

Tehnički institut / Technical Institute of Bijeljina

---

ZBORNİK RADOVA / BULLETIN OF  
Godina / Year V – No. 9.

---

UDC: 62

DOI: 10.7251

ISSN 1840-4855  
e-ISSN 2233-0046

**A R H I V**  
**ZA TEHNIČKE NAUKE**  
**Archives for Technical Sciences**



Bijeljina 2013

A R H I V  
ZA TEHNIČKE NAUKE  
Archives for Technical Sciences

*Founder and publisher:*  
Technical Institute of Bijeljina

*Editor in Chief:*  
Prof. Ph.D. Nedo Đurić

Editorial Board

Acad. prof. Ph.D. Stevan Karamata  
*Serbian Academy of Sciences and Arts,  
Serbia*

Acad. prof. Ph.D. Aleksandar Grubic  
*Academy of Sciences and Arts  
of the Republic of Srpska*

Prof. Ph.D. Jovan Djukovic  
*Technology Faculty Zvornik, Republic of  
Srpska*

Prof. Ph.D. Petar Santrac  
*Civil Engineering Subotica, Serbia*

Prof. Ph.D. Isik Yilmaz  
*Faculty of Engineering, Department of  
Geological Engineering, Sivas, Turkey*

Prof. Ph.D. Karolj Kasaš  
*Civil Engineering Subotica, Serbia*

Prof. Ph.D. Svjetlana Cupac  
*Faculty of Agriculture Belgrade, Serbia*

Prof. Ph.D. Dragan Marković  
*Faculty for Applied Ecology, Belgrade,  
Serbia*

Prof. Ph.D. Hazim Hrvatovic  
*Mining, Geology and Civil Engineering  
Tuzla, Bosnia and Herzegovina*

Prof. Ph.D. Bozo Kolonja  
*Faculty of Min. and Geol. Belgrade, Serbia*

Prof. Ph.D. Mirko Ivkovic  
*Mining Faculty Prijedor, Republic of  
Srpska*

Prof. Ph.D. Josip Halamic  
*Natural Sciences and Mathematics Faculty  
Zagreb, Croatia*

Prof. Ph.D. Milovan Pecelj  
*Geographical Faculty of Belgrade, Serbia*

Edita Lazarova Ph.D, Scientific adviser  
*Institute of Geotechnics Slovak Academy  
of Sciences, Slovakia*

Robert Sain Ph.D. Scientific adviser  
*Geological Survey of Slovenia*

*Technical Editor:*  
Đurić Dijana, ecologist

*Lector for English*  
School of Foreign Languages "Cerovac" Bijeljina

*Address:*  
Tehnički institut Bijeljina, Starine Novaka bb  
Tel. +387 (55) 203 – 022, 211 – 701  
Fax. +387 (55) 203 – 312

E. mail: [tehnicki@tehnicki-institut.com](mailto:tehnicki@tehnicki-institut.com); [arhiv@arhivzatehnickenauke.com](mailto:arhiv@arhivzatehnickenauke.com)  
[www.arhivzatehnickenauke.com](http://www.arhivzatehnickenauke.com)

*Press:*  
Grafosemberija Bijeljina

*Circulation:*  
300 copies,

# CONTENTS

## GEOLOGY

*Taletović Nermin, Osmanović Dean, Isabegović Jasmin*

<b>Applications of GPS and GNSS in geological mapping and development of engineering geological maps at example of landslide “Junuzovići” Srebrenik .....</b>	<b>1</b>
---	----------

## GEOTECHNICS

*Đurić Neđo*

<b>Geotechnical conditions for the foundation of Wastewater treatment plant facilities in V. Obarska settlement near Bijeljina .....</b>	<b>9</b>
--	----------

*Đurić Neđo, Đuran Perica, Miljanović Jovo*

<b>Laboratory testing of samples at the location of the Thermal power plant – Ugljevik 3 .....</b>	<b>15</b>
--	-----------

## MINING

*Miljanović Jovo, Kovačević Žarko, Tošić Dražena*

<b>The results of AT roofbolting system of support application in "Soko" underground mine .....</b>	<b>25</b>
---	-----------

*Kovačević Žarko, Čelebić Miodrag, Tošić Dražena*

<b>Calculation of drilling and blasting parameters for quarry "Dobrnja" near Banja Luka .....</b>	<b>35</b>
---	-----------

## CONSTRUCTION

*Borković Aleksandar*

<b>Analysis of snap behaviour of shallow cylindrical shells using the finite strip method .....</b>	<b>43</b>
---	-----------

<i>Milajić Aleksandar, Pejičić Goran, Beljaković Dejan</i> <b>Optimal structural design of reinforced concrete structures – Review of existing solutions considering applicability aspect</b> .....	53
<i>Žarko Nestorović, Milan Trifković, Tihomir Milutinović, Goran Pejičić, Hamidreza Gholami</i> <b>On the possibility of measured angle checking by using measured distances</b> .....	61
<b>ENVIRONMENT</b>	
<i>Slobodan Tošović, Svetlana Mladenović Janković, Anka Cvetković</i> <b>Exposure to particulate matter and heavy metals in the populations of central zones of Belgrade</b> .....	69

## **SUPPLEMENT**

*ANALYTICAL PROCESSION OF ARTICLES / published in the National and university library of  
Republika Srpska / Archives for Technical Sciences, No. 8.*