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**BOOK OF ABSTRACT**  
CONSTANȚA, 29 MARTIE 2018





**SECTION I**

***MECHANICAL ENGINEERING STUDENTS  
SESSION***

## **Proiectare și modelare 3D a unui kart cu acționare electrică 3D Design and Modeling of an Electric Kart**

Cristian LEFTER

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**Abstract** The work consists in the graphic design of a kart for medium size competitions, which will be fitted with electric engine 3D modeling of components, has been achieved after a physical model type Kf2, all parts being redesigned and Modeled after the shape and dimensions of the real. Assemble all the elements represents a complex stage of the project, because they require strict accuracy and correspondence in order not to appear errors when imposing the constraints. Watch keeping personnel will have dimensions in correspondence with the approved and will be fitted with an electric motor type HPM – 10 kW - High Power BLDC Motor, what will develop a power of 10 to 20 kW , reaching a maximum speed of 36 mph (60 km/h).

**Keywords:** *3D modeling, graphic design, electric engine, physical model.*

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## **Strength analysis of the offshore structures under fire action Analiza rezistenței structurilor offshore sub acțiunea focului**

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**Abstract** The scope of this document is to present the strength capability under fire action of a typical top side structure (lay down area structure) of FSO conversion. Where mechanical resistance in the case of fire is required, steel structures shall be designed and constructed in such a way that they maintain their load bearing function the relevant fire exposure. The present report covers the following items: yielding and buckling check of the top side structure fire exposure.

**Keywords:** *fire strength, thermal flux, finite element.*

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## **Dropped object analysis approach**

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**Abstract** Dropped objects are rarely critical to the global integrity of the structure and will mostly cause local damages. The major threat to global integrity is probably puncturing of buoyancy tanks, which could impair the hydrostatic stability of floating installations. The structural effects from dropped objects may either be determined by Non-Linear Dynamic Finite Element Analyses or by energy considerations combined with simple elastic-plastic methods. If Non-Linear Dynamic Finite Element Analysis is applied, all effects described in the following paragraphs shall either be implicitly covered by the modelling adopted or subjected to special considerations, whenever relevant.

**Keywords:** *dropped object, energy, finite element.*

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## **Acțiunea hidraulică a unui excavator cu săpare discontinuă Hydraulic Acting of an Excavator with Discontinuous Digging**

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**Abstract** The subject is inspired by the theoretical notions received at the specialized discipline of Marine and Port Equipment and Installation, where are studied, among other things, the equipment used in the construction of ports. The paper presents the hydraulic action of an excavator with reverse bucket and the calculation of the force in the boom drive cylinder.

The authors of the paper chose to make the practical model of the respective machine.

**Keywords:** *excavator, reverse bucket, hydraulic scheme, hydraulic cylinders, practical model.*

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## **Concepte privind instalațiile de ridicat offshore Concepts on Offshore Lifting Installations**

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**Abstract** The idea of the paper comes from the thematic visits organized by faculty to different economic partners with concerns in the field of activities taking place on the sea. On these occasions, the authors of this paper have seen, among other things, complex structures like marine platforms for oil drilling, barges for assembling and installing underwater pipes and cables, and they have also they found out a lot of other information. All these structures are provided with lifting equipment of different forms, dimensions, destinations and lifting capacities.

The authors of the paper have proposed the graphic design and practical realization of a lifting device that is actually a combination of several types of cranes presented during the visits, cranes used in offshore activities.

**Keywords:** *marine structures, drilling, lifting installations, pipeline launching, graphic model, practical model.*

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**SECTION II**

***MANAGEMENT AND INDUSTRIAL  
ENGINEERING STUDENTS SESION***

**Proiectarea și realizarea unui stand pentru studiul comportării compozitelor polimerice  
la fluaj în mediu criogenic**  
**Design and Implementation of a Stand for Studying Polymer Composites Creep  
Behavior in Cryogenic Environment**

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**Abstract** In this paper, the aimed is designing of a device for creep testing of polymeric composite materials in cryogenic environment at a temperature of  $-50^{\circ}\text{C}$ , ensuring this constant temperature over the entire duration of the testing of the specimen and ensuring the absence of friction between the upper clamp to not influence the data during testing.

