

**ANNUAL SCIENTIFIC JOURNAL OF OVIDIUS**  
**UNIVERSITY MECHANICAL ENGINEERING SERIES**  
**ANALELE UNIVERSITATII OVIDIUS CONSTANTA –**  
**SERIA INGINERIE MECANICA**  
  
**VOLUME III, NUMBER 1, 2001**

**CONSIDERATII TEORETICE PRIVIND DETERMINAREA ECUATIILOR DE MISCARE ALE NAVEI, CONSIDERATA CA SOLID RIGID CU SASE GRADE DE LIBERTATE**

CHITU Mihaela Greti, VOINEA Radu, "*Ovidius*" University of Constanta, Romanian Technical Academy

**Abstract.** Not available in English.

**OPTIMIZAREA CALCULELOR DE POZITIONARE SI STABILITATE INITIALA AFERENTE OPERATIUNILOR DE AMBARCARE (DEBARCARE) A INCARCATURILOR LA (DE LA) BORDUL NAVELOR**

MAIER Viorel, CHITU Mihaela Greti, MARINESCU Liviana, "*Ovidius*" University of Constanta, Comercial High School, Baia Mare

**Abstract.** Not available in English.

**DETERMINAREA REACTIUNILOR DIN CUPLELE CINEMATICE ALE MECANISMULUI APARATULUI DIRECTOR LA TURBINELE KAPLAN SI FRANCIS**

GRAMA Ion, PERIDE Nicolae, MARZA Vasile, *Universitatea "Ovidius" Constanta*

**Abstract.** The purpose of this working is to establish the reactions in kinematics couplings of the mechanism, need reactions for calculation in szing kinematics elements, in view to his desing.

*Keywords:* reactions in kinematics couplings of the mecanis.

## **IAMU – IN THE JOB OF THE EXCELLENCE AND INNOVATION IN MARITIME EDUCATION**

MEMET Feiza, NICOLAESCU Virginia, *Constanta Maritime University*

**Abstract.** The issue of globalization of Maritime Education and Training is of utmost and urgent concern, in order to secure cleaner seas and safer navigation worldwide. The level of education, training and evaluation has an important role in promoting the quality of the seafarer's standard. The international shipping community hopes that the STCW Convention, together with the IMO model courses, will succeed in achieving its objective, i.e. safety at sea. Maritime institutes have to work in close co-operation with international bodies interested in maritime training such as IMO and IAMU, the most challenging association of the international maritime world. This paper presents IAMU as an organism with clear objectives in setting the international excellence ground for the maritime education system and design the optimum uniform examination systems for evaluating the level of competency.

*Keywords:* excellence, IAMU, globalization, Maritime Education, IMO, Maritime Education Training.

## **STUDY OF STRAPDOWN CONING ALGORITHMS**

IZET-UNSANAN Kunsel-Ozel, UNSALAN Deniz, *“Ovidius” University of Constanta, “Near East” University, Nicosia, Turkish Republic of North Cyprus*

**Abstract.** An optimal attitude algorithm for strapdown inertial navigation systems under coning motion is presented. The attitude is computed using quaternions. Increasing the number of gyro measurements will improve the accuracy without excessive computer loading.

*Keywords:* strapdown, coning motion, attitude integration algorithms, quaternions.

## **ESTIMATION OF PROPELLER CHARACTERISTICS AND OPTIMUM VALUE OF OPERATION BY EQUIVALENT PROFILE METHOD**

UNSANAN Deniz, IZET-UNSANAN Kunsel-Ozel, *“Near East” University, Nicosia, Turkish Republic of North Cyprus, “Ovidius” University of Constanta*

**Abstract.** Nondimensional thrust and torque coefficients and open-water efficiency of a screw propeller with a given geometry are estimated by assuming that the thrust coefficient is linear in advance coefficient in the lightly-loaded regime. It is assumed that the torque and drag characteristics of the entire propeller can be deduced from the torque and drag gradients of a representative radius. Momentum and blade-element theories are used for the purpose, where the cascade effects for lift estimation are accounted for by the

data given by Burrill and vortex-induced velocities are approximated by Goldstein-Prandtl functions. Viscous effects for lift are accounted by the empirical coefficients given by Miskevitch et al.

The method presented can be used to estimate the behaviour of a given propeller behind a given hull at a given speed, to estimate roughness penalties for hull and propeller, scale effects, as well as the selection of a propeller to operate at the optimum value of advance coefficient for optimization purposes.

## **STUDY OF ERROR MODELS FOR STRAPDOWN INERTIAL NAVIGATION SYSTEM WITH SIX ACCELEROMETERS**

IZET-UNSANAN Kunsel-Ozel, UNSALAN Deniz, *“Ovidius” University of Constanta, “Near East” University, Nicosia, Turkish Republic of North Cyprus*

**Abstract.** Strapdown inertial navigation systems are widely used due to their possibility to solve the whole navigation problem. Sensors are affected by errors which propagate in system errors, decreasing the accuracy in time. An error model for a certain configuration of accelerometers is created. Computer simulation for position errors determination is performed for a ballistic missile.

*Keywords:* strapdown, linear accelerimeters, error models.

## **RESURSE PENTRU IMBUNATATIREA PRODUCTIVITATII PODURILOR DE CONTAINERE**

POPESCU Violeta, MENADIL Hazel, *“Ovidius” University of Constanta*

**Abstract.** The importance of the reduction of stationary time in port of the container transporting ship with cellular structure, impuses not only the organization of stevedoring activities, so that quay equipment can work continuously, but also finding out some new resources for improving its productivity.

Characteristic for container terminals, the quay container crane, on rails or tires, it is equipped with spreader, which makes the connection between the container and the crane. Quay container cranes productivity, expressed in number of movements per hour, or number of TEU manipulated containers per hour, depends, to a great extent, on the skill of port operator, spreader choosing, the automation degree of the equipment, the performing in time of maintenance and repairing operations.

