try*

from all point of view, thus stopping its development and at the same time a difficult test for the civilian population.

3. Unmanned Aerial Vehicle in Military Operations. and Drones Against Covid-19

Author: stud. Mario-Alexandru DULCE-ENESCU

Scientific Advisor: Captain (Navy) Eng. Cătălin CLINCI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Unmanned Aerial Vehicles (UAVs) make significant contributions to the war fighting capability of operational forces. The assumption is that piloted, remotely piloted, and autonomous vehicles have advantages and disadvantages in military operations, and that these vary in strategic significance for different levels of conflict.*

4. The Conflict From Tigray

Authors: stud. Răzvan-Ștefan FRUNZĂ, stud. Nicolae ALISTAR

Scientific Advisor: Colonel Assoc. Prof. Catalin POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We have decided to chose as a theme to debate "The Conflict from Tigray" from the North area of Ethiopia. The state of Tigray is 1 of the 9 territorial-administrative area of Ethiopia. The capital city of this region is named Mek'ele. From a confessional point of view, 95.5% of the population is Christian-Orthodox, 4.1% Muslim and 0.4% Catholic. The most widely spoken language is Tigrinya.*

5. Impact of Weather on Military Operations

Author: stud. Andra ÎNSURĂȚELU

Scientific Advisor: Prof. Sorin CHEVAL, PhD

Institution: „Henri Coandă” Air Force Academy, Brașov

Abstract: *The main purpose of this article is to observe and analyse the influence of the weather on the military activities. Weather has been a significant, and sometimes decisive, factor in military operations throughout history. These impacts include increased risk to life and safety, injury, and a degrading effect on mission performance. In order to accomplish a given mission, all the factors must be analyzed. The weather is one aspect that humans are not able to control, so they must find a way to deal with the meteorological events that occurs during the mission. Moreover, it helps us understand the necessity of studying and knowing the atmospheric phenomena in order to win warfare. In this way, the article proves that meteorology becomes a major “weapon” when talking about military,*

especially on the actual battlefield, where it really makes the difference between victory and defeat.

Keywords: *meteorology, military operations, weather, missions*

6. Understanding Hybrid Warfare

Authors: stud. Claudiu JOLDESI, stud. George IONESCU

Scientific Advisor: Prof. Sorin CHEVAL, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The relative novelty of hybrid warfare lays in the ability of an actor to synchronize multiple instruments of power simultaneously and intentionally exploit creativity, ambiguity, non-linearity and the cognitive elements of warfare. Hybrid warfare – conducted by state or non-state actors – are typically tailored to remain below obvious detection and response thresholds, and often rely on the speed, volume and ubiquity of digital technology that characterizes the present information age. It concludes that hybrid warfare is already prevalent and widespread, is used by state and non-state actors, and is likely to grow as a challenge, justifying new efforts by nations to understand the threat it presents.*

7. Use of Drones in Search and Rescue at Sea

Author: stud. Octavian-Ion MANTA

Scientific Advisor: Captain(R) Viorel COSTACHE

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Saving life at sea is very important and that is why we must look for new methods to be able to act as quickly and efficiently as possible. Drones can be used for faster and more efficient search.*

8. Military-Political Role of the Submarines in Black Sea

Author: stud. Dimo SAVOV

Scientific Advisor: Nikola STOYANOV, PhD

Institution: Nikola Vaptsarov Naval Academy, Bulgaria

Abstract: *The war illustrates an attitude of military or civil conflict in which two or more independent groups engage in an action with a precise and antagonistic purpose. It has always been a problem that forces combatants. This article will take a look at the recent role of the submarines in the Black Sea region. Despite the being of submarines armed with nuclear warheads in the world, these operating in Black Sea are only conventional diesel electric ones. Actually, the main purpose of a submarine is to conduct defensive and offensive combat operations against enemy surface ships and submarines. It has always been a huge factor in combat operations at sea, due to its highly efficient tactical and technical properties: secrecy,*

powerful weapons, relatively large autonomy. Due to the fact that the Russian federation has been increasing its naval potential since the annex of Crimea in 2014 the situation in the region became tense.

9. The Strategic Missions of the Romanian Army In The Framework North Atlantic Alliance

Author: stud. Ionuț ROSTOGOL

Scientific Advisor: Colonel Assoc. Prof. Catalin POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *For Romania, NATO integration meant from the beginning the launch of a complex process in all areas of political, economic, social and military life. This collective effort radically changed Romania's status and ensured its integration into the Euro-Atlantic community and Romania, like the other candidate states, took advantage, in initiating its relations with NATO, of the structures created by the latter - NACC replaced by the Council of North Atlantic Cooperation, the Partnership for Peace and the Accession Action Plan (MAP). Romania, both before and after acquiring the status of NATO member country, participated and participates actively, responsibly and voluntarily in various missions under the auspices of the Alliance.*

10. Romanian Perception Regarding Kosovo Crisis

Author: stud. Mirel-Alexandru SLABU

Scientific Advisor: Colonel Mihai ACORNICESEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The Balkan Peninsula has represented, over the course of time, a region characterized by instability and social, political, and military unrest. The existence of a large number of ethnic groups, within a complex mixture of religions, culture and traditions, on a relatively small territory, has allowed interethnic conflicts after the end of the Cold War. The problems in the Balkan Peninsula, over the course of time, also had and still have an important impact on Romania, both from the economic and security standpoint. Romanian perception of the Yugoslav crisis manifested differently from the people in power to the opposition, from the mass-media to the simple citizen. Romanian perception of the Kosovo crisis was different, depending primarily on the interest of each of the subjects analyzed.*

IV. SECTION: ELECTRICAL ENGINEERING

Section Committee:

Chairman:

Lecturer Eng. Iancu CIOCIOI, PhD

Members:

CDR Assoc. Prof. Eng. Florențiu DELIU, PhD

Lecturer Eng. Leon PANĂ, PhD

1. Electric Motor Protection

Authors: stud. Marian GRANICERU, stud. Florentin SASNA

Scientific Advisor: Lecturer Eng. Leon PANĂ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We chose to talk about the protections of electric motors to show the complexity of a system, both the construction of the motor and problems that may occur in operation, as well as constructive methods of protection. Engine protection is very important to ensure that an engine runs reliably and smoothly. We were attracted to this topic, because with the continuous development of science, components designed to protect motors are much more capable. They provide us with detailed information about the condition of an engine and have a major contribution to improving the availability of the entire system / machine, etc. For various reasons, failures often occur due to the lack of an adequate monitoring and protection infrastructure. We chose a theme of life and death, because the life of an engine depends, to a large extent, on how it is protected and secured. We can thus state that protection devices are the only ones meant to guarantee that the associated motors, mechanisms and systems are protected against damage and also protect people involved in their operation, from injuries related to starting, blockage, overloads, short circuits or defects of external conductors. three-phase power supplies.*

2. The Maintenance of Compressed Air Installation Onboard Ships

Authors: stud. Petre AGHEI, stud. Ionel Traian STOICA

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The compressed air installation has electrical components that need to be periodically inspected for defects and fatigue: the electric motor of the compressors, automatization and monitoring components. In this paper, the authors discuss about the monitoring and the maintenance of*

these installation's parts. In the end, a few proposals to improve this process are made.

3. Resistance Temperature Detectors (RTDs)

Authors: stud. Dan-Alexandru BIBILOIU, stud. Eduard-Gabriel DUMITRU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *RTDs (Resistance Temperature Detectors) are a type of sensor that are used to precisely measure temperature changes and have many applications across the electronic industry. This presentation will cover the working principle of an RTD, its applications, different types of RTDs, as well as their advantages and disadvantages and finally some commonly used configurations.*

4. The Maintenance of the Merchandise Loading Installation Onboard Ships

Authors: stud. Andrei Paul BIȚAN, stud. Seitmambet-Selim EMRAN

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The merchandise loading installation is a complex system: it consists both on a mechanical system and an electrical system. The moving parts of these systems must be controlled periodically. One of the inspection methods is the analysis of the vibrations of the installation. The authors make in this paper an overview of the processes involved in the functioning of installation's electrical system and how the vibration analysis can detect early fatigue and possible defects.*

5. Absolute Pressure Transducer

Authors: stud. Gabriel CÎMPANU, stud. Marian-Silviu VOICA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *In the next project, my colleague and I will give a brief overview of the measuring and control devices found on board merchant ships. These complex devices play an important role in the operation of all major installations on board ships and that is why we, under the guidance of the coordinating professor, have decided to show you the benefits they bring to you in the proper operation of installations on board any ship. In the following works we want to make a brief review of certain constructive variants, their role and how they work.*

6. Capacitive Rod Electrode for Continuous Level Measurement

Authors: stud. Radu Paul EREMIA, stud. George Alexandru GOIA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this project i will talk about the importance of capacitive rod electrode for continuous level measurement on board. We will go over their use by analysing the components and technical data of a Vega 62 and the advantages that it brings.*

7. The Maintenance of the Ventilation and Air-Conditioning Installation Onboard Ships

Author: stud. Serkan NUMAN

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The ventilation and air-conditioning installation is a complex system: it consists both on a mechanical system and an electrical system. The moving parts of these systems must be controlled periodically. One of the inspection methods is the analysis of the vibrations of the installation. The authors make in this paper an overview of the processes involved in the functioning of installation’s electrical system and how the vibration analysis can detect early fatigue and possible defects.*

8. The Maintenance of the Ballast Installation Onboard Ships

Authors: stud. Seitmambet-Selim EMRAN, stud. Andrei Paul BIȚAN

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *One of the critical installation onboard ships is the ballast installation. Proper functioning of this installation is a key element in ship’s stability. In this paper, the authors investigate how the use of vibro-acoustic analysis can offer clues about the state of installation and how the maintenance of the installation can be improved.*

9. The Maintenance of Ship’s Anchor Winch (Windlass)

Authors: stud. Ionel Traian STOICA, stud. Petre AGHEI

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper are analyzed the methods used to investigate the condition of ship’s windlass. One of the methods involve the use of vibration analysis of installation components. The discussion is focused on the drive motor of the installation and how vibration analysis can prevent the malfunctions.*

10. Simultaneous Measurement of Liquids and Gases

Authors: stud. Marian-Silviu VOICA, stud. Gabriel CÎMPANU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** In the next project, together with my colleague, we would like to present two equipment for the simultaneous measurement and control of liquids and gases found on board commercial vessels. These complex devices play an important role in monitoring and adjusting parameters in technological installations both on board ships, offshore drilling facilities and onshore. Therefore, under the guidance of the coordinating professor, we decided to give a brief presentation with their well-established role and the benefits brought by them in good operation. In the following works we want to present some constructive variants of them, their role, the areas of measurement and some simulations.*

11. The Role of the Logarithmic Amplifier in the Structure of Maritime Radars

Authors: stud. Hakan BAIRLI, stud. Andrei DARGATE

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** It can be shown that if two sinusoidal signals of differing frequencies are mixed, the resultant complex signal consists of a number of sinusoidal components one of which has a frequency which is equal to the difference between the two frequencies which were mixed and which is known as the beat frequency. The principle is more correctly known as the heterodyne principle and the radar receiver is said to be of the superheterodyne type. The principle is applied in the radar receiver by mixing the incoming weak echoes, which are bursts of radio signals at magnetron frequency, with a continuous low power radio frequency signal generated by a device known as the local oscillator. The envelope of the pulse produced at the output of the mixer will contain, among others, a component whose frequency is equal to the difference between that of the magnetron and that of the local oscillator.*

12. NMEA 2000 Networks

Authors: stud. Andrei BRAGAU, stud. Cristian APOSTOL

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** In this presentation we will talk about the IEC 61162-3 standard, also known as the NMEA 2000. We will show you how this standard increases competition between equipment manufacturers thus decreasing*

the cost for ship owners. The presentation will contain information about how a NMEA 2000 network is formed and the minimum amount of equipment for such a network to be operational.

13. Instrumentation Amplifier

Authors: stud. Cristian Nicolae DUDUMAN, stud. Antonio HAIDAU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Instrumental amplifiers are a special category of amplifiers used mainly in measurements reason why this type of amplifiers they were also called measuring amplifiers. Instrumental amplifier is a differential operational amplifier with finite amplification and very well adjusted, adjustments of the amplification is done either by connecting a resistor or group to the outside of the integrated of resistors either by digital control using a computer or microcontroller. The instrumental amplifier has superior performance to operational amplifiers in that regarding the offset voltage, thermal drift, linearity, stability and accuracy amplification.

14. Vibration Piezoelectric Transducers and Their Use

Authors: stud. Fănică REDIU, stud. Cristian-Adrian DINU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Piezoelectric transducers have become increasingly popular in vibration control applications. They are used as sensors and as actuators in structural vibration control systems. They provide excellent actuation and sensing capabilities. The ability of piezoelectric materials to transform mechanical energy into electrical energy and vice versa was discovered over a century ago by Pierre and Jacques Curie. They discovered a class of materials that when pressured, generate electrical charge, and when placed inside an electric field, strain mechanically. Piezoelectric transducers have been extensively used in structural vibration control applications. Their wide utilization in this specific application can be attributed to their excellent actuation and sensing abilities which stems from their high electro-mechanical coupling coefficient, as well as their non-intrusive nature.