**Keywords:** *polymeric composite materials, cryogenic environment, constant temperature, testing.*

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**Aplicabilitate și decizie cu Metoda Pareto**  
**Applicability and decision with the Pareto Method**

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**Abstract** The Pareto method is a practical statistical tool that highlights the importance of the various elements of the problem studied, on which it is to be dealt with as a priority, and the name of the diagram comes from the Pareto principle: 80% of the defects come from 20% of the cases. The Parto method has practical applications in many production-related fields such as human resources, stock management, logistics, etc. Pareto's selection serves to simplify the approach to a problem, retaining only the most significant elements. In the most general case, this applies to selecting the most representative subjects from a population based on a numerical criterion. The paper highlights the use of Pareto at the information level of production and leads to useful conclusions in researching and innovating the production of new products.

**Keywords:** *Pareto method, statistical, human resources, stock management, logistics, numerical criterion*

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## **Porgnoza în managementul producției The prognosis in production management**

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**Abstract** The prognosis is done by applying rational methods to determine the future events, starting from the interpretation of some data in the field underlying the forecast. Forecasts are used in most of the decision - making processes in them within the various functions of the enterprise, even if managers do not always do it explicitly. The forecasts are most often on demand, but they can also be centered on the evolution of prices and costs, the availability and labor productivity, the duration of implementation of new technology, etc. The role of the demand forecast is to define what has to happen and how much has to be produced by the enterprise over certain periods of time, specific to the plan that we want to elaborate. The place of the prognosis of demand in production management is in the planning of production system and it applies to strategic and tactical management levels before designing different categories of plans.

The paper presents the applicability and choice of the forecasting method in production.

**Keywords:** *forecast, prognosis, production management, strategic management, plan, forecasting method*

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## **Big Data Big Data**

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**Abstract** In the present paper the authors represent the Big Data filed and what it represents for the current world industry and economy. The way the specialist shape the tools and technologies that facilitate the online and offline connections between people all over the world, has as basis what we call today Big Data.

Big data represent the way we collect, store, analyse, protect and use the data in order to improve the capacity and quickness of response to inside or/and outside phenomenon. In other words Big Data represent the processes and systems that convert, at the right speed and in the specific time frame, the large amount of data that are disparate, raw and/or unstructured, into a data product useful for organizations to allow real-time analysis and especially response.

**Keywords:** *big data, data, analyze, collect, store, protect.*

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**SECTION III**

***MARINE AND NAVAL ENGINEERING  
STUDENTS SESION***

## **Analiza stabilizatoarelor dinamice cu aripioare Analysis of dynamic stabilizers with fins**

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**Abstract** In this article is discusses about a study realised on the stability of the ship in the marine environment, depending on the weather, either quiet or disturbed by the external factors (wind, storms, waves), and because of these problems, solutions have also been developed for passengers, and goods on board ship will not suffer from these factors, called active and passive stabilizers. In this paper there will be an analysis of the dynamic stabilizers with fins and there will be some exits on the consumer market together with the performances they fulfill.

**Keywords:** *dynamic stabilizers with fins, stability of the ship, marine environment, active and passive stabilizers*

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## **Considerații privind sistemele combinate de propulsie și guvernare Consideration on combined propulsion and governance systems**

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**Abstract** The paper presents a study of the technical characteristics and performance of combined propulsion and governance systems. This article explores the main advantages and disadvantages of these propulsion systems compared to conventional propulsion systems. Although, in this article we can find an analysis of propeller in the adjustable nozzle and the function of these propulsion systems. In the first part of the paper we analyze the classic and modern type of steering and propulsion. In the second part of the paper propeller in the adjustable nozzle and his function is studied. Finally, some consideration is given to the location of the propulsion system, his mounting and some considerations of the advantages that this type of propeller brings for ship's handling.

