

**“MIRCEA CEL BATRAN” NAVAL ACADEMY**

**THE 42<sup>th</sup> SCIENTIFIC  
CONFERENCE FOR STUDENTS**

**CADET-NAV 2020**

**PROGRAMME**



***30<sup>th</sup> – 31<sup>st</sup> of October 2020***  
**CONSTANTA**

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# **I. SECTION: NAVIGATION AND TRANSPORT**

## **Section Committee:**

### **Chairman:**

Commander Assoc. Prof. Eng. Sergiu LUPU, PhD

### **Members:**

Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

Lieutenant Chief Instructor Andrei POCORA

Jr. Lieutenant Eng. Andra NEDELCU

**Conference Room:** L3A6

## **1. The Study of the Evolution of Cargo Transport through Los Angeles**

**Author:** stud. Alexandru TUDORACHE

**Scientific Advisor:** Lecturer Eng. George NOVAC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this topic we will discuss about fire on board of a ship, about what happens when you have a fire on board and what actions should be taken to reduce it. We will present the general criteria for the evolution of the fire, its phases and the equipment available on board for each individual type of fire.*

## **2. Techniques to Increase the Quality and Durability of Equipment**

**Authors:** stud. Andrei-Teodor MARIN, stud. Georgian MESU

**Scientific Advisor:** Prof. Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In the paper we studied electromechanical equipment on board ships and in particular turbines from electric generators. We have approved the polarization potential, the intensity of the electric field and the volumetric density of the load. Based on a mathematical device, we calculated the electric field during the application of the protective layers on the pallets of diesel-generator turbines existing on board commercial ships. We calculated the thickness of the material and set the variable parameters that interfere in the coating process.*

## **3. Review of the Developing Systems for Protecting and Retrieving Persons Lost at Sea**

**Author:** stud. Ante Mikelić

**Scientific Advisors:** PhD Dario Medić, Filip Bojić, M.Eng.

**Institution:** University of Split - Faculty of Maritime Studies, Croatia

**Abstract:** *Since the early stages of the maritime history, the threat to safety of seafarers has been a major problem, especially for persons lost in the open sea. The first step towards prevention of these events was the adoption of International Convention for the Safety of Life at Sea (SOLAS) which was first put into force in 1929. From that time first types of lifejacket and lifeboats as well as EPIRB and SART were available. Maritime safety equipment has always been changing with the goal of protecting life at sea. Today, development of new technologies opened the door to different safety equipment. Smart lifejackets, smart bracelets and drones represent a different approach for protecting and retrieving a person lost at sea. Although these systems are still in the research phase, in the near future they can become an addition to the convectional equipment in order to save more lives at sea.*

#### **4. Analysis of the Adjustment of the Speed of Naval Electric Motors**

**Author:** stud. Andrei BACIU-NENCIU

**Scientific Advisor:** Prof. Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paper presents the advantages and disadvantages of the electric propulsion and the speed adjustment of the electric motors used for it. The speed adjustment of the direct current motors, of the alternative current motors, with the adjustment methods is analyzed, analyzing the role of each physical size.*

#### **5. Variable Stars**

**Authors:** stud. Mihai CHIRON, stud. Iustin Adrian CIUGOLIA

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

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this presentation we are going to talk about variable stars. We will be touching different topics: what is a variable star, the different categories that they fall into, the equipment used to study them and many more. They also are very important to astronomers because one of th eir many uses is determining the age of the universe. What is even more interesting is the fact that not only proffesionals observe this kind of stars but also amateurs astronomers play a crucial role in identifying and recording them in an open database, which can be accessed by anyone.*

#### **6. The Familiarization of the Crew Regarding the Ship’s Electronic Equipment, Cyber Security and Electricity Management**

**Author:** stud. Mihai CHIRON

**Scientific Advisor:** Prof. Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper aims to explain how the familiarization and training of the crew, of the officers designated to operate the ship's electronic equipment is essential for the computerized vessels where all the equipment is integrated / interconnected between them. In order to operate modern, safe and efficient computerized ships, crew training sessions on cyber security threats should become standard practice, as part of a ship's routine. Also of great importance is electricity management, which leads to: lowering of personnel costs; lower operating costs; streamlining and increasing the efficiency of the processes that take place on board the ship; profit maximization.*

## **7. SpaceX**

**Author:** stud. Alexandru-Mihai CULICEANU

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

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *My project, SpaceX, discusses the evolution of the Sun, the Earth and the human life. It contains theoretical information on the explosion of the sun as well as its influence on planet Earth and its inhabitants, but also on the equipment which we could use in our own advantage, survival.*

## **8. Study on the Modelling of Hydrocarbon Dispersion in the Mediterranean Sea**

**Author:** stud. Endis SEPTAR

**Scientific Advisor:** Jr. Lieutenant Eng. Andra NEDELCU

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Hydrocarbon dispersion is the action or process of distribution over a wide area. The dispersion of hydrocarbons in the water mass is a phenomenon amplified by its agitation state. The dispersion process is influenced by the wave energy, the volume of oil spilled / the unit of volume of water and the value of the viscosity of the petroleum product. There have been cases when due to the state of maximum agitation of the sea, the petroleum products spilled as a result of naval accidents have dispersed in the water mass in the proportion of 80-90%. The major consequence of the dispersion is the reduction of the quantity of petroleum product left on the surface of the water and the increase of its density and viscosity over time. The purpose of the paper is to present data obtained from modelling the dispersion of hydrocarbons in the Mediterranean Sea.*

## **9. Analysis of the Oil and Gas Offshore Accidents Based on the Public Reports from the European Commission and World Offshore Accident Dataset**

**Author:** stud. Erhan ENAN

**Scientific Advisor:** Captain (N) Assoc. prof. Dinu ATODIRESEI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The European Union is well-known for its proactive role towards environmental issues and the marine ecosystem makes no exception. The European Commission published a report in 2012, using WOAD database, to draw attention both to the Member States and to third parties that there is a need for better communication when it comes to oil and gas offshore accidents. This study focuses not only on the outcomes provided by the European Commission's report, but also on the causes for which the system of preventing accidents could be improved. The main conclusion of this scientific paper is that there is an urgent need for all the competent National Authorities and Global Organizations to have a transparent communication related to these incidents, as there is very few public information about them. Even the WOAD base is built upon voluntary registration of the accidents, which means there is currently no international authority that monitors hazardous incidents on a macro level. These arguments are based upon two of the major cases in the European Union, to be more specific, in the Norway region of the North Sea: Ekofisk Bravo Platform (1977) and Alexander L. Kielland (1980). The main drawback of this lack of information is that the scientists cannot conduct more in-depth research in order to develop the best tools for prevention and counteract these events.*

## **10. Aspects Regarding the Drawing of the Static Diagram of the Stability for a Damaged Ship**

**Author:** stud. Iacub Sabin GAFAR

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The aim of this paper is to present and study a damaged ship's stability as well as detailing how other factors affect its overall stability. Moreover, the ways of implementing a static diagram of stability for a damaged ship will be thoroughly explained. Unfortunate events may happen thereby it is needed to seek proper evaluation when it comes to the stability of a damaged ship, for a better understanding of how this phenomenon exactly operates in relation to the vessel itself and what significant changes happen. For this reason, the paper will present different situations and the calculus done in this area of research with the help of the Autoship*



*Program. Finally, in the end of the paper, a conclusion regarding everything presented will be discussed and analysed.*

## **11. Understanding the Science behind Terrestrial Magnetism and its Effects on Navigation and Life on Earth**

**Author:** stud. Iacub Sabin GAFAR

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

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *This paper aims to present and explain the phenomenon of magnetism and how it operates in relation to Earth. The magnetic field's evolution and its importance to life on Earth are essential in understanding certain characteristics and properties this phenomenon holds. Moreover, the effects that magnetism has regarding navigation as a whole are also presented and thoroughly explained. Continuing, the paper will present the ways in which humanity managed to adapt and create different methods of using Earth's magnetism to its advantage, especially when it comes to its use in the maritime industry. Finally, the paper will touch upon futuristic ideas that emerge from current studies done by scientists, and it will summarize all the information presented.*

## **12. The End of the Sun**

**Author:** stud. Cătălina-Ionela MIHAI

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

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *I chose this theme because I am passionate about the great curiosities of the world. One of them represents the end of the Sun. To begin with, I would like to introduce some theoretical notions about this concept. The Sun is a star at the center of the Solar System, a huge cosmic body that generates energy through nuclear reactions that occur in the nucleus. It is by almost perfect sphere of hot plasma, with internal convective motion that generates a magnetic field via a dynamo process. It is by far the most important source of energy for life on Earth. The purpose of this presentation is to clarify the concerns regarding the largest star in the solar system, namely the "sun" and answers to the most frequently asked questions, namely: What is the end stage of sun? dies? How long will the sun last? When the Sun leaves the main sequence? What is happening to the helium in the sun's core? Why does the sun turn into a giant red? For me, this presentation is a big challenge because I wish that after I submit the questions it will disappear and everyone will remain with certain knowledge.*

### **13. Northern Constellations**

**Authors:** stud. Valentin-Adrian MIRON, stud. Nicolae-Antonio MOGA

**Scientific Advisors:** Commander Assoc. Prof. Eng. Sergiu LUPU, PhD  
, Lieutenant Chief Instructor Andrei POCORA

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The northern sky is home to some remarkable stars and constellations. These can be seen, depending on the sea son and your location. The most of these constellations are based on the Greek constellations, first catalogued by the Ptolemy. Some of their stars can be observed almost anywhere in the northern hemisphere, each night: The North Star and Polar islies above The Arctic Pole. The lack of pollution around this pole makes the sestars much brighter. But these two stars are more important than their beauty. Because of their permanent presence on the sky, they have been used for navigation from the beginning. The first sailors were making their routes based on these stars, which can be seen all the time.*

### **14. Factors Influencing the Stability of the Damaged Ship**

**Authors:** stud. Răzvan-Valentin MITREA, stud. Cristian MURAT

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In students scientific session of communication entitled "Factors influencing the stability of the damaged ship" we are first going to describe the most important things: The concept of stability of the damaged ship, Particular circumstances for assessing the stability of the damaged ship, Analysis of damaged ship conditions considered and various discussions and conclusions on the cases studied. Therefore, these situations of flooding are presented and the analysis of stability parameters are illustrated in line with the actual regulations, in respect of damage stability, established by international conventions. To solve specific problems, we have used the Autoship software. Based on the results of calculations, the study gives recommendations regarding the actions to be taken in order to limit the dangerous consequences of such situations. The results of the particular flooding situations presented can be used to continue the improvement of design and operation for this type of ships.*

### **15. Accident Analysis and Prevention**

**Author:** stud. Ciprian Ionuț NEDELEA

**Scientific Advisor:** Lecturer Dumitru CORDUNEANU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Despite the innovative trends in marine technology and the implementation of safety-related regulations, shipping accidents are still a leading concern for global maritime interests. Ensuring the consistency of shipping accident investigation reports is recognized as a significant goal in order to clearly identify the root causes of these accidents. Hence, the goal of this paper is to generate an analytical Human Factors Analysis and Classification System (HFACS), based on a Fuzzy Analytical Hierarchy Process (FAHP), in order to identify the role of human errors in shipping accidents. Integration of FAHP improves the HFACS framework by providing an analytical foundation and group decision-making ability in order to ensure quantitative assessment of shipping accidents.*

#### **16. Betelgeuse**

**Authors:** stud. Vlad-Stefan OGLAN, stud. Alexandru VLAD

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this piece of work we will talk about Betelgeuse star which is part of the Orion constellation. It has recently undergone some changes that may affect our life in some unexpected ways.*

#### **17. Ballasting and Deballasting for Ships**

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

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Since the introduction of the ships with a steel body the water was used as ballast in order to increase the stability of the ships on the sea. Ballast water is pumped to maintain safety operational procedures on ships whilst sailing. This procedure reduces the stress on ships body, improves transversal stability, resistance and propulsion, making it easier to manoeuvre the ship. The purpose of this project is to analyse the way of how ballasting and deballasting influences the initial stability, to calculate the fluid metacentric heights upon wide angles stability by drawing the stability curves. A main aspect during the last years is the ecosystem pollution being caused by the water ballast. Among this, there is a habitat change for certain fish species that are being brought along with the water ballast. For this reason we will analyse the actual different methods existent for the water ballast remedy.*

#### **18. Intact Stability of the Ship**

**Authors:** stud. Sebastian PAICU, stud. Gabriel-Marian TEGA

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract** *The present paper aims to define and analyse different parameters that are related to geometry, general arrangement and requirements, and are involved in intact stability concept, with a focus on different factors that influent the intact stabilty of the ship and what measures are taken in design and operational stages to prevent the effects of the instability. The paper will present important conclusions that can be drawn from specific expressions, which are used to develop design methods to combat causes that can make the ship unstable.*

## **19. The Study of Dynamic Stability for Liquid Cargo Vessels**

**Author:** stud. Răzvan-Costin EFIMOV

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Container vessels sailing through heavy weather are exposed to a significant variation of stability due to specific shape of the hull combined with the action of the waves. Even if the weather forecast is transmitted to vessels, the way of acting it is a matter of officer's experience. The Maritime Safety Committee, under the International Maritime Organization, has approved the Guidance to the master for avoiding dangerous situations in adverse weather and sea conditions. Adverse weather conditions include wind induced waves or heavy swell. The development of dangerous phenomena such as surf-riding and broaching to, synchronious and parametric rollings is a result of a these adverse conditions which has to be encountered by the vessels. Understanding the dynamic stability of the vessel in the waves and ship's behaviour based on mathematical and physical rules is a difficult task, any effort in order to assess these components are salutary. To avoid excessive acceleration and forces which can damage the hull of the vessel, lashing and integrity of containers, course and speed may need to be changed for the vessel's motion in heavy seas. Specific software has been developed as aids for evaluating the response of the vessel in heavy seas according to parameters variations. The paper aims at assessing of current criteria for dynamic stability of a container vessel model ship in order to determine the ways for avoiding dangerous conditions. The results should be regarded as a supporting tool during the decision making process.*

## **20. The Study of the Influence of Currents in the Mediterranean**

**Author:** stud. Mădălin-Gabriel STAN

**Scientific Advisor:** Jr. Lieutenant Eng. Andra NEDELCU

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paper aims to present ocean currents and their spread in the oceans of the planet. In addition to their importance on climates in all regions of the world, we have presented their importance on navigation, which is a less known aspect. This study begins with an introduction to oceanography, classifying ocean currents. From the multitude of classifications, we chose a more detailed presentation of the ocean currents by origin, among them being the geostrophic currents, detailing them starting with their general circulation within the Planetary Ocean. I have also presented some history data that shows that, since Benjamin Franklin drew up a Gulf Stream map in 1796, it has proven to be very useful to navigators in choosing navigation routes (in and around navigation). Since then, data on other important currents of the planet have been gathered, thus saving time and fuel when crossing a current or navigating along it. But all this data has managed to save not only time and fuel but also many lives and ships. After these introductory data, we have presented the importance of the largest geostrophic currents: Kuroshio, Circumpolar Arctic and Gulf Stream. From the ones presented in the paper, we can conclude that each ship can be trapped in different situations (normal, complicated, dangerous or even catastrophic). On the ocean it is not enough to know the state of the weather and the current it is passing through. It is very important that the ship is equipped with high performance systems that allow it to respond immediately to the need.*

## **21. The Evolution of Maritime Crude Oil Transport through Persian Gulf of Year 2019**

**Author:** stud. Roberto Marcel TANASA

**Scientific Advisor:** Lecturer Eng. Arlette ANGHEL, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This presentation wants to show the commercial evolution of crude oil transportation business in the Persian Gulf where the most important ports that do this type of business take place. This area in particular is very important for the entire world economy because it's the main place where crude oil trading takes place. Because of the utmost economical importance of this Gulf must be maintained there are several factors that take place in order to avoid any type of problems.*

## **22. Study on the Implementation of the e-Navigation Concept**

**Author:** stud. Daniel-Vasile VELICU

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The study on the implementation of the e-Navigation concept starts with the definition given by IMO in 2008: “the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment.” Within the Concept Implementation Plan, IMO prioritizes five solutions aimed at: designing the bridge, naval communications, navigation equipment and displaying the necessary information in a more efficient way. IMO has the role of coordinator in the implementation of e-Navigation, but the whole process will be a collective effort of several stakeholders, such as: IALA, IHO, EU, CIRM etc. IMO adopted the first definition of e-Navigation in 2008, at the end of 2014 the Implementation Plan was approved. E-Navigation has been the future for so many years. When will e-Navigation be the present?*

### **23. The Study regarding the use of Navigational Systems and Communication Onboard Autonomous Ships**

**Author:** stud. Ștefan Alexandru ZOSIM

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

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Even though we are far away from the majority of vessels becoming autonomous, there are certainly artificial intelligence algorithms at work today. An autonomous ship is considered a vessel which can operate on its own, with the help of an integrated system which can control its movements. Even with a very advanced system operating the vessel, it's possible that there will be crew on board to observe and asses some of the situations which might show up during an international voyage. There are many reasons for which the sea autonomous vessels were built, starting with the shipping company's desire to reduce crew, fuel costs and to reduce the number of incidents, most of which are accounted by human errors. An important issue for the most companies as has been said before is about the accidents which are most often related to the human factor and that's why an autonomous vessel will be equipped with a system allowing self-steering, sensors to detect other objects or vessels in the vicinity which will make the ship to take action by itself (for example collision avoidance).*

### **24. Documents Regarding Merchandise Released By Maritime Transport**

**Authors:** stud. Nicoleta-Alina ALEXANDRESCU, stud. Andreea Maria ANA

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** Documents regarding merchandise released by maritime transport

- Hold inspection certificate
- Mate's receipt
- Authorisation to sign bills of lading
- Bills of lading
- Phytosanitary certificate
- Cargo manifest
- Dangerous cargo manifest
- Certificate of moisture content
- Certificate of transportable moisture limits
- Declaration by shipper
- Certificate of origin
- Stowage plan
- Statement of facts

## **25. The Economy of Bulk Transports in Romania and Europe**

**Author:** stud. Bianca- Alexandra VOICU

**Scientific Advisor:** Lecturer Dumitru CORDUNEANU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** As a tonnage transported worldwide, grain ranks third, after oil and minerals. The world flow in grain transport has remained unchanged, and the routes along the world's seas and oceans are the same:

- between the major producers of the Americas to Europe and Asia
- between Australia to Japan and in smaller quantities to Europe.

For the transport of cereals are used internationally:

- Specialized vessels (cereals)
- Cargoes with special arrangements
- combined bulk carriers
- combined oil tankers which have the possibility to claim a lower freight.

The latter category of ships also has some disadvantages, such as the small mouths of cargo stores and the restrictions that some countries impose on the use in the food industry of grain carried by oil tankers.

## **26. Surveying Dry Bulk Cargoes**

**Author:** stud. Bianca- Alexandra VOICU

**Scientific Advisor:** CLC Marius APETROAEI, PhD.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** Capesize are too large to transit the Panama Canal so they take their name from having to sail round the Cape of Good Hope from the

Atlantic to Japan. They are generally between 100,000 and 150,000 tonnes deadweight and mainly carry ores and coal, although some occasionally carry grain. The main routes on which they are used are between South America and Japan with iron ore, and Australia and Japan/Europe with coal. Some prefer to add a further sub-division into the very large bulk carrier. These are generally above 180,000 tonnes and mainly carry ores and occasionally coal. The main trade for these vessels is between South America and Japan.