15. Calculation of a Temperature Transducer Made With Integrated Circuit

Authors: stud. George Alexandru GOIA, stud. Radu Paul EREMIA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this presentation we will talk about the calculation of a temperature transducer made with integrated circuits. We will go over a short description of TMP442: configuration of the pins, the scheme of the integrated circuit as well as the electrical characteristics. We will also show a table with temperatures in binary form and in the end how to convert the binary form into temperature values.*

16. The Radar Equation and the Effects of Earth's Surface on It

Authors: stud. Antonio HAIDĂU, stud. Dragoş Florentin OLTEANU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The following presentation encompasses the notion of a radar equation, which is used to describe how a radar functions, as well as the unavoidable effects of Earth's surface on this equation.*

17. RLC Circuit

Authors: stud. Miruna-Georgiana ICHIM, stud. Bogdan-Stefan TIMOFTICIUC

Scientific Advisor: Vlad MOCANU, PhD Candidate

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *RLC Circuit is an electrical circuit consisting of a resistor (R), an inductor (L), and a capacitor (C), connected in series or in parallel. Our project contains a program which calculates different values of the circuit. We developed the program in C#, Visual Studio and we used object-orientated programming. The interface is a GUI (Graphical User Interface) based on text boxes and buttons. Once you enter the input values, the program calculates the output values using the algorithm which contains electrical engineering formulas.*

18. Methanol as a Marine Fuel

Author: stud. Sorin JUFA

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *Once again, the industry in partnership with regional and local governments should encourage demonstration projects in order to prove that the technology is viable and optimize its performance. Methanol availability is generally very good. It is available as a chemical and used in industry in many places all over the world. There is an existing production and distribution infrastructure. Building up bunkering infrastructure would lower the barriers to adoption by the shipping industry. If strong regulations on carbon dioxide emissions are implemented, methanol is a potential*

alternative fuel. It will then compete with other alternatives such as biodiesel and liquefied biogas (LBG). In this case, methanol has the potential to be produced at a competitive cost and also, depending on the price of electricity, the cost of production as electrofuel may be viable.

19. Level Sensor with Ultrasound Probe for Continuous Level Measurement

Author: stud. Iulian MITEA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In the next presentation I want to present I chose to do about LEVEL SENSOR WITH ULTRASOUND PROBE FOR CONTINUOUS LEVEL MEASUREMENT is an ultrasonic sensor for continuous level measurement. It is suitable for liquids and solids in virtually all industries. The sensor transducer transmits short ultrasonic pulses between 35 kHz and 70 kHz to the measured product. These pulses are reflected by the surface of the product to be measured and are received back by the transducer as echoes.*

20. Radar Sensor for Continuous Measurement of Bulk Solids Levels

Author: stud. Iulian MITEA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We chose to talk about the protections of electric motors to show the complexity of a system, both the construction of the motor and problems that may occur in operation, as well as constructive methods of protection. Engine protection is very important to ensure that an engine runs reliably*

21. Electrical Operating Systems on Board Ships

Author: stud. George-Cosmin MITU

Scientific Advisor: Prof. Eng. Vasile DOBREF, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Electric operation is performed by electric operation systems, consisting of a set devices that transform energy electric in motion energy and electrically controls the energy thus obtained. All electrical circuits of an electric operation system can be divided into four groups:*

- 1. The main circuit traversed by the main energy flow of the electric operation systems.*
- 2. The excitation circuit traversed by the excitation current of direct current or synchronous electric machines.*

3. The control circuit through which the commands are transmitted from the command and control devices to the switching and control devices in the main and excitation circuits.

4. Signaling circuits which transmit to the operator or the central recording device information of the state of the main, excitation and control circuits or the values of important parameters of the electric motor and the working mechanism.

22. Calculation of A Pressure Transducer Made with Integrated Circuits

Authors: stud. Cristian APOSTOL, stud. Andrei BRĂGĂU

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this presentation we will talk about the calculation of a pressure transducer made with integrated circuits. We will go over their use onboard and we will also present some diferent types of transducers that are used on ships. In the end we will present a presure transducer with INA 326 and also show a Tina Ti simulation of the transducer.*

23. Development of Sailing Ships

Author: stud. Ionuț-Sorin NEDELUCU

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The paper is about sailing ships and their development over 600 years. Before the age of the sail, there were prehistoric boats, such as rafts then appearing the galleys and drakkars. They would be steered with a "side oar" that would hang off the back of the boat. Ship development did not end at the drakkars and in 1300s, the oars were replaced by a rudder whose role was to steer the entire ship. Among the most famous sail ships is the Spanish galleon, Vespucci's ship (1480) and the Amsterdam which was an 18th-century cargo ship of the Dutch East India Company.*

24. Automation of Fluid Transfer Between 2 Tanks

Authors: stud. Nicolae Viorel STANCIU, stud. Marian GRANICERU

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Several electronic modules are used, connected to each other in such a way as to result in an automatic action starting from the values given by the sensors and ending with starting the pump and stopping it depending on the level. The level indication is displayed on a display. The power supply of the modules is made from the 220V electricity network and is*

transformed and rectified to 12VDC and 5VDC voltages. The pump and main module are powered at 12VDC. The sensor and display are powered at 5 VDC The software introduced in the main module is written in the C ++ programming language. It is called sketch and contains instructions and commands for each type of module used. In order to be detected by the modules they need libraries and drivers. Once the main module has been programmed, it does not lose programming when disconnected or reset intentionally.

25. Reducing Arc Flash Risks

Authors: stud. Petruș – Alexandru PARASCHIV

Scientific Advisor: Lecturer eng. Leon PANĂ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Our increased dependence on electrical energy has created a lower tolerance for any power outage, no matter how brief. This, in turn, has brought about at least a perceived need for electrical workers to perform maintenance work on energized electrical equipment. In addition to the electrical shock hazard that results from direct contact of live conductors with the body, workers are also exposed to the risk of injury due to accidental initiation of electric arcs. Arc flash injuries can occur without any direct contact with energized parts. This hazard due to arcing faults has existed from the beginning of the electric power industry, but has only recently been addressed as a specific hazard in electrical safety programs and safety codes.*

26. Multinivel Convertors

Authors: stud. Alexandru – Victor TESELEANU, stud. Sorin JUFA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The multilevel modular converter was initially introduced for direct current power transmission (HVDC) applications and has since become one of the most promising structures for this type of application. One of the existing problems for this type of application occurs when using conventional submodules that do not offer the possibility of treating a fault in the direct current. In that situation, there are various ways to limit the fault on the DC side, in all these cases the inductance L helps to mitigate the effects.*

27. Controlling and Adjusting Magnetron Current Output

Authors: stud. Adrian TÎRPAN, stud. Florian LUCA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *A control system for regulating output of a magnetron, said control system comprising: means for detecting a drive parameter associated with the output level of a magnetron; a control circuit coupled to said means for detecting, said control circuit being configured to produce a control signal in response to said drive parameter; and an adjustment circuit coupled to said control circuit, said adjustment circuit being configured to cause variation in said drive parameter in response to said control signal.*

28. Calculation and Simulation of Active Filters with Tina-Pro Simulation Program

Authors: stud. Adrian TÎRPAN, stud. Florian LUCA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The paper work contains the calculation and simulation of active filters for signal conditioning. There is a series of calculations covering all aspects related to the calculation and simulation of signals, including:*

- Calculation and simulation of active filters goes down;
- Calculation and simulation of active filters go up;
- Calculation and simulation of active bandpass filters;
- Calculation and simulation of active filters stops the bandwidth.

Also here are detailed examples of calculation and simulation of filters that have a strict applicability in the maritime field.

29. Perspectives and Challenges of Sea Vessels with an Electric Propulsion System

Author: stud. Anton HABUNIIA

Scientific Advisor: Assoc. Prof. Vladlen Shapo, PhD

Institution: National University “Odessa Maritime Academy”, Ukraine

Abstract: *We chose to talk about the protections of electric motors to show the complexity of a system, both the construction of the motor and problems that may occur in operation, as well as constructive methods of protection. Engine protection is very important to ensure that an engine runs reliably. Modern technologies shifted towards renewable energy sources, with different industries totally abolishing fossil fuels. In the maritime industry the situation is following: 15-20 years ago, it was speculated that by now we would already develop high-end technology to replace diesel engines, which do a great contribution to atmosphere polluting. But by 2021, propulsion means at sea hardly have changed, where absolute majority of vessels is diesel-powered. The only progress is seen in Ro-Ro ferries class, where*

Nordic countries have already developed vessels running only on electric motors, capable of operating autonomously for 40 minutes maximum. Still, some companies develop new battery systems for „E-Ferries”, and hybrid propulsion solutions are being developed as well. It is estimated that an electric or hybrid ferry could cross the Baltic Sea by 2030. It is proposed to focus on the professional training of maritime specialists which will maintain such vessels.

30. Production of Electricity from Renewable Sources

Authors: stud. Dinc CIOC, stud. Alexandru George GHERGU

Scientific Advisor: Lecturer eng. Leon PANĂ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *For this presentation we chose to talk about the ability of modern shios to produce electrical energy onboard, from renewable sources, such as solar panels, wind turbines and such. We'll also talk about the impact of this way of producing energy on the climate. We will also present the advantages and disadvantages of such projects*

31. Unconventional Gyroscopes

Authors: stud. Aurelian DIMA, stud. Valentin DUMBRAVA

Scientific Advisor: Assist. Prof. Eng. Eduard DRAGOMIR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Gyroscopes enable ships, vehicles, aircraft, robots, wearable, and other electronic devices to determine location in three-dimensional space. In most cases, the data is generated by microelectromechanical sensors that measure differences in the forces that act on oscillating masses moving in opposite directions. Those gyroscopes have limitations, including their sensitivity to such factors as vibration and temperature. To overcome those limitations there are studies , research and development of unconventional gyroscopes such as integrated nanophotonic optical gyroscope ,being the smallest, and other gyroscopes like electrostatic gyroscope, cryogenic gyroscope, laser gyroscope and other types.*

32. Description and use of adaptive pilots

Authors: stud. Valentin DUMBRAVA, stud. Aurelian DIMA

Scientific Advisor: Assist. Prof. Eng. Eduard DRAGOMIR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Modern auto-pilot systems are capable of being synchronised with the Electronic Chart system (ECDIS) enabling to follow the courses laid out in the Voyage plan. This feature cuts out the need of manual course changes*

and alterations as the system will follow the courses and alterations as per the voyage plan.

33. The Maintenance of Ship's Emergency Generators

Author: stud. Andrei ION

Scientific Advisor: Lecturer Tiberiu PAZARA, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *In this paper the author analyzes the exploitation and maintenance of ship's emergency generators. The emergency generators represent a major component in ship's security. Therefore, it is important to keep them in good condition in case of major failures of the main systems. One of the methods involve the use of vibration analysis. Another method involves the regularity of the control of the generators. All these aspects and others are discussed and a few conclusions and observations are made in the end.*

34. Comparative Analysis of Data Acquisition Boards „Open Source”. Features and Applicability

Author: stud. Hristache ISAC

Scientific Advisor: Assist. Prof. Eng. Eduard DRAGOMIR, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The word "Open Source" is everywhere with Linux Technology and GNU foundation. In addition to open source software's and operating systems, Open Source Hardware is also progressing and becoming center point of attraction for researchers across the nook and corner of the world. The most widely adopted Open Source hardware available right now is "Arduino". Arduino has various products like boards, Lilypad's and shields. The aim of this research paper is to explore the world of Arduino technology in terms of Boards, Lilypad's and Shields covering in depth regarding-Technical Specifications, features and real-world applications. Arduino technology has enabled various manufactures and research enthusiasts to come out with their own customized boards and shields as per their research requirements and area of implementations. Arduino Open Source community is also providing platform for researchers to come up with innovative research applications and market ready products in terms of Home Automation, Robotics, Wireless Connectivity, Drones and many others.*

35. Control of DC Motor Using Proportional Integral Derivative (PID)

Author: stud. Hristache ISAC

Scientific Advisor: Assist. Prof. Eng. Eduard DRAGOMIR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The research proposes controlling DC motor angular speed using the Proportional Integral Derivative (PID) controller and hardware implementation using a microcontroller. The microcontroller device is Arduino Uno as data processing, the encoder sensor is to calculate the angular speed, and the motor driver is L298. Based on the hardware implementation, the proportional controller affects the rise time, overshoot, and steady-state error. The integral controller affects overshoot and undershoot. The derivative controller affects overshoot insignificantly. The best parameter PID is $K_p=1$, $K_i=0.3$, and $K_d=0.1$ with system response characteristic without overshoot and undershoot. Using various set point values, the controller can make the DC motor reach the reference signal. Thus, the PID controller can control, handle, and stabilize the DC motor system.*

36. Advantages and Disadvantages of Electricity Generation Using Vertical Shaft Turbines

Author: stud. George-Cosmin MITU

Scientific Advisor: Prof. Eng. Vasile DOBREF, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The advantages and disadvantages of wind energy refer to the benefits and disadvantages of using wind as a source of energy for humans. Wind energy gets its name because it comes from the wind and works according to the laws of aerodynamics: wind turbines transform the kinetic energy of the wind into electricity. Along with solar and hydroelectric power, wind is one of the alternative sources of energy when using fossil fuels. In fact, wind has been used by people for over 5,000 years as an energy source to produce jobs. Although interest in wind energy seems very recent, as early as 1890 electricity began to be generated from the wind.*

37. The Electromagnetic Field on Board Seagoing Ships

Authors: stud. Mihai-Alexandru PANCIU, stud. Manfred Antonio STOICA

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The electromagnetic environment on board seagoing vessels is a space delimited in which there are sources of disturbance and disturbance receivers, defined by the maximum noise levels at each point in the specified space. Analysis of the electromagnetic environment on board a ship requires analysis sources of disturbances and the effects of the electromagnetic environment EME/E3 (Electromagnetic environmental effects -E3) on equipment, systems and personnel on board ships.*

38. Wind Turbine Power Wind Energy

Author: stud. Ilhan RESID

Scientific Advisor: Prof. Eng. Vasile DOBREF, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *For my presentation I chose to presentate the Wind Energy and the Wind Turbine power.How can that power influence our future and how that power can be used.In other words one of the best energy production it's easier then we thught to be obtained.I will also presentate how they are built.I will also presentate the advatages of that power.*

39. The Computer and His Heart

Authors: stud. Florin-Daniel, stud. Octavia-Florin URSU

Scientific Advisor: Prof. Eng. Gheorghe SAMOILESCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *It is very important that today we use a computer and know how it helps us. In this project we will present in detail certain things about a computer, how it work and how it transformed our lives.*

In this paper we will present the importance of computers and the heart of a computer. This is called the central processing unit or CPU. We will exemplify in detail each criteria of the CPU, such as the number of cores, turbo boost, hyper threading and much more. We will do a thorough analysis of multiple CPU types and situations where one processor might be a better fit then another in regards to a specific task.

