



ISSN 1454-9166

**ANNALS
OF THE UNIVERSITY OF PETROSANI**
MECHANICAL ENGINEERING

VOL. 10 (XXXVII)

**Editura UNIVERSITAS
PETROȘANI – ROMANIA
2008**

ISSN 1454-9166

EDITOR OF PUBLICATION

Prof.Eng. Ioan-Lucian BOLUNDUȚ Ph.D.

E-mail: ibol@upet.ro

ADVISORY BOARD

Prof.Eng. Moise-Ioan ACHIM Ph.D. - "1 Decembrie 1918" University of Alba-Iulia, *Romania*; **Prof.Eng. Konstantin BOUZAKIS Ph.D.** - Aristoteles University of Thessaloniki, *Greece*; **Prof.Eng. Ioan CARȚIȘ Ph.D.** - Politechnical University of Timișoara, *Romania*; **Prof.Eng. Tudor CHERECHEȘ Ph.D.**, Brigade General (ret.) - Military Technical Academy, București, *Romania*; **Prof.Eng. Predrag DAŠIĆ Ph.D.** - High Technical Mechanical School R. Krstića, Trstenik, *Serbia*; **Prof.Eng. Sorin DIMITRIU Ph.D.** - "Politehnica" University of București, *Romania*; **Prof.Eng. Alexandre DOLGUI Ph.D.** - Ecole Nationale Supérieure des Mines de Saint-Etienne, *France*; **Prof.Eng. Valeriu DULGHERU Ph.D.** - Technical University of Moldova, Chișinău, *Republic of Moldova*; **Prof.Eng. Friedrich FRANEK Ph.D.** - Vienna University of Technology, *Austria*; **Assoc.Prof.Eng. António GONÇALVES-COELHO Ph.D.** - Universidade Nova de Lisboa, *Portugal*; **Prof.Eng. Otto GRIGOROV Ph.D.** - National Technical University of Kharkov, *Ukraine*; **Prof.Eng. Anatoli GHRABCHENKO Ph.D.** - National Technical University of Kharkov, *Ukraine*; **Prof.Eng. Ioan-Iulian IRIMIE Ph.D.** - University of Petroșani, *Romania*; **Prof.Eng. Baki KARAMIȘ Ph.D.** - Erciyes University, Kayseri, *Turkey*; **Assoc.Prof.Eng. Gábor LADÁNYI Ph.D.** - University of Miskolc, *Hungary*; **Prof.Eng. Cristian MADU Ph.D.** - Pace University, Lubin School of Business, New York, *U.S.A.*; **Prof.Eng. Andrei MAGYARI Ph.D.** - University of Petroșani, *Romania*; **Prof.Eng. Oleksandr MIKHAYLOV Ph.D.** - Donetsk National Technical University, *Ukraine*; **Prof.Eng. Eugen PAY Ph.D.** - North University of Baia-Mare, *Romania*; **Assoc.Prof.Eng. Eugen PĂMÎNȚAȘ Ph.D.** - Politechnical University of Timișoara, *Romania*; **Prof.Eng. Octavian PRUTEANU Ph.D.** - Technical University "Gh. Asachi" of Iași, *Romania*; **Prof.Eng. Adolfo SENATORE Ph.D.** - University of Salerno, *Italy*; **Prof.Eng. Yuriy SOLOMONZEV Ph.D.** - Moscow State Technological University "Stankin", *Russia*; **Prof.Eng. Alexei TOCA Ph.D.** - Technical University of Moldova, Chișinău, *Republic of Moldova*; **Prof.Eng. Raul R. TURMANIDZE Ph.D.** - Technical University of Tbilisi, *Georgia*; **Prof.Eng. Vlad ULMANU Ph.D.** - "Petroleum-Gas" University of Ploiești, *Romania*; **Prof.Eng. Nicolae UNGUREANU Ph.D.** - North University of Baia-Mare, *Romania*; **Assoc.Prof.Eng. György VÓNEKY Ph.D.** - University of Miskolc, *Hungary*; **Prof.Eng. Vasile ZAMFIR Ph.D.** - University of Petroșani, *Romania*; **Prof.Eng. Gheorghe ZGURĂ Ph.D.** - "Politehnica" University of București, *Romania*

EDITORIAL BOARD

Editor-in-chief: Prof.Eng. Nicolae ILIAȘ Ph.D. - University of Petroșani, *Romania*

Associate Editors: Prof.Eng. Iosif KOVACS Ph.D. - University of Petroșani, *Romania*; Prof.Eng. Carmen FLOREA Ph.D. - University of Petroșani, *Romania*; Prof.Eng. Iosif ANDRAȘ Ph.D. - University of Petroșani, *Romania*; Prof.Eng. Marin-Silviu NAN Ph.D. - University of Petroșani, *Romania*; Prof.Eng. Horia SIMASCHEVICI Ph.D. - University of Petroșani, *Romania*; Assoc.Prof.Eng. Iosif DUMITRESCU Ph.D. - University of Petroșani, *Romania*

Editor Secretary: Assoc.Prof.Eng. Sorin MIHĂILESCU Ph.D. - University of Petroșani, *Romania*

