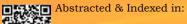
# **NATIONAL & INTERNATIONAL SCIENTIFIC EVENTS**

Euro PM2023 Congress and Exhibition	15th ISRM Congress 2023
Venue: Lisbon Congress Centre	Venue: Salzburg Congress
Location: Lisbon, Portugal	Location: Salzburg, Austria
Begins: October 01, 2023	Begins: October 09, 2023
Ends: October 04, 2023	Ends: October 14, 2023
7th World Engineers Convention	16th Asian Congress on Biotechnology
Venue: Prague Congress Centre	Venue: Tan Son Nhat Hotel
Location: Prague, Czech Republic	Location: Ho Chi Minh City, Tayland
Begins: October 11, 2023	Begins: October 15, 2023
Ends: October 13, 2023	Ends: October 19, 2023
International Conference on Ubiquitous Information Management and Communication	IEEE Consumer Communications & Networking Conference
Venue: Offline and Online	Venue: Flamingo Hotel
Location: Kuala Lumpur, Malaysia	Location: Las Vegas, USA
Begins: January 03 2024	Begins: January 06 2024
Ends: January 05, 2024	Ends: January 09, 2024
The 37th International Conference on Micro	The 14th International Conference on Key
Electro Mechanical Systems	Engineering Materials
Venue: AT&T Hotel and Conference Center	Venue: N/A
Location: Texas, USA	Location: Dubai, United Arab Emirates
Begins: January 21 2024	Begins: March 06 2024
Ends: January 25, 2024	Ends: March 09, 2024
10th International Conference on Computer Technology Applications	12nd World Biomaterials Congress
Venue: Hotel Ibis Wien Mariahilf	Venue: EXCO
Location: Vienna, Austria	Location: Daegu, Korea
Begins: May 15 2024	Begins: May 26 2024
Ends: May 17, 2024	Ends: May 31, 2024
22nd Triennial Congress of The International Ergonomics Association	18th European Conference on Soil Mechanics and Geotechnical Engineering
Venue: Jeju International Convention Center	Venue: Altice Arena
Location: Jeju Island, Korea	Location: Lisbon, Portugal
Begins: August 25 2024	Begins: August 26 2024
Ends: August 29, 2024	Ends: August 30, 2024

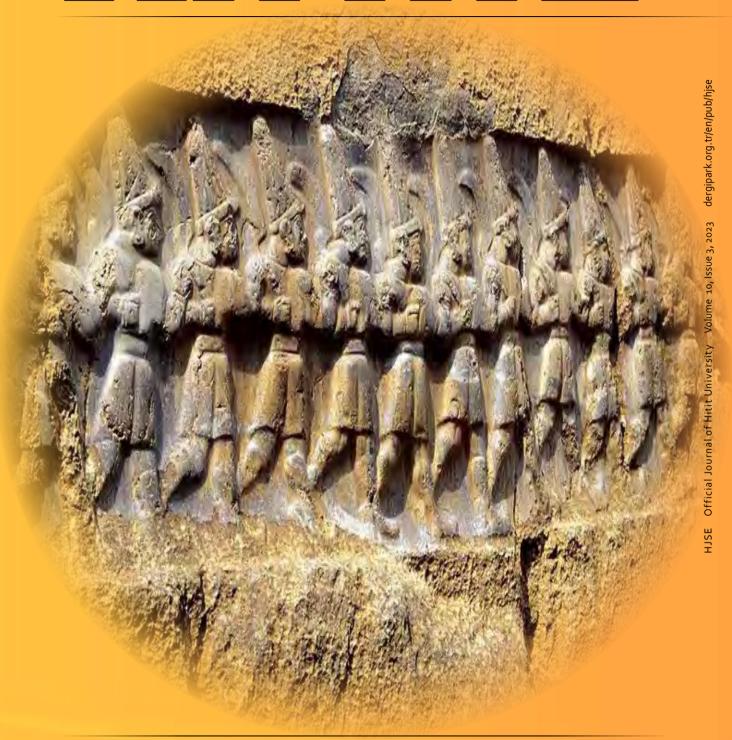




TR Dizin Mühendislik ve Temel Bilimler Veri Tabanı |
CrossRef | Google Scholar | MIP Database | StuartxChange | ResearchBib | Scientific Indexing Services (SIS)



# JOURNAL OF SCIENCE & ENGINEERING JOURNAL OF SCIENCE & ENGINEERING



Volume 10, Issue 3, 2023

dergipark.org.tr/en/pub/hjse

### Owner

Prof. Dr. Ali Osman ÖZTÜRK on behalf of Hitit University

### **Editor-in-chief**

Prof. Dr. Ali KILIÇARSLAN

### **Associate Editors**

Prof. Dr. D. Ali KÖSE

Assoc. Prof. Dr. Öncü AKYILDIZ

### **Production**

Assoc. Prof. Dr. Kazım KÖSE Res. Asst. Dr. Erhan ÇETİN Res. Asst. Dr. Mustafa Reşit HABOĞLU

Res. Asst. Harun Emre KIRAN Res.