A brief overview:

- *What is a cpu*
- *Overview*
- *What it consists of*
- *Which is the best processor*
- *Differences between processors*
- *How does a processor help us*

40. The Asynchronous Motor with Coiled Rotor, with Brushes and Sliding Rings

Authors: stud. Gabriela SÂRGHIE, stud. Emilia Daniela NĂSTASE, stud. Robert MUNTEANU

Scientific Advisor: Vlad MOCANU, PhD Candidate

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The evolution of technology provided the engineering field with novel computer simulation software to understand how complex systems work in the absence of having them. The current study provides many computer simulations of the asynchronous motor in electric drives,*

especially that one with a wound rotor, to demonstrate its advantages and also to propose new applications related to marine ships.

41. Influence of the Signal/Noise Ratio on the Discovery Distance of the Marine Radars

Authors: stud. Teodor-Andrei STAICU, stud. Dan Andrei TUDOSE

Scientific Advisor: Lecturer Eng. Iancu CIOCIOI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The signal-to-noise ratio is the ratio between the signal level and the disruptive noise level affecting the receiver. As the noise level increases, the noise of the radar receiver increases. Increased receiver noise reduces receiver sensitivity and maximum target discovery distance*

42. Bipolar Junction Transistor

Author: stud. Sabin-Andrei STOIAN

Scientific Advisor: Assist. Prof. Eng. Eduard DRAGOMIR, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *A bipolar transistor is properly known as a bipolar junction transistor or BJT - is a versatile discrete semiconductor device. Discrete semiconductors vary from diodes and rectifiers to BJTs, and this particular device is designed primarily to perform one function as a single semiconductor, as opposed to having to build multiple semiconductor components into an integrated circuit on a printed circuit board (PCB). Bipolar junction transistors are solid-state, three-pin (base, collector and emitter) components, constructed from three layers of silicon. There are two main types, namely PNP (positive-negative-positive) and NPN (negative-positive-negative). As with all transistors, the basic function of a BJT is typically to function as a switch or to amplify, filter, and rectify power.*

43. Azipod

Authors: stud. Marian GRANICERU, stud. Florentin SASNA

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We’ve chosen to talk about the propulsion system with Azipod because is the newest innovation in technology for the maritime propulsion, it is the most productive way to gain speed. It is a gearless 360° steerable propulsion system and the electric motor is located in a submerged pod outside the ship hull. We find Azipod system’s maneuverability very useful; marine vessels can direct thrust in any direction with incredible precision, saving time and fuel. We consider that Azipod technology marked a new era in ship propulsion and ever since then, it has inspired naval architects to*

create more efficient and sustainable vessel designs. Azipod propulsion might be found on all types of vessels, including passenger ships, cargo vessels and ice-breaking tankers, in order to reduce fuel consumption by up to 20 percent compared to traditional shaftline systems over the last three decades. In the presentation we will show you some reasons why Azipod technology marked the beginning of an innovation era, the birth of Azipod idea, the construction of the interior motor and stator in the first part, then in the second part we will unravel the Cycloconverter, its functionality, construction, assembly, and its importance in the system of the maritime propulsion.

44. Steam Engine

Author: stud. Sorin STRATULAT

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *To advance in technology, the world needed something new. This required the appearance of the engine that would facilitate human efforts.*

The steam engine that revolutionized the industry and means of transport during the Industrial Revolution until the first part of the twentieth century, being used to drive locomotives, ships, pumps, electric generators, cars from factories and other machinery. Later it was replaced in most of these applications by the internal combustion engine and the electric one. The aim of the paper is to acquaint the public with the importance of the advent of the steam engine that facilitated the field of mechanisms.

45. Tesla

Authors: stud. Emanuel-Nicolae BADEA, stud. Liviu Daniel NANU, stud. Mihnea Andrei STANCULESCU

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *In this project we want to present the evolution of the best electric car in the world and the struggle of the creator of this brand, ElonMusk, to create a car with as much autonomy as possible.*

46. Electric Cars

Author: stud. Gheorghita SIMA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *Any car that has an electric traction motor is considered an electric car. Electric cars are modern and new, being considered by some buyers a real "revolution on four wheels". But they mean more than that.*

Electric cars mean a very low degree of pollution. Thus, their electric motor is much less polluting than in the case of heat engines. Electricity production also determines a degree of pollution, but it is considerably lower.

47. Photovoltaic and Wind Power Used as Ship Fuels

Author: stud. Ștefăniță Alin OANCEA

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: “Mircea cel Bătrân” Naval Academy, Constanța

Abstract: *This project has chosen to study this type of energy on a ship, in order to view if it's possible to use green energy to power a ship for short, medium or long distances. Harnessing wind, waves and solar power in shipping industry can help the ship's owners reduce the operational costs. Reducing fuel consumption results in producing less emissions and provides a clean source of renewable energy.*

48. Wind Turbine on Board Ships

Authors: stud. Robert-Ionuț DEACU, stud. Alexandru-George MITEA

Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD

Institution: “Mircea cel Bătrân” Naval Academy, Constanța

Abstract: *The present paper deals with a state-of-the-art problem solving energy on board ships: wind turbines. After a short presentation of a wind turbine and the common principle of function for both a wind turbine and a ship's propeller, the paper will present the efficiency that stands for the use of this type of energy bearing installation on board ships.*

49. The Electrical Engine

Authors: stud. Andrei-Leonard MORARU, stud. Daniela Bianca SIRBU

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: “Mircea cel Bătrân” Naval Academy, Constanța

Abstract: *How do you get things going and keep them going without having to move a muscle? While steam engines create mechanical energy using hot steam or, more precisely, steam pressure, electric motors use electric energy as their source. Electric motors, with their ability to turn on and off with the flick of a switch, would have delighted our forefathers. They're everywhere, from electric trains to remote-controlled cars, and you'd be shocked how popular they are. What is the current number of electric motors in the room with you? For starters, there are probably two in your computer, one spinning your hard drive and the other powering the cooling fan. Electric motors have proved themselves to be among the greatest inventions of all time. And with all that in mind we will talk about the electric motor as a whole.*

V. SECTION: WEAPONS AND COMMUNICATIONS

Section Committee:

Chairman: Lieutenant Lecturer Eng. Ovidiu CRISTEA, PhD

Members:

Lecturer Eng. Gheorghe ICHIMOAEI, PhD

1. Line-of-Sight Missile Guidance

Author: stud. Radu Daniel CRIȘAN

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Line-of-Sight Missile Guidance refers to a method use for guide a missile to a specific target and I will try to explain how it works, the engineering part of construction and the way it is use in the Romanian Navy.*

2. Dark Web- Hidden Dangers

Author: stud. Georgi LOLOV, stud. Plamen PAVLOV

Institution: Nikola Vaptsarov Naval Academy

Abstract: *The dark web is the inner layer of the internet that is difficult to reach. In it you can buy a credit card, all kinds of drugs, weapons, counterfeit money and many other illegal things. In our report we describe the legal and illegal side of the dark web. What is the difference between the deep web and the dark web. Demonstration of dark web penetration through the Tor browser. What dark web sites are and how they differ from regular google sites. Dark web tools and services that present enterprise risk. How can we be in the dark web and be protected from dangers who are hide there.*

3. Use of Helicopters and Sonobuoys Systems in Anti-Submarine Warfare

Author: stud. Ligia-Maria-Diana MUREȘAN

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this project, I am going to present the importance of the naval helicopters in anti-submarine warfare. Helicopters are widely used in ASW operations to detect and eliminate dieselelectric submarines hiding under temperature inversions in the water. Helicopters can be deployed from surface warships and extend the ships' ASW capability. Moreover I will*

present general characteristics of passive systems for submarine detection and general description of a system with passive directional sonobuoys.

4. The Improvement of Radiolocation Stations in Order to Discover the Small Ships

Authors: stud. Claudia-Georgiana ENE, stud. Constantin-Cristian URSEA

Scientific Advisor: Captain (R) Viorel COSTACHE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Radiolocation, also known as radiolocating or radiopositioning, is the process of finding the location of an object through the use of radio waves. The principle of operation of radiolocation stations is the transmission of electromagnetic waves into space, which when they encounter an object with different characteristics of the environment are reflected in all directions. The radar receives some of the reflected energy and thus the target is detected. Depending on the characteristics of the received signal, the target coordinates are calculated. In my project I tried to describe a method of improving radiolocation stations to be more effective in discovering and identifying small boats.*

5. Unmanned Aerial Vehicle

Author: stud. Hristiyan HRISTOV, stud. Valentin Toshkov HRISTOV

Scientific Advisor: Stoyan KOLEV, PhD

Institution: Nikola Vaptsarov Naval Academy - Bulgarian Maritime University

Abstract: *An unmanned aerial vehicle (UAV) is an aircraft without a human pilot on board and a type of unmanned vehicle. UAVs are a component of an unmanned aircraft system; which include a UAV, a ground-based controller, and a system of communications between the two. The flight of UAVs may operate with various degrees of autonomy: either under remote control by a human operator or autonomously by onboard computers. Compared to crewed aircraft, UAVs were originally used for missions too “dull, dirty or dangerous” for humans. While they originated mostly in military applications, their use is rapidly expanding to commercial, scientific, recreational, agricultural, and other applications, such as policing and surveillance, product deliveries, aerial photography, infrastructure inspections, smuggling and drone racing. Civilian UAVs now vastly outnumber military UAVs, with estimates of over a million sold by 2015. In our presentation we will mention about the features, functions and applications of UAVs.*

6. The Value of Military Intelligence

Authors: stud. George IONESCU, stud. Marian MUNTEANU

Scientific Advisor: Captain (Navy) Eng. Cătălin CLINCI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Military intelligence is a military discipline that uses information collection and analysis approaches to provide guidance and direction to assist commanders in their decisions. This aim is achieved by providing an assessment of data from a range of sources, directed towards the commanders' mission requirements or responding to questions as part of operational or campaign planning. To provide an analysis, the commander's information requirements are first identified, which are then incorporated into intelligence collection, analysis, and dissemination.*

7. Methods and Procedures for Carrying out the Attack with the Coastal Missile System

Authors: stud. Viorel GHIOCA VOICU, stud. Ilie Claudiu IZMANĂ

Scientific Advisor: Captain (Navy) Eng. Cătălin CLINCI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Coastal missiles is an Arm of the Romanian Naval Forces. These are designed to destroy or neutralize the enemy surface ships, whether military or civilian. These actions can be carried out independently or in cooperation with other forces in the composition of the Romanian Naval Forces Through the review we will discuss some procedures and methods of executing the attack with the coastal missile system.*

8. Optimal Conditions for Launching the StingRay Torpedo

Authors: stud. Ilie Claudiu IZMANĂ, stud. Viorel GHIOCA VOICU

Scientific Advisor: Captain (Navy) Eng. Cătălin CLINCI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Regarding the equipping of ships with anti-submarine means of combat, they were chosen to be equipped with installations for launching light torpedoes of the Sting Ray type. Based on the specific technical capabilities of the Sting Ray torpedo and introducing a set of tactical values describing the attack path and launch position relative to the target ship, the simulation program determines the conditions under which the target is hit or not, as well as conclusions about whether to choose the initial launch parameters.*

9. Cyber Security Risks Management Onboard of the Ships

Author: stud. Kyrlyo FARTUSHNYI

Scientific Advisor: Assoc. Prof. Vladlen SHAPO, PhD

Institution: National University "Odessa Maritime Academy", Naval Institute, Ukraine

Abstract: In recent years we have increasingly witnessed the cyberattacks on ships. The crews are sure that, hacking ships is useless, because they can be controlled manually. This is due to the procedure for their learning therefore, the personnel must be properly trained to recognize timely a break-in and eliminate the threat.

