

ISSN 2683-345X

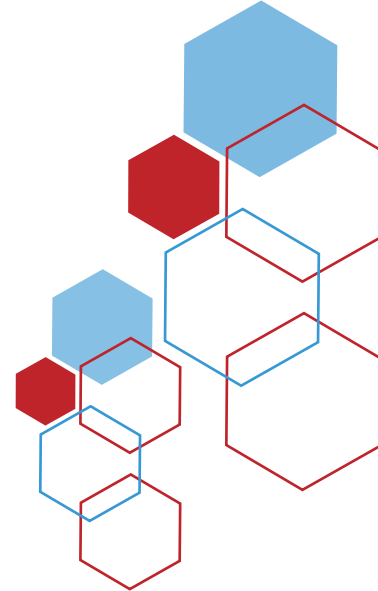
**International Journal of Industrial  
Engineering and Management**

---

**International Journal  
of Industrial Engineering  
and Management**

Vol 12 No 2 (2021)

# International Journal of Industrial Engineering and Management



Volume 12 Number 2  
ISSN 2217 - 2661 (print)  
ISSN 2683 - 345X (online)

Journal homepage: <http://ijemjournal.uns.ac.rs/>

Circulation: 30 copies  
Journal is published quarterly

Publisher: **University of Novi Sad,**  
**Faculty of Technical Sciences,**  
Department of Industrial Engineering and Management

IJEM is sponsored by Ministry of Education, Science and Technological Development of Republic of Serbia.

## EDITORIAL BOARD

Editor-in-Chief

**Uglješa Marjanović,**  
University of Novi Sad, Serbia  
[ijem@uns.ac.rs](mailto:ijem@uns.ac.rs)

Desk Editor

**Slavko Rakić**  
University of Novi Sad, Serbia  
[slavkorakic@uns.ac.rs](mailto:slavkorakic@uns.ac.rs)

Website Technical Editor

**Miroslav Stefanović**  
University of Novi Sad, Serbia  
[mstef@uns.ac.rs](mailto:mstef@uns.ac.rs)

Publishing Editor

**Dragana Gojić**  
University of Novi Sad, Serbia  
[dragana.gojic@uns.ac.rs](mailto:dragana.gojic@uns.ac.rs)

## Editorial Board

**Ivan Beker**, University of Novi Sad, Novi Sad, Serbia  
**Branislav Borovac**, University of Novi Sad, Novi Sad, Serbia  
**Borut Buchmeister**, University of Maribor, Maribor, Slovenia  
**Jin Chen**, Tsinghua University, Beijing, China  
**Ilija Ćosić**, University of Novi Sad, Novi Sad, Serbia  
**Dubravko Ćulibrk**, University of Novi Sad, Novi Sad, Serbia  
**Franc Ćuš**, University of Maribor, Maribor, Slovenia  
**Milan Delić**, University of Novi Sad, Novi Sad, Serbia  
**Valentina Gečevska**, University of Skopje, Skopje, North Macedonia  
**Nikola Gradojević**, Lakehead University, Ontario, Canada  
**Branislav Jeremić**, University of Kragujevac, Kragujevac, Serbia  
**Branko Katalinić**, Viena University of Technology, Viena, Austria  
**Tomas Kliestik**, University of Zilina, Slovakia  
**Bojan Lalić**, University of Novi Sad, Novi Sad, Serbia  
**Milovan Lazarević**, University of Novi Sad, Novi Sad, Serbia  
**Franco Lombardi**, Politecnico di Torino, Torino, Italy  
**Yoshihiko Nakamura**, University of Tokyo, Tokyo, Japan  
**Gordana Ostojić**, University of Novi Sad, Novi Sad, Serbia  
**Iztok Palčič**, University of Maribor, Maribor, Slovenia  
**Margherita Pero**, Politecnico di Milano, Milan, Italy  
**Enrico Sandrin**, University of Padova, Padova, Italy  
**Chengli Shu**, Xi'an Jiaotong University, Xi'an, China  
**Selver Softic**, CAMPUS 02 University of Applied Sciences, Graz, Austria  
**Dušan Šormaz**, Ohio University, Athens, USA  
**Stevan Stankovski**, University of Novi Sad, Novi Sad, Serbia  
**Miladin Stefanović**, University of Kragujevac, Kragujevac, Serbia  
**Darko Stefanović**, University of Novi Sad, Novi Sad, Serbia  
**Nikola Suzić**, University of Padova, Padova, Italy  
**Ivica Veža**, University of Split, Split, Croatia  
**Henry Zhang**, Purdue University, West Lafayette, USA

CIP classification  
CIP - Каталогизacija u publikaciji  
Narodna biblioteka Srbije, Beograd  
658.5+005

INTERNATIONAL journal of industrial engineering and management/ Editor-in-chief Uglješa Marjanović. - Vol. 12, no. 2 (2021) - - Novi Sad (Trg Dositeja Obradovića 6): University of Novi Sad, Faculty of Technical Sciences, Department of Industrial Engineering and Management, 2021 - (Novi Sad: Graphic Center GRID). -28 cm

Tromesečno  
ISSN 2217-2661 = International Journal of Industrial Engineering and Management  
COBISS.SR - ID 176081932

Articles published in this journal are indexed  
in: SCOPUS, DOAJ, EBSCO and ProQuest



Printed by FTN Graphic Center GRID, Novi Sad, Serbia

Published by the University of Novi Sad, Faculty of Technical Sciences,  
Novi Sad, Serbia.  
This is an open access article distributed under the CC BY-NC-ND 4.0  
terms and conditions.