## **27. Unconsciousness in Shallow Depths**

**Authors:** stud. Diana-Ștefania BOANTĂ, stud. Tiberiu-Leonard COCA

**Scientific Advisor:** CLC Marius APETROAEI, PhD.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Our paper work has as its main subject “Grounding” of the ships. In the paper, we talk about grounding of a ro-ro ship (study of case) and his effects on navigation, and the environment.*

## **28. Modern Solutions for Coupling Radar with other Navigation Equipment on Board Merchant Ships**

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

**Scientific Advisor:** Lecturer Romeo BOȘNEAGU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The project follows modern solutions for coupling radar with other navigation equipment on board merchant ships. The radar is used the most on the ship’s bridge by the OOW in carrying out a safe navigational watch. Because captains need to be able to maneuver their ships within feet in the worst of conditions, when there is no visibility or due to bad weather, the radar is a important navigation component for safety at sea.*

## **29. Gyro Compass: Introduction, Utility and Importance in Navigation.**

**Author:** stud. Ștefan COJANU

**Scientific Advisor:** Lieutenant Lecturer Sergiu ȘERBAN, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper is about the importance of the gyro compass in navigation, starting with a brief history of the instrument invented in the early 1900s, followed by some technical aspects like the compass manufacturing and its function, concluding with its importance and how the gyro compass is still a must according SOLAS.*



### **30. About Cospas-Sarsat and Epirb**

**Authors:** stud. Costin-Andrei MORUN, stud. Andrei-Teodor MARIN

**Scientific Advisor:** Lieutenant Lecturer Ovidiu CRISTEA, PhD.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In the paper I studied about COSPAS SARSAT and EPRIB in which I analyzed the operation of the system and its formation. At the same time, I emphasized the use and installation of Epirb as well as the differences between it and the PLB. I highlighted the operation of the 2 systems that form COSAPS SARSAT (LEOSAR and GEOSAR) as well as their efficiency in search and rescue operations.*

### **31. Software Solutions for the Development of Seamanship Skills**

**Author:** stud. Dragoș MĂRGĂRINT

**Scientific Advisor:** Associate Prof. Andrei BĂUTU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *A summary of different softwares that are meant for learning, teaching and developing seamanship skills.*

### **32. The Halifax Explosion-Disaster Sparked from the Collision of two Ships**

**Author:** stud. Emil-Junior IORDACHE

**Scientific Advisor:**

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *A summary of the collision between the SS Mont-Blanc and SS Imo, occurred in the upper Halifax Harbour. An analysis of the destruction created and the saving efforts.*

### **33. Weather and Efficient Shipping**

**Author:** stud. Sabin Gafar IACUB

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

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In order to have an efficient plan we always have to take into account the most important factor of them all, Mother Nature. The aim of this paper is to present and explain how the weather is affecting shipping and how we can make the most out of every voyage by having a solid passage plan. To begin with, we will present general aspects regarding this matter so that we have a base where we can start from. Furthermore, the main points of a safe shipping route are explained and the most important thing, the main reasons why weather forecasting is important. To continue with, the main equipment used for these operations is presented and explained. Finally, the paper will end with a recap of everything discussed.*

### **34. Satellites, Seafarers' Third Hand**

**Author:** stud. Sabin Gafar IACUB

**Scientific Advisor:** Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The aim of this paper is to discuss what, how and why satellites play such a big role in the maritime industry. We know general aspects about what satellites are and how they function, but what if there is more than meets the eye? To begin with, we have to explain the basis so we have an idea on what we can expect during the presentation and what we will focus on. Moreover, we will discuss about satellite technologies that improved today's maritime world. To continue with, we will touch an important subject that is, security and protection at sea with the help of the satellites. In the end, the paper will conclude with a sum up of every thing presented.*

### **35. The Application of an Integrity Test Regarding the Structural Boundries of the Vessel's Cargo Tanks**

**Author:** stud. Sabin Gafar IACUB

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The aim of this paper is to thoroughly explain the use of this test, and simulate the whole operation so that in a real life situation, everything will go according to the plan and be assessed correctly. Generally speaking this presentation will show the way in which a test regarding the structural integrity of the cargo tanks is done. We will begin with the explanation and reason behind this test as well as the regulations that implement it. Further more the steps required will be shown. To continue with, the most important aspect for safety in this situation will be assessed and shown for a better understanding of how stability is affected by this test. To sum up all, in the end of the paper will conclude everything by comparing and evaluating the results gathered.*

### **39. Assessment of Ship Emissions in a Life Cycle Perspective**

**Authors:** stud. Mariana-Madalina GEORGESCU, stud. Georgiana Alexandra HANZA

**Scientific Advisor:** Assoc. Prof. Dan LASCU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *This paper presents a novel framework for the assessment of life cycle air emissions for ocean going ships. This framework considers the ship as a system that may be detailed into major subsystems (i.e. the hull and the machinery subsystems) and further into system elements for which:*

*(a) inputs, (b) processes, and (c) outputs, are identified and elaborated. Important ship life cycle stages are examined; namely shipbuilding, ship operation including major maintenance activities and activities related to the interface between ship and port, and finally the stage of ship dismantling/recycling. The lifecycle framework has been tested against the scenario of a tanker ship (Panamax type, 75,000 tons of deadweight) and results are presented and discussed.*

**Keywords:** *Life Cycle Assessment; tanker, emissions.*

#### **40. Virtual Technology in Ship Repair and Maintenance**

**Author:** stud. Gabriela GHIORGHIU

**Scientific Advisor:** Associate Prof. Andrei BĂUTU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *How maintenance is done on board of a ship, Virtual technologies for ship’s maintenance: Virtual reality, Smart maintenance portals, Hull Cleaning Robots, Robot Ship Inspectors, A subsea robot arm.*

#### **41. The Evolution of Radar on Board of Merchant Ships**

**Authors:** stud. George HAGI, stud. Silviu HAGI

**Scientific Advisor:** Lecturer Romeo BOȘNEAGU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In our paper we will present the radar along with how it is constructed, how do it work and its proper usage on ships. We will introduce in this scientific paper all of the factors that influence the radar properly working on a ship and focus on how it might evolve in the future (improving frequency, band with, measurement time, design and so on).*

#### **42. Impact of Covid-19 on the shipping industry**

**Author:** stud. Silvia HANGANU

**Scientific Advisor:** Lieutenant Lecturer 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 impact on global shipping, affecting all shipping sectors from passenger ships to container vessels and oil tankers. The pandemic started in Europe in March 2020, with a severe impact on health, people and the economy. Most countries implemented lockdowns, and with this decision also closed many ports, with immediate consequences such as ships stuck, charters lost, frozen crewchanges, issues with provisions or cargo backlogs, with many cargoes being sent to the port of origin. While other sectors remained open, even if only on slow ahead, because the need for all types of products had to be fulfilled, the cruise ship*

*industry was effectively shut down for several months and is the most affected. Slowly, but surely, we have learned to live and work with the virus, re-opened most industries and have also taken to technology to help us more than ever.*

#### **43. Meteorological Instruments on Ships**

**Authors:** stud. Paul-Danut HOMORANU, stud. Roxana-Emilia ENACHE

**Scientific Advisor:** Captain (N) Senior Lecturer, Dinu ATODIRESEI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In our power point we will talk about the meteorological instruments that will be found on board of a ship. A selected **ship** should have at least a barometer (mercury or aneroid), a thermometer to measure sea-surface temperature (either by the bucket method or by other means), a psychrometer (for air temperature and humidity), a barograph, and possibly, an anemometer.*

#### **44. The Gyrocompass on Ships**

**Authors:** stud. Anamaria ION, stud. Aida CULCEA, stud. Anca Stefania IOSIF

**Scientific Advisor:** Lieutenant Lecturer Eng. Sergiu ȘERBAN, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In our paper we will present the gyrocompass along with how it is constructed, how do it work and its proper usage on ships. We will introduce in this scientific paper all of the factors that influence the gyrocompass properly working on a ship and focus on its proper usage and the errors that are given by it. The error analysis of the gyrcompass is given mainly by the moving structure of the ship so we will concentrate on the gyrocompass' alignment principle and the velocity, acceleration and latitude's errors.*

#### **45. Surveying Steel and Aluminium Alloy Small Craft**

**Author:** stud. Maria-Madalina POPA

**Scientific Advisor:** CLC Marius APETROAEI, PhD.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The article I will present is concentrating on steel and aluminium structures. Structural steel has a long history of providing superior mechanical properties to the shipbuilding and offshore industries. Recent technological advancement in materials development worldwide has placed aluminium based alloys in better advantages to meet or exceed the minimum strength requirements for the shipbuilding industry. The study will also*

*include details about the metal construction, welding and welding imperfections in order to outline all aspects.*

#### **46. History of Electronic Components**

**Author:** stud. Cătălina-Ionela MIHAI

**Scientific Advisor:** Prof. Ciprian RACUCIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *I chose this topic because it offers many answers and explanations to the construction, operation and use of electronic devices. This topic will include information about electronic tubes, known as thermionic valves, electronic and semiconductor lamps. The electronic tube is an active electronic component in which the intensity of the electric current depends on the voltage applied to some electrodes in a cylindrical, hermetically sealed balloon. The semiconductor is a material whose resistivity is between that of conductors and insulators.*

#### **47. Shipping – A Possible Source of Emerging Contaminants into Marine Environment**

**Author:** stud. Anca Ana-Maria MIHALCEA

**Scientific Advisors:** Lecturer Eng, Manuela Rossemary APETROAEI, PhD, Captain (N) Assoc. Prof. Dinu ATODIRESEI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Simultaneously with the increase of maritime traffic on the world's oceans in the last 30 years, the risk of marine pollution has also increased. A deep examination of the statistics showed that shipping is the least environmentally damaging form of commercial transport and, set against the land-based industry, is a comparatively minor contributor to marine pollution. Although there are environmental international regulations for decades, particularly under the MARPOL Convention (International Convention for the Prevention of Pollution from Ships), the polluting substances continue to be discharged into the sea, often illegally. From the emerging contaminants list, we identified several compounds that could be introduced into the environment due to the naval transport. The objective of our work is to highlight the hazards of these contaminants in the marine environment and their negative impact on human health and marine ecosystem.*

#### **48. Factors Influencing the Stability of the Damaged Ship**

**Authors:** stud. Răzvan–Valentin MITREA, stud. Cristian MURAT

**Scientific Advisor:** Assoc. prof. Eng. Mihail PRICOP, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In students scientific session of communication entitled "Factors influencing the stability of the damaged ship" we are first going to describe the most important things: The concept of stability of the damaged ship, Particular circumstances for assessing the stability of the damaged ship, Analysis of damaged ship conditions considered and various discussions and conclusions on the cases studied. Therefore, these situations of flooding are presented and the analysis of stability parameters is illustrated in line with the actual regulations, in respect of damage stability, established by international conventions. To solve specific problems, we have used the Autoship software. Based on the results of calculations, the study gives recommendations regarding the actions to be taken in order to limit the dangerous consequences of such situations. The results of the particular flooding situations presented can be used to continue the improvement of design and operation for this type of ships.*

#### **49. The Use of Drones in Maritime Industry**

**Author:** stud. Ana-Laura MOCANU

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

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *This paper presents the use of maritime drones aboard the ship and their importants. They are being used by class societies and marine surveyors to physically examine ships and cargo, while loss adjusters employ drones to assess damage to vessels. Classification societies are developing methods of using flying autonomous craft, or drones, to assist surveyors on ships. The use of drones for delivery has become a fast approached topic in the maritime industry, a topic that has now become a reality.*

#### **50. Measuring Angles in Navigation from Past to Future**

**Author:** stud. Augustin-Dumitru SASU

**Scientific Advisor:** Lecturer Romeo BOŞNEAGU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Measuring horizontal and vertical angles is an essential task in the activity of navigators from the first days of navigation. Angle measurement is performed with certain special instruments that throughout history have known a fascinating evolution with technological progress and scientific discoveries. Knowing this evolution makes us understand even better the principles of astronomical and coastal navigation, being presented in an overview both the problems faced by navigators in their day and the solutions that appeared later.*

## **51. Working on Board on Internationally Crewed Ships is More Beneficial**

**Author:** stud. Ion-Constantin ȘOLGA

**Scientific Advisor:** Associate Prof. Andrei BĂUTU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Working on board between different nationalities is reducing racial stereotyping among crews and the greater number of nationalities is on board, the more they work together (the researcher from Cardiff University). The research shows that almost two-thirds of the world merchant fleet has adopted multilingual crews. One in ten ships operates with crews composed of five or more nationalities. The world merchant fleet has become significantly multilingual and multicultural in crew composition. A ship sailing with a multicultural crew is a positive and interesting challenge. One benefit of working with people from other cultures is that you have the opportunity to learn about their cultures and languages and the owners can get the best crew from an extensive selection. By working in a multicultural crew, each member's knowledge of the world will be improved. The main problem identified by seafarers working on board on internationally crewed ships related to communication. The companies should ensure that there are high levels of fluency in the working language of the ship amongst their employees.*

## **52. Ship to Ship Transfer Operations**

**Author:** stud. Roberto Cosmin TIMARIU

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This presentation will cover thoroughly but in a comprehensive manner the ship to ship cargo transfer operation (STS). It will contain matters regarding mooring/unmooring, fendering, communication, safety measures and crew training, oil-spill prevention, pre/during/post operation planning, documentation and paperwork and other necessary information that will help such operation to be carried out successfully and in safe conditions for the crew members involved, for the environment and for the cargo.*

## **53. 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 is about Automatic Identification System (AIS), about how it works and why this system is important on board.*

#### **54. The Importance of the GMDSS System for Safety at Sea**

**Author:** stud. Radu-Alexandru TUDORAN

**Scientific Advisor:** Lieutenant Lecturer Ovidiu CRISTEA, PhD.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *GMDSS is a acronym for „Global Maritime Distress and Safety System”, in other words, GMDSS is a part of IMO and SOLAS convention. Is a international accord about safety on sea, types of equipments and security protocols. In my paperwork i am talking about everything general in this GMDSS ecosystem. From „What is GMDSS and why is on a ship”, to „Important part about COSPAS-SARSAT and GMDSS relationship”. The reason why i am writing about this subject, is because the most important thing about sea trading is personal integrity and safety of sailors.*

#### **55. Study on the Implementation of the e-Navigation Concept**

**Author:** stud. Daniel-Vasile VELICU

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The study on the implementation of the e-Navigation concept starts with the definition given by IMO in 2008: “the harmonized collection, integration, exchange, presentation and analysis of marine information on board and ashore by electronic means to enhance berth to berth navigation and related services for safety and security at sea and protection of the marine environment.” Within the Concept Implementation Plan, IMO prioritizes five solutions aimed at: designing the bridge, naval communications, navigation equipment and displaying the necessary information in a more efficient way. IMO has the role of coordinator in the implementation of e-Navigation, but the whole process will be a collective effort of several stakeholders, such as: IALA, IHO, EU, CIRM etc. IMO adopted the first definition of e-Navigation in 2008, at the end of 2014 the Implementation Plan was approved. E-Navigation has been the future for so many years. When will e-Navigation be the present?*

#### **56. Navigation and Weather Conditions in Caribbean Sea**

**Author:** stud. Iulian-Ionut CHIRIAC

**Scientific Advisor:** Jr. Lieutenant Eng. Andra NEDELCU

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Caribbean Sea was a famous place for piracy that took place in the area many years ago. This presentation will show if piracy is still a problem in this area, if it is a safe route for vessels, how the weather affects navigation conditions and what measures are being taken in this sea.*



## **57. Procedure for Bunkering Operation on a Ship**

**Author:** stud. Ottilia DANAILA

**Scientific Advisor:** Lieutenant Chief Instructor Andrei POCORA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Bunkering procedure is one such operation on a ship which has been the reason for several accidents in the past. Bunkering on a ship can be of fuel oil, sludge, diesel oil, cargo etc. Bunkering of fuel or diesel oil requires utmost care and alertness to prevent any kind of fire accident or oil spill. The word “Bunker” is used extensively in defence forces and is used to define an area to store and safeguard personnel and supplies (such as fuel, ammunition, food etc.). It was derived from a Scottish word “Bunk” which means a reserved seat or bench. In the shipping industry, the word bunker is used for fuel and lube oils, which are stored on a ship and used for machinery operation only. If a vessel is carrying marine fuel or lube oil to discharge it to another port, it will not be called “bunker”. If the vessel or truck is carrying it to transfer to another ship for using in its machinery, it will be termed as “bunker” and the operation performed to transport the oil is known as “bunkering”.*

## **58. Ophiuchus, the 13<sup>th</sup> Zodiac Sign**

**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 study of inverse interpolation, the causes of its occurrence, mathematical relationships, calculations, deductions, and its use in problem solving, as well as the emergence of new interpolation functions, especially Hermite interpolation and iterative interpolation methods.*

## II. SECTION: ENGINEERING AND MANAGEMENT

### Section Committee:

#### Chairman:

Commander Associate Professor Filip NISTOR, PhD

#### Members:

Col. Assoc. Prof. Cătălin POPA, PhD

Prof. Florin NICOLAE, PhD

LTCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

### Conference Room: CP 06

#### 1. The Evolution of the Tramp Market in Maritime Transport

**Author:** stud. Andrada-Gratiela ANDREI

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The tramp market is considered to be close to the perfect competition model (supply is inflexible while demand fluctuates) by the way in which this industry operates, where atomicity, homogeneity and transparency of information are evident. Many small shipping companies compete for a volatile and unpredictable demand. Despite there are some entry barriers to the market, these can be easily mitigated by the way this market works. Tramp shipping companies co-operate among them in pools, in order to bid for large contracts of affreightment, which otherwise, shipowners could not perform on their own.*

#### 2. Computerized Ship Planned Maintenance System Data Analysis

**Author:** stud. Ante ČOBANOV

**Scientific Advisors:** Tatjana STANIVUK, PhD, Mag.ing. Ladislav STAZIĆ

**Institution:** University of Split - Faculty of Maritime Studies, Croatia

**Abstract:** *This paper presents available results of an ongoing research into the computerized ship Planned Maintenance Systems (PMS) and their databases. The purpose of the entire research is to answer questions how much information is inserted into the database before commencement of the use onboard and whether the quantity of the information in the computer database indicates the quality of the computer database, ship maintenance or the organization of the shipping company. The task of this part of the research was to quantify the amount of data on individual devices in the*

computer database. A sample of several pumps was analyzed in the computer database of one shipping company; the results provide the information on the number of information on individual devices, sorted according to their purpose. The conclusion of this part of the research accurately determines the amount of information associated with the pumps within the PMS database.

### **3. The Impact of Innovation on Dock Labour: Evidence from European Ports**

**Author:** stud. Cristina-Mihaela CLISERU

**Scientific Advisor:** Commander Associate Professor 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 presentation 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.*

### **4. Importance of Time Management for Career Success**

**Authors:** stud. Ioana – Alexandra DAN, stud. Irina – Elena VLAD

**Scientific Advisor:** Prof. Madlena NEN, PhD

**Institution:** Military Technical Academy “Ferdinand I” Bucharest

**Abstract:** *Time management techniques are some kinds of tools which help you do what you love the most, they lead to improved efficiency and productivity, less stress and more success. It enables you to work smarter, not harder. When you don't manage your time effectively you'll constantly be in motion, trying to scramble to complete important tasks at the last minute. For military career, some of the most important time management skills are organization, setting goals, communication, but also stress management. Set both short-time and long-time goals and stay organized to maintain a clear view. Communication skills are also important; you need to be clear and concise, confident and respectful. Just like everybody else,*

*military handle stress at the workplace. Trying to keep a positive attitude by including small breaks during tasks or activities will help you stay motivated.*

## **5. The Pulse of the Economy in the Port of Constanta**

**Author:** stud. Theodora DOLJENCO-MIHAI

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *In this paper I will present the economics of the port of Constanta, more precisely, a statistic about the building permits issued in 2019 compared to 2018, the decreases that have been registered in some development regions, about the unemployment rate, the turnover of the retail trade. I will also talk about some projects of investments in progress with European financing: „Modernization of the infrastructure and environmental protection in the port of Constanța", „Implementation of specialized dams in an area with great depths (Dana 80)" and "Modernization port infrastructure by increasing the depth of the channels and basins and the safety of navigation in the port of Constanta". As well, I will present some information about "Constanta port day in Budapest", which was recently, on February 26, 2020 and aimed at maintaining the port Constanta in the attention of carriers from Hungary.*

## **6. Electric Cars- 'the Future in the Present'**

**Authors:** stud. Andreea GĂMAN, stud. Marina NANCU

**Scientific Advisor:** Prof. Madlena NEN, PhD

**Institution:** Military Technical Academy "Ferdinand I" Bucharest

**Abstract:** *The sales management aims to establish, direct and coordinate the processes of developing the portfolio of sales activities for the products and services of the organization. The goal of sales management varies depending on the nature of the industry, the product and service line, the geographical spread of the business etc. The essential problem that cities across Europe are facing is regarding climate change, pollution and noise emissions. European and national government policies and objectives set increasingly stringent environmental standards, whose implementation falls to local and regional authorities. Electric vehicles offer a major opportunity to resolve the external negative effects associated with internal combustion engines without constraining the vital role of vehicles.*

## **7. Modern Technology on the Port System**

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

**Scientific Advisor:** Prof. Florin NICOLAE, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this paper, we want to introduce you port logistics, a smart information technology and communication which allows for synchronized interaction of different key factors, alignment of infrastructures, of consumers and needs government policy development. In the logistics context of the port, intelligent information technology and communication has led to a surge of growth for many years. Logistics and freight transport are today the key factors of the competitive advantage, because of the fact that have undergone significant innovation in intelligent information and communication technologies. Design in logistics systems based on the integration of different aspects, such as operation, energy consumption, environmental performance and so on. A modern port is characterized by container traffic and by its incorporation into a logistics network, in which land and maritime segments are integrated. The efficiency of a port is strongly influenced by its ability to forge links with the home country to allow goods to reach their destination quickly.*