There are certain risks related to cyber security:

- 1) Leakage or distortion of information.
- 2) Lower outages.
- 3) Theft or spillage of cargo.
- 4) Changes in the course of ships.

Method

It's necessary more in-depth study and (re) training of specialists in the areas:

1. Data transmission.
2. Networks (including wireless).
3. Hardware and software parts of cybersecurity systems.

Conclusion

The leadership of the fleet should admit that there is a danger of hacking of the ship's IT systems, and traditional navigation skills are not enough to defend against cyber-attacks. Need to pay more attention to training of personnel in the field of cybersecurity.

10. The Impact of Chemical Warfare Agents from the World War II on the Baltic Sea Environment

Authors: stud. Leonte-Laurențiu RADU, stud. Valeriu ROȘU

Scientific Advisor: Lecturer Eng. Manuela Rossemary APETROAEI, PhD.

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *Chemical weapons are a way to defeat the enemy by using gadgets, weapons, and military equipment that uses chemicals in order to lose personnel, equipment, or making the withdrawal. After the defeat of Germany, great quantities of chemical agents used in the war were captured by the Allied forces. Following the decision taken at the Potsdam conference, many of these agents (with an approximated amount of 50,000 and 190,000 tonnes) were dumped in the Baltic Sea and the Strait of the Skagerrak at the behest of British, Russian, and American authorities. Thereby, hundreds of chemical warfare agents that were sea dumped contained the most toxic and dangerous substances of the 40s of the last century: Sarin, Mustardgas, Lewisite, Soman, Fosgen, and Adamsite. Our study aims to highlight the danger represented by these under water*

deposits of chemical warfare agents on human health, and the marine environment, due to the corrosion phenomenon of steel mantels. Due to the environmental conditions, these submarine deposits degrade and will cause real marine catastrophes.

11. The Future of the Minesweeping and Mine Hunting Technologies

Authors: stud. Petar GEORGIEV, stud. Ivan IVANOV

Scientific Advisor: ValentinVASILEV, PhD

Institution: NikolaVaptsarov` Naval Academy, Varna, Bulgaria

Abstract: *Naval mines are one of the most common weapons in naval warfare. They are designed to destroy ships, as well as to impede their actions by creating a mine threat in certain aquatoriesof operations and on inland waterways. Increasingly advanced technologies in the construction of sea mines complicate the process of their elimination. This also leads to the search for progress among miners and miners. Modern autonomous mine clearance systems can easily clear naval mines from military theaters, taking a step towards the future - "Removing the man from the minefield". The world's leading mine clearance systems include a wide range of capabilities to enable the Navy to successfully handle its operations and mine clearance in challenging environments. The future of unmanned mining technology - Autonomy is considered achieved when the participation of people in dangerous areas is decreasing.*

12. Now You See Me, Soon You Won't: UAV Active Camouflage

Author: stud. James BUSH

Scientific Advisor: Chris LAVERS, PhD

Institution: Britannia Royal Naval College, United Kingdom

Abstract: *The evolving field of Unmanned Aerial Vehicles (UAV) offers significant opportunity for providing reconaissance and surveillance functionality with reduced risk and cost. As with other aviation platforms, stealth technology is of significant interest, not least, for the purpose of platform protection. Synthetic elecro optical technology has been shown to offer the possibility of low-power dynamic adaptive camoflauge (Lavers, 2020). Enironmental sensing combined with optical reflectivity modulation facilitate dynamic contrast patterning that can be applied over an airframe surface. This presentation investigates simulations which may be applied over an electro optical surface to minimise visual signatures.*

13. Mine War in the Gulf

Authors: Vladuț-Ștefan TURCANU, Daniel VASILE

Scientific Advisor: Lecturer Eng. Gheorghe ICHIMOAEI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The Gulf War was a war waged by coalition forces from 35 nations led by the United States against Iraq in response to Iraq's invasion and annexation of Kuwait arising from oil pricing and production disputes. The Iraqis assessed that the coalition would attack primarily through an amphibious assault originating in the Gulf of Kuwait. To seaward, they laid a barrier of naval mines in a 150-mile crescent-shaped defensive minefield around the Kuwaiti coast from Paylaka Island to the Saudi–Kuwait border. The six individual mined areas consisted of a mix of ground and moored mines, thus complicating coalition mine countermeasures efforts. In total, 1,270 mines were later identified to include 302 x bottom influence UDM, Sigell-400, Manta or KMD500 mines; 745 x LUGM 145 and MYaM moored mines; 141 x drifting mines and 82 x mines on beaches including both LUGM and MYaM mines which had broken free from their moorings, plus Al-Muthena drifting mines.*

14. Line-of-Sight Missile Guidance

Authors: stud. Radu Daniel CRISAN, stud. George MOSOIU

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Line-of-Sight Missile Guidance refers to a method use for guide a missile to a specific target and I will try to explain how it works, the engineering part of construction and the way it is use in the Romanian Navy.*

15. Weapon Propulsion and Architecture

Authors: stud. George MOSOIU, stud. Radu Daniel CRISAN

Scientific Advisor: Captain (Navy) Assoc. Prof. Eng. Paul BURLACU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This presentation will be a study of the propulsion systems used to propel weapons to their targets and the design requirements for the vehicles themselves. The underlying principle of propulsive movement has been stated by Newton in his Third Law of Motion. To every action there is an equal and opposite reaction. Every forward acceleration or charge in motion is driven backwards against de ground.*

The objective of this presentation are:

- *Know the different types of propulsion systems*
- *Understand the factors that control propellant burning rate.*
- *Be able to describe propellant action inside a gun.*
- *Understand the classification of jet-propulsion engines.*

VI. SECTION: MECHANICAL ENGINEERING

Section Committee:

Chairman:

Assoc. Prof. Eng. Dumitru DASCALU, PhD

Members:

Lecturer Eng. Postolache Florin, PhD

Lecturer Eng. Aurelia CHIOIBAŞ, PhD

1. Heat Transfer Processes and Heat Exchangers

Authors: stud. George PAŢĂ, stud. Tănase PAŢĂ, stud. Narcis-Nicolaie PALAS

Scientific Advisor: Lecturer Eng. Aurelia CHIOIBAŞ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We will begin our presentation by showing how heat is transferred from one medium to another. From those three means of heat transfer, our attention will be focused on conduction and convection because these two are the most widely used processes in engineering applications. Once the heat transfer is clarified, heat exchangers will be presented and explained aswell. Types of heat exchangers used in industry will be shown also. We will end our discussion by showing how a heat transfer problem can be solved step by step.*

2. The Impact of Ballast Water Discharge on the Environment

Author: stud. Dragoş-Alexandru PĂUN

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The ballast installation moves the center of gravity of the ship, bringing the ship to the desired trim, following a specific operation (embarkation, movement or disembarkation of ballast consisting of the sea), performed with the help of ballast pumps, it moves between ballast tanks. It is known that after unloading the ship the metacentric height is reduced, so the stability gets worse. An issue that is intensely discussed worldwide is the discharge of the ballast water in areas of refuge, or even in territorial waters or ports of countries open to large oceans, etc. Organisms produce toxins that enter the food chain through shells and fish. When they are ingested by humans and other animals they can cause certain diseases, or even death.*

3. Exhaust Gas Treatment for Maritime Vessels

Author: stud. Mihai-Georgian ŞALARIU

Scientific Advisor: Lecturer Eng. Postolache Florin, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The following paper seeks to address the exhaust gases system aboard commercial vessels. To better understand the importance of this system, a MATLAB user interface program will be shown, which solves the amount of polluting gases, such as CO_x and SO_x, based on user input parameters, such as the type of vessel, the type of fuel etc.

4. Fresh Water Generator

Author: stud. Aurelian Teodor Constantin GLUGA

Scientific Advisor: Lecturer Eng. Postolache Florin, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Fresh water generator, one of the important machinery on board a ship, is something that cannot be done without. Fresh water produced from fresh water generator is used for drinking, cooking, washing and even running other important machinery which use fresh water as a cooling medium. In this project that I'm going to present, you will learn what is a fresh water generator, how pure water is produced and other interesting things.

5. Fire-Extinguishing Systems Onboard. Installations Losses.

Author: stud. Ionut PRENTU

Scientific Advisor: Lecturer Eng. Postolache Florin, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The fire, as a combustion process, is an oxidation reaction, accompanied by the release of heat and light, as a result of which material damages occur and for whose interruption and liquidation the intervention through an extinguishing action is necessary. Load losses that occur in the operation of naval installations due to friction of liquid particles with piping are called linear load losses h_{lin} , and those due to fluid valve loss through elbows, valves, valves are called local load losses h_{loc} .

6. Naval Steam Generator. Software Program for Calculating The Caloric Power of a Fuel

Authors: stud. Mihai ALEXANDRU, stud. Ştefan Gabriel MOCANU

Scientific Advisor: Lecturer Eng. Postolache Florin, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Naval boilers are steam generators in which the heat resulting from the combustion of a fuel, from a nuclear reaction or from the thermal

effect of the electric current is transmitted to the water in order to heat it, to vaporize it or to overheat the saturated steam. Naval heating is the reform a heat exchanger that converts water in to steam at certain state parameters, due to the caloric energy released by the combustion of fuel. For the application part of the project we developed a software program for calculating the calorific value of a fuel as well as the percentage concentrations of different substances in its composition. This program is not one of "exaggerated calculation" but rather a simplistic one that leads you to a better understanding of the composition and properties of fuels. Following a more detailed calculation of consumption.

7. Optimization Stages of a Propulsion System of a Container Ship

Authors: stud. Sever Tekin AMET

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The draft license focuses on the optimization stages of a propulsion system of a container ship with a loading capacity of 20000 TEU. The study is divided into five chapters, which aim to detail this process of optimizing the propulsion system for the reference ship. At the beginning of the paper, a brief introduction is made that exposes a series of elements related to transport by container vessels. The first chapter presents in detail the characteristics of the reference ship, for this project being chosen the container ship of 20000 TEU "Madrid Maersk" which belonged to the company Maersk. The main construction elements are presented in the first part of this first chapter, and in the second part data related to the main installations on board the ship are presented, a higher emphasis being placed on the propulsion installation. The last part of the chapter presents diagrams related to the ship's plans and its loading plans. The second chapter performs the dimensioning of the mast line of the reference ship based on the data of the main engine type that is mounted on board the ship. The sizing includes the calculation of the intermediate shaft, the thrust shaft and the gantry shaft, but also the analysis of the way of joining them. At the end of the chapter, a brief analysis of the stresses to which the shaft line is subjected during operation is performed. The third chapter specifies a number of methods for optimizing the characteristics of the propeller on board ships, including technical methods such as: grim wheel, end plates, nozzles and additional fin systems. The fourth chapter is the one in which the calculation of the optimization of the propeller characteristics and the dimensioning of the propeller for the reference ship are actually realized. At the beginning of the chapter, solutions are established to increase the efficiency, then a series of calculations are performed to determine whether*

the propeller to be chosen will be with 5 or 7 blades. In the end, the oversized 5-blade propeller variant is chosen for efficiency. At the end of the chapter, a series of calculations are performed to check the propeller. The dissertation project ends with the conclusions contained in the fifth chapter in which an efficient calculation of the propulsion system is made.