**Keywords:** *propulsion, steering rudder, propeller in the adjustable nozzle, handling.*

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## **Analiza tehnicilor de ancorare a navei pentru diferite situații de exploatare Analysis of ship anchoring techniques for different operating situations**

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**Abstract** This paper presents a study on ship anchoring techniques for different operating situations.

Anchoring is one of the very frequent operations onboard ships. A number of variables and external factors influence the duration and location of an anchoring operation. Various methods on anchoring include consideration of direction and strength of wind, current and tidal stream. Often good local knowledge helps a mariner determine required manoeuvres and actions to be taken while anchoring. It is also known that many collisions between cargo ships may occur in anchorages than anywhere else. In the following, ship anchoring methods will be analyzed in order to avoid these situations.

**Keywords:** *anchor, ship, anchoring techniques, operating situations, manoeuvres.*

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## **Tehnici și tehnologii de separare a hidrocarburilor Techniques and technologies for hydrocarbons separation**

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**Abstract** In this paperwork are presented techniques and technologies for hydrocarbons separation. Hydrocarbons separation consists in distribution of two liquid phases or retention of solid particles from entire quantity of hydrocarbons volume, in order to ensure superior qualities. In a sistem, the hydrocarbons separation process may take place in the following stages: gravitational separation, grav-centrifugal separation, sedimentation on the trays, aeration and filtration. Gravitational separation takes place in time under different layers of liquids with different densities and solid particles. The most important component of lubrication oil separation sistem on board ships is represented by centrifugal separator, who is using a disk stack whit any solids present collecting at the outer part of the bowl, from which they are have to be removed.

**Keywords:** *densities, separator, sedimentation, phases, centrifugal, hydrocarbons*

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## **Analiza structurală a ansamblului navă-doc plutitor Structural analysis of the floating dock-ship assembly**

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**Abstract** *This paper work analyzes hydrodynamic behaviour of a heavy-lift ship in different situations of loading. Initially, it analyzes docking operation of a heavy-lift vessel. For this ensemble, it studies ships' stress diagrams, making a comparasion between different types of loading using a structural analyzes of the ship model.*

**Keywords:** *hydrodynamic forces, ensemble, structural analyzes, stress diagram*

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## **Metode moderne de fabricare a tubulaturilor navale Modern methods of ship piping fabrication**

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**Abstract:** *This paper aims at studying the automated technological flow of shipbuilding. The first part of the paper presents a fully automated technological flow, highlighting the advantages of automation of each stage. And in the second part are illustrated two of the many software present on the market that help simplify the work in the piping industry.*

**Keywords:** *pipeline, software, automatic, solution, process*

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## **Unele considerații privind centrarea liniilor de arbori Some consideration about shaft alignment**

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**Abstract** *The present paper is a preamble of the graduate paper that will have the theme: “Shaft line analysis provided with inverter reducer”. This article aims to present a study of propulsion shaft alignment methods. In the first part of paper is presented the shaft line assembling also a position comparison between centring shaft and base shaft. In the second part of the paper is studied the principle of applicability of shaft alignment method through the laser system. The paper finishes with calculations elements of shaft alignment which I have previously studied.*

**Keywords:** *shaft line, shaft alignment, propulsion shaft, base shaft, misalignment, laser system.*

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**Sistem prototip utilizat în terminale portuare sau pe barje pentru activități de sortare a mărfii**  
**Prototype system used in port terminals or barge for cargo sorting activities**

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**Abstract** In this article is presented the mode of accomplishment of the model of one prototype system, it is functioning as well as the purpose for which it was achieved. In the first step there are some generalities about harbor exploitation and some theoretical considerations about general cargos. In the second stage were established the devices that make up this system, the materials used and the layout were chosen. Further on, the device components are discussed in detail and its performance and operating mode are presented. Finally, a prototype system has been obtained that can be used on barges propelled by tugs or used in port terminals for solid cargo sorting activities.