## **8. Advertising and Advertisements**

**Author:** stud. Adela DOBRE

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *If you search on Google a quick explanation, it is going to sound like this „the activity or profession of producing advertisements for commercial products or services” but we are going to go a little more in-depth. Advertising is a masive part of our day to day life. It is a pervasive method of marketing in society that attempts to persuade readers or listeners to buy a particular product, favor a particular organization, or agree with a particular idea. Advertising contributes to all round development of the economy by increasing demand and by encouraging economic activities which turns into improving the income. Effective advertising generates demand for goods and services and calls for more production which requires more physical and human resources, thus creating employment opportunities. National advertising, which promotes the products or the identity of a firm that markets nationwide, is the dominant form of advertising. Retail and other local business advertising is second in importance. Other types include trade advertising, which addresses retailers, asking them to stock and promote the advertised brand; industrial advertising, which sells goods from one producer to another; and professional advertising, from producers to professionals, such as doctors, who influence consumer purchases. Supplementing the print and broadcast media of mass communication, direct mail is used by advertisers to mail*

*advertisements to the persons appearing on several lists that are chosen for particular characteristics. Essentially the industry is a triad consisting of advertisers, the media, and the advertising agencies who create and place most national and many retail ads.*

## **9. Romania Crude Oil Cargo Statistics**

**Authors:** stud. Alexandra ALEXE, stud. Mirela BERTESCU

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Romania's oil and gas market policy has improved over recent years helping to attract more and more international players in the sector. Romania is one the largest oil and gas producers in Central and Eastern Europe. Romania's dependency rate is 20% on natural gas imports and 60% on crude oil imports, respectively. However, its below-ground prospective remains limited with a mature onshore and the majority of offshore acreage already licensed.*

## **10. Romania Seaport Chemicals Handling**

**Author:** stud. Alexandra ALEXE

**Scientific Advisors:** Elena VALIONIENE, Prof. Florin NICOLAE, PhD

**Institutions:** Lithuanian Maritime Academy, “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The Port of Constanța is located in Constanța, Romania, on the western coast of the Black Sea. The geographical position and importance of Constanta port are highlighted by the Danube-Black Sea connection.*

## **11. Transportation of Lumber products**

**Author:** stud. Alexandra ALEXE

**Scientific Advisors:** Vilma LOCAITIENE, LTCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

**Institutions:** Lithuanian Maritime Academy, “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The basic factors affecting timber transport include: the size of the operation; the geographic locations of the forest and the mill as well as the distance between them; the assortment of timber for which the mill is designed; and the kinds of transportation that are available and suitable.*

## **12. Ecological and Lean-approach in the Activity of Port Terminals for Containerized Goods**

**Authors:** stud. Andrada Gratiela ANDREI, stud. Cristina-Mihaela CLISERU

**Scientific Advisor:** Prof. Florin NICOLAE, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Ports are of critical importance to logisticians, as they are intermodal nodes in international supply chain networks, connecting sea transport with surface transport modes. Due to the advantage offered by the geographical positioning, the logistics infrastructure in full development, but also the specialized workforce, Romania has a huge potential and can become an important logistics hub in this region. From this perspective, Romanian ports and especially the port of Constanța must consider lean approaches and promote environmental protection solutions in their business strategies. The objective pursued in this research is directed towards the analysis of the activity of container terminals from the perspective of sustainable development, aiming at eliminating losses and protecting the environment. The study focuses only on goods handling operations, access to more complex information being restricted by competition and confidentiality criteria.*

**Key words:** sustainability, green and ecological port, lean.

### **13. Implementation of the Port Feeder Barge Concept for Activities Carried Out on Inland Waterways**

**Authors:** stud. Andreea-Venetia MUNTEANU, stud. Madalina-Andreea PAPAZARCADE

**Scientific Advisor:** Prof. Florin NICOLAE, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The Port Feeder Barge as a new type of harbour vessel has been designed, firstly for the operation within the port of Hamburg. This concept can be considered as a 'green' logistic innovation for sea ports that could help to ease congestion and to reduce the environmental impact of heavy container trucking in many container ports. A Port Feeder Barge being independent from quayside equipment could shift these containers from road to waterway. Compared to trucking, the Port Feeder Barge does not cause any additional work for the deep sea terminal. If the terminal has the possibility to grant the Port Feeder Barge a permanent berth – for example where the water depth is not sufficient for any seagoing vessel – there is even the possibility to reduce the terminal's expenses, as the boxes could be brought directly to the berth without being put into intermediate container stack, hence avoiding double handling.*

### **14. Ports and Regional Development: a European Perspective**

**Author:** stud. Cristina-Mihaela NEACSU

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper studies the impact of port activity on regional employment, analysing western European regions, including the largest OECD European ports. The main findings are regional employment is positively correlated to port throughput, while the number of passengers is not; the impact of port throughput on employment might depend on the institutional characteristics of each port, with private ports having the largest impact on regional employment of the host region if compared with those operating under different governance models (“Hanseatic”, “Latin”); there is a higher impact of port throughput when liquid bulk is not considered; and the main results are confirmed when service and manufacturing employment rather than total employment are considered.*

## **15. The Pulse of the Economy in the Port of Constanta**

**Authors:** stud. Theodora DOLJENCO-MIHAI

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this paper I will present the economics of the port of Constanta, more precisely, a statistic about the building permits issued in 2019 compared to 2018, the decreases that have been registered in some development regions, about the unemployment rate, the turnover of the retail trade. I will also talk about some projects of investments in progress with European financing: „Modernization of the infrastructure and environmental protection in the port of Constanta”, „Implementation of specialized dams in an area with great depths (Dana 80)” and “Modernization port infrastructure by increasing the depth of the channels and basins and the safety of navigation in the port of Constanta”. As well, I will present some information about “Constanta port day in Budapest”, which was recently, on February 26, 2020 and aimed at maintaining the port Constanta in the attention of carriers from Hungary.*

## **16. Technical Communication. Standards**

**Author:** stud. Loredana-Georgiana GĂINUȘĂ

**Scientific Advisor:** Lecturer Eng. Ionel POPA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Technical communication is done through: clear, precise, concise texts and graphics. This requires: standardization, units of measure, technical drawings, graphics, diagrams, images, films. A standard is a level of experience and technology that makes the presence of the industry in it is development indispensable. This is a reference document used in particular*



*in context of public contracts or in international trade, on which most commercial contracts are based.*

### **17. Indoor air Quality and Microclimate Monitoring in Bucharest Subway Stations**

**Author:** stud. Radu-Stefan GHERGHE

**Scientific Advisor:** Assoc. Prof. Eng. Carmen Otilia RUSĂNESCU, PhD

**Institution:** Politehnica din Bucuresti, Facultatea de Ingineria Sistemelor Biotehnice

**Abstract:** *Nowadays pollution is one of the fiercest enemies of man kind, an enemy that has become ubiquitous. Pollution can be found anywhere, in cities, in rural areas or even in remote areas. This paper focuses on pollution in cities and analyzes the degree of pollution in Bucharest subway stations. It outlines the impact of underground pollution on the health of thousands of people who travel by subway every day. Graphs based on the analysis of the main factors are presented in detail, and serious consequences of pollution are highlighted.*

### **18. The Re-Conceptualization of the Port Supply Chain as a Smart Port Service System**

**Author:** stud. Andreea Mădălina PAPAZARCADE

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper proposes a re-conceptualization of the port supply chain as a smart service system, in accordance with the theory of service science. Starting from a short literature review about the port supply chain approach and service science, a new comprehensive framework is provided to better understand seaport dynamics and the creation of competitive port supply chains. The methodology used is the case study approach. The originality of the work lies in the application of service science as a lens to re-conceptualize the port supply chain, which allows the implementation of a logistic framework. Both theoretical and practical implications are provided to enrich the literature about port supply chains and to support port operator.*

### **19. Planning a Modern Transport System**

**Author:** stud. Mihaela ROȘCA

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This guide is for those who wish to understand the benefits and implications of the SST (smart systems of transport). Particularly, this*

*system explains when and why there is need for a structure of SST, what is necessary to set up this structure and the risks of not using this system. This system should be useful in particular for the management employees who are responsible of taking decisions regarding the planing and development of transport systems, as well as those responsible of the consulting services.*

## **20. Protection of Health and Safety at Work**

**Author:** stud. Cristiana Larisa STAN

**Scientific Advisor:** LTCDR Assoc. Prof. Eng. Alexandru COTORCEA, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Occupational safety and health is one of the European Union's priority areas of concern, and a concept of growing interest at national and national level, given that accidents at work and occupational diseases are becoming more and more common, present in our society, generating real human and economic problems. Statistics show that more than ten million accidents occur annually, and annual expenditures and losses due to accidents at work and occupational diseases represent 2-4% of GDP. (Gross domestic product) Therefore, the objective of occupational safety and health is to remove all obstacles that arise in the work process, which may be likely to cause accidents at work or occupational diseases. The primary role of occupational safety and health is prevention*

## **21. Nutritional Standards in Military Catering Services**

**Author:** stud. Iuliana VINTILA

**Scientific Advisor:**

**Institution:** "Dunarea de Jos" University of Galati

**Abstract:** *The proposed national plan for the development of professional military catering services in Romania, promoted in September 2018 by an initiative group of actors from the professional and academic areas, structurate the foundations for harmonizing and standardizing the strategy and procedures of nutritional care, menu nutrition planning and hydration for specific groups identified inside the military units. The main directions proposed in the present research study for the development of catering services in Romanian military establishments are the followings:*

*I. Screening and strategic planning of medical catering services in military establishments*

*A. Management of military catering services*

*B. Alternative production and service systems in military catering*

*C. Quality assurance systems for menus and services in military catering units*

*D. Operational and financial control of catering operations in military catering*

*II. Standardization of procedures for nutritional care and provision in military catering unit*

*1. Standards for the planning of specific menus in military units*

*2. Food safety standards in military units*

*3. Standards for creating and serving dietary menus*

*4. Harmonisation with international regulations on nutrition labelling*

*5. Strategic and operational management for the development of individual nutritional care and medical catering plans (food and hydration).*

## **22. Enterprise Resilience of Maritime Container Ports to Pandemic and Other Emergent Conditions**

**Author:** stud. Georgiana ZAHARIA

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Emergent and future conditions that influence the global container port industry include pandemics, regulations, markets, technologies, environments, organizations, energy resources, workforces, supply-chain partners, and others. It is critical to simultaneously formulate and adapt multiple strategic plans of individual ports to the above stressors. This paper describes the most and least disruptive scenarios of emergent and future conditions, including hybrid scenarios involving the COVID-19 pandemic. The most disruptive scenarios are selected for contingency planning, enterprise risk management, and research & development: Funding Decrease, Natural Disaster, Green Technologies, Pandemic, Increased Automation and Population Changes. The results of this paper are thus both a methodology for any port to address its emergent and future conditions via its strategic plans, and also a case study of enterprise resilience of container ports. The results will be of interest to port owners and operators, risk managers, transportation agencies, regulators, freight shippers and human resource managers.*

## **23. Marketing in the Maritime and Port field**

**Author:** stud. Iuliana-Diana ZAMFIR

**Scientific Advisor:** Commander Associate Professor Filip NISTOR, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Marketing in the maritime, river and port field is a specific component of International Marketing, but at the same time it also belongs to the International Maritime Trade which cannot be separated from the Marketing component. DEFINITION: Maritime Marketing is a specialized*

*field of International Marketing that includes all its elements adapted to the specifics of maritime transport. Port Marketing can be considered as a component of Internal Marketing, but the activity carried out in ports is not limited, it being directly influenced by the naval transports (maritime and river) that are international. In conclusion, it is also studied from an international perspective. In recent years, the situation has changed at the level of shipping companies. Thus, marketing sections, compartments or offices were set up with attributions, functions and especially with special responsibilities, so that we can talk about the appearance of "marketers", ie by well-known specialists in Marketing. This process is booming at the level of large shipping companies, but also in terms of small and medium-sized companies operating in the port. Also at the level of port administrations, such compartments have been set up that promote a series of Marketing policies, in the sense of increasing the efficiency of basic and auxiliary activities, of permanent adaptation to environmental changes.*

#### **24. Transportation of Frozen Meat**

**Author:** stud. Alexandra ALEXE

**Scientific Advisors:** Col. Assoc. Prof. Cătălin POPA, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Meat is a perishable product with a short shelf life and therefore short selling times. Meat products are likely to support the growth of pathogenic microorganisms and harmful bacteria and should be stored at temperatures that do not pose a health risk. The cold chain should not be interrupted at all times along the meat distribution chain.*

### III. SECTION: MILITARY SCIENCES AND INFORMATION

**Section Committee:**

Prof. Ion CHIORCEA, PhD

**Members:**

Captain Assoc. Prof. Eng. Paul BURLACU, PhD

**Conference Room:** LI125

#### **1. The Impact of Climate Change on Military Actions**

**Author:** stud. Adelin Florin POENARU

**Scientific Advisor:** Prof. Sorin CHEVAL, PhD

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**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 to use special technologies with the ultimate goal of annihilating the opponent's fighting ability. This paper presents the potential of the controlled modification of weather conditions in influencing the success of an armed conflict. Weather and climate conditions are an important factor that directly influences the evolution of the war and, implicitly, its result. The evolution of technology and the debatable trust in the human power to control the nature led to increased sowing in the clouds to change weather in different areas of interest.*

#### **2. Conquering the World by Sea – The Mahanian Theory**

**Author:** stud. Andrei ANGHEL

**Scientific Advisor:** Prof. Veronica MIHALACHE, PhD

**Institution:** “Mihai Viteazul” National Intelligence Academy, Bucureşti

**Abstract:** *An overwhelming amount of military theorists has ventured into the ceaseless, sureme objective which guided their work – identifying plausible reasons for the ascension to power (and the eventual fall) of the major international actors. Multiple theories arose, in the form of products of different schools of thought and distinct personal views upon what bolsters supremacy. Obtaining and maintaining absolute command over the region (or even the world) has been attributed, under the tutelage of reputable authors' works, to different facets circumscribed to economy, politics, geography or a mix of such sciences. This paper aims to highlight one precise vision (and the adjacent works which underline it) belonging to*

*one of the most important figures in the field of geopolitics and military sciences, Alfred Thayer Mahan, which revolves around the crucial significance of naval power in the ample process of becoming a hegemon.*

### **3. Design and Implementation of the System for Testing an Overward Compensation System for Changes in Underwater Objectives**

**Author:** stud. Bartosz STANKIEWICZ

**Scientific Advisor:** LCdr, Eng. Arkadiusz ADAMCZYK, PhD

**Institution:** Polish Naval Academy of the Heroes of Westerplatte, Poland

**Abstract:** *The aim of the diploma thesis was to design and manufacture a system for testing a lagging compensation system for underwater buoyancy changes using an Atmega microcontroller. With use of a hydrostatic pressure sensor, the system measures the depth of immersion at the buoyancy object. Then, with the help of solenoid valves, its buoyancy is adjusted to reach the set depth. After developing the project, the system can be used as part of a self-balancing tank for divers which greatly facilitate their work underwater.*

### **4. The Consequences of Migration on National and International Security**

**Author:** stud. Cătălin VLĂZAN

**Scientific Advisor:** Captain. (r). Jănel TĂNASE

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *The main purpose of this paperwork is to analyze what migration refers to, which areas of social life influences, its consequences on the states of origin and states of adoption of the migrants and the reason why migrants are seen as a threat to national and international security. Depending on the consequences of migration, there are beneficial and negative effects. Migration has an impact on all areas of social life: diplomatic, economic, financial, demographic, social, cultural, ecological and military policies of the states of the world. In many states of the world and in many situations, migrants have been perceived as a threat by the transit states, but especially by the destination / adoption states. The fears of the decision-makers of the states of transit and destination, as well as of their populations, have generated a wide range of attitudes, from reluctance and suspicion to hostility.*

### **5. Security Challenges in the Black Sea Region**

**Authors:** stud. Aidar-Tolga CIORABAI, stud. Mara-Ioana COBEANU

**Scientific Advisor:** Prof. Veronica MIHALACHE, PhD

**Institution:** “Mihai Viteazul” National Intelligence Academy, Bucureşti

**Abstract:** *In the multipolar world of 21st, geopolitical divergences divide the spheres of influence, creating a new iron curtain. Thus, the Black Sea region can be viewed from the perspective of unpredictability, being a space of convergence of three riparian states (Romania, Bulgaria), two former Soviet states (Ukraine, Georgia) and a nuclear power (Russia). The purpose of this paper is to highlight the new security challenges that can materialize in the extended Black Sea area. Therefore, the approach of this paper refers to a strategic knowledge of the situation in the Black Sea and also to an orientation of intelligence in the era of hybrid warfare.*

## **6. Refugees, the Result of Armed Confrontations**

**Author:** stud. Cosmina PODAR

**Scientific Advisor:** Captain. (r). Jănel TĂNASE

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *This paper aims to analyze one of the most important causes of migration, namely the armed confrontations from the Middle East, with official written sources, in order to contour an overview of the effects that these events have on citizens. Being the most violent and destructive events involving participation of large masses of people, the armed confrontations produce the most direct victims (missing, deceased and injured) and indirect victims (unintended, unplanned, consisting of refugees, deported, incarcerated in camps). Even though there are more than 40 estimated wars between different states, in this study will be paid more attention to recent armed confrontations like Arab- Israeli War, The First and The Second Gulf War and The War from Siria- as a continuation of The Arab Spring, what caused them and their evolution because they have brought the most agitation in the world and have the biggest result in the number of refugees.*

## **7. Women in Terrorist Organization**

**Authors:** stud. Amira-Mihaela CRISTESCU, stud. Alexandru-Mihail GIURESCU

**Scientific Advisor:** Prof. Veronica MIHALACHE, PhD

**Institution:** “Mihai Viteazul” National Intelligence Academy, Bucureşti

**Abstract:** *In the context of an ever-changing international security environment, terrorism has become a global threat that each state must confront. Contrary to popular belief, women are no longer seen as a pillar of terrorist organizations but have become important and active members in their development and organization. This phenomenon has expanded alongside the feminist movement which emphasizes the capabilities that people have rather than their gender. Therefore, the aim of this paper is to analyze the role of women both inside and outside terrorist organizations,*

*the reasons behind their decision to join or be recruited into such organizations, the differences between men and women, as well as the prejudices surrounding them. In other words, we will try to reassess the status of women and the power they have in connection with the current development of terrorism.*

## **8. OSINT – One of the Most Relevant INTs in Today’s World?**

**Authors:** stud. George-Daniel NISTOR, stud. Cristian-Marius NISTOR

**Scientific Advisor:** Cristian NIȚĂ

**Institution:** “Mihai Viteazul” National Intelligence Academy, București

**Abstract:** *Since the birth of the internet, our society has become more interconnected than ever before. We can easily talk to each other from thousands of miles away in just a few seconds. However, until 9/11, the American Intelligence Community was not so focused on materials derived from public sources, but after that tragic historical event, the entire world started to take a look at the open sources, especially at the ever-growing amount of information provided by the internet. Thus, the American Intelligence Community no longer sees OSINT as unnecessary because now they believe that, when properly used, OSINT is as crucial as the most secretive and expensive techniques of intelligence collection. In consequence, in this paper I will talk about the history of OSINT, about its components – WEBINT and SOCMINT – about its advantages and disadvantages and about its uses.*

## **9. Unmanned Aerial Vehicle**

**Authors:** stud. Hristiyan HRISTOV, stud. Georgi LOLOV

**Scientific Advisor:**

**Institution:** Nikola Vaptsarov Naval Academy

**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,<sup>[5]</sup> 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.