8. Operation of the Supervision System, Alarm and Protection for de Exhaust Boiler Class AFRAMAX

Authors: stud. Ioan Alexandru CIUCĂ

Scientific Advisor: Lecturer Eng. Postolache Florin, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The project is focused on the sizing calculation of the naval boiler, the focus being on its automation. For the analysis of the boiler automation of the ships on board the oil tanker “Maersk Promise” it was necessary to establish the following basic parameters:*

- *The amount of steam required to heat the main engine;*
 - *The amount of steam needed to heat the fuel in the storage tanks;*
 - *The amount of steam required to heat the fuel in the tailings tank*
 - *The amount of steam required to heat the fuel in the preheaters before the two separators;*
 - *The amount of steam required to heat the fuel in the service tank;*
- Following the calculation carried out for the energy balance on board the ship, a boiler was chosen to meet the steam needs of the oil tanker, taking into account the capacity of the cargo on board.*

9. Use of Propulsion System Analysis Software Tools, Diesel RK

Authors: stud. Mario-Alexandru DULCE-ENESCU

Scientific Advisor: LCDR Lecturer Daniel MARASESCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *DIESEL-RK is a full cycle thermodynamic engine simulation software. It is designed to simulate and optimize the working processes of two- and four-stroke internal combustion engines with all types of impulse. The program can be used for the following types of engines: DI diesel engines, including PCCI and biofuel engines. SI petrol engines. SI gas engines, including pre-chamber systems and engines powered by various gases: methane, propane-butane, biogas, wood gas, Syngas, etc. Two-stroke engines, with uniflow and loop exfoliation, engines with opposite piston (OP or Junkers engines) and OPOC engines. Dual fuel engines (engines with few independent fuel injection systems for different fuels). (RCCI engines) DIESEL-RK is a thermodynamic instrument: engine cylinders are considered open thermodynamic systems.*

10. Design, Operation and Maintenance of the Fuel Installation for Tanker Ship

Authors: stud. Adrian-George IACOB

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** As can be seen in the following figure, the fuel (heavy fuel or diesel) is shipped to the valves (bunker area) reaching the storage tanks. From here, with the help of the gear transfer pump, it is pumped into the settling tank, passing through separators, and then reaching the service tank. From here, with the help of the feed pumps, it reaches the main motor and the auxiliary motors. The fuel system plays a particularly important role in the proper operation of the propulsion system and the optimal operation of the main engine, the reduction of pollutant emissions and the increase of the efficiency of the entire system depend on the preparation of the fuel. An important role in this installation is also played by the treatment and separation of fuel before combustion.*

11. Design, Operation and Maintenance of the Ballast Installation for a Tanker Ship

Authors: stud. Razvan Eugen IACOB

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** The ballast installation has a very important role in the stability of the ship and the maintenance of the ship's handling qualities, especially in high turbulent conditions. The role of ballast installations is to correct the position of the center of mass of the ship by boarding, transferring and discharging liquid ballast overboard. The ballast-bilge installation can be analyzed as a group of two circuits, one ballast and one drainage, independent of each other, which have common pumps and common portions of pipes. In this way the use of a smaller number of pumps, main pipes with a short length and implicitly smaller masses and dimensions is obtained. This paper aims to analyze the design and operation of the optimal ballast installation on board an oil tanker in optimal conditions for operation on board the ship. Given the ship's route, ballast water treatment systems will be analyzed to prevent ballast water pollution by transferring flora and fauna between navigation routes.*

12. Air-Cushion Vessels

Authors: stud. Augustin-Dumitru SASU

Scientific Advisor: Lecturer Eng. Rita AVRAM, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The article is presenting the analysis of the efficiency and capabilities of the air-cushion vessels to be an alternative means of transport at sea in the near future. This kind of ship craft is very different from a typical ship used in modern day transport and brings out a whole new point of view in fields like navigation and engineering. A modern air-cushion vessel can reach a maximum speed twice or triple the maximum speed of an average ship and the construction cost is much cheaper since there are used fewer materials. Also, it's an amphibious ship which means it can be used both on water and land. However some important nautical qualities, like wave resistance and stability are at a much lower level, fuel consumption is big despite its size and the capacity of transporting cargo is drastically reduced. This paper will present the construction and functioning principles of this kind of ship and if it's possible to improve the performance of operating in the open sea in any meteorological condition with a much bigger cargo load.*

13. Ship Steering Installation

Authors: stud. George-Mihaita STANCIU, stud. Florin-Lucian SPIREA

Scientific Advisor: Prof. Eng. Gheorghe SAMOILESCU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The steering installation has the role of maintaining the ship on the road during navigation and to change the direction of travel in accordance with the requirements of navigation, by applying to the command of vertical moments of rotation, which act simultaneously with the axial propulsion force. The government rotates the ship around the center of rotation during landing and departure maneuvers from the quay.*

14. Tesla's Tower - Wardencliffe Tower

Authors: stud. Aurelian VASILE, stud. Iustin-Ioan SEVERIN

Scientific Advisor: Prof. Eng. Gheorghe SAMOILESCU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The Wardencliffe tower also known as Tesla Tower, was a first wireless telecommunications tower designed by Nikola Tesla and designed for commercial wireless telephony, audiovisual and to demonstrate the transmission of electricity without interconnecting wires.*

15. Automatic Unloading System- What is it and How is it Used on Board Ships

Author: stud. Robert Mihai ANCUTA

Scientific Advisor: Lecturer Raluca APOSTOL-MATEȘ, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The present paper consists of a short presentation of a system that is used on every tanker, either oil tanker or products, that is AUS (automatic unloading system). The presentation will be based on some pictures and diagrams to illustrate the features of the system, the basic principle and actions, and also the operating procedure of the system. The AUS presented is the one onboard the ship I am currently on voyage.*

16. Crankshaft Torsional Vibration

Authors: stud. Daniel-Gabriel DODIŞ

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *I prefer the thesis “torsional vibration of marine engine shafting system”, because it has to do with ship propulsion and vibration performance, vibrations such as motions are unpleasant and makes life on board ship uncomfortable or more difficult. The purpose of this paper is to give us the details, description of the vibration characteristics of two stroke diesel engines, and of countermeasures to be considered in connection with their use in ships.*

17. Fuel Injection

Authors: stud. Robert DOVLEAC

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *All Diesel (compression-ignition) engines use fuel injection, and many Otto (spark-ignition) engines use fuel injection of one kind or another. An ideal fuel injection system can precisely provide exactly the right amount of fuel under a all engine operating conditions. This typically means a precise air-fuel-ratio control. In practice an ideal fuel injection system does not exist, but there is a huge variety of different fuel injection systems with certain advantages and disadvantages. Most of these systems were rendered obsolete by the common-rail direct injection system that is nowadays*

18. Sizing the Propulsion System of a Marine Tugboat in Terms of Reducing Fuel Consumption

Authors: stud. Florentin DRAGOE

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The study of the functional processes of the main naval engines in a tugboat. Supercharging analysis ”deals with the study of functional processes and supercharging analysis in 6 chapters structured as follows:*

Chapter I presents the basic characteristics of the ship. Chapter II presents the steps necessary for the thermal calculation of the engine. The initial calculation parameters are chosen and are described among the steps of the calculation of the intake process, the compression process, the isochoric combustion and isobaric combustion process, the expansion process and the determination of the indicated, effective and constructive parameters. Chapter III presents the algorithm for determining the energy balance of the engine. The algorithm includes the determination of the components of the thermal balance: the heat transformed into effective mechanical work, the heat consumed to overcome its own resistance, the heat taken over by the exhaust gases, the heat contained by the exhaust gases with incomplete combustion and the heat taken over by the bad liquid. Chapter IV deals with the analysis of the supercharging process. For this, the following were studied: centrifugal compressor, axial turbine, centripetal turbine and turbocharging processes. Chapter V sets out the parameters of the turbocharger and the intermediate air cooler. For this, the functional parameters of the turbine are determined and the intermediate air cooler is calculated. Chapter VI describes methods and measures to reduce pollution. For this, a series of internationally adopted regulations for limiting pollution were mentioned.

19. Inert Gas Generator System for a Tanker Ship – Software for Determination of Inert Gas Quantity

Authors: stud. Gabriel IGNAT, stud. Radu MUȘAT

Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Our paper describes the necessity of an Inert Gas System onboard of a Tanker Ship, the operation procedure of this system type and the automatization of this system. We have also created a piece of Software that determines if the exhaust gas quantity the boiler burner produces, while the steam turbine driven pumps discharge the merchandise, is enough to substitute the discharged volume from the tanks with Inert Gas, as this Inert Gas is generated from the exhaust gases produced by the boiler's burner.*

20. Cooling System

Authors: stud. Costin-Daniel MOCANU, stud. Răzvan-Andrei NAE

Scientific Advisor: Lecturer Eng. Florin POSTOLACHE, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The topic we will present is called Cooling System. The cooling installation is part of the category of auxiliary installations on board the ship. I chose this theme because it is very important in the vision of*

operating the engine in optimal conditions. The role of the engine cooling system is to keep the engine at a suitable temperature. The high temperature inside the cylinders damages the lubrication process, alters the mechanical properties of the conjugate parts and can eventually grab or damage them. In this situation the cooling system intervenes by taking over and transmitting 20-30% of the heat of the engine parts, ensuring the most favorable temperature, ie 85-90 ° C.

21. Naval Diesel Engines

Authors: stud. Gheorghe-Danuț NEDELICU, stud. Gavrilă-Marius TIMIȘ

Scientific Advisor: Assist. Prof. Eng Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Nowadays, even though electric motors are becoming more and more popular, the most used remain diesel engines. Thus, the diesel engine is still of great interest to most and each of them must know as much as possible. well how such an engine works, but also what are the specific advantages and disadvantages. In addition, it is important to know the principle of operation of a diesel engine in order to understand its importance.

22. Calculation of the Engine Greasing Installation

Authors: stud. Cosmin Claudiu PAHON

Scientific Advisor: Commander (Navy) Assoc. Prof. Adrian POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: In the attached project, we presented the first 2 chapters of the license project, the calculation of the engine lubrication system and the operation of the lubrication system.

23. Oil Tanker. Calculation and Construction of the Main Propulsion Engine. Elements for the Calculation and Construction of Engine Lubrication Systems

Author: stud. Ștefan-Lucian PANDELE

Scientific Advisor: Assoc. Prof. Eng. Moroianu Corneliu, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The purpose of the engine lubrication system is to supply oil to the friction surfaces of the engine parts, reducing friction between them. In turn, this allows you to reduce engine power loss to overcome friction. During engine operation, the engine oil circulates between the engine details, ensure cooling and avoid wear. It is necessary to remember that the oil layer on the piston improves the compression of the engine

24. Cooling System of Naval Propulsion Engines

Author: stud. Gabriel-Cătălin PASCU

Scientific Advisor: Lecturer Eng. Aurelia CHIOIBAȘ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Every diesel engine requires a couple of systems that ensure the proper operation. One of the most important is the cooling system. In this paper, I will present the main elements of this system, including pumps, coolers, automatic valves, etc. Also, I will present different types of which element, to see the advantages and disadvantages of each type.*

25. Dual Hybrid Propulsion

Author: stud. Andrei Sebastian PODLOG

Scientific Advisor: Assist. Prof. Eng. Ali Levent, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The research topic is: "Elements for the design, construction and operation of ships with dual hybrid electric propulsion and LNG", a topic that arouses my personal interest because I consider that the pollutants that are released into the atmosphere are very large, so in more and more Protected areas of the world have identified the need to use transport vehicles that are clean or with the lowest possible degree of pollution.*

26. Propulsion System of Container Ships

Author: stud. Emanuel RĂCEALĂ

Scientific Advisor: LCDR Lecturer Daniel MĂRĂȘESCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The transport of containers by sea occupies a significant percentage of the total goods transported by sea, which led to improving and perfecting container ships. Today, the biggest container ship has a capacity of 24000TEUs and an overall length of 400meters, so the propulsion system must be very efficient in order to ensure the requirement for speed and fuel consumption. In this paper, I will present the types of propulsion systems found on container ships, considering both advantages and disadvantages for each. Also, they will be presented in a chronological way, to see the evolution from the old systems to the newest ones.*

27. Calculation of the Chemical Tank Type Anchor-Tying Installation

Author: stud. Robert MARINA CRISTU

Scientific Advisor: Prof. Eng. Beazit ALI, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The draft license focuses in the optimization on calculation of the chemical tank type anchor-tying installation which has capacity of 18000*

TEU. In this project are five chapters. In the first chapter we are looking for all those technical characteristics and exploitation of a chemical tanker. The second chapter i need cu calculated those endowment features and sizing of anchors, the anchor chain , the size of winch , the capstans and all binding elements that we use . Third chapter is based on on calculation of forces that are executed in chain anchor, how much bigger the winch has to be for supporting this amount of power. Fourth chapter is to learn how to work with this instalation and feel safe. And in the final champers are all those conclusions that we have.

28. Balast Installation of the Ship

Authors: stud. Veronel Nicolae SCUTARIU

Scientific Advisor: Lecturer Eng. Aurelia CHIOIBAŞ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: The project is focused on determination of main characteristics of balast installation to choose a balast pump which meets all necessary conditions.

And in this necessary condition are:

Calculation of flow on installation to can reach minimum speed limit.

Calculation of installation load (H).

Calculation of pump load.

Calculation of the hydrodynamic friction coefficient.

Calculation of hydraulic losses.

Calculation of equivalent lengths.

Calculation for flow of the pump.

29. Constructive Elements of the Main Engine Cooling System

Author: stud. Mihai Alexandru TALPAN

Scientific Advisor: Commander (Navy) Assoc. Prof. Adrian POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Like all engines, engine from ship have an cooling system. The project it is focused on contructive elements of cooling system for main engine, how they work and the maintenance of them.

30. Oil Discharge Monitoring Equipment (O.D.M.E)

Authors: stud. Răzvan-Ionuț TĂMĂȘANU

Scientific Advisor: Assist. Prof. Eng. Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: For this presentation, I choose a theme very close to my license work, namely "oil discharge monitoring equipment" (O.D.M.E). I have

chosen this subject, because I think above all another aspect, it is very important to take care of the environment and of nature.