**Keywords:** *prototype system, harbor exploitation, barges, cargo sorting, port terminals*

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**Studiu privind sistemul adaptiv de lansare gravitațională a bărcii de salvare**  
**Study on adaptive gravitational launching system of the rescue boat**

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**Abstract** In this paper we want to bring our own contribution to the modernization of the launch facility of the lifeboats that use freefall technology. The idea came as a result of countless accidents with human victims following the use of this method. In the first stage are presented the general notions regarding the construction of these installations, in the next stage we will present the functionality of the improvements brought by us as well as the facilities brought, in the third stage we will simulate leaving a lifeboat using the method implemented.

**Keywords:** *modernization, lifeboat, freefall, accidents, victims, functionality, facilities, simulate.*

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## **Analiza sistemului de inertare a tancurilor petroliere Analysis of oil tanker inerting system**

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**Abstract:** In this article we are presenting the modern techniques of safety from oil tankers. The purpose of this research aims to show a panoramic vision of the most important safety systems we usually meet in oil tankers. The first part of this research involves a description of inert gas system and a thorough description of all safety systems/mechanisms we meet in an oil tanker for the prevention of over and underpressure.

Inert gas is produced on board of mainly crude of oil carriers, gas carriers and Chemical carriers, and in Bulk carriers when carrying fish flower, and in refrigerating ships when carrying fruit products, by using either a flue gas system or by burning Marine Diesel Oil ( MDO or MGO) in a dedicated inert gas generator, or produced clean Nitrogen by an dedicated Nitrogen Generator.

IG keeps the oxygen content of the tank atmosphere below 8%, thus making any air/hydrocarbon gas mixture in the tank too lean to ignite. IG is most important during discharging of cargo on tankers and during the ballast voyage when more cargo and/or hydrocarbon vapor is likely to be present in the tank atmosphere.

It can also be used to purge the tank of the volatile atmosphere in preparation for gas freeing, replacing the atmosphere with breathable air, or vice versa.

**Keywords:** *inert, gas, tanker, safety*

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## **Tehnici moderne de purificare a apei de balast Modern techniques for ballast water purification**

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**Abstract:** In this paper we are presented modern techniques for ballast water purification. The requirement for ballast water treatment arises from the requirements of regulation D-2 of the International Convention for the Control of Ships Ballast Water and Sediments (BWM Convention). In response to this, a number of technologies have been developed and commercialised by different vendors. Many have their basis in land-based applications for municipal and industrial water and effluent treatment, and have been adapted to meet the requirements of the BWM Convention and shipboard operation.

Ballast water when taken onboard will contain a variety of organisms including bacteria and viruses and the adult and larval stages of the many marine and coastal plants and animals. While the vast majority of such organisms will not survive to the point when the ballast is discharged, some may survive and thrive in their new environment. These 'non-native species', if they become established, can have a serious ecological, economic and public health impact on the receiving environment.

**Keywords:** *ballast, shipboard, technologies, environment*

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**Analiza procedeeilor tehnologice specifice mașinilor de debitat cu plasmă**  
**Analysis of technological processes specific to plasma cutting machines**

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**Abstract** In this paper it is presented the technological process of cutting with ESAB plasma cutting machines. Whether shipyard manufacturers are cutting individual parts or large plates, the previous mentioned machines work with plasma, oxy-fuel and have beveling capabilities which make them excellent for the shipbuilding industry. They set a new standard for accuracy, reliability and power.

**Keywords:** *ESAB machines, plasma cutting, CNC, automatic marking and cutting.*

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**Analiza sistemelor moderne de dragare a șenalelor navigabile**  
**Analysis of modern dredging systems of the waterways**

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**Abstract** The dredging industry has developed itself from a locally oriented activity to maintain navigable waterways into a global industry involved in maintenance dredging, land reclamation, coastal and port construction. The vessels are extremely specialised and require special attention for design, construction and operation. In this paper, the authors show you some of these systems and an analyzing of the dredging of waterways.

**Keywords:** *dredging of the waterways, systems, dredge, waterways.*

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**Analiza stabilizatoarelor de tip „U” pentru amortizarea oscilațiilor navei**  
**The studies of U-type stabilizers for amortization of the ship`s oscilation**

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**Abstract:** The article presents the problem of stabilizing ships against the different of roll motions. The problem been studied for many years and is not at the present completely solved even though great advances have been made in the military and commercial construction of ships. The stabilizer of roll motion can be improved using tank stabilizer. Generally, these tanks can be divided into passive, and active tanks. The passive tanks include free-surface tanks and U-tubes.