## **10. Information Warfare**

**Author:** stud. Elena-Laura ION

**Scientific Advisor:** Prof. Adrian LESENCIUC, PhD

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *The aim of this paper is to present the actual concept of Information Warfare (IW or INFO WAR), starting by making a comparison between two terms: war and warfare, to understand the meaning and consequences of the latter. Information Warfare is constantly evolving every year, from an unclear concept into a technology area and, in a military context, into a capability. It is an emerging threat which is developing into a significant future global security challenge, especially as the relationship between information and power is strengthened. The globalization of information and the needs of information protection at a global scale are the necessities of the moment, demanding a collective approach.*

## **11. Strategic Influence Operations in Wide Black Sea Region**

**Author:** stud. Robert-Gabriel IORDACHE

**Scientific Advisor:** Prof. Ioan DEAC, PhD

**Institution:** “Mihai Viteazul” National Intelligence Academy, Bucureşti

**Abstract:** *Strategic influence operations follow, as the name implies, the influence of strategic decision-makers in such a way that they will willingly give intelligence without knowing that they are under the influence of manipulative factors. If this is not possible, the attacker seeks chaos to reduce the target's responsiveness. The effects of these actions have been multiplied by the global economic and financial crisis, the illegal migration and the global warming. Some of these phenomena have an impact on the Wide Black Sea Region, in which Romania promotes and defends its values, principles, as well as strategic and security objectives, while others may indirectly affect our country, as a result of the globalization process. I will show these phenomena in my project “Strategic influence operations in Wide Black Sea Region”.*

## **12. Artificial Intelligence**

**Authors:** stud. Ivan IVANOV, stud. Ruslan PETKOV

**Scientific Advisor:**

**Institution:** Nikola Vaptsarov Naval Academy

**Abstract:** *Artificial Intelligence is an approach to make a computer, a robot, or a product to think how smart human think. AI is a study of how human*

brain think, learn, decide and work, when it tries to solve problems. And finally this study outputs intelligent software systems. The aim of AI is to improve computer functions which are related to human knowledge, for example, reasoning, learning, and problem-solving. Definition of artificial intelligence is a branch of computer science dealing with the simulation of intelligent behavior in computer or the capability of a machine to imitate intelligent human behavior. If we could develop and maintain full control of it, it would lead to a tremendous scientific outbreak, which will lead to changes in all aspects of our lives. This global question also hides terrible possible outcomes, which will discuss in the following report.

### **13. European Naval Power: a Global Player in Maritime Security.**

**Author:** stud. Manuel Diaz PEREZ

**Scientific Advisor:** Cap. Espiño SÁNCHEZ

**Institution:** Escuela Naval Militar, Spain

**Abstract:** Since the declaration of Maritime Security Strategy (MSS 2014) the European Union has proclaimed it right to be a global in maritime security. This strategy has been implemented by the EUMSS Action Plan (2014) which has been revised on June 2018. Considering the fact that EUMSS Strategy should contribute to enhance EU's capacity to act as a security provider and its strategic autonomy in the maritime domain, the EUMSS Strategy 2014 should be revised in the light of Common Security and Defence Policy and EU Global Strategy on Foreign and Security Policy (2015-2020). Ocean Governance and security; Long Term Military Transformation; Global Security and the navy role or The future of naval power, are the main fields that this paper covers in order to conclude whether the EUMSS is aligned with the requirements that It should face in a close future without forgetting to take into account long term perspective.

### **14. Deanonimization of Users Email Addresses of the Selected Gravatar-Based Website Using the Hashkiller Hardware Platform**

**Author:** stud. Michał RACZYŃSKI

**Scientific Advisor:** LCdr, Eng. Przemysław RODWALD, PhD

**Institution:** Polish Naval Academy of the Heroes of Westerplatte, Poland

**Abstract:** Information systems, including websites, usually store user data in the form of hashes created by the cryptographic hash function. This paper will present a process aimed at revealing the encoded email addresses of users of a certain website based on the Gravatar service. Gravatar provides avatars on various websites. The picture (avatar) appears next to the e-mail address or username when he posts a comment on the website using the given service. Email addresses of Gravatar users are stored in encoded

*form by the MD5 cryptographic algorithm. The author, when designing the concept of conducting the MD5 Gravatar hashes attack, focused on three main stages. Step 1: Extracting MD5 Gravatar hashes. Stage 2: Preparation for conducting attacks. Stage 3: Performing attacks. As a result of the author's designed methodology for conducting MD5 Gravatar hashes, 21% of email addresses were restored.*

## **15. Modern Equipment for Providing Drinking Water in Military Conditions**

**Authors:** stud. Dumitru-Relu PETCU, stud. Răzvan-Andrei AXINTE

**Scientific Advisor:** Lecturer Eng. Popa Ionel, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *We will present a brand new equipment who can provide drinking water out of the air of desserts. It is used for military campaign.*

## **16. Cultural Differences between Armies of the World**

**Authors:** stud. Raluca PETRESCU, stud. Cosmin TIMPAU

**Scientific Advisor:** Univ.Assist. Oana-Antonia ILIE, PhD

**Institution:** „Nicolae Bălcescu” Land Forces Academy, Sibiu

**Abstract:** *We live in a multinational society so is important for each and everyone of us to be interested to know and discover what is new (to know the person who lives beside us, to know one's culture, traditions, customs, traditional food and clothing). Throughout history the numerous migrations of foreign populations have put their mark on the already existing cultures, a multilateral culture has been formed, one in which individuals have learned to live together in a society without prejudice, where the opening for newness led to the integration of individuals in common domains and the development of new job opportunities as follows: from baker to actor or army soldier or officer, the interaction between the two different worlds led to a communion. This paper tries to analyze the differences between four great armies of the world: Romania, Great Britain, Poland and the United States of America, the main focus being the military salute.*

## **17. The Black Sea Security Policy**

**Author:** stud. Ioana – Georgiana PURCARU

**Scientific Advisor:** Captain(r). Jănel TĂNASE

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *The 21st century provides a series of violent and non violent vulnerabilities threatens and risks. The main purpose of this article is to emphasize the way one of the most important strategic region in the world, the Black Sea, is affected by these. The necessity of a political strategy for*

*the Black Sea region is given by the geopolitics, geoeconomics and geostrategics games between the big statale and non statale actors. Another big issue analised in this article is the concept of the Extincted Region of the Black Sea, which has been debated in the last few years. Moreover, another important subject approached is the two frozen conflicts that impacted this region and their consequences. In the end, the Romania's contribution in the process of implementing the political strategy is presented as a case study.*

## **18. The Influence of the Atmospheric Phenomena on the Military Activities during War**

**Author:** stud. Ovidiu ȘOPU

**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 atmospheric phenomena on the military activities during a conflict or a war. At the same time, it is also aimed to emphasise the interconnection between meteorology and war art. The most important objectives were related to the importance of meteorology in the military field and to provide an analysis of the impacts of meteorology on the wars held during the last decades. Moreover, it helps us understand the necessity of studying and knowing the atmospheric phenomena so as to win a fight or an entire war. 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:** *atmospheric phenomenon; history; meteorology; war; weapon*

## **19. The Role of Military Intelligence in Theater of Operations**

**Author:** stud. Alexandru SPIRIDON

**Scientific Advisor:** Assoc. Prof. Aurelian RAȚIU, PhD

**Institution:** „Nicolae Bălcescu” Land Forces Academy, Sibiu

**Abstract:** *In this paper I will explain and analyze the role of intelligence military in the fight against terrorism in theaters of operations I will make a brief presentation of the generally military intelligence activity and the role, place and missions carried out in support of combat activities in the theaters of operations, in particular. I will continue to point out a series of data on the sources of interest for military intelligence services, in the theaters of operations, and I will detail aspects regarding the obtaining of information through HUMINT means in the theaters of operations. From a military point of view, it becomes obvious that modern armies face serious limitations when it comes to an asymmetrical war. Such a war is an informational war, in which armed attacks are useless in the absence of*

*intelligence. The military intelligence activity plays a fundamental role in ensuring the security of a state, contributing to reducing international risks to the country by participating in the effort to achieve information superiority in certain areas of interest. So, the military intelligence activity is necessary, both in detecting and defining the aggressive intentions of an adversary, as well as in preventing the asymmetrical threats directed against the state and its armed forces.*

## **20. 1960: GARY POWERS and the U-2**

**Author:** stud. Ana-Maria UNGUREANU

**Scientific Advisor:**

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *The main purpose of this article is to highlight the importance of the event that took place in 1960, more precisely the aeronautical incident in which the U2 plane was involved. The nature of the incident differs from that of a technical malfunction, adverse weather conditions or a communication problem, but is determined by the conflict of interests between the two powers that characterized that period, giving us a new image on the concept of war: the cold war, which paradoxically became even more traumatic and destructive than the classical one, because they used immoral methods, including mass manipulation of the population, taking advantage of their ignorance. Even more those who were called rulers, with the obligation to serve their country and its inhabitants, forgot about their needs, which were in the process of recovery after an equally terrible period, the Second World War, for a battle of interests and a demonstration of power.*

## **21. Plague from Natural Diseases to Bioterrorism**

**Author:** stud. Alexandra PAVĂL

**Scientific Advisor:** Lt. Ramona CARAŞCA, PhD

**Institution:** Institutul Medico-Militar, Secţia de Pregătire Medico-Militară Târgu Mureş

**Abstract:** *Bioterrorism is considered a powerful weapon, through the easy and cheap procurement of biological agents, rapid diffusion and by causing widespread panic beyond the real physical damage. Purpose: Through this paper I wanted to highlight the importance of knowing the plague as a biological weapon for effective biosecurity and bioprevention. Material and method: The use of the plague as a biological weapon is worrying given its worldwide presence and availability, mass production capacity and ease of aerosol dissemination, high pneumonic plague fatality rate and potential for rapid secondary spread. Y. pestis infection in humans has the following*

*forms: bubonic plague, primary septic plague and primary pneumonic plague.*

*Conclusions: Correlating the devastating impact of the plague on humanity with the effects on the human body, it is important to approach the plague as a potential agent of bioterrorism.*

**Keywords:** *biological weapon, biosecurity, plague, biological agents*

## **22. The History of Terrorism in Romania – the Doctrine of Risk?**

**Authors:** stud. Sorina Mihaela ANTOCHE, stud. Alin Valentin MOCANU

**Scientific Advisor:** LTC Marius Costin IGNAT-GUY

**Institution:** “Mircea cel Bătrân” Naval Academy

**Abstract:** *There have always been risks in the world. The risks have developed according to the evolution of mankind. Diversity around the globe often causes bloody terror attacks in which innocent people are being killed. During the last half century, terrorism became the main threat of states. Placed on the eastern border of NATO and the European Union, Romania is constantly being connected to the challenges that the geopolitical context can bring. Considered as a good part of analysts as a "gateway" between the West and the East, is this country a strategic area, a point of interest or just a transit route? An insight into the history of terrorism in Romania is a starting point in seeing where the authorities were really prepared and where they had vulnerabilities. Regarding the future, there remains just a question - do we have the doctrine of risk in our blood?*

## IV. SECTION: ELECTRICAL ENGINEERING

### Section Committee:

#### Chairman:

Lecturer Eng. Iancu CIOCIOI, PhD

#### Members:

Lecturer Eng. Leon PANĂ, PhD

Lecturer Eng. Tiberiu PAZARA, PhD

Conference Room: LIP 6

### 1. Electrostatic Discharges Resulting from the Movement of Petroleum Products and Sulfur

**Author:** stud. Alex CIMPEANU

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *My task is to focus on analyzing electrostatic discharges that can lead to explosions or fires. These are a common cause of accidents in industry. Depending on the geometry and conductivity of the installation parts and products involved, there can be distinguished six different types of discharge. There are some safety precautions to be taken in order to avoid electrostatic discharge, including grounding of all pipes destined for petroleum products' transportation.*

### 2. Using an Intelligent Monitoring System for Increasing the Safety of a Building

**Authors:** stud. Alex Orlando CHIRIȚESCU, stud. Ionela CĂȚA

**Scientific Advisors:** Assoc. Prof. Eng. Liliana SAMOILĂ, PhD, Assoc. Prof. Eng. Ilie UTU, PhD

**Institution:** University of Petroșani

**Abstract:** *Increasing the security level of a building can be achieved by using alternative energy sources and intelligent monitoring systems. The possibilities offered by a smart home can be grouped in so-called scenarios. Such a scenario can be realized as presented in the present work using sensors such as: light, proximity, gas. In order to ensure the increase of the safety degree in the supply of the monitoring system we propose the use of a photovoltaic panel. The security system is much improved and, most importantly, it is controllable wherever we are at any given time. For the achievement of this project we used sensors specific to the monitored parameters and a development board from the Arduino Mega 2560 series.*

### **3. Microcontrollers in Modern Technology**

**Author:** stud. Alexandra Madalina IONITA

**Scientific Advisor:** Eng. Cristian-George CONSTANTINESCU, PhD

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *This paper focuses on microcontrollers and their development during the present-days. The circumstances in which we find ourselves today in the world of microcontrollers have had their beginnings in the development of integrated circuit technology. This development made it possible to store hundreds of thousands of transistors in a single chip. This was a premise for the production of microprocessors and the first computers made by adding peripherals such as memory, input-output lines, timers and more. The next increase in volume of the capsule led to the creation of integrated circuits. These integrated circuits contain both the processor and peripherals. This was how the first chip containing a microcomputer, or what would later become known as a microcontroller, came into being. But what is this microcontroller we are talking about? What is the difference to a microprocessor? And why do we need microcontrollers in the first place? I have prepared my work paper to answer properly to all this questions and to show up why a microcontroller is a revolutionary element.*

### **4. Bluetooth Controlled Obstacle Avoiding Robot**

**Authors:** stud. Alexandru STOICA, stud. Stefan STOICA

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Marius RISTEIU, PhD

**Institution:** University of Petroşani

**Abstract:** *Bluetooth controlled obstacle avoiding robot is a three wheel drive robot which is made to be controlled with a smartphone application. The gear motor can be controlld individually to change the direction if it is necessary. It has an ultrasonic sensor which detects an obstacle and measures the distance to it, if it is too close the robot will stop and change the movement angle or wait for another command from the user, other than the one that made him get stuck.*

### **5. Autonomous Car Prototype**

**Authors:** stud. Andrei BERCEANU, stud. Alexandru PÂRCIU

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Lorand BOGDANFFY, PhD

**Institution:** University of Petroşani

**Abstract:** *In recent years, the interest in autonomous vehicles has been growing. Because it is an intriguing field of research, we decided to try to make the control possible for such a prototype. The present paper studies*



*the current achievements in the field and the level reached by the models of the big producers. This continues with a solution to this problem, using a 1:10 scale prototype. In the first part we present the hardware components as well as the way they interact with each other, and then we will discuss the software solution proposed by us, which involves an image processing algorithm.*

## **6. The Maintenance of Electrical System from Ship's Anchor Installation Using Vibration Analysis**

**Author:** stud. Andrei Decebal BICIU

**Scientific Advisor:** Lecturer Eng. Tiberiu PAZARA, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Anchor installation is one of ship's safety systems. Mechanical problems of the installation can be determined using vibration measurement of the electrical components – electrical motors. The installation must be maintained regularly. In this paper I investigate the problems of electrical motor of this installation. By using vibration measurements one can determine early problems that can occur. In the end, I made some remarks and recommendations about the use of vibration analysis onboard ships.*

## **7. 3D Printed Biped Humanoid Robot**

**Author:** stud. Cezara SIMON

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Sebastian ROȘCA

**Institution:** University of Petroșani

**Abstract:** *Robotics is an emerging field of science in which robots are manufactured and programmed to perform various tasks. Humanoid robots are also sophisticated robots built to perform human-like tasks that imply mutual interaction in order to make their work easier for entertainment and healthcare. The critical phase in designing of humanoid robots is the design stage itself. In this paper we propose a solution based on 3d design of biped humanoid robot used for entertainment and rehabilitation powered by a microcontroller and an MPU6050 Imu sensor for stabilization that is capable of reproducing human gait and complex socializing movements such as dancing and carrying small things. For a full human-robot interaction we developed an application based on MIT App Inventor so that it can be controlled directly from smartphone via the low power bluetooth device. Further it is suitable to be controlled through body motions, facial expressions, myogenic signals, brain waves using the inputs from sensor devices.*

## **8. Obstacle Avoiding Three Wheeled Minicar**

**Author:** stud. Alexandru Mihai CHIUDA

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Sebastian ROȘCA

**Institution:** University of Petroșani

**Abstract:** *This paper presents a 3D printed minicar. The project is designed around an Arduino Mega shield, having an external battery, 2 wheels with DC motors for each, one wheel driven by a servo for direction, 1 motor control L298N shield, one ultrasonic sensor. The control program consists of moving the minicar forward until it reaches an obstacle, detected by the ultrasonic sensor, then it sends stop signal, followed by a go back and go left signals to avoid the object. I set max speed to my back wheels to see if my cod is good and functional great. The front wheel is for direction driven by the servo. I put the ultrasonic sensor in front of the car because i don't want to detect other parts of the car, just the object in front of it. The minicar prototype is powered by an external battery that ensures enough autonomy for the entire system.*

## **9. Laboratory Stand for Fire and Gas Leak Detection**

**Authors:** stud. Ciprian Gabriel GUȚANU, stud. Mioara Elena PEAGU

**Scientific Advisors:** Assoc. Prof. Eng. Liliana SAMOILĂ, PhD, Assoc. Prof. Eng. Ilie UTU, PhD

**Institution:** University of Petroșani

**Abstract:** *Starting from the concept of a smart home, the paper aims to present a system for monitoring a house to identify a possible gas leak or the occurrence of a fire, situations that can lead to disasters that anyone wants to avoid. Implementing such a system, you can leave home without the slightest concern. It is a much studied system, which has no way to fail. The whole assembly consists of two sensors, one of gas, the other of smoke, a dual channel relay, a buzzer for when we are at home and we can act promptly, a temperature sensor and an Arduino development board that is basically the brain of the entire system. In the event of a fire, this is extinguished with water through a pump operated when smoke is detected and the temperature rises, and in the case of gas leakage, a fan is started.*

## **10. Technical Study on the use of PLC (Programmable Logic Controller)**

**Author:** stud. Ioan Flavius CRIȘU

**Scientific Advisor:** Captain Assoc. Prof. Eng. Paul BURLACU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Controlled engineering has evolved over time. In the past, people were the main method of controlling a system. Nowadays, electricity is used for control, and this control is based on electrical relays. These relays allow the interruption or supply of energy without the use of mechanical switches. These relays are usually used to make simple logical decisions. The development of the technology and implicitly the low-cost computers led to the revolutionary emergence of PLCs (Programmable Control Units). The advances of the technology on a large scale have led to the possibility of real-time simulation of many applications in the industrial field. Real-time simulations are very useful when scheduling a technological process, preventing or removing possible system failures and / or blockages that can temporarily destroy or affect its components.*

### **11. Electrical Resistance of the Human Body**

**Author:** stud. Alexandru-Mihai CULICEANU

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *My project, Electrical resistance of the human body discusses about the human body against electricity under different ideal conditions for voltage coupling. The human body can withstand a value of 1,000,000 ohms. However, the human body almost never has this idealized resistance.*

### **12. Robotic Interactive Head**

**Author:** stud. Emanuel MUNTEAN

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Sebastian ROȘCA

**Institution:** University of Petroșani

**Abstract:** *The idea behind the project was the implementation of motors and sensors on a robot head, made from parts all printed on the 3D Printer. As a project idea, we started from the Gael Langevin's personal project, InMOOV, that is an Open Source 3D printed project of the designer having real life dimensions. Its concept, based on sharing and community, allows its replication for research projects around the world. As parts of a robot's body we have printed the robot's head which is made up of the skull, ears, face, jaw and neck, all being actuated by servo motors. We designed and implemented our own control software.*

### **13. Applications of Sequential Logic Circuits in Airport Lightning System**

**Author:** stud. Florentin IACOBIAIE

**Scientific Advisor:** Lecturer Eng. Cristian CONSTANTINESCU, PhD

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *This paper aims to analyze and translate the lighting system of the airport from a technical point of view, where the sequential logic circuits are at the base of the existence and the functionality of the system. For secure of the people, as well as of aeronautical equipment, in order to minimize accidents. In order to be able to understand the information that these systems provide, we had to analyze the functionality and the component parts of the circuits.*

#### **14. Microcontrollers in Modern Technology**

**Author:** stud. Iulia-Elena ANIŞCA

**Scientific Advisor:** Lecturer Eng. Cristian CONSTANTINESCU, PhD

**Institution:** „Henri Coandă” Air Force Academy, Braşov

**Abstract:** *The objective of this paper is to achieve a functional system in terms of hardware and software, to measure temperature and humidity. In this, we use an Arduino Nano board with interfacing a sensor placed in local environment to measure temperature and humidity. The paper aims to achieve the following goals: achieving a functional system in terms of hardware and software that allows measuring temperature, humidity; using a development board for the communication with the sensor; implementation a program that allows requirements. In this paper we are going to measure temperature and humidity which will be beneficial for balancing the environment to increase the productivity.*

