

UNIVERSITY OF NIŠ
FACULTY OF OCCUPATIONAL SAFETY



Journal for Scientists and Engineers
SAFETY ENGINEERING

Naučno stručni časopis
INŽENJERSTVO ZAŠTITE

Vol. 11. N^o1 (2021)

Niš, June 2021.

Scientific Journal

SAFETY ENGINEERING

Naučni časopis

INŽENJERSTVO ZAŠTITE

(OPEN ACCESS JOURNAL - www.safety.ni.ac.rs)

Izdavač / Publisher

Fakultet zaštite na radu u Nišu / Faculty of Occupational Safety in Niš

Glavni urednik / Editor-in-Chief

Dejan Krstić

Urednici / Editors

Srđan Glišović

Vesna Nikolić

Redakcijski odbor / Editorial Board (in alphabetical order)

Andres Carrnion Garcia, Technical University of Valencia, Spain

Boris Đinđić, University of Niš, Faculty of Medicine, Serbia

Branislav Anđelković, University of Niš, Faculty of Occupational Safety, Serbia

Dejan Petković, University of Niš, Faculty of Occupational Safety, Serbia

Đorđe Čosić, University of Novi Sad, Faculty of Technical Studies, Serbia

Dragan Mitić, University of Niš, Faculty of Occupational Safety, Serbia

Dragan Mlađan, The Academy of Criminalistic and Police Studies, Belgrade, Serbia

Dušan Sakulski, Faculty of Natural and Agricultural Sciences, DiMTEC, Bloemfontein, South Africa

Dušan Sokolović, University of Niš, Faculty of Medicine, Serbia

Goran Ristić, University of Niš, Faculty of Electronic Engineering, Serbia

Ivana Banković Ilić, University of Niš, Faculty of Technology in Leskovac, Serbia

Ivan Krstić, University of Niš, Faculty of Occupational Safety, Serbia

Joseph Aronov, VNIIS Moscow, Russia

Jovica Jovanović, University of Niš, Faculty of Medicine, Serbia

Katarína Senderská, Technical University of Košice, Faculty of Mechanical Engineering, Slovakia

Kemal Nuri Özerkan, University of Istanbul, School of Physical Education Sports

Ljiljana Živković, University of Niš, Faculty of Occupational Safety, Serbia

Ljubiša Papić, University of Kragujevac, Technical Faculty Čačak, Serbia

Miloš Jelić, Institute Kirilo Savić, Beograd, Serbia

Miomir Stanković, University of Niš, Faculty of Occupational Safety, Serbia

Mirjana Vidanović, University of Niš, Faculty of Occupational Safety, Serbia

Mirko Marič, University of Primorska, Faculty of Management, Slovenia

Nevenka Kopjar, University of Zagreb, Institute for Medical Research and Occupational Health, Croatia

Nenad Živković, University of Niš, Faculty of Occupational Safety, Serbia

Nenad Cvetković, University of Niš, Faculty of Electronic Engineering, Serbia

Noam Lior, University of Pennsylvania, USA

Predrag Petrović, Institute Kirilo Savić, Beograd, Serbia

Rodoljub Simović, Vinca Institute of Nuclear Sciences, Serbia

Susana San Matias, Technical University of Valencia, Spain

Suzana Savić, University of Niš, Faculty of Occupational Safety, Serbia

Slavoljub Aleksić, University of Niš, Faculty of Electronic Engineering, Serbia

Vera Marković, University of Niš, Faculty of Electronic Engineering, Serbia

Vlada Veljković, University of Niš, Faculty of Technology in Leskovac, Serbia

Wolfgang Mathis, Institut für Theoretische Elektrotechnik, Hannover, Germany

Zoran Keković, University of Belgrade, Faculty of Security Studies, Serbia

Žarko Janković, University of Niš, Faculty of Occupational Safety, Serbia

Tehnički urednik / Technical Editor

Rodoljub Avramović

Lektor / Proofreading

Aleksandra Petković

Štampa / Press

„Unigraf x-copy“ doo Niš



From Editor's desk

„Najlepša stvar kod učenja je to što ti znanje niko nikada ne može uzeti.“

B.B. King

U novom ciklusu akreditacije visokoškolskih ustanova, Fakultet zaštite na radu je akreditovao tri studijska programa osnovnih akademskih studija (Zaštita na radu, Zaštita životne sredine i Zaštita od požara) i pet studijskih programa master akademskih studija (Inženjerstvo zaštite na radu, Inženjerstvo zaštite životne sredine, Inženjerstvo zaštite od požara, Upravljanje vanrednim situacijama i Menadžment zaštite životne sredine). Studijski programi omogućavaju studentima sticanje i usvajanje znanja iz polja tehničko-tehnoloških, prirodnih, društveno-humanističkih i medicinskih nauka, kao i veština i kompetencija koje će im omogućiti da rade na složenim multidisciplinarnim poslovima zaštite radne i životne sredine. Cilj ovog akreditacionog ciklusa jeste približavanje dualnom sistemu obrazovanja, kroz realizaciju dela nastave u malim i srednjim preduzećima (građevinarstvo, hemijska, metaloprerađivačka, prehrambena industrija i dr.), velikim preduzećima (elektroprivreda, telekomunikacije, naftna industrija, saobraćaj, rudarstvo i dr.), inspekcijama, institutima, naučnoistraživačkim ustanovama i dr., čime se studenti praktično osposobljavaju za rešavanje problema u oblasti Inženjerstva zaštite životne sredine i zaštite na radu. Novi broj časopisa *Safety Engineering* ostaje fokusiran na teme inženjerstva zaštite od internacionalnog značaja, sa osvrtom na neke lokalne specifične događaje i primere domaće i inostrane prakse. Publikacijom radova na temu modeliranja udesnih događaja, monitoringa kvaliteta vazduha, energetske efikasnosti i uticaja pandemije virusa Covid19 na zaposlene još jednom se ukazuje na značaj profila budućih inženjera zaštite akademskoj i stručnoj javnosti.

“The beautiful thing about learning is nobody can take it away from you.”

B.B. King

In the new cycle of accreditation of higher education institutions, the Faculty of Occupational Safety has accredited three study programmes of Basic Academic Studies (Occupational Safety, Environmental Protection and Fire Protection) and five study programmes of Master Academic Studies (Occupational Safety Engineering, Environmental Protection Engineering, Fire Protection Engineering, Emergency Management and Environmental Management). Study programmes enable students to acquire knowledge in the fields of technical and technological sciences, natural sciences, humanities and social sciences and medical sciences, as well as to gain work skills and develop competencies for their future occupations in the multidisciplinary field of occupational and environmental safety. The goal of this accreditation cycle is to move towards the dual system of education, through organizing trainings in small-and medium-sized enterprises (construction, chemical, metal processing, food industry, etc.), large enterprises (electric power companies, telecommunications, oil industry, transport, mining, etc.), inspections, institutes, research institutions, etc., which will help students learn how to become adept problem solvers in the field of Environmental Engineering and Occupational Safety. The new issue of *Safety Engineering* remains focused on topics of safety engineering of international importance, with a review of local specific events and examples of domestic and foreign practice. The publication of papers on accident modeling, air quality monitoring, energy efficiency and the impact of the Covid19 pandemic on employees once again points to the importance of the profile of future safety engineers to the academic and professional public.

On behalf of the editors

Prof. Dr. Dejan Krstić