Editorial office address:

University of Petroșani, 20 University Street, RO-332006 Petroșani, Romania,

Phone: (40) 254/542994, 542580, 542581, 543382; **Fax:** (40) 254/543491;

Telex: 72524 univp; **E-mail:** mihailescu@gmail.com

Contents

	pag.
Andraș, A., Dinescu, S., <i>Open Pit Lignite Mining Process Reliability Assessment Using Bayesian Belief Networks</i>	5
Barisic, B., Ungureanu, M., Car, M., <i>A Numerical Approach to the Establishment of a Sheet Metal Forming Process Technology</i>	11
Brázda, P., Baron, P., <i>Usage of Collision Detection Module during Automatized Workplace Simulation in Virtual Reality Environment</i>	23
Chiriacescu, S., Munteanu, R., Dinitza, I., <i>A Method for Designing Passive Isolators</i>	27
Curtu, I., Baba, M., Stanciu, M., <i>On the Numerical Evaluation of the Mixed Mode Delamination Toughness for Lignocelulosic Composites</i>	33
Curtu, I., Stanciu, M., Baba, M., <i>The Numerical Modeling of the Acoustic Plates on the Guitar Structures</i>	41
Dinescu, S., Andraș, A., <i>Environmental Friendly Equipment and Technology for Underground Civil Excavations</i>	47
Dobránsky, J., Mandulák, D., <i>Design of Planed Experiments to Appraisal of Quality Parameters by Injection Moulding</i>	53
Grigorov, O.V., Gubskiy, S.A., Strijak, V.V., Ivcenko, D.A., Borisenko, A.A., <i>Forecasting the Remaining Available Resource of the Metallic Bearing Structure of the Bridge-Cranes Used Over the Standard Operating Time</i> ...	59
Hatala, M., <i>Application Suitability of Power-Jet Cutting Technologies for Constructional Steel</i>	73
Iloiu, M., Iloiu, S., <i>Feasibility and Viability of Mining Projects</i>	79
Iloiu, S., Iloiu, M., <i>Ore Reserve Estimation and Project Profitability</i>	85
Ionică, A., Edelhauser, E., <i>Decision Tree Technique – A Useful Tool for the Quality Management of a Project</i>	89
Jha, S.K., Uzunyan, M.D., <i>Application of Quality Engineering Concepts in Optimizing Diamond Grinding Process for Hard Metal Cutting Tools Using Response Surface Methodology</i>	93
Jovanovici, D., Milosevic, D., Zizovic, M., <i>Personalized e-Learning by Mapping Student's Learning Style and Preference to PeLCoM Metadata</i> ..	103
Kutschenreiter-Praszkiewicz, I., <i>The Application of Neural Network in Determination of Time Consumption in Machining Production Process</i>	113
Mihăilescu, S., Nan, M.S., Kovacs, I., Dumitrescu, I., <i>Study Report on the Character of Displacement Due to Mechanical Cutting of Compact Blue Clay Located Inside the Perimeter of Jilt Open Pit with the View to Increasing the Operating Performances of the Rotor Excavators</i>	121

	pag
Nan, M.S., Kovacs, I., Dumitrescu, I., Andraș, I., Jula, D., Dimirache, G., <i>Research Regarding the Devise and Development of a Mobile Laboratory for the Balancing and Stability Assessment of the Technological Equipment Operating in Lignite Open Pit Mines</i>	141
Petrilean, D.C., <i>Elaborating and Analysing the Real Balance of Heat for the Steam Generator RGL10/D-D</i>	155
Popescu, F., Magyari, A., <i>Liquid Level Control System for the N.C.H. Petroșani</i>	161
Praporgescu, G., Nan, M.S., Andras, I., Dunca, F., Urdea, G., <i>Researches Regarding the Operation of the Transportation Systems Currently Existing in the Mines of the Jiu Valley</i>	165
Index of Authors	177
Instructions for Authors	178

INDEX OF AUTHORS

A			
Andraș, A.,	5, 47	J	
Andraș, I.,	141, 165	Jha, S.K.,	93
B		Jovanovici, D.,	103
Baba, M.,	33, 41	Jula, D.,	141
Barisic, B.,	11	K	
Baron, P.,	23	Kovacs, I.,	121, 141
Borisenko, A.A.,	59	Kutschenreiter-Praszkiewicz, I.,	113
Brázda, P.,	23	M	
C		Magyari, A.,	161
Car, M.,	11	Mandulák, D.,	53
Chiriacescu, S.,	27	Mihăilescu, S.,	121
Curtu, I.,	33,41	Milosevic, D.,	103
D		Munteanu, R.,	27
Dimirache, G.,	141	N	
Dinescu, S.,	5, 47	Nan, M.S.,	121, 141, 165
Dinitza, I.,	27	P	
Dobránsky, J.,	53	Petrilean, D.C.	155
Dumitrescu, I.,	121, 141	Popescu, F.,	161
Dunca, F.,	165	Praporgescu, G.,	165
E		S	
Edelhauser, E.,	89	Stanciu, M.,	33, 41
G		Strijak, V.V.,	59
Grigorov, O.V.,	59	U	
Gubskiy, S.A.,	59	Ungureanu, M.,	11
H		Urdea, G.,	165
Hatala, M.,	73	Uzunyan, M.D.,	93
I		Z	
Iloiu, M.,	79, 85	Zizovic, M.,	103
Iloiu, S.,	79, 85		
Ionică, A.,	89		
Ivcenko, D.A.,	59		