**Keywords:** *tank, roll motion, passive tanks, U-tubes, tank stabilizers.*

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## **Managementul apelor reziduale de la bordul navei Waste water management on ship board**

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**Abstract** The impact of sewage on marine environment is a concern. Sea water can be polluted by pathogens, nutrients, detergents, pesticides and heavy metals.. These sea water are shared by community for recreation, swimming and food production, the environmental and health risks are high. Improperly treated sewage on-board can harm ecosystem. Most of the vessels has an sewage treatment system, which is designed to remove pollutants from sewage water before releasing it from the vessel to the sea. Primary sewage treatment is a relatively physical process that mainly removes solids. Secondary sewage treatment using bacteria to decomposes organic matters, and final chlorination is used for sterilization of effluent before it is released to environment. The potential pollutants remaining after secondary sewage treatment include heavy metals, nutrients and non-biodegradable organic chemicals. “Advanced sewage treatment” is a generally term covering treatment designed to remove any of these substances. A variety of types of Advanced Wastewater Treatment Systems are available. Some are better proven than others and some are more complex and expensive, depend on their size and design.

**Keywords:** *sewage, sewage treatment, advanced sewage treatment system, nutrients*

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**SECTION IV**

***DEBUTANT-ENGINEERS RESEARCHERS  
STUDENTS SESION***

**Considerații privind solicitarea de încovoiere longitudinal - verticală a navelor de tip  
MCV  
Study of longitudinal – vertical bending of MCV ships**

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**Abstract** Modular Capture Vessel (MCV) is a converted oil tanker that can capture hydrocarbons or another liquid contaminations from leaking oil and gas wells in deep sea areas. They operate, in general, as normal oil tankers and provide capture and containment services in the event of a potential deepwater well control incident. The ships need to possess the necessary resistance and stiffness to face in good conditions and with maximum efficiency the actions the stress they require during the time of construction, transport, launching, exploitation and repair. The actual structure it will be replaced by a model (calculation scheme) with a small number of attributes from the real structure. It will be assimilated with a large beam, made of shell ( deck, bottom) stiffened with a transverse (bulkheads) and longitudinal diaphragms (longitudinal bulkheads, tween deck, double shell) which are single or double platform.

**Keywords:** *modular capture vessel, oil, resistance, stiffness, beam, bulkheads*

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**Elaborarea tehnologiei de sudare pentru aliajele din titan  
Elaboration of welding technology for titanium alloys**

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**Abstract** In the presentation below I will present how to realize the welding technology of titanium and its alloys, as well as the presentation of the equipment necessary for making welded joints.

**Keywords:** *welding technology, equipments, titanium alloys*

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**Omologarea procedurii de sudare, certificarea sudorilor pentru aliajele din titan**  
**Qualification of procedure welding, welder certification for titanium alloys**

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**Abstract** In the presentation below I want to present you about the approval of the laser welding process of titanium and its alloys in order to achieve automated systems for the storage and handling of mechanical parts in the aeronautical field.

**Keywords:** *qualification, welding procedure, laser welding, titanium alloys*

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**Studii teoretice și experimentale privind prevenirea deformațiilor la sudarea căii de rulare a macaralelor de bord**

**Theoretical and experimental studies on the prevention of tread deformation welding crane board**

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**Abstract** Offshore vessels are equipped with a crane or more of various tonnages, depending on the destination. There is a wide range of off-shore cranes, fixed or mobile, suitable for each type of transaction, including the construction of offshore and marine activities or underwater operations insertion pipe and hose handling and general lifting operations. In addition to older versions, the new design, the crane can be customized for special applications. To facilitate the movement of a crane on a ship offshore construction requires a non-removable assembled by welding, which can offer optimal handling conditions.