#### **15. Magic Ball Social Robot**

**Author:** stud. Lilia CRIVOI

**Scientific Advisor:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Sebastian ROŞCA

**Institution:** University of Petroşani

**Abstract:** *Nowadays there are many different ways to simplify human-robot interaction: text, verbal communication and sounds, nonverbal communication (movement, gestures) or neuronal signals. This paper is about making a voice-controlled robot using Raspberry Pi Zero W as a processing chip and underlying architecture. To control movements or send requests to robot you can speak to him or use an app for smartphones. There can be used both direct speech and smartphone speech to text engine, while response is based on text to speech engine. Beside Raspberry Pi Zero W, there are used a speaker, a microphone, a motor driver and two DC motors. This type of robots can be used as personal assistants for every user especially to guide, remind, accompany, read books or play music and help in everyday life.*

## **16. The Maintenance of Diesel Generators from Ship's Propulsion System Using Vibration Analysis**

**Authors:** stud. Alexandru Marian MARIN, stud. Gabriel Cristian TĂTĂRUȘANU

**Scientific Advisor:** Lecturer Eng. Tiberiu PAZARA, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Propulsion system is one of the most important system onboard ships. The maintenance of this system must be carried out regularly. A part of this maintenance is the control of diesel generators using vibration analysis. In this paper I study how fatigue and other defects can be identified using vibration measurement and analysis. This type of maintenance is a non-destructive investigation and the results can point accurately the source of defects and early fatigue of the generators. In the end, I made some remarks and recommendations about the use of vibration analysis onboard ships.*

## **17. T1 - IoT Robotic Assistant**

**Authors:** stud. Maxim SITNICOV, stud. Mihaela PLEȘCA

**Scientific Advisors:** Prof. habil. Eng. Monica LEBA, PhD, Jr. Asist. Eng. Leonard Marius OLAR

**Institution:** University of Petroșani

**Abstract:** *This robot can serve as a helping hand at the work desk, sending us objects such as nails, to ease and shorten working time. He receives the order by phone even from distance. It is equipped with 4 electric motors that provide mobility, an Arduino NodeMCU programmable scheme, a power jack and a 5V power adapter with 2 A. It can be equipped with a microphone for recognizing voice commands and a video camera for recognizing objects around. The robot is equipped with artificial intelligence. It can be used as a helping hand at the work table by attaching it to the table. When interacting with it, the first thing to do is to send a voice command and then, with the help of the video camera, it identifies the object on the work table and sends it to us.*

## **18. Introducing 5G Tehnology**

**Authors:** stud. Vlad-Alexandru PIELE, stud. Razvan-Marian PIELE

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Introducing 5G tehnology and networks (definition, use cases and rollout). Want to know more about 5G tehnology? Want to know more about 5G technology? Then you're in the right place.*

*In this presentation, you'll discover key facts about 5G:*

*What is 5G?*

*How fast is 5G?*

*What is the difference between 4G and 5G?*

*What are the 5G use cases?*

*When is 5G coming, and where is it available?*

*What does it mean for consumers and operators?*

*Will 5G technology be secure?*

*Let's see how 5G technology is about to change the world.*

*What is 5G?*

*5G technology is a breakthrough.*

*The next-generation of telecom networks (fifth generation or 5G) have started hitting the market end of 2018 and will continue to expand worldwide.*

*Beyond speed improvement, 5G is expected to unleash a **massive IoT (Internet of Things) ecosystem** where networks can serve communication needs for billions of connected devices, with the right trade-offs between speed, latency, and cost.*

## **19. Laboratory Stand for Studying the Generation of Electricity with a Wind Turbine**

**Authors:** stud. Rahela ANTON, stud. Alexandru Mihai CHIUDA

**Scientific Advisors:** Assoc. Prof. Eng. Liliana SAMOILĂ, PhD, Prof. Eng. Susana ARAD, PhD

**Institution:** University of Petroșani

**Abstract:** *In the energy sector in most European states, major transformations have occurred due to the need to increase the security in the energy supply of the consumers, and within this requirement the renewable energy sources offer a viable solution, including that of environmental protection. In Romania, the share of renewable energy sources in the total consumption of primary resources, in 2020, will have a level of about 11%, and in 2015 of 11.2%. The paper presents a laboratory stand with wind turbines that ensure the electricity supply of the lighting of a building. In the current context where wind power is used extensively and new wind turbines are being built around the world, the theme of this work is of interest.*

## **20. A Digital Thermometer with Arduino**

**Authors:** stud. Rares TRIF, stud. Bogdan Constantin ORSAN

**Scientific Advisors:** Assoc. Prof. Eng. Liliana SAMOILĂ, PhD, Prof. Eng. Susana ARAD, PhD

**Institution:** University of Petroșani

**Abstract:** *Temperature measurement is an important factor in the monitoring and control of many processes. Maintaining constant temperatures in storage rooms, laboratories, incubators and other enclosures is an important issue. The thermometer is a temperature measuring instrument, being used in: industries, meteorological studies, personal use, medicine and scientific research. For the inside of the home, temperature and humidity measurement can be used to monitor the climate of several rooms, or areas we often don't see it, such as a basement or attic space. In this work we present a device for monitoring the temperature and humidity in a room that was achieved with the help of an Arduino microcontroller and a temperature and humidity sensor DHT22. To set the temperature within a preset range, a relay was used which, depending on the temperature in the room, can command a fan on and off.*

## **21. The Maintenance of Ship's Crane by Using Vibration Analysis of the Electrical System of the Crane**

**Authors:** stud. Gabriel Cristian TĂȚĂRUȘANU, stud. Alexandru Marian MARIN

**Scientific Advisor:** Lecturer Eng. Tiberiu PAZARA, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Onboard bulk-carriers there cranes used for loading different kind of merchandise: coal, minerals, grains etc. The electrical components of the system can suffer defects because of heavy duty usage. In this paper I investigate the problems that can be determined using vibration measurements. Electrical problems of crane's motor can be identified using this type of measurements. These problems can mean mechanical defects or misalignment of the system. In the end, I made some remarks and recommendations about the use of vibration analysis onboard ships.*

## **22. The Influence of the Electromagnetic Field upon a Ship's Electromagnetic System**

**Authors:** stud. Alexandru VLAD, stud. Alessandra Gabriela ONOFREI

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *It is presented a global evaluation criterion of the perturbation magnetic field of a volume, which presents interest. It is determined the medium volume density of the magnetic field energy in the interested volume and correspond the medium value of the electromotive force (e.m.f.) which is induced to be an evaluation criterion of the electromagnetic compatibility.*

### **23. The Influence of the Signal/Noise Ratio on the Radar Detection Distance**

**Authors:** stud. Akkan ALI, stud. George BOBARU

**Scientific Advisor:** Lecturer Eng. Iancu CIOCIOI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *A Radar (Radio Detection and Ranging) is an instrument that can detect surrounding objects using radio waves. Thus, in the maritime world, objects such as ships, buoys or birds can be detected by radars. The use of short-wavelength microwaves allows a very accurate measurement of the direction in which the object is detected and the distance at which it is located. In addition to the maritime domain, radars have many other applications such as meteorology and aerial surveillance.*

*The influence of the signal / noise ratio on the radar detection distance*  
*Discovery distance is an important operational feature of radar. It depends on the following factors:*

1. *transmitter power;*
2. *receiver sensitivity;*
3. *antenna directive properties;*
4. *target reflection properties;*
5. *conditions for the propagation of electromagnetic waves;*
6. *indicator properties;*

### **24. Analysis of the Adjustment of the Speed of Naval Electric Motors and its Role**

**Author:** stud. Andrei BACIU-NENCIU

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paper presents the advantages and disadvantages of the electric propulsion and the speed adjustment of the electric motors used for it. The speed adjustment of the c.c. motors, of the c.a. motors. The speed adjustment methods for three-phase asynchronous motors are: changing the number of pairs of poles; alteration the frequency of the supply voltage; turning of the slip that is realized by the variation of the rotor resistance and alteration of the supply voltage. The voltage alteration is only effective during the load operation. The speed control is analyzed by modifying the number of pairs of poles, adjusting the speed by changing the frequency of the supply voltage, adjusting the speed by modifying the supply voltage, and adjusting the speed by rheostatic adjustment. The role of adjusting the speed of the electric motors in propulsions is presented.*



## **25. Operating Regimes of the Asynchronous Machine**

**Author:** stud. Alex CIMPEANU

**Scientific Advisor:** Commander Assoc Prof. Eng. Florențiu DELIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This study focuses on the analysis of the operating regimes of the asynchronous machine. A definition will be given as well as a classification. The principle and the operating equations will be presented, following to be stated the operating regimes depending on the variation of the relative speed of the rotor with respect to the inductive rotating field produced by the stator. As it will be shown, the asynchronous machine could behave as a motor, as a generator or as an electromagnetic brake.*

## **26. Synchronous Motor**

**Author:** stud. David VASILESCU

**Scientific Advisor:** Commander Assoc Prof. Eng. Florențiu DELIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The purpose of this project is how it is use the synchronous motors. In project i showed where this type of engine can be used, how they can help in various activities. I have highlighted a few types to highlight their importance. How this type of engine works by emphasizing its two main parts. In the last part of the project i taked about hysteresis engine as well as the main features of the synchronous motor.*

## **27. Simulation Analysis of Asynchronous Machine Dynamics**

**Authors:** stud. Andrei-Darius DELIU, stud. Florin BURLACU

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Asynchronous machines are the most used electric machines in naval electric drive systems, the main mode of operation being the motor. In the paper we studied the transient and stationary regimes of the asynchronous machine when operating in different regimes, in order to observe the differences between them and to draw conclusions based on the mathematical models obtained. The theory behind this project is based on the representation of the real car through a set of equations and values in Matlab, Simulink using the characteristics of the system, with the help of which one can anticipate an ideal car behavior as close as possible to the real one. The three operating modes of the machine have been studied individually and the conclusions and final observations are represented in the torque characteristics of the asynchronous machine on a very wide speed range, which allows viewing its behavior in all operating modes.*

## **28. Simulation of the Engine Regime of the Asynchronous Machine**

**Authors:** stud. Denis MIRZAC, stud. Dan-Sebastian ROTARU

**Scientific Advisor:** Commander Assoc Prof. Eng. Florențiu DELIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This project describes the characteristics of an asynchronous machine. How work this type of motor in alternativ current. We will talk about the construction of the mand the stationary operation.*

## **29. Asynchronous Machine**

**Authors:** stud. Filip-Ioan BASCEANU

**Scientific Advisor:** Commander Assoc Prof. Eng. Florențiu DELIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This project follows the theoretical foundations that underlie the asynchronous machine. In this project we showed the operation of the asynchronous machine and their construction.*

## **30. The Role of the Logarithmic Amplifier in the Structure of Maritime Radars**

**Authors:** stud. Florin BURDUSANU, stud. Stefan DEACU

**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.*

## **31. Automatic Voltage Regulator (AVR)**

**Authors:** stud. Ionut-Silviu JUGULEANU, stud. Tegus-Iulian PAPADIMA

**Scientific Advisor:** Lecturer Eng. Leon PANĂ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In our practical life voltage may be high or low for purpose of electricity supply system or for the weakness of the supply system or for*

*other causes. For that reason, many important electric machine or electric equipment can be destroyed. In order to save these we need to use the voltage regulator.*

### **32. Rejection of Interference and Clutter to Marine Radars**

**Authors:** stud. Mircea-Adrian MOROIANU, stud. Rareş OBREJA, stud. Veniamin VIDINEI

**Scientific Advisor:** Lecturer Eng. Iancu CIOCIOI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Interference can be filtered out by comparing the signals present in successive range words and rejecting those which do not appear on successive lines. The principle of operation is known as line-to-line correlation. The logic is that, because of the random nature of interference, the probability of two signals appearing in the same range cell on successive range words is negligible. The interference rejection will have an output known as correlated video. On the other hand controls for the suppression of unwanted responses are determined by clutter and interference. The clutter can be divided in sea clutter and rain clutter. The suppression of sea clutter and rain clutter is dealt with the appropriate practical procedures.*

### **33. High Voltage**

**Authors:** stud. Ştefăniţă Alin OANCEA, stud. Mihai POPA

**Scientific Advisor:** Commander Assoc Prof. Eng. Florenţiu DELIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This project follows the theoretical foundations of electrical current at high voltages, direct and alternative and how is produced and used. High voltage is mainly used for long distance electrical power distribution. Safety against electrocution is also a subject that will be addressed in this project.*

### **34. Phenomena Characteristic of the Passage of Electric Current through the Human Body**

**Authors:** stud. Larissa Mihaela SION

**Scientific Advisor:** Professor Eng. Gheorghe SAMOILESCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The present paper presents how electric current is affecting human body from the effects of the passage of electric current through the human body up to the electrical resistance of the human body and environmental parameters. The paper also analyzes exposure limits, maximum permissible of voltage limit and also prevention methods.*

### 35. Simulation of Capacitive Level Transducers

**Authors:** stud. Alexandru – Victor TESELEANU, stud. Marius – Razvan MUNTEANU

**Scientific Advisor:** Lecturer Eng. Iancu CIOCIOI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The principle of operation of a capacitive transducer can be understood starting from the calculation relation of the capacitance of a capacitor. A transducer with variable dielectric has a fixed distance between the armatures and the dielectric is mobile, being able to move along one of the Ox or Oy axes.*

**Obs:** *- if the dielectric moves along the Ox axis, the capacity of the transducer is equivalent connecting in parallel two capacitors with different dielectrics: one with permittivity absolute electric  $\epsilon_a$  and the other with absolute electrical permittivity  $\epsilon$ ; - if the dielectric moves along the Oy axis, the capacity of the transducer is equivalent series connection of two capacitors with different dielectrics: one with permittivity absolute electric  $\epsilon_a$  and the other with absolute electrical permittivity  $\epsilon$ .*

## V. SECTION: WEAPONS AND COMMUNICATIONS

### Section Committee:

**Chairman** Lt. Lecturer Eng. Ovidiu CRISTEA, PhD

### Members:

Lecturer Eng. Gheorghe ICHIMOAEI, PhD

**Conference Room:** LI125

### 1. Means of Wireless Data Interchange Automation with Using of PLCs

**Authors:** stud. Maksym KHYMCHAK, stud. Danyil HORBUNOV, stud. Andrii TSYBUKH

**Scientific Advisor:** Associate professor Vladlen SHAPO, PhD

**Institution:** National University "Odessa Maritime Academy", Odessa, Ukraine

***Abstract:** The research of standard features of the PCWorx integrated development environment for data interchange automation between ship network and shore is presented. Corresponding characteristics of embedded function blocks are analyzed.*

### 2. Means of Separate Cable Industrial Data Transfer Network Segments Integration

**Authors:** stud. Maksym KHYMCHAK, stud. Danyil HORBUNOV, stud. Andrii TSYBUKH

**Scientific Advisor:** Associate professor Vladlen SHAPO, PhD

**Institution:** National University "Odessa Maritime Academy", Odessa, Ukraine

***Abstract:** The analysis of a standard functionality of the PCWorx integrated development environment application software for data interchange automation at integration of different industrial networks segments, realized using different network technologies, is performed. Corresponding characteristics of embedded function blocks are analyzed. Possibilities of high performance PLCs using in the role of gateway between network segments are shown.*

### 3. The Armour Piercing Discarding Sabot that Can Be Fired with the 100mm Installation

**Authors:** stud Daliana MOLDOVAN, stud. Bianca DUMITRACHE

**Scientific Advisor:** Cmdr. Eng. Cătălin Paul CLINCI, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The existence of fluvial ship which reacts fast and efficient in repelling the enemy is a major advantage for the Naval Forces. The future battlefield is defined by complex systems of automated armament, thus the role of the armored technique maintains a dominant position.*

*This paper focuses on the armour piercing discarding sabot that can be fired with the 100mm installation which is mounted on the Patrol Fluvial Ship and on the Fluvial Monitors. We will point out the way the cannon was navalized and integrated into the armament system of the ship. Also the presentation includes information about the TR-77 tank and the Patrol Fluvial Ship. Finally, the paper will end with the presentation of the Patrol Fluvial Ship “Smârdan” and a 3D representation of an armour piercing discarding sabot.*

#### **4. The Effects of an Explosion on a Military Ship**

**Authors:** stud. Sorina BĂCANU, stud. Maria CORCIOVA

**Scientific Advisor:** Cmdr. Eng. Cătălin Paul CLINCI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The aim of this presentation is to show the effects of an explosion on a military ship. The first part of the paper presents some important aspects about one of the most commonly used explosives for military and industrial applications, trinitrotoluene, known as TNT or 2,4,6-trinitrotoluene. It was prepared for the first time in 1863 by a german chemist. TNT is still used by the US Army. In the second part, we will explain a simulation of an explosion with a ship created with the programme ANSYS Workbench. We will present you how the explosion affects the ship in the next three situations: the explosive charge explodes ahead of a ship, when the ship is halfway through or after the ship has passed. In the end, we will draw some conclusions about the explosions and how it would affect the ship the use of a different explosive.*

#### **5. Surveillance of Airspace on Military Ships Using UAV Hand Launched for Romanian Naval Forces**

**Author:** stud. Mario-Alexandru DULCE-ENESCU

**Scientific Advisor:** Lecturer Eng. Gheorghe ICHIMOAIEI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *An unmanned aerial vehicle (UAV) (or uncrewed aerial vehicle, commonly known as a drone) is an aircraft without a human pilot on board and a type of unmanned vehicle. UAVs are a component of an unmanned aerial system (UAS) 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, autonomously by onboard computers or piloted by an autonomous robot.*

## **6. Defense of Objectives by Usv Teams Operating in Unsafe Environments**

**Authors:** stud. Vladut-Stefan TURCANU, stud. Daniel-Andrei VASILE

**Scientific Advisor:** Cmdr. Eng. Cătălin Paul CLINCI, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Technological advances in the development of the autonomy of unmanned surface vehicles allow the use of unmanned craft to guard sensitive areas in naval missions. The use of stand-alone USVs (a team of unmanned surface vehicles) to protect an asset against intruder craft can lead to a significant reduction in costs, while maintaining the necessary level of security. This application, however, presents several challenges for the USV team from a planning perspective.*

## VI. SECTION: MECHANICAL ENGINEERING

### Section Committee:

#### Chairman:

Assoc. Prof. Eng. Dumitru DASCALU, PhD

#### Members:

Lecturer Eng. Aurelia CHIOIBAS, PhD

Conference Room: EP 26

### 1. Synthesis and Characterisation of Biodiesel

**Author:** stud. Tiberiu-Constantin CALISTRU

**Scientific Advisor:** Marian TRUȚĂ

**Institution:** Military Technical Academy „Ferdinand I” Bucharest

**Abstract:** *The decrease in fossil fuels supplies focuses our attention on alternate fuel sources that can be used in automobiles. Biodiesel can be an environmentally friendly replacement to everyday fossil fuels. It can be produced using different methods, the main one being trans esterification of plant-based oils. This paper presents a method for biodiesel synthesis which is effective in a laboratory environment. After the samples are made, they can be subjected to different tests to determine their physical and chemical properties. The biodiesel synthesized and presented in this article was subjected to tests and characterized by density ( $0.89 \text{ g/cm}^3$ ), kinematic viscosity ( $5.86 \text{ cP}$ ), flash point ( $192^\circ\text{C}$ ) and FT-IR analysis. The data obtained from the laboratory tests suggests that this method is a reliable one, giving consistent results, which is key in small scale synthesis procedures.*

### 2. Appreciation Methods of Cryogenic Splintering Processability and Factors influencing it

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

**Scientific Advisor:** Lecturer Eng. Aurelia CHIOIBAS, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *A material is considered the more workable, the higher the durability of the cutting tool is, the processing productivity is higher, the quality of the obtained surface is better, the mechanical and energy demand generated by the cutting is lower, the precision of processing is higher and the chips have a more convenient shape. In conclusion, the workability analysis by cutting a material must include all the properties and*



*characteristics of the material, those of the cutting tool and the cutting environment used. Direct methods are based on technological tests. The indirect methods are based on the mechanical characteristics of the materials. Chipping under cryogenic conditions. Cooling of the cutting tool is recommended in all cases due to the reduction of the thermal demand; a durability sport is obtained up to 400%.*

### **3. Alternatives Regarding Naval Fuels**

**Author:** stud. Alex-Gheorghe CIOARA

**Scientific Advisor:** Lecturer Eng. Ionel POPA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Ship-sourced emissions have received increased scrutiny from the International Maritime Organization (IMO), government environmental agencies, public health advocates and non-governmental environmental groups.*

### **4. International Norms Regarding the use of Naval Fuels in Areas with Controlled Emissions**

**Author:** stud. Ciprian-Ioan GALUSCA

**Scientific Advisor:** Lecturer Eng. Ionel POPA, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Emissions of air pollutants like sulphur dioxide can travel long distances. In recent years, emissions from maritime transport have increasingly affected air quality in the EU and other countries. Sulphur dioxide emissions cause acid rain and combine with other pollutants to generate fine particles. This particulate matter contributes to the overall PM<sub>2,5</sub> air pollution burden in the EU.*