Asst. Ömer Faruk TOZLU Lect. Tugrul YILDIRIM

### Editor's Office

Tel: +90 364 227 45 33 / 12 36

Fax: +90 364 227 45 35

Email: alikilicarslan@hitit.edu.tr

# **Subscription Service:**

Tel: +90 364 227 45 33 / 12 82

Fax: +90 364 227 45 35 Email: hjse@hitit.edu.tr

## EDITORIAL BOARD

Prof. Dr. Iftikhar AHMAD

Prof. Dr. Mike BECKETT

Prof. Dr. İbrahim DİNCER

Prof. Dr. Ali ELKAMEL

Prof. Dr. Mohamad S QATU

Prof. Dr. Saffa RIFFAT

Prof. Dr. Thanos SALIFOGLOU

Prof. Dr. Yuehong SU

Dr. Wojciech NOGALA

Prof. Dr. Yusuf AYVAZ

Prof. Dr. Adil DENİZLİ

Prof. Dr. Ali GENCER

Prof. Dr. Metin GÜRÜ

Prof. Dr. Murat HOŞÖZ

Prof. Dr. Sadık KAKAC

Prof. Dr. Tarık Ömer OĞURTANI

Prof. Dr. Ender SUVACI

Prof. Dr. Ali TOPCU

Prof. Dr. Kazım Savas BAHCECİ

Prof. Dr. Cengiz BAYKASOĞLU

Prof. Dr. Naki ÇOLAK

Prof. Dr. Vedat DENİZ

Prof. Dr. Hakan GÜNGÜNEŞ

Prof. Dr. Bülent KABAK

Prof. Dr. Ali KILICARSLAN

Prof. Dr. Dursun Ali KÖSE

Prof. Dr. İrfan KURTBAŞ

Prof. Dr. İbrahim SÖNMEZ

Prof. Dr. Dilber Esra YILDIZ

Assoc. Prof. Dr. Seyfi ŞEVİK

University of Malakand, Chakdara, Pakistan Bangor University, Bangor, United Kingdom Uoit Ontario University, Ontario, Canada University of Waterloo, Ontario, Canada

Central Michigan University, Michigan, United States The University of Nottingham, United Kingdom

Aristotle University of Thessaloniki, Thessaloniki, Greece

The University of Nottingham, United Kingdom

Polish Academy of Sciences, Poland

Suleyman Demirel University, Turkey

Hacettepe University, Turkey

Ankara University, Turkey

Gazi University, Turkey

Kocaeli University, Turkey

TOBB University, Turkey

Middle East Technical University, Turkey

Anadolu University, Turkey Hacettepe University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Hitit University, Turkey

Journal Name : HITTITE JOURNAL OF SCIENCE AND ENGINEERING

Year : 2023

Managing Editor : Prof. Dr. Ali KILIÇARSLAN

Managing Office : Hitit University Faculty of Engineering

Managing Office Tel : +90 364 227 45 33 / 12 36

Publication Language : English

Publication Type : Peer Reviewed, Open Access, International Journal

Delivery Format : 4 times a year (quarterly)

Print ISSN : 2149-2123 Online ISSN : 2148-4171

Publisher Address : Hitit Üniversitesi Kuzey Kampüsü Çevre Yolu Bulvarı

19030 Çorum / TÜRKİYE

Publisher Tel : +90 364 227 45 33/1236



As the team of Hittite Journal of Science and Engineering, we have published the new issue (2023-Volume 10, Issue 3). As a Editor in Chief, I am grateful to all our authors and contributing reviewers of this issue. I also would like to thank to the President of Hitit University, Prof. Dr. Ali Osman Öztürk, for his support and interest in HJSE and also to the Associate Editors of HJSE, namely Prof. Dr. Dursun Ali Kose and Assoc. Prof. Dr. Oncu Akyildiz, as well as our Production Editors Dr. Kazim Kose, Mustafa Reşit Haboğlu, Erhan Çetin, Tugrul Yıldırım, Harun Emre Kıran and Ömer Faruk Tozlu for their invaluable efforts in making of the journal.

The number of articles submitted to HJSE has been increasing, although I have announced in the previous issue (2023-Volume 10, Issue 2) that the articles within the scope of "Engineering", "Computer Science", "Food Science and Technology", "Materials Science" and the subcategories within this scope (listed in the submission section of HJSE) would be accepted for publication.

In this new issue, because of the important decision that we have taken in June 6, 2023, most of articles published are from the engineering discipline and related science such as material and computer science. But, there are still three articles from natural science such as physics because these articles had been submitted before June 6, 2023.

It's my pleasure to invite the researchers and scientists from all branches of engineering to join us by sending their best papers for publication in Hittite Journal of Science and Engineering.

Dr. Ali Kilicarslan

Editor-in-Chief