**Keywords:** *crane board, welding, deformation*

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**Sudarea îmbinărilor disimilare dintre un oțel slab aliat și un oțel mediu aliat**  
**Welding of dissimilar joints between a low alloy steel and an alloy medium steel**

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**Abstract** In this paper work is presented a model which explain how a welding procedure it is qualified in order to use it production area. Welding between dissimilar can rise some problems in choosing filler metal, select proper dimensions for both materials for approval range and doing right mechanical testing according to standard. In this issue there has been elaborate an WPS required for this type of application.

**Keywords:** *dissimilar joint, chimal-mechanical analysis, FCAW, WPQR, WPS*

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**SECTION V**

***THE PREAMBLE OF ENGINEERING  
STUDENTS SESION***

## **Studiu privind instalarea parcurilor eoliene în largul mării Study on the installation of offshore wind farms**

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**Abstract** This paper presents conditions that need to be met for the installation of offshore wind farms, technologies and equipment required for this activity. There are also examples of such parks mounted in the major ports of the world.

The authors are students in 1st year at the Marine and Port Installation and Equipment programme of study and, at the end of the paper, presents the conclusions deduced from their study and their recommendations regarding the realization possibilities of offshore wind farms in the Romanian Black Sea area.

**Keywords:** *marine environment, wind power, technologies, equipment.*

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## **Importanța utilizării programului SCADA în procesele industriale din Portul Constanța The Importance of Using the SCADA Software in Industrial Processes from Port of Constanta**

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**Abstract** The subject of this paper is inspired by the port industrial reality, namely that SCADA (Supervisory control and data acquisition) is used in new projects in this field. One such example is the recently completed cereal terminal at CHIMPEX S.A. The terminal has a storage capacity of 200 thousand tons in the 20 vertical silos, is ultramodern, fully automated.

By allowing access, control and control of the processes, the use of the SCADA program in the new terminal led to the possibility of loading and unloading cereals with high productivity: 1600 t / h loading in ships, 400 t / h taking over from barges and railway wagons, 800 t / h pickup from vehicles.

The authors exemplify the use of the SCADA program, deduces the conclusions of the study and makes recommendations.

**Keywords:** *SCADA, port terminal, automation, efficiency, safety, productivity.*

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## **Mentenanța predictivă în industria navală și portuară Predictive Maintenance in the Port and Naval Industry**

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**Abstract** Machines in every industry tend to wear out in the production process. In order to prevent the ceasing of production and the obvious loss of money and time people in industry use maintenance techniques.

The most wide spread maintenance operations consist in scheduled inspections and replacement of parts. There is another type of maintenance that predicts pretty accurate the moment when a part is going to need replacement. It is called predictive maintenance.

This paper presents the basic principles of predictive maintenance.

**Keywords:** *maintenance, predictive, corrective, wear, industry, automation.*

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## **Studiu privind traficul de mărfuri și necesitatea investițiilor în Portul Constanța Study on Freight Traffic and Need for Investments in Port of Constanta**

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**Abstract** The informations about the investments in Constanta Port, presented in the press in recent years, has sparked the authors' interest about the study program they are following. They are in the first year at Marine and Port Installation and Equipment program of study and, in this paper, had analysed cargo traffic through this port, identified goods with the highest and smallest traffic values, but had also the curiosity to analyse the traffic values of cereals and of wood and wood products, a sensitive and current topics.

The paper also outlines the conclusions that can be deduced from the study and recommendations on raising the level of training, specialization and performance of specialists in this domain.

**Keywords:** *port, traffic, freight, investments, port logistics, modernization, productivity, performance.*

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**Studii referitoare la principale și actuale materiale metalice utilizate în fabricarea  
de elice navale**  
**Studies Concerning the Main and Actual Metallic Materials Used for Fabrication  
of the Ship Propellers**

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**Abstract** The paper presents studies concerning the main news referring to metallic materials used for fabrication of the ship propellers. There are presented data concerning the main chemical composition of the metallic alloys, data concerning the correlation between metallic material selection and specific design of the propellers, and also the correlation between the material and the main mechanical and functional characteristics of the naval propellers. The paper represents an actual documentation of proposed theme, useful for the specialists in naval systems and equipment of first years of activity.