31. The Influence of Environmental Factors on Operation Diesel Engine - Generator Group on Ships

Author: stud. Valentin AVRAM

Scientific Advisor: Assist. Prof. Eng. Ionel POPA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Analyse of Joint operation of the Diesel Engine - Generator group in operating conditions and adjustment possibilities representing the interface between mechanical field (engine) and electrical field (generator). Under operating conditions, deviations from the characteristics of the synchronous generator occur. These deviations are mainly determined by state factors as temperature and pressure variations, the phenomenon of hysteresis and the degree of saturation of the magnetically circuit.*

32. Internal Combustion Engines. Construction. Operation Mode. Advantages and Disadvantages.

Authors: stud. Maria-Nicoleta MANOLACHE, stud. Cosmin-Gabriel MITRAN

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The internal combustion engine is the engine that converts the chemical energy of the fuel through the thermal energy of combustion, inside the engine, into mechanical energy. Internal combustion engines are mainly used for marine propulsion and power generation purpose. The engines used onboard ships are internal combustion engines, in which, the combustion of fuel takes place inside the engine cylinder and the heat is generated post the combustion process. There are two main types of internal combustion engines, so the operation of the 4-stroke engine with compression ignition is slightly different from that of one with spark ignition, even if certain elements, such as combustion stages, are largely similar. But in addition to the type of fuel used, there are many differences between the types of engines that exist: from the number of times a piston travels to the way the cylinders are placed.*

VII. SECTION: FUNDAMENTAL SCIENCES

Section Committee:

Chairman: Assoc. Prof. Andrei BĂUTU, PhD

Members:

Lecturer Adriana SPORIȘ, PhD

1. The Applicability of Math in Navigation

Author: stud. Florentina-Maria RADUT

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** Students learn that math is important in navigation and engineering. Ancient land and sea navigators started with the most basic of navigation equations ($speed \times time = distance$). Today, navigational satellites use equations that take into account the relative effects of space and time. However, even these high-tech wonders designed by engineers cannot be created without pure and simple math concepts (basic geometry and trigonometry) that have been used for thousands of years.*

2. The Classical Transport Problem

Author: stud. Cristina-Oana APOSTOL, stud. Maria-Bianca CAVADIEA-STEJERAN

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

***Abstract:** The classic transport problem is part of the much wider class of problems modeled through transport networks. A transport network models an economic situation in which, from a certain number of points, called sources, a quantity of a certain substance must be transported to another number of points, called destinations. The purpose of the problem is to find those quantities that need to be transported on each route so as to ensure the needs of each destination, within the limits of the quantities at sources, at the minimum possible cost.*

3. Detecting and Tracking of Asteroids with the International Astronomical Search Collaboration Program

Author: stud. Dimitrov DIMITAR

Scientific Advisor: Assoc. Prof. Radeva VESELKA, PhD

Institution: Naval Academy "N. Vaptsarov"

Abstract: *The article presents research work of the Student Space Society of Naval Academy in international program for detecting and tracking of asteroids in the solar system. The main stages in the process of processing astronomical images for searching for moving objects - asteroids are explained. In the article are presented too student`s results of observational astronomy campaigns for asteroid detection for the period 2017 - 2021 and the importance of IASC program.*

4. Observations of Artificial Satellites from the Naval Astronomical Observatory of Bulgarian Naval Academy

Author: stud. Borisova DOROTEYA

Scientific Advisor: Assoc. Prof. Radeva VESELKA, PhD

Institution: Naval Academy "N. Vaptsarov"

Abstract: *The article presents the establishment and the astronomical observations of the Naval Astronomical Observatory of Vaptsarov Naval Academy, Bulgaria. The focus is on the observation program which is directed towards tracking artificial satellites, observations of short-lived lunar phenomena and bright astronomical objects and phenomena. The future astronomical research goals of the Naval Astronomical Observatory of Vaptsarov Naval Academy are presented.*

5. Chinese Remainder Theorem with Applications in Cryptography

Author: stud. Mario-Alexandru DULCE-ENESCU

Scientific Advisor: Lecturer Adriana SPORIŞ, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *In number theory, the Chinese remainder theorem states that if one knows the remainders of the Euclidean division of an integer n by several integers, then one can determine uniquely the remainder of the division of n by the product of these integers, under the condition that the divisors are pairwise coprime. The earliest known statement of the theorem is by the Chinese mathematician Sun-tzu in the Sun-tzu Suan-ching in the 3rd century AD. The Chinese remainder theorem is widely used for computing with large integers, as it allows replacing a computation for which one knows a bound on the size of the result by several similar computations on small integers*

6. Applications of Mathematics in Every Day Life

Authors: stud. Ștefania MILITARU, stud. Anamaria MIHOC

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *If you look carefully enough, you will see that mathematics appears in most of the things around us – from buildings, roads or transport to the technology so popular with children. The fact is, we all use maths in various practical everyday applications, whether we realize or not. Mathematics is the universal language of our environment, which has helped mankind explain phenomena and create objects for thousands of years. From simple games to time management, mathematics is vital to help students develop their creativity and turn their desires into reality. We all know that mathematics has had an effect on humanity since antiquity. Mathematics is creative science, without which we would not have access to the Internet today, phones, TV sets, so we must be grateful. In the following we will specify some of the many mathematical facilitations encountered in everyday life: Percentages, reports, direct and inverse sizes, scale of a map, calculation of probabilities etc.*

7. Chaos Theory

Authors: stud. Andreea-Daniela BURHAI, stud. Andreea-Maria BEU

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper we will discuss about the Chaos Theory. This is also called the theory of complex systems which is a branch of modern mathematics and physics that describes the behavior of certain nonlinear dynamical systems, those systems that have the phenomenon of instability called sensitivity to initial conditions, which is why their relatively long-term behavior (although it conforms to certain laws) is unpredictable, ie seemingly chaotic (hence the name of the theory). We will include some information about Edward Lorenz (the inventor), about the fact that this theory is a field of study in mathematics, physics, economics and philosophy. We will discuss the phenomenon produced by theory - the butterfly phenomenon, some examples of chaotic systems: Koch's curve, chaos theory in everyday life VS. chaos theory. chaos in education, about attractors and example from everyday life with meteorology, and at the end conclusions and at the end suggestive conclusions.*

8. Math in Army

Author: stud. Bianca-Elena CHIFOR

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this presentation I will show you a little bit of history about math and where it is used. I will focus on the army because it is one of the most dangerous jobs in the world, if we talk about the wars. Wars are long*

battles in which die a lot of people and the participants in the war have the mission of winning the war with the risk of losing their lives, and that is why they must be very vigilant and calculate all their movements. During this presentation I will show you some military tactics and principles used in wars to win and how often the military uses math. You will see what is an Eniac, what it looks like and what it was used for, how snipers work and what calculations they need to do to reach the target taking into account external factors like distance to target, wind direction, wind speed, altitude, sniper height, target and ambient temperature and some pictures of the weapons they generally use.

9. Traumatic Brain Injury and Neurondegeneration in Active Duty Soldiers and Veterans

Author: stud. Katerina KIROVA

Institution: Nikola Vaptsarov Naval Academy, Bulgaria

Abstract: A traumatic brain injury (TBI) is an injury to the brain caused by an external force. Mild traumatic brain injury (mTBI) includes concussion, subconcussion, and most exposures to explosive blast from explosive devices. mTBI is the most common traumatic brain injury affecting military personnel; but at the same time it is the most difficult to diagnose and the least well understood. Depending on the severity of the brain injury, a person with TBI may experience a change in consciousness that can range from being dazed and confused to losing consciousness. They may also experience memory loss. Conditions stemming from TBI can range from headaches, irritability, and sleep disorders to memory problems, slower thinking, and depression. These conditions often lead to long-term mental and physical health problems that can have impact on family relationships. Some have persistent and sometimes progressive, long-term debilitating effects. It is suggested that a single traumatic brain injury can produce long-term gray and white matter atrophy, precipitate or accelerate age-related neurodegeneration, and increase the risk of developing Alzheimer's disease, Parkinson's disease, and motor neuron disease. In addition, repetitive mTBIs can provoke the development of a tauopathy and chronic traumatic encephalopathy. Understanding this connection between degenerative neurological diseases and head trauma is vital to helping our military veterans and active duty officers to re-adjust to civilian life. Some veterans can overcome PTSD with only the use of cognitive behavioral therapy (CBT). However, some veterans who cannot overcome the symptoms of PTSD and post-concussion syndrome may be struggling because their mTBI damage was too severe to simply treat with CBT.

10. The Importance of Military Doctors in the Military Force Structures and Telemedicine as an Innovation in Military Medicine

Authors: stud. Melani PIRGOVA, stud. Gergana MLADENOVA

Scientific Advisor: Col. Assoc.Prof. IVAN POPIVANOV, MD, PhD

Institution: Nikola Vaptsarov Naval Academy, Bulgaria

Abstract: The purpose of medical care is to preserve the health and lives of soldiers and reduce mortality and permanent disability (physical and/or mental). Not everyone can be a military doctor. You need to be prepared to step outside your comfort zone. By choosing the military epaulet, you choose to dedicate your life to the Motherland and by taking the decision to study medicine, you have to dedicate your life to caring for everyone in need. The battle between life and death does not subside. The purpose of the paper is to present the main responsibilities and challenges of military doctors while serving in the Bulgarian Role 1 MTF. The importance of telemedicine as one of the biggest innovations that support the work of military doctors is also discussed. This is a modern method to provide medical care from distance and is something that will significantly improve the care of the wounded on the battlefield.

11. Chemistry of Fire

Author: stud. Mihai-Dănuț TIMOFTE

Scientific Advisor: Lecturer Eng. Manuela Rossemary APETROAEI, PhD.

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: Fire is an extraordinarily complex process influenced by many factors that affect its growth, spread, and development. Knowledge of the chemistry of fire, the physical-chemical properties of the fuel, the amount of oxygen available, and heat transfer are important factors that must be considered in fighting fires. This paper includes an investigation about the origin and cause of a fire, relies on fire chemistry and physics to trace the fire back to its origin. Firstly, general definition of fire will be given, more precisely what is this process, and which are the factors that influence it. Secondly the damage control of fire will be pointed out by several methods of how to do it. Finally, a solid conclusion will be drawn showing how dangerous can be fire and how easy is nowadays to prevent a disaster.

12. Physiology of Fear and Techniques Used by the Military Academies to Mitigate its Influence

Authors: stud. Vasil KONSULOV, stud. Viktor PEEV

Scientific Advisor: Anna KRADENCHEVA, PhD

Institution: Nikola Vaptsarov Naval Academy, Bulgaria

Abstract: *Fear is a natural, powerful and preventive human emotion. It alerts us that we are facing danger or threat of harm no matter it is physical or psychological. Not only does it contain an objective biochemical response within our body, but also a subjective emotional response for each individual. The limbic system acts as the center of emotions, behavior and memory. Being part of it, an almond-shaped set of nuclei, called the amygdala, is dedicated to detecting the emotional salience of the stimuli. The unique response often forces the individual to act irrationally. It is believed that exactly a military officer is considered responsible to act with bravery and calmness facing fear. This article aims to reveal techniques which military academies have to apply in order to develop the cadets' skills to deal with fear and to mitigate its influence during the decision making process.*

Key words: *cadets, Military academies, Limbic system, fear, training*

13. Golden Numbers in Harmony of Life, Art and Nature

Authors: stud. Dragoş Petrişor VERZIA, stud. Adriana Raluca IANCU

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *Numbers are everywhere. They are part of our lives more than we can imagine. Every night, stars move on the sky in circular trajectories. Using mathematics and numbers to organize and systematize our ideas about shapes, we discovered a great secret: the shapes of nature are not there just to be admired, but are in fact the vital clues to the rules that govern natural processes. Dividing a segment AC in two segments AB and BC, by choosing a point B such that $AC/AB=AB/BC$, it corresponds to what Euclid called dividing an average and extreme length ratio. It is also, from both a geometric and algebraic point of view, the most logical and important asymmetric division, due to its mathematical and aesthetic properties.*

14. Application of Mathematics in Automobile Industry

Author: stud. Maria BURIU, stud. Andrada FODOR

Scientific Advisor: Assoc. Prof. Dan LASCU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *The main idea of the project includes application of mathematics in automobile industry. The modern automobile is a complex collection of mechanical, chemical, electrical, hydraulic, and other types of physical systems, all of which have strong connections to mathematics. The usual perception today is that mathematics only came into auto manufacture in the 1980s, when computer-aided design and modeling hit the scene. But in*

reality, every car ever produced has been a machine made of numbers, from beginning to end. Math is applied in almost every aspect of car production like gear ratio, carb size, displacement, fuse capacity, engine rpm, geometry, interior and exterior design. The automotive industry is concerned crucially with highly practical questions that need answers quickly, but before all this, we must understand how all these mechanisms are created. In fact, we all used at least one car or went with it and that is why it is important to know that the mathematics learned in school helps us to understand the functionality of the car.

15. Earthquakes in Romania and Their Effects

Authors: stud. Daniel GHERGHISAN, stud. Mihai ALEXANDRU, stud. Alexandru-Ionuț DOBRE

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Romania is a country with high seismic potential, an aspect highlighted by seismic hazard studies and by the provisions of seismic design code P100. Practically, at any moment there can be an earthquake with a magnitude greater than 7 in the Vrancea Seismic Zone, at depths between 60 and 180 km. And this area is not the only one where earthquakes with destructive potential can occur. The largest earthquakes occur mostly in the Vrancea area (in very large numbers at intermediate depths), but also other crustal areas such as Fagaras-Campulung, Banat, Shabla and Crișana-Maramureș.*

16. Why Playing Sports?

Author: stud. Alexandru RUSCAN

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Playing sports is very important for your health, because of different reasons. No matter what sport one chooses the benefits will always appear. Beside the advantages in one’s health sports are a very good reasons for spending one’s free time. The hereby presentation deals with different sports arts and their impact on health.*

17. Natural Calamities

Authors: stud. Alin-Petrisor NANU, stud. Valerica-Ionuț NEGOIȚĂ

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *A natural disaster is a major adverse event resulting from natural processes of the Earth; examples include floods, hurricanes, tornadoes,*

volcanic eruptions earthquakes, tsunamis, storms, and other geologic processes. A natural disaster can cause loss of life or damage property, and typically leaves some economic damage in its wake, the severity of which depends on the affected population's resilience and on the available infrastructure.