### **5. Leadership and Assertiveness in the Machine Compartment:**

**Levels of Leadership Assertiveness.**

**Author:** stud. Bogdan Alexandru IORGA

**Scientific Advisor:** Associate Professor Carmen COJOCARU, Ph.D.

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The study aims to differentiate the notions of power and authority exercised in the naval crew, offering as an effective solution the practice of assertiveness. We define the power of the leader as being due to the hierarchical position he occupies and through which he makes decisions and ensures their fulfillment by using the means of persuasion, manipulation or constraint. The leader's authority aims at the professional and psychological qualities of the leader's personality because of which his followers value him. Assertiveness is the ability to agree with yourself (to*

*feel, to think, to do), to express one's opinions, respecting the other's point of view. The efficiency of the ship leader consists in achieving the balance between authority and assertiveness in the naval crew and leads to correct attitudes towards authority and rules.*

## **6. Aspects Regarding the Optimization of Using the Heat Pipes in Port Activity**

**Authors:** stud. Loredana-Raluca MIHAI, stud. Florentina IVAN

**Scientific Advisor:** Associate Prof. Eng. Dumitru DASCALU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paper summarizes the advantages and possibilities of using heat pipes for optimizing the environment from offices, warehouses, or other workspaces. The paper aims at presenting the optimization of energy consumption, using as a cooling source the water from port docks. For this reason, the “cold stain” of the tubes is represented by the sea water at a depth in the order of meters. In this way, the sea water temperature at a depth of 5-6 meters presents a bigger stability than the air temperatures during summer.*

## **7. Ceramic Materials. Properties. Applications. Processability**

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

**Scientific Advisor:** Lecturer Eng. Aurelia CHIOIBAS, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Ceramics are defined as non-metallic materials, of an inorganic nature, hardly soluble in water, obtained by natural or artificial ways, at high temperatures and pressures. Among the categories of ceramic materials, the technical ceramics are of particular interest for activities such as: car construction, electronic and electrotechnical industry, thermonuclear machine building, aircraft and cosmic vessels, etc. Also, the shockability is determined by several factors such as the durability of the cutting tool, the size of the cutting force, the roughness of the machined surface, the cutting temperature, the degree of deformation of the processing layer in the cutting process, the way of generating the product configuration etc., which participates in the realization of the piece under the conditions of ensuring the prescribed geometric shape and dimensional accuracy.*

## **8. The Principles and Attributes of Leadership: Directing and Being Directed**

**Author:** stud. Sebastian SER

**Scientific Advisor:** Associate Professor Carmen COJOCARU, Ph.D.

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *This study aims to determine and explain the remarkable importance of respecting some principles and attributes during leadership execution in engine room. This study describes some of the essentials principles which lead to outstanding results: Build Vision, Nurture Collaboration, Promote Performance, Cultivate Learning, Ensure Results. Also, an efficient leader manages leadership in engine room by using the following attributes: Know yourself and seek self-improvement Be technically proficient, Seek responsibility and take responsibility for your actions, Make sound and timely decisions, Set the example, Know your people and look out for their well-being, Keep your workers informed, Develop a sense of responsibility in your workers, Ensure that tasks are understood, supervised and accomplished, Train as a team.*

## **9. Leadership and Management: How to Use them maturely and constructively**

**Author:** stud. Ștefan SIMION

**Scientific Advisor:** Associate Professor Carmen COJOCARU, Ph.D.

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The study aims to analyze the relationships between the two notions, Leadership and Management and their nature and constructive use in the Machine Compartment: identifying notions, categorical differentiation, postulating a relationship of partial coincidence of the spheres of the two notions. In this study, we provide valid arguments to support the last variant of relationship that is established between the two concepts. This means that leadership and management, leaders and managers each have their own, specific elements, which ensure their individuality and relative autonomy, but also a number of common elements, which facilitates their interaction and mutual empowerment.*

## **10. Application of Mechatronics**

**Author:** stud. Teodor KIRYAKOV

**Scientific Advisor:**

**Institution:** Nikola Vaptsarov Naval Academy

**Abstract:** *Mechatronics is a subject formed by the other two, "Mechanics" and "Electronics." It is based on mechanics, computer science, electronics, with its foundations laid in 1969. The possibilities of this science are*

*enormous and do not stop growing. Mechatronics is used all around us in various forms and variants. The development of robotics, telecommunications, space technology, mechanical engineering, etc. is due to this item. More and more new systems and devices are being developed related to the shipbuilding and navigation facilities. One of these systems is a digital twin, the purpose of which is for modern ships to operate largely independently thanks to many systems and sensors on board. This sensor system will be able to make operational decisions. Over the years, the development of such systems has increased and makes maritime transport quite innovative and efficient.*

#### **11. The use of Inert Gas Generator on board Oil Tanker Vessels**

**Author:** Bogdan TÎRȘOAGĂ

**Scientific Advisor:** Prof. Florin NICOLAE, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Today, the oil tanker industry is a big factor in the transportation industry worldwide as many sectors are using the cargo carried by these vessels for day-to-day operation. With that being said, there should be a method to handle this cargoes carried by these vessels safely between any two points on Earth. The role of the Inert Gas Generator is to produce Inert Gas which is used to maintain the oxygen level under the limit specified by International Safety Guide on Oil Tankers and Terminals during loading, transportation and discharging in order to avoid fire from the combustible mixture that can be formed as a result of evaporation of the cargo and the ingress of air into the tanks.*

#### **12. Which is the Truth from the Sea?**

**Author:** Ciprian-Emil BABELEA

**Scientific Advisor:** Lect. Edith-Hilde KAITER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *My name is Babelea Ciprian-Emil and I study Naval Electromechanics at Mircea cel Batran Naval Academy, Constanta. I'm in the third year and this summer I stepped for the first time on board. Firstly I was impressed by the size of everything because here everything is huge but I am not going to talk about technical stuff. What impressed me the most are the stories from the sea. After I listened to different legends I made a research to find out the real stories behind these legends.*

## VII. SECTION: FUNDAMENTAL SCIENCES

### **Section Committee:**

**Chairman:** Assoc. Prof. Andrei BĂUTU, PhD

### **Members:**

Lecturer Adriana SPORIȘ, PhD

**Conference Room:** L 130

### **1. Applications of the Derivatives**

**Authors:** stud. Maria BURIU, stud. Andrada FODOR

**Scientific Advisor:** Assoc. Prof. Dan LASCU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this paper we will discuss some applications of the derivatives in physics, chemistry and economics by giving some examples.*

### **2. How to Neutralize the Effects of Some Substances?**

**Author:** stud. Ilisca Anisoara COMAN

**Scientific Advisor:** Lt.Col. Madalin SLANICEANU

**Institution:** Academia Fortelor Aeriene “Henri Coanda” Brașov

**Abstract:** *The reason why I have chosen this topic is to inform people about some methods, easily to use; with they can combat the effects of chemicals substances. Chemistry seems to be always a difficult subject at school. It is true that few students truly understand it, but Chemistry is more than that. We can protect our planet only by using some tips and tricks. If we understand how we can neutralize the effect of some chemical substances, we can save the World against the pollution and we can improve our lives.*

*“How to neutralize the effects of chlorine, CO<sub>2</sub>, or ammonia?”, “how can we prevent against PCl<sub>5</sub>?”, are questions which will be solved after this presentation. This might be a good chemistry lesson, or a C.B.R.N one. I hope those tips will be applied by us because only we can change something.*

### **3. Promotion of the Hunedoara Municipality on the Basis of the Corvines Castle**

**Authors:** stud. Diana-Lăcrămioara TURCU, stud. Cosmina-Izabela CIURARU

**Scientific Advisor:** Assoc. Prof. Ec. Dorina NITA, PhD

**Institution:** University of Petroșani

**Abstract:** *Today we are witnessing a somewhat paradoxical situation regarding the tourism practiced in the big urban centers. Regardless of the purpose of the trip: visiting historical places, fun and recreation, etc., for the populations resident in these places, tourists have become really annoying, thus forcing already some measures to limit their number. At the opposite pole, there are other urban destinations that, realizing the importance of the prestige of a location for attracting tourists and the especially economic benefits generated by tourism, seek to build and capitalize on a city brand as representative as possible. In this paper we will analyze how a city in Romania, Hunedoara County, has built its branding strategy around a historical objective, namely Corvinilor Castle, Hunedoara.*

#### **4. Automation of a distillation process**

**Author:** stud. Dragoș MATACHE

**Scientific Advisors:** Prof. Eng. Ileana RĂU, PhD / Lecturer Eng. Călin BÎRĂ, PhD

**Institution:** University POLITEHNICA of Bucharest

**Abstract:** *Based on the phase diagrams drawn for the liquid vapour equilibrium of a series of binary or ternary mixtures, we designed an embedded system in the form of a distillation mini-plant able to produce a distillate without the need of continuous human supervision. The project aims to achieve a way of separating the volatile components from the curing mixture (eg. separation of ethyl alcohol from methyl alcohol). For this purpose, software will be developed for an embedded system which will control the process parameters. The software will present the monitored process parameters and notify the user for intervention when/if needed.*

#### **5. Fractal Geometry**

**Authors:** stud. Simona DUMITRACHE, stud. Alina PLANGE, stud. Mihnea PARASCHIV

**Scientific Advisor:** Assoc. Prof. Dan LASCU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *In this paper we will discuss about fractals, about how they appeared, about the domains where they appear and we give some examples.*

#### **6. The Motivation of the Development of "Green Hotels"**

**Authors:** stud. Elisa BUZDUGA, stud. Octaviana VASILE

**Scientific Advisor:** Assoc. Prof. Ec. Dorina NITA, PhD

**Institution:** University of Petroșani

**Abstract:** *In the specialized literature, pre-entrepreneurship is known through the positive effects generated by its manifestation and development. The extremely varied fields of entrepreneurship have also determined their association with them, encountering today such phrases as green entrepreneurship or social entrepreneurship. Starting from the relationship of interdependence between economic development, climate change, the "health" of the environment and tourism, there is a growing awareness of the effects generated by the development of certain economic sectors, including tourism on the environment and the environment. An increase in the concerns to find and implementing effective solutions will ensure the sustainability of the environment for future generations. The present paper presents the highlighting of the ways in which the tourist reception units, especially the hotels, can implement in their activity aspects regarding the reduction of pollution and the benefits generated by having the certification of "green hotel".*

## **7. The impact of thunderstorm on aeronautic activities**

**Author:** stud. Ruben Stelian HORVAT

**Scientific Advisor:** Prof. Sorin CHEVAL, PhD

**Institution:** "Henri Coanda" Air Force Academy, Braşov

**Abstract:** *This article is meant to provide you with the way in which the clouds are formed and the influence of the stormes on the aeronautical activity. The beginning of this paper represents the necessity of an instable stratification produced by humidity, instability, temperature and convective movement of the air, all of these being responsible for the occurence and development of this phenomenon. This subject follows an analysis of the actual nature of the discussed phenomenon, taking into consideration the facts that determine the Cb clouds: "thermal, orographic, frontal", but also the phases of development of this type of clouds. The cloudy structure, the phases of stormy clouds and the phenomena related to them are considered a big problem when talking about the aeronautical activity. In this way, the second part of this article presents an analysis of the aviation events (incidents and accidents), which were mainly caused by clouds and the phenomena associated with them.*

## **8. Applications of Mathematics in Economics**

**Authors:** stud. Aida-Georgiana MARCU, stud. Gabriel POPA

**Scientific Advisor:** Assoc. Prof. Dan LASCU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *In this paper we will discuss about linear programming which is an important tool in optimization of maritime transport.*

## **9. Polymer Assemblies with Potential Use as Solid Electrolyte Membranes**

**Author:** stud. Mihail-Alexandru UDREA

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** Politehnica University of Bucharest

**Abstract:** *Polymer electrolyte membrane fuel cells (PEM) are the systems that convert chemical energy into electrical energy. The main advantage of using a solid polymer is that it eliminates the need for a sealed compartment, diminishing the effects of corrosion and the issues connected to it. Currently, the membranes such Nafion are used in the construction of fuel cells, which have the drawback of having reduced durability and high cost. The goal of this paper is to develop novel membrane assemblies based on synthetic/natural polymers doped with semiconductive sequences. For characterization were used: FT-IR spectroscopy, morphological analysis and electrochemical impedance spectroscopy. The UV-Vis investigation of these materials allows the presumptive formulation regarding the conduction mechanism. The results showed that at room temperature the highest ionic conductivity for novel assemblies (arround  $4.54 \cdot 10^{-8} \Omega^{-1} \text{ cm}^{-1}$ ) and the good mechanical strength, ductility which demonstrates the feasibility of their use for electrochemical systems.*

## **10. Climate Change: A Threat to Human Rights**

**Author:** stud. Nicoleta PETRAȘ

**Scientific Advisor:** Prof. Sorin CHEVAL, PhD

**Institution:** „Henri Coandă” Air Force Academy, Brașov

**Abstract:** *The main purpose of this paper is to investigate and illustrate one of the greatest environmental concerns of our time, respectively climate change and the impact it has on human rights. Often mistaken with global warming, climate change refers to long-term changes in the average weather patterns that define a certain place. Climate change causes can be natural or anthropogenic, but climate change is particularly unfolding as a result of greenhouse gases being added to our atmosphere. Rising temperatures, extreme weather, changes in precipitation, increasing occurrence of drought, sea level rise are consequences of climate change, which become more and more a threat to our right to life, health, food, water, housing, culture and development. Ultimately, this article shows the measures and efforts we need to take in order to be more prepared for climate changes expected for the next decades.*



### **11. Atmospheric Pollutants from Constanta Coastal Area**

**Authors:** stud. Andreea PETRIȘOR, stud. Alin MOCANU

**Scientific Advisors:** Lecturer Eng. Manuela Rossemary APETROAEI, PhD, Lecturer Eng, Rita AVRAM, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper is addressed to the air pollution that represents an extremely important problem due to its complexity. In the port cities, the air quality varies depending on the emission sources (natural sources, road traffic, shipping, industry, etc.), as well as, the long-distance transport of atmospheric pollutants. Through joint local, national and European actions, the environmental policies seek to identify viable solutions that will lead to reducing emissions of polluting substances and an increased improvement of air quality, especially in highly industrialized areas. The article presents the types of pollutants, how they are transported and transformed into the atmosphere, especially in the coastal area of the Black Sea. Particular emphasis will be given to their impact on climate, human health, and the marine ecosystem. The types of pollutants targeted in our study are sulphur dioxide (SO<sub>2</sub>), nitrogen oxides (NO<sub>x</sub> / NO / NO<sub>2</sub>) and ozone (O<sub>3</sub>).*

### **12. Human Errors in Aviation**

**Author:** stud. Roberto-Marian BUTIȘANU

**Scientific Advisor:** Lecturer Eduard-Ionuț MIHAI, PhD

**Institution:** “Henri Coanda” Air Force Academy, Brașov

**Abstract:** *The primary purpose of this article is to examine the personnel providing Operational Air Traffic (OAT) services and General Air Traffic (GAT) services in order to highlight the main factors that determine air accidents and incidents all around the world, even if it's well known the fact that aviation is the safest mode of transport nowadays. The article starts with a review some of the worst accidents ever recorded caused by human errors. I have researched a small number of them and concluded that human nature could be easily mistaken by the fallible systems the aircrafts are equipped with, not only by their complexity, but also by being an auxiliary support for the pilots as in modern times, the majority of the planes being systems governed by automation.*

### **13. Novel Potentially Superconductive Polymer Assemblies**

**Author:** stud. Cristian-Alexandru TOADER

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** Politehnica University of Bucharest

**Abstract:** *Thiophene, pyrrole and aniline have a great importance in the new field of conductive polymer science, especially due to their ability to*

*copolymerize by redox initiators. These copolymers have better properties comparing to their polymer counterpart. The aim of this paper is to develop a novel polymeric material comprised of a wide available graft polymer, an unsaturated polymer with the capacity to encase the conductive copolymer and different combinations of the aforementioned conductive polymers. With this recipe we want to develop new applications for conductive polymers, while keeping in mind to upgrade their already known uses (i.e. sensors, OLEDs, etc.). For characterization we used FT-IR spectroscopy, morphological analysis. The UV-Vis investigation of these materials allows the presumptive formulation regarding the conduction mechanism, while cyclic voltammetry (CV) allows us to monitorize the evolution of the redox system. The results show a conductivity increase with the amount of conductive polymers in the cage and it increases with the increase of comonomers.*

#### **14. Preliminary Investigation in Synthesis and Characterization of Epoxy Network Nanostructures**

**Author:** stud. Ionuț Cătălin VINTILĂ

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** Politehnica University of Bucharest

**Abstract:** *Nowadays, the researches in the field of polymer chemistry are targeted approaching towards new eco-friendly route to develop polymers. Such as, water-based coatings have become more widely used because they are environment friendly and offer easy clean up also their properties and application performance characteristics have been improved. A particular interest it is been paying heed to epoxy resins networks, which have subsequent excellent properties as: heat resistance, high strength, good corrosion resistance and good adhesion, but, unfortunately, they have poor or low fracture energy, high shrinkage, and show brittle behaviour. The aim of this work is to examine the feasibility of epoxy- acrylic emulsion to correct the epoxy disadvantages if this hybrid system could offer the advantages of epoxy properties in a waterbased acrylic coating, carrying on local thermal transitions, only arise within highly cross-linked resins; lightly cross-linked specimens are found to be homogeneous. We monitorize de process evolution by FT-IR; DSC and TGA-MS techniques.*

#### **15. Compositionally Induced Versatile Behaviour in Designing NLO Devices: Solvatochromic Study**

**Authors:** stud. Vlad TARPA, stud. Annabelle Timea RĂU, stud. Alexandra VASILE

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** Politehnica University of Bucharest

**Abstract:** *The polymer materials with high nonlinear optical susceptibilities (ONL) still continue to catch the research world attention due to the specialized applications: data storage and transmission, imaging devices, etc.. The challenge in nonlinear optical chromophores design is to achieve simultaneously an acceptable nonlinearity, transparency and thermal stability. The aim of this paper is to develop the monomeric carbazole structures to improve the refractive indices along with other desirable properties. They will be the basis of the novel ONL polymeric architectures, because the polymers containing strong chromophore systems, based on azo groups coupled with aromatic heterocyclic rings, are well known for their large electro-optical responses. This kind of behaviour can be simply demonstrated by conducting a solvatochromic study. UV-Vis and fluorescence spectroscopy provides the data necessary for the assignment of photophysical properties. Excited-state dipole moments of molecules have been estimated from solvent-dependent Stokes shift data using a solvatochromic method based on a microscopic solvent polarity parameter.*

## **16. The Link between the Efficiency of Using a Time Management Application for Smartphone and the Proper Management of Study Time for the Military Medical Student**

**Author:** stud. Ana DOBRIN

**Scientific Advisor:** Assoc. Prof. Psih. Maria-Dorina PAȘCA, PhD

**Institution:** UMFST "G.E. Palade" Târgu Mureș

**Abstract:** *INTRODUCTION: The study aims to highlight the interdependence between the use of digital balance application for smartphone and the correct management of time in order to increase the efficiency and quality of the studying process.*

*OBJECTIVES: The most important aspects of this project were the behaviour changes of the participating students regarding the time spent on their mobile phone.*

*MATERIALS AND METHODS: Psychological methods were used for our investigation: conversation, explanation and questionnaire.*

*RESULTS: The questionnaire applied to military medical students from preclinical years was composed of two parts consisting of 8, respectively 7 items. These were completed at a difference of one month, during which the participants used the application mentioned above. There was an awareness of the actual hours spent on their phone but also of the areas of interest.*

*CONCLUSION: The study emphasizes the importance of using time management methods on the mobile phone. Awareness of the correct use of*

time by the military medical student leads to achievements on a professional level.