**Keywords:** *ship propellers, alloys chemical compositions, mechanical properties.*

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**Matematica în ajutorul subiectelor non-matematice**  
**Mathematics Helping the Non-Mathematic Subjects**

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**Abstract** Mathematics is an abstract science, that studies the cantitative relations, structure, change and space models. But this also helps at other activities that seems to have no link with mathematics.

**Keywords:** *mathematics, uses, sport, art, music, everyday life*

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## **Conspirații – o analiză rațională Conspiracies - a rational analysis**

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**Abstract** A conspiracy theory is an explanation of an event or situation that invokes an unwarranted conspiracy, generally one involving an illegal or harmful act carried out by government or other powerful actors.

Conspiracy theories embody three principles: nothing happens by accident, nothing is as it seems, and everything is connected. Another common feature is that conspiracy theories evolve to incorporate whatever evidence exists against them, so that they become a closed system that is unfalsifiable

Examples of conspiracy theories are: the paranormal events taking place inside the Bermuda Triangle, the flat Earth, the faking of the Moon landings and the claim that 9/11 was an inside job due to the fact that jet fuel can't melt steel beams.

Research shows that reasons for believing in conspiracy theories can be grouped into three categories: the desire for understanding and certainty; the desire for control and security, the desire to maintain a positive self-image.

**Keywords:** *unfalsifiable, paranormal, flat Earth, Moon landings, Bermuda Triangle, inside job, desire for understanding.*

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## **Surse de energie regenerabile Renewable Energy Sources**

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**Abstract** The use of renewable energy and the applying of energy efficiency measures are the best way to reduce the impact of fossil fuels on our planet.

Renewable sources of energy identified in Romania are: wind, solar, hydro, biomass, geothermal energy.

Wind energy is the conversion of kinetic energy of masses of air into mechanical work using wind turbines which drive the electromechanical converter (generator) to produce electric energy. It can convert solar radiation energy directly to thermal energy (heat) and electric power.

Hydroelectric power is derived from the force or energy of flowing water. Geothermal energy is energy obtained by capturing the internal heat of the Earth. Plants use photosynthesis to grow and produce biomass that can be used directly as a fuel or biofuels.

**Keywords:** *wind, solar, hydro, biomass, geothermal energy, kinetic energy, electromechanical converter.*

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## **Portul maritim modern – cel mai important nod de transport The Modern Maritime Port – the Most Important Hub of Transport**

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**Abstract** All the authors that tried to come up with a definition for a commercial port noticed that there is no elaborated formula that can offer a complete image of the physical, technical, social and economic concept comprised in this term. In his work, "Maritime Ports" (1989), R. Rezenthel shows that there is no exact definition in the French Code of the maritime ports. Only in the Geneva Convention of December, 9, 1993, which regulates the status of the international laws of maritime ports, there is a definition that considers as "maritime ports, the ports that are transited by ships whose main purpose is the external commerce".

**Keywords:** *maritime port, specialised terminals, channel, dikes, docks, berths, harbour roads.*

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## **Proprietăți ale obiectelor create în AutoCAD Properties of the Objects Created in AutoCAD**

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**Abstract** Engineering graphics has been and still remains a fundamental field of engineering knowledge. The representation through drawings of the solution ideas for the designed pieces and sets is one of the most important tasks of the designer engineer. The importance of drawing as a means of communicating information in all stages of the design and production process is univocally recognised. The possibility of the computers to use this ability revolutionised the way in which they are used in all fields nowadays.

The topic of the work is „The Layer. Using multiple layers in 2D drawing” and it refers to various elements of a drawing and how they can be grouped on layers.

**Keywords:** *Computer-Aided Design, Layer, Linetype Manager, Lineweight.*

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## **Acumulateoare utilizate pe nave Storage Batteries Utilized on Ships**

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**Abstract** The storage battery it's a source of rechargeable DC made from elements that stores DC which stores using chemical principles. Its operation is based on the arrival of an electromotor created and based on chemistry, obtained from the association in combination with electrode-electrolyte of some different materials from an electrochemical point of view.