18. Glacial Relief

Authors: stud. Gheorghe-Dănuț NEDELCU, stud. Robert-Sebastian ȚUȚU

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We chose to talk about this topic, Glacial Relief, because we consider that this type of relief is in continuous degradation due to global warming. By means of this presentation we would like to offer you some information about the formation stages and the most important parts of this type of relief.*

19. Raspberry Pi- the Computer that Fits in Your Pocket

Author: stud. Bogdan-Marian FLOREA

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This project is a introduction in the world of single board computers. The raspberry pi is one of the most known of such boards. This low power and low price board has a lot of applications and they are used in automatisation for robots, media centers, servers and in programming, with was its primary intended use.*

20. The Importance of Sport in Maintaining a Healthy Lifestyle

Author: stud. Dragoș Petrișor VERZIA

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Health must be maintained in a person's top priorities. One of the best ways to keep your health up for any kind of challenges it may come across, it is to practice constant sport, in any method you are comfortable with. Doing constant work on this lane has several major benefits. From maintaining a constant pulse, good blood pressure, elimination of toxins through sweat and many other changes that your body makes during and after the effort. Physical activity in young years contribute to body development and to acquire good habits since an early age. And as old latins say „Men sana in corpore sana”.*

VIII. SECTION: FOREIGN LANGUAGES

Section Committee:

Chairman:

Assoc. Prof. Delia Natalia-Alexandra LUNGU, PhD

Members:

Lecturer Laura CIZER, PhD

Lecturer Raluca APOSTOL-MATEȘ, PhD

1. The Beauty of Engineering

Authors: stud Sebastian Dorin BARNĂ, stud. Robert Ionuț CHISCOP

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The project presents a brief history about engineering, its importance and some steps to a new, improved world that currently helps or will help an entire civilization with its technology. Some interesting pictures combined with some explanations are going to reveal how fascinating science is; for example a train which levitates and has incredible speeds which is frictionless or more things that might catch your attention.*

2. The Cruise Ship – A Gateway to the World

Authors: stud. Dragoș-Nicolas BERBEC, stud. Florentina-Maria RĂDUȚ

Scientific Advisor: Lecturer Corina SANDIUC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The fabulous world of travel on water has always fascinated people. The advent of cruise ships at the beginning of the twentieth century has particularly boosted the international development trend in tourism and has opened the way towards world exploration and adventure. The present paper aims to draw a general picture of cruise ships, their history and classification, together with their most important structural elements, characteristics and amenities. A series of fun and incredible cruise ship facts will also be included.*

3. The Role of Women in Roumanian Army

Authors: stud. Anamaria-Daniela BIRZAN, stud. Elena ZAHARIA

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Women have served in the military in many different roles in various jurisdictions throughout history. In recent decades, women have evolved both socially and militarily. They began to hold various social*

leadership positions and proved that they are as capable as a man, and not infrequently demonstrated that they can excel in certain areas, much better than men. Due to the demonstration that women can be as well trained in most fields as men, they have earned the right to be placed on an equal footing with their "opponent", men. This presentation follows the evolution of women in a world of men. At the same time, are presented the stages that a woman has to go through in order to obtain a position in the Romanian army.

4. English as an International Language

Authors: stud. Robert-Manuel BOTA-IOANA, stud. Ionuț Radu Andrei MARIN

Scientific Advisor: Assist. Prof. Alina NEGOESCU, PhD

Institution: "Nicolae Balcescu" Land Forces Academy, Sibiu

Abstract: *Through the years, English rose up to be the leading language on the global scale, with over 1.3 billion speakers. The main purpose of this paper is to analyze the exponential growth of non-native speakers in the last centuries and present the aspects that constantly reinforce the use of English within international organizations and institutions. Firstly, the foundation towards it becoming a global language has been laid in the times of the British during the period of the British colonial Empire and later by the Americans starting with WWI. The second part of the paper presents why there was an accentuated need for a global language and how important institutions such as UN, UNESCO and NATO adopted it as their official language. The article concludes with an analysis over the importance of English in the military, especially in NATO.*

5. The Algorithm of Life

Author: stud. Alev BURMAMBET

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: *We are so busy trying to figure out life is an algorithm that sometimes we miss what is in front of us: the life. Our lives have turned into a series of norms, and we blindly follow their rhythm, because it is easier to pick the paved way than to create our path. We get our inspiration from picture-perfect moments on social media. Before we know it, our lives become part of a competition with no rules or a proper endgame. But if we could go beyond our pattern of thinking, we would realize that we are better than yesterday.*

6. The Bermuda Triangle

Author: stud. Răzvan Andrei CARAȘ

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We dive into one of the most mysterious places on Earth and the area of the Bermuda Triangle, the most notable weird location comprising the most weird incidents that have ever happened, appears in front of us.*

Ordinary people and reserchers deal with the unique phenomena starting from paranormal and leading to natural causes. The hereby paper tackles the legend of the Bermuda Triangle in the first voyage of Cristopher Columbus to the New World and in the end we are trying to draw a conclusion about the mystery behind the Bermuda Triangle.

7. Universe

Authors: stud. Adrian-Marius CHIRU, stud. Andrei-Robert CHIHAI

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The universe comes from ancient times unknown to man, which is why the human being was attracted to the discovery of its secrets that put many questions. A broad vision that presents us with the multitude of planetary and interplanetary bodies along with their captivating secrets. As comprehensive as it is mysterious and vast is the great universe, the place where all life was born and the place from which all existence began. I invite you to travel together among the stars, to discover and clarify our vision of the universe!*

8. Condition of Women in the United Kingdom

Author: stud. Cristina-Mihaela DRĂGOI

Scientific Advisor: Assist. Prof. Alina NEGOESCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The United Kingdom is a well-known power in Europe with a very rich history. The condition of women is a sensitive topic worldwide, but when it comes to the UK, I believe that there are certain things that are worth mentioning. First, the paper presents a short history of the condition of women over time. Another point that is approached is women’s suffrage, meaning the movements that women made in the UK in order to obtain their right to vote. Finally, the article mentions honourable women in the UK who have changed the world and contributed to gaining the current status that women have. All things considered, the paper tries to bring to attention how much history has affected the condition of women, and how they reacted in order to protect their rights and lives.*

9. Mental Stress Levels at Sea

Authors: stud. Lina FAHL, stud. Bianca-Gina COJOCARIU

Scientific Advisor: Lecturer Corina SANDIUC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The sole purpose behind this project is to raise awareness of a probably overlooked problem that most seafarers have to deal with – their mental health and well-being. Seafaring is an overwhelming occupation, being set apart from other jobs due to the special set of features by which it is characterised. The life of a seafarer offers a wide variety of experiences and unique opportunities for everyone searching for adventure and work in the same time. However, all this comes with a price: loneliness, overwork due to continuous routine, exhaustion, stress, etc. Thus, the demanding nature of onboard jobs contributes directly to seafarers' mental health issues, that cannot be easily overcome at sea.*

10. The Knights Templar – the Poor Fellow-Soldiers of Christ

Authors: stud. Sebastian FRUNZĂ, stud. Diana-Ecaterina DAȘCHIEVICI

Scientific Advisor: Assist. Prof. Brândușa-Oana NICULESCU, PhD

Institution: “Nicolae Bălcescu” Land Forces Academy of Sibiu

Abstract: *Some of the most important and remarkable military events from the medieval age were the Christian wars, known as the Crusades. Christian soldiers from Western Europe secured the sacred city of Jerusalem from Muslim control. The need of protection for the many pilgrims that were robbed or even killed as they were visiting the Holy Land, determined a French knight, called Hugues de Payens, to establish a military order called the Poor Fellow-Soldiers of Christ and the Temple of Solomon. They were simply known as the Knights Templar. The Templars received the official endorsement of the Catholic Church. As the time passed, the Knight Templars became the defenders of the Crusader states – Kingdom of Jerusalem, Principality of Antioch, County of Edessa and County of Tripoli. By building a great number of castles, and by fighting and winning many battles against Islamic armies, they acquired a reputation of ferocious fighters. However, the support of the Europeans in the military campaigns began to erode over the decades that followed. This paper aims to justify their prestigious status and to present the beginning, the work, the fall of the Templar Knights, as well as their organization and duties.*

11. The Impact of Ships on the Environment

Author: stud. Adriana Raluca IANCU

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The British poet W. H. Auden once noted, “thousands have lived without love, not one without water.” Love is indispensable, but we all know that water is a vital element in our lives and also that its pollution has become a real problem. Like all modes of transportation that use fossil fuels, ships produce carbon dioxide emissions that significantly contribute to global climate change and acidification. Not only water is the element in the environment affected by ships. Ships are responsible for more than 18 percent of some air pollutants.*

12. Something Old, Something New. The Impact of COVID-19 Pandemic on the English Language

Authors: stud. Robert-Bogdan ICHIM, stud. Marian MENU

Scientific Advisor: Lecturer Laura CIZER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Language is a living thing and it is massively influenced by everything that happens around us. Historically, major events like natural disasters and war have proven to have big impacts on language. This pandemic we are going through is no exception. For example, one of the effects of the pandemic is that it is brought previously obscure medical terms to the spotlight, and new ones, called neologisms – which will be pointed out in the first part of this paper. Since last year, the new coronavirus has impacted our lives in so many ways. This time we will focus on how the pandemic is continuously changing our language and the way we communicate. That is why a series of words and phrases such as coronials, covidiot, and zoombombing have been coined; we collected them and pointed out their meaning and use. Finally, we will conclude by stating our personal opinion on the subject, analysing if these neologisms are here to stay or will fade away after the pandemic ends.*

13. The British Invasion: Music and Its Powerful Impact on the 1960s Society

Authors: stud. Maria-Daria ION, stud. Bianca-Maria LUPȘĂ

Scientific Advisor: Assist. Prof. Brândușa-Oana NICULESCU, PhD

Institution: “Nicolae Bălescu” Land Forces Academy

Abstract: *The 1960s was the biggest decade in the American Post-War History in terms of change, social movements and revolutionary concepts. In the context of events such as the assassination of President John F. Kennedy, the Vietnam War, the hippie era, racism and the Civil Rights Movement, music through the phenomenon called “The British Invasion” was an important key event that revolutionized music, culture and society. British artists, bands such as the Beatles, the Animals, the Rolling Stones*

and many others brought their original and optimistic lyrics, the fresh sounds which became the voice of the young generation and which brought the unjust things of that time through their music to the spotlight in the United States and even across Europe. The paper aims at describing the American and British Society during the British Invasion, the context which led to it and the effects of this phenomenon.

14. Aim for the Stars! Vistas of Star Constellations

Authors: stud. Iulia Diana LUP, stud. Denisa Luciana MIHĂESCU

Scientific Advisor: Lecturer Laura CIZER, Ph.D.

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Centuries ago, navigators used stars and constellations to find their way at sea. Since then, the astronomical navigation has been very useful, but beside its time proven importance, have we ever really thought about the beauty of the night sky? This is why this paper contains several fun facts about constellations seen from a different angle. Firstly, there will be a brief introduction that includes the definition of the key terms, a brief history about constellations, their evolution and classification, as well as several fascinating curiosities. Secondly, this paper will show how the figurative saying "to give the moon and the stars" to your beloved one can be taken almost literally. Lastly, a special focus on the authors' favorite star will be presented, followed by their final conclusion.*

15. Vegan and Cruelty Free. The Difference.

Authors: stud. Gabriela MAZILU, stud. Diana NEACȘU

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Why you should care about cruelty-free and vegan beauty? The terms “cruelty free” and “vegan” have grown increasingly popular in the last few years, when people started being interested in products that do not involve testing on animals or ingredients of animal origin, but how many of them really know what’s the difference between these two labels? Both labels represent and care about the protection of animals, their lives and rights. There are a lot of confusing terms around vegan beauty — “cruelty-free” is one example, with many people assuming that they are one and the same. Since they are more and more often seen on different products, from food to makeup, the customers and consumers should know what each of them means and which one is closer to their preferences. Animal ingredients have not been proven to be superior in any way, and wholesome vegan alternatives do exist.*

16. Sailing Knots

Authors: stud. Costin-Daniel MOCANU, stud. Răzvan-Andrei NAE

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper aims to present the sailing knots. These knots could prove to be some of your best sailing companions. They need ample practice so that you can tie them perfectly and quickly when you need them. Your rope handling skills would come handy whenever you need to tie knots for mooring, anchoring, securing cargo, managing sails, preparing for a storm, towing another vessel, decorative purposes, etc. It helps if you take note of the pros and cons of the popular sailing knots. You should use ropes that can be used repeatedly and can be untied easily. The emphasis here is on reliability, safety and convenience.*

17. Flowers in the Army

Authors: stud. Daliana MOLDOVAN, stud. Beatrice MUNTEANU

Scientific Advisor: Lecturer, Laura CIZER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper will point out the unusual connection between flowers and the army. Firstly, it will illustrate a brief history of how these floral symbols appeared all over the world and how old they are. Secondly, it will present the most representative flowers which are significant for the military system, because of their meaning. Last but not least, this paper will show several examples of flowers such as the red poppy, the forget-me-not, the maple leaf and their floral symbolism. In the end, this presentation will highlight how strong flowers are, as Michael Johnsons said “A flower is fighting day by day with the wind or the rain and still standing against all odds.”.*

18. Alexander Hamilton, one of the Most Influential Founding Fathers

Author: stud. Radu-Cosmin OGNEAN

Scientific Advisor: Assist. Prof. Alina-Gabriela NEGOESCU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Despite his humble beginnings, Alexander Hamilton managed to climb the ladder of power at both a military and political level, in the period of time of great turmoil that represented the second half of the 18th century for the Thirteen Colonies. One of the most influential Founding Fathers, Alexander Hamilton played a huge role in gaining independence for his country and in rebuilding a war-torn nation, an effort that is often times overlooked due to his untimely demise and the ascension of power of his political rivals. This paper discusses the life of Alexander Hamilton and the*

three parts which are further developed are the early and pre-Revolutionary life of Alexander, his role in the American Revolution and the post-Revolutionary life and furthermore, a big emphasis was put on Alexander's rise to power and the political aspects that many times intertwined with his personal life and vice-versa.