**Keys:** smartphone, application, time, student, military medicine

## **17. Chelating Polymers Architectures for Recovery Wastewaters Heavy Metal Ions**

**Authors:** stud. Maria MEMECICĂ, stud. Cătălina UȘURELU

**Scientific Advisors:** Assoc Prof. Eng. Ana-Maria ALBU, PhD, Prof. Eng. hab. Ileana Brândușa RĂU, PhD

**Institution:** POLITEHNICA University of Bucharest

**Abstract:** *Heavy metal pollution of the aquatic ecosystems has globally received tremendous significance due to its toxicity, abundance, persistence and subsequent accumulation, as a result of their solubility and mobility. The goal of our study is underline the behavior of specific polymeric systems under contact with the heavy metal ions such as nickel, copper, zinc and chromium (III). The study discusses changes in pH as well as the overall retention yield correlated with the structure of the polymer support used. In addition, the undoubted proof of restraint is provided by FT-IR spectroscopy, which highlights in addition to the specific vibrations of the skeleton and the new vibrational bands. The future trends regard the use of such membrane to ultrafiltration water and reusing the chelated polymer for special applications such: catalys or OLED insertion.*

## **18. Polymer Assemblies with Potential Use as Solid Electrolyte Membranes - Preliminar Study**

**Author:** stud. Mihail-Alexandru UDREA

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** POLITEHNICA University of Bucharest

**Abstract:** *Polymer electrolyte membrane fuel cells (PEMFC) are systems that convert chemical energy into electrical energy. Due to their high conversion efficiency and lack of a sealed compartment, which is generally associated with corrosion and leakage issues, they can be used as an environmentally friendly energy source. The polymer electrolyte membrane is one of the main components of an efficient PEMFC. In our study we propose a technique for the manufacture of novel membrane polymer assemblies. The matrix used was polyvinyl alcohol, the structuring agent acrylic/methacrylic acid and the dopant, generated in situ by oxidative polymerization, was polyaniline/polypyrrole. For the compositional and structural characterization of the obtained membranes we used spectroscopic techniques (FT-IR, UV-Vis) thermal and morphological analysis (TGA-MS; SEM). In addition, the evaluation of the contact angle*

*allowed the estimation of the wetting degree, completed by the study of the swelling degree.*

## **19. Electroactive Polymer Architectures**

**Authors:** stud. Annabelle-Timea RĂU, stud. Vlad-Alexandru CRÎNGAȘU, stud. Cristian-Alexandru TOADER

**Scientific Advisor:** Assoc Prof. Eng. Ana-Maria ALBU, PhD

**Institution:** POLITEHNICA University of Bucharest

**Abstract:** *Thiophene, pyrrole and aniline are fundamental raw materials for making the novel conductive / superconductive architectures. A peculiarity of these fundamental monomers, for the mentioned application, is their ability to copolymerize under redox initiators action. The paper aims, as a first objective, the use of a grafted copolymer, widespread, as a matrix for incorporating conductive sequences in different combinations (simple pyrrole, simple thiophene, thiophene-co-pyrrole). The second objective, considered by us major for the proposed purpose, is the qualitative-quantitative evaluation of matrix-conductive dopant interactions, in order to optimize the composition-property relationship, by updating the particularities of selected dopants in already known applications (ie sensors, OLED- etc.). FT-IR spectroscopy, although qualitative, allowed us to demonstrate the material realization. In addition, the study of radiative absorption by UV-Vis spectroscopy allows us a presumptive formulation of the conduction mechanism, which will be determined by morphological analysis, experimental conduction evaluations and cyclic voltammetry. In addition, completing the characterization of the material required swelling studies and contact angle evaluations, which may provide the first behaviours under conventional conditions of use.*

## **20. Loading Structures Calculation Methods**

**Author:** stud. Valentin AVRAM

**Scientific Advisor:** Lecturer Eng. Paul VASILIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The presentation is an application of matriceal methods calculation for loading structures calculation and for later computer software design. This is an application in material resistance that shall become an important instrument for any kind of structure and a relevant design tool.*

## **21. Relation of Load-Bearing Structures to Global and Local Reference Systems - Calculation Methods**

**Author:** stud. Valentin AVRAM

**Scientific Advisor:** Lecturer Eng. Paul VASILIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The reporting of the load-bearing structures is done both to the general system of coordinate axes - the global system and to its own reference system, namely the local system of coordinate axes, respecting the rules that are challenged to these reference systems.*

## VIII. SECTION: FOREIGN LANGUAGES

### Section Committee:

#### Chairman:

Assoc. Prof. Delia LUNGU, PhD

#### Members:

Assoc. Prof. Alina BALAGIU, PhD

Lecturer Laura CIZER, PhD

**Conference Room:** Lecture Room

### 1. Superheroes

**Authors:** stud. Alexandru DRAGOMIR, stud. Andrei TĂNASE, stud. Cosmin MIRCEA

**Scientific Advisor:** Assistant Professor Alina NEGOESCU, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu

**Abstract:** *A superhero is a heroic character, typically possessing supernatural or superhuman powers, including many traits as courageousness, a great sense of responsibility, fighting spirit and mental stability that is dedicated to fighting the evil of their universe, protecting the public, and battling super-villains. Many superheroes are faced with different challenges like losing their loved ones and their people whom they must protect with any cost. This type of situation was experienced by the young Bruce Wayne, known as Batman, when he has lost his parents. Other superheroes, like Superman and Wonder Woman, were inspired from mythological times. We believe that soldiers who serve their country every day can be categorized as real life superheroes. They are heroes due to the fact that they sacrifice for noble purposes and are brave in facing the danger. Soldiers will fight for a cause that helps others, not themselves.*

### 2. What I Can Not See, I do not Fear. Climate Change-an Invisible Ticking Bomb

**Author:** stud. Andreea-Alina PETRIȘOR

**Scientific Advisor:** Lecturer Camelia ALIBEC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Our planet is slowly dying, our people slowly fading. The rich tell us it is a lie, but science proves us it is happening. There is no denying; climate change is real: weather patterns more extreme, sea levels rising fast. And yet, the change is slow. The fundamental cause of this problem is largely invisible to most of us. The increasing concentration of CO2 in the*

*atmosphere has not been in three million years like it has been for the last hundred and fifty years, most likely since the beginning of the Industrial Revolution. We can not stop what the earth is doing, but we can control our actions and take our foot off the speed pedal to give the earth a chance to heal itself. There is a saying that aviators have "Two things are of no use to you as a pilot: altitude above you and runway behind you". There really is no "Planet B".*

### **3. First Discoverers of America – the Vikings**

**Authors:** stud. Victor Adrian CIPLEU, stud. Gheorghe Matei HENDEA

**Scientific Advisor:** Assist. Profesor Brândușa Oana NICULESCU, PhD

**Institution:** "Nicolae Balcescu" Land Forces Academy of Sibiu

**Abstract:** *The discovery of America has been an argued and controversial issue discussed by historians nowadays. Today we call it America and most of us if not all, know Christopher Columbus for discovering this land. But was it really discovered by Columbus for the first time? Could there be any undocumented records about earlier encounters? A story tells that about half a millennium before Columbus "discovered" America, a group of Vikings might have been the first Europeans to have ever set foot on the American soil. This paper aims to present some facts about the Vikings' arrival in America, how they found the new continent and the reasons they left that land. Furthermore, the paper reveals some facts about the Viking sailor Leif Eriksson who stumbled on the new land far to the west, which he called Vinland the Good.*

### **4. Subliminal Messages**

**Author:** stud. Claudiu-Dorin Calin

**Scientific Advisor:** Lecturer Ramona HARSAN, PhD.

**Institution:** "Henri Coandă" Air Force Academy, Braşov

**Abstract:** *Nowadays, there are a lot of ways to control masses of people. The most common one is mass-media. A technique most often used is subliminal messages, the best way to convince people to do what you want or to buy something. Thus, I will firstly discuss the definition of the key word: "subliminal message" and where it comes from. Secondly, I will classify these subliminal messages into three categories: subvisual messages, subaudible messages and backmasking. I will also showcase some examples we come across in our everyday lives through various media discourses, such as cartoons, music and ads. Finally, I will answer the most frequent question related to this subject: "Do subliminal messages work?". I will also provide a conclusion which is meant to raise awareness about this method of manipulation.*



## **5. Rebirth of a Legend**

**Author:** stud. Alexandru Gabriel COJOCARU

**Scientific Advisor:** Lecturer Camelia ALIBEC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *I have always been told the fact that things that go extinct can not ever be brought back to life. The purpose of my graphic art & digital architecture is to prove that everything can be resurrected as long as you want to do so. As for my project I have decided to reconstruct one of the greatest ships of the 20th century.*

## **6. The American Dream**

**Authors:** stud. Cosmin GRIGORIȚĂ, stud. Darius VALCAN

**Scientific Advisor:** Assistant Professor Alina NEGOESCU, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu

**Abstract:** *The American Dream is the belief that anyone, regardless of where they were born or what class they belong to, can attain their own version of success in a society where upward mobility is possible for everyone. The American Dream is achieved through sacrifice, risk-taking, and hard work, rather than by chance. In this presentation we are going to discuss the importance of The American Dream in the life of the American individual, its influence in the media, and the current general state. In the end, we mention some personalities that achieved their dreams, and inspired millions to do the same.*

## **7. "The Art of War", Sun Tzu, our Contemporary**

**Authors:** stud. Maria Cătălina DAN, stud. Ana Cristina GEICA

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *"The Art of War" by Sun Tzu was a treatise for the purpose of instructing military officers, but nowadays it is used in many other areas such as: militaries and business schools, politics or even in daily life. Firstly, we will show several details about Sun Tzu's life and about his book "The Art of War". Secondly, we will discuss the reason why we have chosen this topic and some chapters that better reveal the similarities and applicability between now and then. Finally, we will come up with some examples to be applied in your life that the book teaches you.*

## **8. The Great Depression – America’s Biggest Economic Collapse**

**Authors:** stud. Diana-Ecaterina DASCHIEVICI, stud. Sebastian FRUNZA

**Scientific Advisor:** Assist. prof. Brandusa-Oana NICULESCU, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu

**Abstract:** *After the end of World War I America has emerged as one of the victors, entering a period of economic prosperity and cultural change, known as the Roaring Twenties: men came back from war, women employment raised, meaning that more people had a salary to spend. As things seemed marvelous, even the banks started to give out loans, so Americans could buy the latest and greatest gadgets, cars and even invest in stock market. Overall, things were blooming in America and the country experienced the flapper culture, prohibition and the rise of jazz music. Stocks rising fast led to economic collapse, but the investors were ignoring these problems, buying and gambling on the markets. October 24th 1929, day called “Black Thursday”, is the theorized start of The “Great Depression”, a decade of lost opportunities for economic growth. This paper takes a look at the past so we could all learn a lesson.*

## **9. Challenger Deep, Underwater Mystery**

**Author:** stud. Dragos-Nicolae SIMION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATES, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Ocean is the lifeblood of Earth, covering more than 70 percent of our planet’s surface. Throughout history, the ocean has been a vital source of sustenance, transport, commerce, growth, and inspiration. Despite the ocean’s great impact and importance on human society, more than 80 percent of this vast, underwater realm remains unmapped, unobserved and unexplored. The main purpose of this paper is to spread the knowledge about one of the many mysterious, almost alien-like underwater locations, the Mariana Trench, with a specific focus on film-maker James Cameron’s expedition in the deepest point of the trench, the Challenger Deep.*

## **10. “Nelson’s Eye” – a Symbol of Past, Present and Future Navy**

**Authors:** stud. Bianca DUMITRACHE, stud. Vlad SOFRONE

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The uniform talks about culture, history and carries with it a true story, a history, a code of laws, a set of behaviors. Each state preserves in military uniforms the defining elements of its society. Firstly, this paper will present a short history about the evolution of uniforms. Then, it will focus on navy uniforms. A brief comparison between American Navy uniforms and Romanian Navy uniforms will also be made. Nevertheless, the central idea of this paper is the symbolism of Nelson’s eye as a meaningful sign for the navy officers, including a short history of its life and his commanding*

*abilities, actions and his impact on the naval forces, and other tokens representative for the officers and navy in general. In the end, the presentation will highlight the importance of symbolism in the Romanian Navy as a substantial element that defines us as future officers.*

### **11. Abraham Lincoln - The Man Who Changed it All**

**Authors:** stud. Alexandru FLOREA, stud. Vlad-Mihai ȚEȚU

**Scientific Advisor:** Assoc. Prof. Brândușa-Oana NICULESCU, PhD.

**Institution:** “Nicolae Bălcescu” Land Forces Academy of Sibiu

**Abstract:** *From living in a log cabin with a poor family to being one of the most loved American Presidents – that is the summary of Abraham Lincoln's life. Born in 1809, he became the 16<sup>th</sup> American President in 1861. He is one of the greatest heroes in the United States due to his experience with the Civil War (United States' most terrible war and the highest level of moral and political crisis of its history) after which Lincoln preserved the Union and abolished slavery. Despite the fact that he was a loved person, his life ended tragically. In April 1865, after attending a speech in which he promoted voting rights for blacks, he was assassinated while watching a theatre play by a Confederate spy from Maryland, named John Wilkes Booth. This paper aims to reveal the achievements of a great man in the American history, mainly some important facts about his life, the rise of his career and his desire for equal chances for all people.*

### **12. Is Obesity Taking Command Over the Navy?**

**Author:** stud. Gabriel-Andrei RUSU

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This paper is based on a report of the 2019 August edition of the military's Medical Surveillance Monthly Report which revealed that obesity rates are up across the services. However, what branch takes the cake as the US military's fattest? This paper attempts to find answers to the above question. First, such key terms as "obese" and "overweight" will be defined. Next, the causes and implications of rising obesity for the US Navy will be pointed out together with solutions to this weight problem. In the end, this paper will report on the findings of a study on the physical condition of the midshipmen at the Naval Academy of Constanta.*

### **13. Who said it? Presidential speeches About War**

**Author:** stud. Ana-Cristina GEICĂ

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Presidential speeches are one the most defining aspects for every president of the USA as they reveal the challenges, hopes, dreams and temperature of the nation. Even in the social media age, the spoken words are more effective than every post on Instagram, Twitter or Facebook. A speech delivered from the White House by the President may reflect important societal topics, perspective and position in the near future. Therefore, this paper will analyze the features of several presidential speeches in the US and will focus on a special comparison between two past presidents: Barack Obama and George W. Bush.*

**Key words:** *speech, president*

#### **14. Benefits and Risks Related to Social Networking in Today's Society**

**Authors:** stud. George-Daniel NISTOR, stud. Cristian-Marius NISTOR

**Scientific Advisor:** Ecaterina DRĂGHICI

**Institution:** "Mihai Viteazul" National Intelligence Academy, București

**Abstract:** *Social media offer companies, people and governments a platform to communicate and to share their views and ideas. So, for the last 10 years, social media have become the most important intermediary for interaction between all types of social agents. The reason for the emergence of social media is their characteristics: openness, participation and sharing. However, despite the blessings that social media offer to the world, there still exist lots of risks related tot hem. Thus, the purpose of this paper is to discover the benefits of the use of social media, to investigate the risks related to the use of social media and to find techniques to mitigate these risks.*

#### **15. Modern Slavery in the 21<sup>st</sup> Century in USA**

**Authors:** stud. Alexandru GHERASIM, stud. Larissa Mihaela SION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATES, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The present paper presents different forms of modern slavery in the USA: forced labour up to forced marriage and sexual exploitation. The paper also analyzes the categories of people afected by these new ways of slavery and gives some advice about how to avoid it, not just for the USA, but for any other country touched by this scourge.*

#### **16. Thrilling Moments in Formula One History**

**Author:** stud. Cristina-Aida GUIU

**Scientific Advisor:** Lecturer Camelia ALIBEC, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Formula 1 is one of the most popular sports in the world after the*

*Olympic Games and The Football World Cup, the other two being held once in four years. All of the 21 races in a season are live streamed in over 200 countries. It is also known as a dangerous sport as dozens of people died in race accidents including drivers, marshals and even spectators. From the death of three times world champion Ayrton Senna to the race with only six cars at the start and from Niki Lauda's amazing comeback to the controversial end of the 2008 Singapore Grand Prix formula one's history is filled with tragedies, controversies and moments that shocked the fans. Some of the names that should be remembered are: Peter Collins (1958), Wolfgang von Trips (1961), Jochen Rindt (1970), Ronnie Peterson (1978), Gilles Villeneuve (1982), Ayrton Senna (1994) and Jules Bianchi (2015). As some might say Formula one is a total drama and never fails to entertain its fans.*

### **17. Hidden in Plain Sight**

**Authors:** stud. Alexandru ION, stud. Larissa Mihaela SION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATES, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *As the title shows, the present paperwork is a kind of presentation of that part of the worldwide web, called the dark web. We intended to show you how a normal person is able to reach such a place, what this place is about: from auctions of living organs, selling or buying all kinds of weapons, even tanks, up to paying to see people mutilating other people or themselves. The dark web is the place where you can actually sell and buy anything, anyone and any how with outbeing asked a single question. The only rule governing this place is "ask no question and everything will go as smooth as butter".*

### **18. Equator Crossing Ceremony: The Real Test of a Seafarer**

**Authors:** stud. Irina GHERHES, stud. Iulia LUP

**Scientific Advisor:** Lecturer, Laura CIZER, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Maritime traditions are as varied as the human experience of the sea. Some traditions are tangible, many are intangible, but all express the spirit of our interactions with the sea over the time. The Equator Crossing Ceremony is one of the long standing traditions that commemorate a sailor's first time crossing the Equator. Firstly, we will present you the reason why we have chosen this topic and the definitions of the key terms. Secondly, we will give you some information about what is actually happening through this ritual, like the shaving of the seamen, drinking the*

*deadly mixture, random painting of all over their bodies etc. Finally, we will reveal the prize of this whole ritual and our conclusions about it.*

### **19. Self-Medication**

**Author:** stud. Laurențiu BĂLAN

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In my presentation I will adress self-medication as a very common practice and a major public health problem worldwide.*

### **20. War Photographers – Inspiring Stories**

**Authors:** stud. Loredana-Raluca MIHAI, stud. Florentina IVAN

**Scientific Advisor:** Assistant Lecturer Corina SANDIUC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paper aims at presenting the brief history of war captured in frames and then transposed into weapons that pull the trigger of emotions. These powerful figures are not just men, but also strong women who had the courage to step into the field bare-handed using their camera both as a weapon and a memory collector. Thus, they become history tellers because every single photography has its own story with a huge impact on human eye. Details regarding the life story of some of the well-known photographers, and also their pictures will be related, squeezing all of their charge and impact, taking a short journey back in time.*

### **21. Mount Rushmore - A patch of History**

**Authors:** stud. Mihai IUREA, stud. Andrei-Teodor POTRA

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

**Institution:** “Nicolae Bălcescu” Land Forces Academy of Sibiu

**Abstract:** *Mount Rushmore is a granite massif situated next to Keystone city, South Dakota. It is the most representative sculpture in the United States and one of the most known sculptures in the whole world. It represents the first 150 year period of the US's history. The busts of the most important American presidents: George Washington, Thomas Jefferson, Abraham Lincoln and Theodore Roosevelt can be seen on this impressive mount at a height of 1745m. For a lot of people this granite sculpture represents democracy and freedom, but for others, like American Indians, it has a different message. The craved faces in the Black Hills hold many, many mysteries. There have been plenty of myths about this historical monument and there will be to be many more from now on. This paper aims to present some interesting facts about this wonderful American project.*

## **22. Cruise Ships**

**Authors:** stud. Bogdan MIHULCĂ, stud Ionuț-Cosmin ROBU

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *In this project i'm going to present informations about cruise ships. I am going to talk about what is the meaning of a cruise ship, present the largest cruise ship in the world, events that are happening on a regular vacation on a cruise ship, most popular routes that cruise ships sails, and some on-board facilities.*

## **23. Military Training between Excellence and Hazing**

**Authors:** stud. Adrian Constantin MURGU, stud. Daniel Constantin IVAN

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The military training is the instruction that every soldier has to perform in order to enhance their military skills and their capacity to carry out specific military functions and tasks. This paper will present the fundamentals of the military training, where you can start your career in US Navy and the objectives of this training. This paper will also define the concept of 'hazing' by pointing out several practices of hazing in the Marine Corps, with a particular focus on a recent case that ended tragically. In the end, this paper will show that tough training must not include hazing acts as this will not bring excellence.*

## **24. The Story Behind the Legend**

**Author:** stud Larissa Mihaela SION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The paperwork analyzes some unknown aspects of the Jewish culture starting from the sacred book Torah and the Tanakh up to the rituals and traditions preserved to the present day. The old teachings from Torah and the later HEDA writings are brought to a different perspective than the general one, as it is the view from inside the community through the eyes of someone who has a certain amount of power over the people of Jerusalem.*

## **25. Life Undercover: The Best Spies in History**

**Author:** stud. Cosmina STALIDI

**Scientific Advisor:**

**Institution:** POLITEHNICA University Bucharest

**Abstract:** *This presentation aims to reveal the story behind the scenes of those people who made history while serving or betraying their nations. It*