The storage battery can be acid or alkali. It is linked in parallel to the alternator.

**Keywords:** *storage battery, chemical principles, materials, electrode-electrolyte, alternator.*

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## **GPS-ul maritim The Marine GPS**

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**Abstract** In this project I talked about the marine GPS, the Navtron company and other marine GPS producers, the prices of a marine GPS, about SNIB (Salonul Nautic International București), about marine radars and how it works.

**Keywords:** *marine GPS, producing companies, marine radars, working mode*

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## **Surse de energie solare folosite pe nave Solar Energy on Ships**

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**Abstract** Solar energy is the radiant energy produced in the Sun as a result of nuclear fusion reactions transmitted to the Earth through space in energy quanta (photons) that interact with the Earth's atmosphere and surface, therefore, the energy produced directly by the transfer of radiated luminous energy of Sun. It can be used for generating electricity or heating the building air.

**Keywords:** *solar, energy, ships.*

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## **Montaje pentru iluminat cu leduri LED Lighting Electronic Schemes**

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**Abstract** The advantages of LED bulbs are the use of high energy efficiency compared to conventional bulbs (90% of energy is used to bring the filament to incandescent state) as well as to produce a light with features more similar to the ideal white light concept.

The paper aims to highlight the benefits of led lighting assemblies that underline the benefits of these lighting systems both in terms of light quality, energy consumption and lifetime, as opposed to the existing lighting sources on the market based on led.

**Keywords:** *lighting, stabilizer, LED.*

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## **Noi alternative constructive ale turbinelor eoliene New Constructive Alternatives to Wind Turbines**

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**Abstract** Wind turbines have two major destinations: inclusion in a wind farm or supply of energy to isolated homes. In the latter case, wind turbines are used together with solar panels and batteries to constantly provide electricity on cloudy days or windless seasons. Researchers from all over the world are looking for new constructive solutions to eliminate the drawbacks of classical wind turbines. Thus, technical solutions have been found that do not use propellers or use ceramic discs made of piezoelectric material. These new constructive alternatives to wind turbines can represent the future of green energy.

**Keywords:** *wind turbine, wind, green energy, electricity, propeller.*

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## **Motorul OTTO The OTTO Engine**

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**Abstract** The engine is a physical system that carries out mechanical forces when it receives heat. The heat required for the operation of a thermal engine is obtained by burning the fuel.

**Keywords:** *OTTO engine, thermodynamic cycle, mechanical forces, thermal engine, fuel.*

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## **Efectele negative ale radiațiilor electromagnetice asupra sănătății Negative Effects of Electromagnetic Radiations on Health**

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**Abstract** Electromagnetic radiation is the emission and propagation in space of particles, corpuscular radiation, and waves where wave radiation is accompanied by energy transport.

It is an incontestable truth that we are surrounded by radiation from all sorts of sources. Studies over the last few years have highlighted numerous unwanted effects of radiation on the human body.

In practice, it is spoken of: Thermal, infrared, visible, and ultraviolet electronic radiation; anode, cathode and channel radiation; nuclear radiation braking or X; radioactive nuclear radiation  $\alpha$ ,  $\beta$  and  $\gamma$ .

Sometimes, electromagnetic fields of certain frequencies and powers produce irreparable damage to the human body. There is no standard method to minimize their effects and, in fact, their action on humans is more destructive, as the more exposed it is to the stress.

**Keywords:** *electromagnetic radiation, mobile phones, electromagnetic fields, pathological effects, biological effects.*

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## **Compozitele – Materialele viitorului Composites – Materials of the Future**

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**Abstract** This paper aims to highlight aspects of composite materials from the perspective of the present and the future, being materials with programmable properties superior to the traditional materials that have entered the field of high technology, such as: aerospace, microelectronics, nuclear technique, medical construction technique implants, but also in the automotive, shipbuilding, chemical, furniture, construction, sports materials industry.

**Keywords:** *MCP polymer matrix, MCC ceramic matrix, MCM metal matrix.*

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