19. The Evolution of Cruise Ships

Author: stud. Panaiotis PEGKAS

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: In this project, I tried to talk about general information on the development of cruise ships. We have addressed certain areas that could better highlight their evolution, such as history, architecture and technology. We have also addressed the differences between current ships such as Royal Caribbean and those that formed their basis such as Prinzessin Victoria Luise, further highlighting the development of current ships. We would also talk in our work about how passengers can spend their time on a cruise ship in our seducs, unlike those who were the passengers on the first ships.

20. A Short History of Container Ships

Authors: stud. Alexandru PIRIU, stud. Victor SOLOMON

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: "Mircea cel Batran" Naval Academy, Constanta

Abstract: We choose to talk about the history of container ships, how they appeared, the different types of construction and how they improve our lives. We were attracted to this topic, because approximately 90% of non-bulk cargo worldwide is transported by container. Throughout the history these ships carried all sorts of supplies all over the world and helped the allies in the second world war. Today, we can say that container ships are helping a lot of companies all over the world.

21. History of Naval Battles. Ancient Greece

Author: stud. Alexandra STAVRE

Scientific Advisor: Irina BAKHAYA, PhD

Institution: Police Academy "Alexandru Ioan Cuza" Bucharest

Abstract: A lot of individuals have developed a passion for Ancient Greece. Gods and great heroes have always given us stories that would never grow old. Some of them may be legends, but there are those that reflect the pure reality of those times. Although we may get excited when we hear of battles such as Troy, Marathon, Gaugamela, we should never forget the link

established between Greece and the sea. This means that naval battles are to be remembered and even studied. Greek ships may have been replaced by modern ones, but the strategies and plans of those ancient times may prove useful should they ever be. Making great use of the environment, as well as the manpower and the ships brought valuable results back then, which is why I invite you to learn about such battles that took place between the Greeks and their enemies, the Persians.

22. The Evolution of Women in the Military

Author: stud. Gavrilă-Marius TIMIȘ

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *I chose this subject because it is a topic much discussed by everyone, if they can adapt to this environment of men. Throughout history, women have tried to join the army by various means, until finally they were accepted. I believe that this issue deserves more attention and more encouragement because everyone is equal in every way and there should be no differences.*

23. Fact or Fiction: A Conversation About Conspiracy Theories

Authors: stud. Raul-Sebastian TRAIKA, stud. Mihnea-Alexandru MOISE

Scientific Advisor: Lecturer Laura CIZER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Conspiracy theories are a part of the world because different people may have different perspectives on several events that occurred and believe that someone or something is behind them. Firstly, this paper will point out four of the most popular conspiracy theories: the assassination of JFK, the Apollo 11 mission, the 9/11 tragedy and the Coronavirus. Secondly, the paper will show some information about every event and it will try to show the truth about what happened, pointing out for and against arguments. In the end, the authors of this paper will formulate their personal opinion on the matter.*

24. Demons at Sea

Author: stud. Cătălin-Costin VLAD

Scientific Advisor: Lecturer Laura CIZER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This presentation includes several of the strongest naval weapons in active use. This subject matter was chosen following a binge watching of many topic-related documentaries and it proved a captivating theme for debate. Over the last decade, technology has made a big leap, and “the old*

weapons” became obsolete much faster; weapons are more diverse and efficient nowadays. Firstly, the definition of weapons will be given; more precisely, what weapons mean, how they are classified and how they are used. Secondly, a few of the most feared weapons in the navy will be presented in terms of cost and specifications. Finally, a solid conclusion will be made covering all the already presented weapons shown and deciding on which one stands out more from the rest from the author’s perspective.

25. Questionnaire Survey About the use of Social Media

Authors: stud. Andrei-Alexandru AMATEESEI D., stud. Rareş-Alin PROCACI M.D., stud. Vlad POPOVICI S., stud. Ştefan-Teodor LABUNT

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *People were asked how many social media accounts do they own, and were given choices up to 6 or more accounts. The following presentation depicts the average number of people and accounts owned by the sample represented in the percentages of the presentation.*

26. Global Warming

Author: stud. Marian COSTEA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this presentation we have a small summary about global warming, a major problem that should be very worrying for the entire population of the planet. I tried to attach some causes, natural and man-made but also some solutions that can be easily implemented and fast.*

27. Easter Island

Authors: stud. Dragoş-Ştefan GRAMĂ, stud. Gabriel-Augustin DOBRIN

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Easter Island, or Isla de Pascua in Spanish, is an island, and a special territory of Chile, in the southeastern Pacific Ocean, at the southeasternmost point of the Polynesian Triangle, in Oceania. The Island is famous for the 887 monolithic stone monumental statues called “moai”, which were created by the first generation of Rapa Nui people tribes. Its name was given by the Dutch explorer Jacob Roggeven (in the 18th century), which was the first recorded European visitor.*

28. A Little Trip into My Paradise

Author: stud. Ionuț ROSTOGOL

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *I invite you to dream together to a trip to our beautiful country. Through simple images and words I would like to transpose you in some places dear to me and to know Romania as it is, with good and bad.*

29. Devil’s Triangle

Author: stud. Antoneta Lupu

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The Bermuda Triangle, also known as the Devil’s Triangle is a mythical section of the Atlantic Ocean roughly bounded by Miami, Bermuda and Puerto Rico. This place has been blamed for the disappearance of a large number of ships and planes that have been reported to have mysteriously been lost in the region. The history of the Bermuda Triangle is rather long dating all the way back to the 15th century. On his first voyage the Italian and American’s first illegal immigrant Christopher Columbus travelled across the region and reported that a great flame went out of the sea and that a strange light appeared a while later, and the odd stories do not stop here. This is just the beginning of the „storm”.*

30. The Doolittle Raid

Authors: stud. Ioan-Tiberiu BLÎNDU, stud. Andrei ZAVATE

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *We could’ve chosen any other topic, from the most common to the least. But this particular one stuck out for us. The way the raid bolstered the morale, the concept, the execution, and the bravery it supposed. We believe it’s crucial to remind people and make them feel sure we must never give up our hope. Considering the fact it led to a resounding victory and ultimately to the end of World War II, we can claim it had a major impact over the whole world, not just on The United States.*

31. The Danube Delta

Author: stud. Cosmin Valentin CIORBA

Scientific Advisor: Lecturer Edith Kaiter, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The Danube Delta is one of the most beautiful regions of Romania and even of Europe. In this presentation you will see the main tourist*

attractions, such as: fauna, flora, human settlements, and traditional cuisine and boat trips!

32. Bier Lexikon

Authors: stud. Bogdan COTOLBOIU, stud. Razvan BRINZEI, stud. Ionuț BUJOR

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In their free time, the Germans, like everyone else, prefer to relax. They are famous for their coffee consumption but also for their beer consumption. This paper aims to present a short lexicon of their favorite types of beer.*

33. Dakar – The Dream From the Dunes

Author: stud. Cristina-Aida GUIU

Scientific Advisor: Lecturer Camelia ALIBEC, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Maybe one of the most challenging races, the Dakar Rally is known for its difficult conditions. Competing in different categories, from cars to motorbikes and even trucks, the drivers are testing themselves facing the sands and the heat of the desert. Dakar usually attracts individuals who are willing to put their life on the line in search for adrenaline and glory. From 1978 to these days, the Dakar Rally has a long and interesting history with drivers from different sports and nationalities coming to see what they can do in some of, if not, the harshest conditions on Earth.*

34. Chernobyl Disaster

Authors: stud. Iulian-Mihai SAVU, stud. Cristian-Adrian MIREA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this presentation, we would like to present a significant disaster for the history of mankind, namely the Chernobyl nuclear disaster, which had a devastating effect on humanity, as well as on the flora and fauna around the explosion. Due to the very high radiation, it will take a long time until the perimeter of the explosion area can be habitable. Certainly their effects will be felt for a very long time from now on.*

35. Passenger Ships

Authors: stud. Rareș ANDONI, stud. Dragoș DRISTARU

Scientific Advisor: Assoc. Prof. Alina BALAGIU, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this project we tried to cover general information about all types of passenger ships and the difference between them. There are three types of passenger ships: ferries, ocean liners and cruise ships. For all of them we tried to present their main purpose and for what are they used for besides transporting people. For example Ocean liners in their past were used to transport mail and cargo, ferries are used for only public transport between cities and short routes, and cruise ships are used for long or short voyages on different continents.*

36. History of Football

Authors: stud. Alexandru-Gabriel AVĂDĂNEI, stud. Robert-Adrian NISTOR

Scientific Advisor: Lecturer Dana ZECHIA, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Football (or soccer as the game is called in some parts of the world) has a long history. Football in its current form arose in England in the middle of the 19th century. But alternative versions of the game existed much earlier and are a part of the football history.*

37. Zeus

Author: stud. Hakan NASURLA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *The current project presents an overview of the life of Zeus. He was the son of Cronos and Rhea. Cronos tried to eat all of his children, but Rhea managed to save Zeus. After many years, Zeus grew up and, with the help of Gaia, he tricked Cronos into spitting his brothers and sisters in order to save them. They joined forces and fought Cronos in the battle „Titanomachy” where they defeated him.*

38. Eforie Sud: the Tourist Potential of the Seaside

Authors: stud. Andrei RUSU, stud. Alecsandru TANASA

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *Eforie Sud is the oldest resort on the Romanian coast from 1899, when the spa pavilion was built, located on the lake Techirghiol near the seaside. The attractiveness of its seaside is given by the orientation of the beaches towards the east and the south-east, with almost 10 hours of sunlight per day, the light slopes of the beaches, the shallow waters around the shore, sand with fine granulation, the reduced salinity of the water, very small tides, the lack of strong currents, the constant presence of the marine aerosols. With a few exceptions, the seaside resorts are generally characterized by the presence of the tourist accommodation structures of the 1960s-1970s, with less space allotted for other fittings or panoramic views,*

with the numerous unattractive buildings, from an aesthetic point of view, for the tourists of the 21st century.

39. Bayerische Motoren Werke Aktiengesellschaft

Authors: stud. Leonardo SAVIOLI, stud. Dragoş Casian PAVEL, stud. Tiberiu PAŞCU

Scientific Advisor: Lecturer Edith KAITER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *German:*

1) *In diesem Projekt werde ich die Geschichte von BMW und seinen Gründern vorstellen.*

2) *Im Projekt finden wir die Entwicklung der BMW Motoren und wie das Unternehmen dem Bankrott entkommen ist.*

3) *Gewonnene Preise.*

English:

1) *In this project we will present the history of BMW and its founders.*

2) *In the project we find the development of BMW engines and how company escaped bankruptcy*

3) *Prizes won*

40. Dark Web the Door to Hackers Paradise

Author: stud. Larissa Mihaela SION

Scientific Advisor: Lecturer Raluca APOSTOL-MATEŞ, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *In this paper, as the title suggest it I will talk about the differences between the deep web and the dark web and also what can we do, find or purchase on the dark web. I will also be talking about ways to acces the dark web and ways to protect your Pc and yourself after using such Tor the google for the dark web.*

41. The Youth Universe -The Sunwaves Festival (SW)

Author: stud. Valerică STÎNGĂ

Scientific Advisor: Lecturer Laura CIZER, PhD

Institution: “Mircea cel Batran” Naval Academy, Constanta

Abstract: *This paper is about the Sunwaves Festival, a music festival which occurs twice per year on the Black Sea Coast, from Mamaia resort, in Constanța. Every edition has something different which attracts thousands of people from all over the country as well as from other corners of the world, in search of the most animating electro rhythms of various DJs. This festival is perfect for every person above 18 years old, in search of new people, unique sensations, and with party spirit. During the 5 days on going party among people with various styles, cultures and ages, one will conclude that youth is not in the age, it is in a person's soul.*