

December 2023

Proceedings of the International Conference on Industrial Engineering and Operations Management  
ISSN / E-ISSN: 2169-8767  
ISBN: 979-8-3507-1733-4

# **6th Industrial Engineering and Operations Management Bangladesh Conference**

(Chittagong University of Engineering & Technology, Bangladesh,  
December 26-28, 2023)

**Editor-in-Chief**  
**Md Nazrul Islam, Ph.D.**  
IEOM Society International

## **Editorial Board:**

A. B. M. Mainul Bari, Bangladesh University of Engineering and Technology  
A.O. Adewumi, University of KwaZulu-Natal, South Africa  
Abdelaziz Berrado, The Ecole Mohammadia d'Ingénieurs (EMI), Rabat, Morocco  
Abderrahmane Mellak, University of Boumerdes, Algeria  
Abdussalam Shibani, Coventry University, UK  
Abu Taher, European University of Bangladesh  
Arun N. Nambiar, California State University – Fresno, USA  
Ashish Dwivedi, Indian Institute of Technology Delhi, New Delhi, India  
Balan Sundarakani, University of Wollongong in Dubai, UAE  
Behnam Bahrami, Eastern Mediterranean University, Famagusta, Cyprus  
D.K. Banwet, IIT-Delhi, India  
Dinusha Gamage, University of Moratuwa, Sri Lanka  
Gopalan Srinivasan, University of New Brunswick, Canada  
Hui-Ming Wee, Chung Yuan Christian University, Taiwan  
Ilias Mamat, Quest International University Perak, Ipoh, Perak, Malaysia  
Indra Gunawan, The University of Adelaide, Australia  
Kazi Arif-Uz-Zaman, Khulna University of Engineering & Technology (KUET)  
Kazi Naimur Rahman, Chittagong University of Engineering & Technology  
Kondo H. Adjallah, Paul-Verlaine University, France  
Linda L. Zhang, IESEG School of Management, Lille-Paris, France

Md Miraiz Hossain, Chittagong University of Engineering & Technology  
Md Mizanur Rahman, World University of Bangladesh  
Md. Firoz Kabir, Bangladesh Army University of Science and Technology  
Md. Mostafizur Rahman, World University of Bangladesh  
Michael Mutingi, University of Botswana, Botswana  
Omar Elmabrouk, Benghazi University, Libya  
Ramakrishnan Ramamoorthy, Yanbu Industrial College, Yanbu, Saudi Arabia  
Ramy Harik, University of South Carolina, USA  
Rene Estember, Mapua University, Philippines  
S.M. Fahim Faisal, Chittagong University of Engineering and Technology  
Sanjeeb Roy, Chittagong University of Engineering and Technology  
Sarbjit Singh, National Institute of Technology, Jalandhar, Punjab, India  
Sawat Pararach, Thammasat University, Thailand  
Shahryar Sorooshian, University Malaysia Pahang, Malaysia  
Sharif Sharif, IIT Kanpur  
Suat Kasap, Industrial Engineering, American University of the Middle East, Kuwait  
Subrata Talapatra, Khulna University of Engineering and Technology  
Syed Asif Raza, Qatar University, Qatar  
Tasmia Binte Hai, Chittagong University of Engineering and Technology  
Umme Salma Ferdousi, University of Wyoming  
Vassilis Gerogiannis, Department of Project Management, Greece  
Yuan Xue Ming, SIMTech: Singapore Institute of Manufacturing Technology, Singapore

International Conference of Industrial Engineering and Operations Management (ICIEOM) aims to publish quality research work in the field of industrial engineering and operations management (IEOM) for academics, researchers and practitioners to advance the theory and practice as well as to identify major trends in industrial engineering and operations management. The journal is expected to advance the theory and practice through publishing research-oriented papers with a wide variety of problems related on real-life applications and research which affect in global levels.

ICIEOM covers academic research and industrial issues/applications related on fundamentals of industrial engineering, operations management, business management, operations, design, manufacturing, supply chain management, logistics, systems and service engineering, innovation, entrepreneurship, reliability, quality, lean, six sigma, modeling, simulation, optimization, sustainability, machine learning, and artificial intelligence. The application areas include manufacturing, healthcare, energy, transportation, financial, and business operations. Articles must have scientific research contribution with state-of-the-art review.

Published by IEOM Society International, 21411 Civic Center Dr., Suite # 205, Southfield, Michigan 48076, Phone 1-248-450-5660, Email: [info@ieomsociety.org](mailto:info@ieomsociety.org)

Open access proceedings are available online at  
<https://index.ieomsociety.org/index.cfm/conference/view/ID/30>

**Production Director**

Md Taufiqul Islam, Ph.D.

**Cover Illustration**

Takiyah Ali