INSTRUCTIONS FOR AUTHORS

THE TITLE OF THE PAPER WILL BE WRITTEN WITH CAPITAL LETTERS, CENTERED, AT 7.0 cm FROM THE UPPER EDGE OF A4 FORMAT, ALONG THE ENTIRE WIDTH, TIMES NEW ROMAN, 14 POINTS, BOLD.

· (14 points)

· (14 points)

The first name and the family name will be written with CAPITAL LETTERS, BOLD, CENTERED, 130 mm width, Times New Roman, 12 points, each name being followed by number, and in the footnote the didactic and scientific degree, the position and place of work of the authors (possibly fax, E-mail) are indicated, with italics, 130 mm width, Times New Roman, 11 points.

· (12 points)

· (12 points)

<Tab> **Abstract: (Times New Roman, 10 points, bold)** The Abstract will only be in English and will have between 50 and 100 words, arranged all over the entire width, single, left – right alignment, all over the width of the printed space, Times New Roman, 10 points.

· (10 points)

· (10 points)

<Tab> **Key words: (Times New Roman, 10 points, bold)** 5 – 10 words, in English, along the entire width, Times New Roman, 10 points.

· (10 points)

· (10 points)

· (10 points)

<Tab> **1. THE TITLE OF THE CHAPTER IS WRITTEN WITH CAPITAL LETTERS, BOLD, TIMES NEW ROMAN, 11 POINTS AND WILL BE NUMBERED WITH ARABIC NUMBERS.**

· (11 points)

<Tab> The paper text paragraphs will be left – right aligned. The lines of the entire text will be single spaced with Times New Roman fonts, size 11 points.

The paper will be edited in a language of international circulation (English, French, German) on A4 format (210 x 297), page setup: top 5,6 cm, bottom 4,6 cm, left 3,7 cm, right 3,7 cm, in WORD or WORDPERFET or WINDOWS. The size of the symbol is given next and is written in the instructions used to assist in editing the text. It indicates a blank line and does not show in the text of the paper, being obtained by pressing <ENTER>. The size of a <Tab> is 1,27 cm. No blank line is left between the paragraphs. Between the last line before the title and the title of the chapter and between the title and the first next line a blank line is left for each.

¹*Professor, Ph.D. at the University of Petroșani*

1.1 Subchapter. Subchapters can be used in the text, numbered with the number of the chapter and a number showing the number of the subtitle within the chapter. The subchapters and the numbers are Times New Roman, 11 points, bold.

· (11 points)

The text is written in new paragraph and not continuing the subtitle, an 11 point blank line being left between the subtitle and the following text.

· (11 points)

2. PRESENTATION OF THE FIGURES

· (11 points)

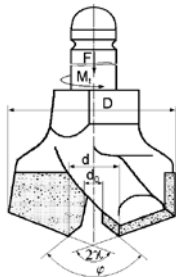


Fig. 1. Detachable bit

Figures should be enclosed in the text in the order of their presentation, as far as possible on the page where reference is made to them. They shall be numbered with Arabic numbers. Black – and – white, high contrast figures are recommended. Photos can be used as well, but they should be of good quality, clarity and sufficient contrast. The figures will have a legend (name of the figure), which, along with the number, will be written underneath with Times New Roman, 10 points, centered as to the figure. The figures will be surrounded by text.

· (11 points)

3. PRESENTATION OF THE TABLES

· (11 points)

The tables will be enclosed in the text, a 10 points blank line being left above and under the table, and will be numbered with Arabic numbers. Both the number and the explanations to the table are written with Times New Roman, 10 points, italic, for the number and bold for the explanation to the table, centered in the space of the table and above it. The table entries will be Times New Roman, 10 points, bold, and the data in the table will be Times New Roman, 10 points. The thin lines of the table will be ½ points (0,02 cm), and the thick ones will be ¾ ... 1 points (0,03 ... 0,04 cm).

· (11 points)

4. PRESENTATION OF THE MATHEMATICAL EQUATIONS

· (11 points)

The mathematical equations will be with times New Roman, 11 points, center of the page and numbered on the right with Arabic numbers between round brackets.

· (8 points) <Blank line 8 point high>

$$X^2 + Y^2 = Z^2 \quad (1)$$

· (8 points) <Blank line 8 point high>

An 8 point high blank line is left between the last line before the relation and the relation and between the latter and the next first line.

The last page will be at least 2/3 full.

The pages of the paper will only be numbered by a pencil outside the printing space.

· (11 points)

REFERENCES (will be written according to the model, Times New Roman 10 points).

· (10 points)

[1]. **Marian I.**, *Mecanizarea în minerit*, Editura Tehnică, București, 1969.