This article focuses some results of the preoccupations of well known international firms, with the purpose of increasing productivity of container cranes.

*Keywords:* container crane, container terminal, TEU, maintenance.

## **STUDIUL PRIVIND LIMITAREA CUPLULUI DE MANDRINARE**

CARJALI Erol, POMAZAN Valentina, *“Ovidius” University of Constanta*

**Abstract.** The manufacture of technical installations require the utilization of semi-dismantled assemblies obtained through the technology named mechanical mandrel. Applying to this technology is achieved a sealed of jointed elements and also a metallic structure which endures the mechanical stressing. The parameters of quality of a mandrel are influenced by many others factors, among others is founded also couple mandrel. That in why is important to be able to appoint this couple between certain limits, settled by calculation.

*Keywords:* mechanical stress, mandrel, technology.

## **DISPOZITIV DE PRELUCRARE PRIN ASCHIERE A MICRORENURIILOR CU BRAULETE DE ETANSARE**

CARJALI Erol, POMAZAN Valentina, *“Ovidius” University of Constanta*

**Abstract.** A better quality (sealed and mechanical stressing) of jointed elements from mechanical mandrel can be achieved by applying the micronervurated with belts on the surfaces of the orifices of the tubular plaque. In order to perform this operation it is necessary to use a simple but effective machine that has been very efficient in the working field.

*Keywords:* mechanical stress, mandrel, technology.

## **CONSIDERATII DESPRE PROIECTAREA FORMEI OPTIME**

POMAZAN Valentina, CARJALI Erol, *“Ovidius” University of Constanta*

**Abstract.** The design box from standard product flowcharts is opened and the main steps are presented: desing and optimisation of the design, concerning the shape and topology. Recent theory and optimization solving methods, with some numerical method approach of the problem conclude he paper.

*Keywords:* design, optimization, shape, topology, variable function, numerical method.

## **PROIECTAREA EFICIENTA**

POMAZAN Valentina, CARJALI Erol, *“Ovidius” University of Constanta*

**Abstract.** This article covers little known facts about common manufacturing situations and how they impact the product. The impact the design can have on the cost, quality and time to produce the product both with some software considerations and its influence on the productivity in the plant are presented.

*Keywords:* CAD, CAM, design, productivity.

## **STUDIUL SI PROIECTAREA UNEI MACARALE PIVOTANTE DE INTERIOR, DE 75 KNM**

NICOLAE Ionel, BORMAMBET Melat, *“Ovidius” University of Constanta*

**Abstract.** In this paper there was studied a raising installation specialized for working in small places with relatively low charges. There was analyzed the metal construction's behavior at miscellaneous stress and there were used many material types. The metal structure analyze has been done by finite element method, the obtained performances being better than at the existence raising installation.

*Keywords:* macara pivotanta, optimizare, simulare.

## **REGIMURI DE DEBITARE A DIVERSELOR MATERIALE PE INSTALATIA LASER “CO<sub>2</sub> -400”**

NOVAC Gheorghe, BORMAMBET Melat, ZAMFIRESCU Gabriela, *“Ovidius” University of Constanta*

**Abstract.** In the paper is presented the processing way of miscellaneous materials on the laser installations, the installation's characteristics and the maximum capacity for alloy steels processing in general.

There were determined the optimal cutting conditions by studying the variation of working parameters, praising the variation of the cutting speed and the variation of the cutting void.

There are praised the advantages of laser usage for quality and processing dimension precision.

*Keywords:* optimizare, regim de debitare, materiale speciale, laser.

## **STRUCTURAL ASPECTS OF COBALT-BASE ALLOYS FOR BIOMEDICAL IMPLANTS**

GHIBAN Brandusa, *University Politehnica of Bucharest*

**Abstract.** Present paper presents experimental data based on cobalt-superalloys in order to determine both structural modifications during elaboration and heat treatment and correlation between structural and properties of experimental alloys. Three alloys were elaborated in vacuum furnace and treated at different temperatures. Different investigations were made: microscopic analysis, X-ray diffraction and SEM in order to show the structural modifications of there cobalt-super-alloys.

*Keywords:* cobalt, super-alloy, heat treatment, induced martensite, microscopy, SEM.

## **TRANSFORMAREA STRUCTURALA PRIN DEFORMARE LA CALD A OTELULUI CR26NI6 SI DIAGRAMA $\sigma - \varepsilon$ DE TEMPERATURA INALTA**

NOCIVIN Anna, "*Ovidius*" University of Constanta

**Abstract.** In this paper we have studied the influence of different hot torsion deformation methods on structural transformations for ferrite-austenitic steel. The structure modifications during the steel hot deformation we have also studied by deformation diagram  $\sigma - \varepsilon$  at high temperatures.

*Keywords:* hot steel deformation by torsion, structural modifications, deformation diagram  $\sigma - \varepsilon$  at high temperatures.

## **SUDAREA IN PUNCTE A TABLELOR DE OL37, CU GROSIMEA DE 2MM, ZINCATE ELECTROLITIC**

PETERFI Iosif, ZAMFIRESCU Gabriela, "*Ovidius*" University of Constanta

**Abstract.** This paper represents a study about the opportunity of execution and application on an industrial scale of some weld joining between elements' frames-panels made by profiles, made by low carbon steel alloy bands (OL 37) with 2mm thickness. For prevent the corrosion tendency of profiles, they must be protected with a zinc protector layer. There have been watched the properties maintenance by elaboration of the welding conditions by which the protector layer not being affected and for the joining mechanical assurance, as the specific standards require.

*Keywords:* optimizare, regim de sudare, puncte de sudura.