*starts with story of the great spy Kim Philby and continues with the fantastic story of the Magnificent Five. Moreover, this presentation brings into the spotlight the mysterious role of actress Olga Chekhova, reasons for choosing such a career, the benefits but also the challenges and privations. Also, during this presentation, we will “meet” others like them and the adventures they lived.*

*We conclude by revealing the beauty of secret life with all its ups and downs and the courage of the people who change the course of history.*

## **26. Brexit – Timeline and Consequences**

**Author:** stud. Gabriel-Marian TEGA

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATES, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The present paper aims to explain in a detailed way the withdrawal of the United Kingdom from the European Union, one of the most present subjects of our days, and the consequences this event might have on the future of the European Union. The paper is based on the main events that led to the decision of Brexit and, eventually, to the no-deal Brexit, with a focus on different economic and social scenarios for both parties.*

## **27. Speeches That Have Changed the World**

**Author:** stud. Alev BURMAMBET

**Scientific Advisor:** Senior Lecturer Camelia ALIBEC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *If I have learned anything in my time travelling around the world, it is the power of hope. From declarations of war to demands for peace, and from cries of freedom to shouts of righteous anger, the stirring anthology is a celebration of speeches that have shaped history. A great speech does not just capture the truth of its era, it also captures a big lie. A lot of speeches can inspire entire nations to do better and be better, but at the end of the day, every great speech is just a word. The single thing every one of us has in common is being human. We all come to this world in a body. We want what everyone wants: to dream and to achieve. Everytime, everything we do, we prepare for a lifetime.*

## **28. Why the World Needs Superheroes**

**Authors:** stud. Alexandru DRAGOMIR, stud. Cosmin MIRCEA, stud. Andrei TĂNASE

**Scientific Advisor:** Assistant Professor Alina NEGOESCU, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu



**Abstract:** *A superhero is a heroic character, typically possessing supernatural or superhuman powers, including many traits as courageousness, a great sense of responsibility, fighting spirit and mental stability that is dedicated to fighting the evil of their universe, protecting the public, and battling super-villains. Superheroes are a reminder of humanity's best potential, they inspire us to stand up for our comrades, and people in need, to take responsibility for our actions and last but not least to have hope and courage. Therefore one of the most important powers of a superhero is to inspire and motivate us. Superheroes give us the motivation to rise above the injustice that is happening in the world. Thus, we look beyond the supernatural aspects to the essence of what the heroes stand for: hope for peace, hope for a better city, and hope for the world.*

## **29. Solar Energy the Energy of the Future**

**Author:** stud. Akkan ALI

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Solar power is energy from the sun that is converted into thermal or electrical energy. Solar energy is the cleanest and most abundant renewable energy source available, and the U.S has some of the richest solar resources in the world. Solar technologies can harness this energy for a variety of uses, including generating electricity, providing light or a comfortable interior environment, and heating water for domestic, commercial, or industrial use.*

## **30. Marine Grounding – A Brief Introduction**

**Authors:** stud. Dan-Alexandru BIBILOIU, stud. Cristian-Adrian DINU

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *In the field of electrical engineering, "grounding" is a term used to describe the process of connecting house appliances, electrical equipment or other devices to the earth through a long copper stake or a metal water pipe, thus protecting people from shocks or even life threatening wiring faults. The concept of grounding in a common household is easy enough to understand as it involves some basic knowledge of how electricity behaves in a closed system, but when it comes down to marine grounding, the problem becomes much more complex. The first thought that comes to mind would be to simply make the ground connection to the ship's metal hull or the propellers, but this would give rise to a whole host of other issues that will have to be taken in consideration. With this in mind, our presentation will further discuss the different requirements of each of the mechanisms*

*that work together to create a complete and functional marine grounding system.*

### **31. The Egyptian Pyramids**

**Authors:** stud. Florentin-Iulian BICĂ, stud. Mario-Robert RIZEA, stud. George-Cristian ZELCA

**Scientific Advisor:** Mrs. Lecturer Edith-Hilde KAITER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The Egyptian pyramids are one of the defining architectural achievements of the ancient world. As an incredible feat of engineering, Egyptologists are still discovering more about these structures with each passing year.*

### **32. The Influence of Global Pandemic on Seafarers**

**Author:** stud. Claudiu-Ionut ILIE

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Being an international industry, the maritime sector is one of the most vulnerable when it comes to a pandemic outbreak such as COVID-19. With a large number of ships entering and exiting ports all around the world every day, the risk of transmitting or catching the virus is significantly increased. In that matter strict rules have been adopted in order to preserve the well-being of seafarers and prevent the widespread of the newly discovered virus. The purpose of this paper is to show how the maritime industry adapted to the global pandemic issue by implementing strict regulations about the liberties of ships' crews regarding special instructions to follow in different situations involving human interactions such as crew changes or embarking and disembarking of personnel as well as discuss the dangers these mandatory directives can have on the mental and physical health of seafarers.*

### **33. Generators**

**Authors:** stud. David VASILESCU, stud. Filip-Ioan BASCEANU-

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *This project follows the theoretical foundations underlying electric generators; the history of electric generators and their evolution in today's generators. We have highlighted methods by which electricity can be generated. In this project we talked about generators that can help people in various activities. We also presented the method by which human can*

*generate electricity. This project lists the types of current used in generators, these being direct current and alternating current.*

#### **34. Short Circuits**

**Authors:** stud. Denis MIRZAC, stud. Dan-Sebastian ROTARU

**Scientific Advisor:** Assoc. Prof. Alina BALAGIU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *Short circuit project that we prepared consist in a general interactive and animated presentation about the types, causes, prevention, practical applications of this electrical hazard and also a slide about short circuits on ships.*

#### **35. The Great Depression – America's Biggest Economic Collapse**

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

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

**Institution:** "Nicolae Bălcescu" Land Forces Academy of Sibiu

**Abstract:** *After the end of World War I America has emerged as one of the victors, entering a period of economic prosperity and cultural change, known as the Roaring Twenties: men came back from war, women employment raised, meaning that more people had a salary to spend. As things seemed marvelous, even the banks started to give out loans, so Americans could buy the latest and greatest gadgets, cars and even invest in stock market. Overall, things were blooming in America and the country experienced the flapper culture, prohibition and the rise of jazz music. Stocks rising fast led to economic collapse, but the investors were ignoring these problems, buying and gambling on the markets. October 24th 1929, day called "Black Thursday", is the theorized start of The "Great Depression", a decade of lost opportunities for economic growth. This paper takes a look at the past so we could all learn a lesson.*

#### **36. Piracy in Gulf of Aden**

**Author:** stud. Paul DOBRILĂ

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *The present paper presents the piracy from past till modern days and how the pirates managed to survive up to these modern days in Gulf of Aden. The paper also present what is driving them to take hostages, steal cargo and other equipment from aboard ships with complete knowledge of how much they risk their lives.*

### **37. LNG as Ship Fuel**

**Authors:** stud. Cristian-Nicolae DUDUMAN, stud. Eduard DUMITRU

**Scientific Advisor:** Associate Professor Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The trend in power generation of shifting away from coal to reduce the adverse effects of CO<sub>2</sub> and other gas emissions on the environment has made steep demand for the supply of natural gas. Because of these developments, natural gas is now the fastest growing energy source and in the last five years, the growth rate in LNG production has been about 60% with the current annual output now touching 260 million tons.*

### **38. The History of Ship Propulsion**

**Authors:** stud. Florin BURDUSANU, stud. Ștefan DEACU

**Scientific Advisor:** Associate Professor Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Even 40,000 years before Christ, man built boats and paddled through the waters with them. And, they paddled and paddled for 35,000 years until a major discovery revolutionised ship propulsion for the first time by inventing the OAR! Around 1900, the first steam turbines were built on ships. While having a larger output, they required much less space than steam engines, but the old steam boilers remained on board, and they were still firing manually with coal. The diesel engine has many advantages. It has displaced every other type of propulsion in shipping. Today, approx. 90% of all merchant vessels are propelled by diesel engines, world-wide. The ship propulsion must be reliable and, above all, economical. Around 1910, one began to build diesel motors into ships as the main source of propulsion. The entire diesel engine took up approx. as much as three boilers and, thereby, replaced a steam propulsion system, which perhaps was comprised of 2 turbines, 15 boilers and countless auxiliary units and, thereby, required 30% less fuel.*

### **39. The American Dream**

**Authors:** stud. Cosmin-Andrei GRIGORIȚĂ, stud. Darius-Florian VALCAN

**Scientific Advisor:** Assistant Professor Alina NEGOESCU, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu

**Abstract:** *The American Dream is the belief that anyone, regardless of where they were born or what class they belong to, can attain their own version of success in a society where upward mobility is possible for everyone. The American Dream is achieved through sacrifice, risk-taking, and hard work, rather than by chance. In this presentation we are going to*

*discuss the importance of the American Dream in the life of the American individual, its influence in the media, and the current general state. In the end, we mention some personalities that achieved their dreams, and inspired millions to do the same.*

#### **40. Ship History**

**Authors:** stud. Hakan BAIRLI, stud. Andrei DARGATE

**Scientific Advisor:** Associate Professor Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *At the next power point we present the history of the ships.*

*The first ships were developed by the Austronesian peoples. The Egyptians in the years 3000 BC, learned how to assemble from planks and build sailing boats. Ships supported exploration, trade, war, migration, colonization and science. The ship was used to discover a large continent and to travel around the world. The ship is used to cross the oceans from one end to the other carrying goods or passengers or in support of specialization and fishing missions. The ship generally differs from a boat in terms of size, shape and load capacity. Shipping is responsible for most of the world's trade. As of 2016, there were 49,000 merchant ships totaling almost 1.8 billion tons in weight.*

#### **41. The Heroism of Winston Churchill**

**Author:** stud. Alice HOLHOS

**Scientific Advisor:** Assoc.prof. Lica Gabriela MIHAILA, PhD

**Institution:** “Nicolae Balcescu” Land Forces Academy of Sibiu

**Abstract:** *Our presentation focuses on how Winston Churchill, the Prime Minister of the United Kingdom between 1940-1945 and 1951-1955, managed not only to motivate the British people by means of his eloquent speeches to fight against Nazi Germany during the Second World War, but he also proved to be “the epitome of resiliency of the human spirit in its darkest hours”. [https://www.msystechnologies.com/blog/beyond-covid-19-six-things-that-will-be-the-new-normal]*

#### **42. From the Slimey Pollywogs to Trusty Shell backs: The Equator Crossing Ceremony**

**Authors:** stud. Irina GHERHEȘ, stud. Iulia-Diana LUP

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Over the time, the sailors have invented customs and traditions to entertain themselves at sea. One of these is the long-standing tradition of initiation that commemorates a sailor's first time crossing the Equator,*

named "The Equator Crossing Ceremony". The authors of this paper have chosen this topic to show people how fascinating life at sea can be. Firstly, we will define the main terms: "ceremony", "Equator", "Pollywog" and "Shellback". Secondly, we will describe in detail the series of actions that are performed within this particular ceremony. Finally, we will point out the importance of this ceremony to a sailor, since not everyone have this rare opportunity to pass through the Equator. On a personal note, we do hope to be part of such an event soon.

#### **43. John Gordon Brown- Hero or Villain**

**Authors:** stud. Mihai-Constantin RUS, stud. Răzvan-Pavel MIHĂESCU

**Scientific Advisor:** Assoc. prof. Gabriela MIHĂILĂ- LICĂ, PhD

**Institution:** The "Nicolae Bălcescu" Land Forces Academy of Sibiu

**Abstract:** *Our presentation focuses on the controversy surrounding John Brown Gordon, general in the Confederate States Army, who symbolises the model hero to Georgians, a military leader who displayed remarkable courage and resilience during the American Civil War, but who is also perceived by some historians as a politician who sided with the white oppressors during the emergence of the New South.*

#### **44. Passenger Ships**

**Author:** stud. Bogdan MIHULCĂ

**Scientific Advisor:**

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** *A passenger ship is a merchant ship whose primary function is to carry passengers on the sea. The category does not include cargo vessels which have accommodations for limited numbers of passengers, such as the ubiquitous twelve-passenger freighters once common on the seas in which the transport of passengers is secondary to the carriage of freight. The type does however include many classes of ships designed to transport substantial numbers of passengers as well as freight. Indeed, until recently virtually all ocean liners were able to transport mail, package freight and express, and other cargo in addition to passenger luggage, and were equipped with cargo holds and derricks, kingposts, or other cargo-handling gear for that purpose. Only in more recent ocean liners and in virtually all cruise ships has this cargo capacity been eliminated.*

#### **45. Electrical Transformer**

**Authors:** stud. George-Cosmin MITU, stud. George BOBARU

**Scientific Advisor:** Associate Professor Alina BALAGIU, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** A transformer is a passive electrical device that transfers electrical energy from one electrical circuit to another or multiple circuits. A varying current in any one coil of the transformer produces a varying magnetic flux. Transformers are most commonly used for increasing low AC voltages at high current or decreasing high AC voltages at low current in electric power applications. Transformers range in size from RF transformers less than a cubic centimeter in volume, to units weighing hundreds of tons used to interconnect the power grid. Since the invention of the first constant-potential transformer in 1885, transformers have become essential for the transmission, distribution, and utilization of alternating current electric power.

#### **46. Schnell, Faster...Porsche!**

**Authors:** stud. Eduard Cristian NEDELCU, stud. Robert Catalin DOMINTE

**Scientific Advisor:** Mrs. Lecturer Edith-Hilde KAITER, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** Porsche, the emblem which is known by everybody even from an early age, pampers its clients by means of comfort and high standards. The paper aims at presenting the evolution of Porsche car engines, a symbol of German quality and excellence appreciated worldwide.

#### **47. The Greatest Natural Disasters in the World**

**Authors:** stud. Gheorghe-Danut NEDELCU, Ionut MALEI

**Scientific Advisor:** Mrs. Lecturer Edith Kaiter, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** Natural disasters: A natural disaster is a major adverse event resulting from natural processes of the Earth; examples are floods, earthquakes, tsunamis, cyclones. The paper aims to briefly present the natural calamities from ancient times to the present.

**Keywords:** earthquake, tsunami, cyclone, flood.

#### **48. Theory of Ship Design**

**Author:** stud. Eduard-Daniel NEGRILA

**Scientific Advisor:** Lecturer Carmen ASTRATINEI, PhD

**Institution:** "Mircea cel Batran" Naval Academy, Constanta

**Abstract:** Ships are a vital element in the modern world. They still carry some 95 per cent of trade. In 1994 there were more than 80 000 ships each with a gross tonnage of 100 or more, representing a gross tonnage of over 450 million in totals. Although aircraft have displaced the transatlantic liners, ships still carry large numbers of people on pleasure cruises and on

*the multiplicity of ferries operating in all areas of the globe. Ships, and other marine structures, are needed to exploit the riches of the deep. Although one of the oldest forms of transport, ships, their equipment and their function, are subject to constant evolution. Changes are driven by changing patterns of world trade, by social pressures, by technological improvements in materials, construction techniques and control systems, and by pressure of economics. As an example, technology now provides the ability to build much larger, faster, ships and these are adopted to gain the economic advantages those features can confer.*

#### **49. The Domino Effect Of Global Warming**

**Authors:** stud NicoletaTANSAN, stud. Daniel Robert PASERE

**Scientific Advisor:** Assistant Lecturer Corina SANDIUC, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *Global warming represents a world-wide phenomenon with deep implications for present but also future generations. the combined land and ocean temperature has increased at an average rate of 0.07°C (0.13°F) per decade since 1880; however, the average rate of increase since 1981 (0.18°C / 0.32°F) is more than twice as great. Therefore, action needs to be taken. Unfortunately, there isn't just one source for the temperature increase: some studies promote a domino effect, where one source empowers another, leading to an intricate web of causes leading to the same outcome: a faster progress of the global warming. So, here we are, in the situation where we need to investigate all possible sources: greenhouse effect, glacier melting, forest fires and promote solutions for each and all of them, hoping to achieve a reverse domino effect.*

#### **50. Challenger Deep, Underwater Mystery**

**Author:** stud. Dragoș-Nicolae SIMION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The Ocean is the lifeblood of Earth, covering more than 70 percent of our planet's surface. Throughout history, the ocean has been a vital source of sustenance, transport, commerce, growth and inspiration. Despite the ocean's great impact and importance on human society, more than 80 percent of this vast, underwater realm remains unmapped, unobserved and unexplored. The main purpose of this paper is to spread the knowledge about one of the many mysterious, almost alien-like underwater locations, the Mariana Trench, with a specific focus on film-maker James Cameron's expedition in the deepest point of the trench, the Challenger Deep.*



### **51. Modern Slavery in the United States of America**

**Authors:** stud. Larissa Mihaela SION, stud. Alexandru GHERASIM

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The present paper presents different forms of modern slavery in the USA: forced labour up to forced marriage and sexual exploitation. The paper also analyzes the categories of people affected by these new ways of slavery and gives some advice about how to avoid it, not just for the USA, but for any other country touched by this scourge.*

### **52. The Truth behind the Dark Web**

**Authors:** stud. Larissa Mihaela SION, stud. Alexandru ION

**Scientific Advisor:** Lecturer Raluca-Aurora APOSTOL-MATEȘ, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *As the title shows, the present paperwork is a kind of presentation of that part of the world wide web, called the dark web. We intended to show you how a normal person is able to reach such a place, what this place is about: from auctions of living organs, selling or buying all kinds of weapons, even tanks, up to paying to see people mutilating other people or themselves. The dark web is the place where you can actually sell and buy anything, anyone and anyhow without being asked a single question. The only rule governing this place is "ask no question and everything will go as smooth as butter".*

### **53. Foreign Languages in the International Context**

**Author:** stud. Alexandra-Gabriela STAVRE

**Scientific Advisor:** Irina BAKHAYA

**Institution:** Police Academy “Alexandru Ioan Cuza”

**Abstract:** *In the contemporary period, the objective of every person is to evolve within the society he is a member of, to discover and understand the world. This can be achieved through foreign languages which are used not only in communication, but also as an instrument in obtaining information. Studying them offers the possibility to broaden the cultural horizon both at the level of each individual and at the level of institutions. Thus, cultural understanding becomes a necessity in order to ensure a good collaboration in international relations. This allows free transnational movement that can be mediated through plurilingualism. The knowledge of foreign languages intermediates cooperation between countries in various fields of activity, but also facilitates the establishment of common strategies in order to ensure a safety climate in the world. Thereby, the role of foreign languages*

is of major importance in fixing inter-human, intercultural and interstate relationships.

#### **54. Electric Vehicles**

**Authors:** stud. Domnica TOMOSOIU, stud. Alex CIMPEANU

**Scientific Advisor:** Associate Professor Alina BALAGIU, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** *The main purpose of this project is to take a closer look at the huge evolution of the electric cars, untill nowadays. In this respect, the beginnings and the evolution of the electric vehicles will be taken into consideration. We are going to discuss why early electric cars declined, the operations and the types of electric vehicles. We will take a closer look into the battery problems and the technical components of an electric car and, also, the electric vehicles nowadays. It is expected that this industry, of electric cars, will continue to develop, to reach the very new performances, to facilitate our needs, as much as it is possible.*

#### **55. First Discoverers of America, the Vikings**

**Authors:** stud. Victor CIPLEU, stud. Matei HENDEA

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

**Institution:** “Nicolae Balcescu” Land Forces Academy, Sibiu

**Abstract:** *Today we call it America and most of us if not all, know Cristofor Columb for discovering this land. But has it been really discovered by Columb for the first time? Could there be any undocumented records about earlier encounters? Rumor has it that about a thousand years ago a group of Vikings might have done just that. This is the story about a land previously known as Vinland, named by its discoverers, a group of about ninety men and women, lead by a man whose name was Leif Erikson and later called America upon its presumed second discovery. Where did they come from, how did they get there, what did they do upon their arrival and last but not least, why did they leave that land are the main points of what this paper aims to provide.*

#### **56. Burials at Sea**

**Author:** stud. Vlad Ionuț VÎRLAN

**Scientific Advisor:** Lecturer Laura CIZER, PhD

**Institution:** “Mircea cel Batran” Naval Academy, Constanta

**Abstract:** ***Burial at sea** is the disposal of human remains in the ocean, normally from a ship or boat. It is regularly performed by navies, but is also done by private citizens in many countries. Firstly, this paper will point out the definition of the key phrase: **burials at sea**. Secondly, it will present how*

*customizable is a **burial at sea** as it is determined by the **religion** and country of the deceased with examples that will highlight their variety. In addition, this paper will point out several **cases** when the event impacts on the **burial at sea ceremony**. In the end, this paper will conclude about the strong connection between the life of the person to be buried and the **burial** itself.*

**Keywords:** *burial, at sea, ceremony, cases, religion*