

**INTERNATIONAL JOURNAL OF
ELECTRICAL ENGINEERING AND APPLIED SCIENCES**

EDITORIAL BOARD

Editor-in-Chief	Maaspaliza Azri	(UTeM)
Associate Editors-In-Chief	Mohd Hendra Hairi Jurifa Mat Lazi Rahifa Ranom	(UTeM) (UTeM) (UTeM)
Editorial Advisory Board Members	Ali M. Eltamaly (King Saud University, Saudi Arabia) Haiyu Li (The University of Manchester, United Kingdom) Bala Venkatesh (Toronto Metropolitan University, Canada) Krismadinata (Universitas Negeri Padang, Indonesia) Hussain Shareef (United Arab Emirates University, UAE) John Fletcher (University of New South Wales, Australia) Tamer Khatib (An-Najah National University, Palestine) Jun Cai (Nanjing University of Information Science and Technology, China) Chong Shin Horng (Advanced Remanufacturing and Technology Centre, Singapore) Yam Siwakoti (University of Technology Sydney, Australia) Mohd Amran Mohd Radzi (Universiti Putra Malaysia, Malaysia)	
	Md Nazri Othman Titik Khawa Abdul Rahman (Asia e University, Malaysia)	(UTeM)
Editorial Board	Mohd Shahriel Mohd Aras Aida Fazliana Abdul Kadir Ser Lee Loh Zulhani Rasin Nurul Ain Mohd Said Nurdiana Nordin Azhan Ab Rahman Nur Ilyana Anwar Apandi Mohd Ruzaini Hashim Ahmad Asrul Ibrahim Hana Abdul Halim Herdawatie Abdul Kadir Zainah Md Zain Mohd Kamalrulzaman bin Md Akhir	(UTeM) (UTeM) (UTeM) (UTeM) (UTeM) (UTeM) (UTeM) (UTeM) (UTeM) (UKM) (UMP) (UTHM) (UMPSA) (UTHM)
UTeM Publication Designed & Typeset	Rahizah Abdul Rahman Ahmad Masmulyadi Mohd Yusof	

**INTERNATIONAL JOURNAL OF
ELECTRICAL ENGINEERING AND APPLIED SCIENCES**

Contents

Volume 8

Number 1

April 2025

<i>No.</i>	<i>Title</i>	<i>Page</i>
1.	Enhancing Power Efficiency and Grid Stability in Virtual Power Plants under Stochastic Uncertainties <i>Sajjad Khan, M. Sajjad, A. Khan, M. Ikram, M. Zafran.....</i>	1
2.	Renewable Energy Based Hybrid Power System Design for Hilly Area in Bangladesh <i>S. Zaman, M. R. Ahmed, I. J. Khan, S. S. Boishakhi.....</i>	13
3.	Cost Optimization Model for a Grid-Connected Offshore Wind and Tidal Power Generation System Using Homer: A Case Study in Buffels Bay South Africa <i>L. Kangaji, A. Raji, E. Orumwese</i>	21
4.	An Analysis of the Unbalanced Three Phase Fault in the Transmission Line <i>R. Mohd Ghazali, W. Dominic, S. N. B. Zawawi, R. Sinnadurai.....</i>	37
5.	Enhancing Energy Efficiency in Power Systems: Particle Swarm Optimization for Minimizing Power Losses in the IEEE 14-Bus System <i>A. Khan, M. Sajjad, Y. Wang, M. Ikram, I. Khan</i>	47
6.	Comparison of Q-learning and Sarsa Algorithm for Automated Guided Vehicle Path Planning <i>J. O. Jeffrey Oon, S. N. L. K. Nor Azmi, N. I. Anwar Apandi, N. Z. Abd Rahman, N. A. Muhammad</i>	57
7.	Review of Photovoltaic Systems' Technical and Vocational Training Gaps in Palestine: Current Topics, Priorities and Future Outlook <i>T. Khatib, H. A. Von Maltzahn, E. Sawi, A. Alothman</i>	65
8.	Design Implementation & Optimization of A Motorized Maximum Power Point Tracking System <i>G. Enobakhare, U. M. Bura.....</i>	73
9.	Intelligent Control Rod Selection Algorithm for Core Power Control at TRIGA PUSPATI Reactor Using Fuzzy Logic Technique <i>S. Gunasegaran, A.C. Soh, R. Z.A. Rahman, M.S. Minhat</i>	83
10.	Implementation of a Decoupled Model Reference Adaptive Control (MRAC) of a Flotation Process <i>M.T. Samodien, N. Tshemese-Mvandaba, M. E. S. Mnguni.....</i>	91

MESSAGE FROM THE CHIEF EDITOR

It is a great honor to present Volume 8, Number 2 of the International Journal of Electrical Engineering and Applied Sciences (IJEEAS). This issue showcases a collection of high-quality, original research addressing pressing challenges and advancements in energy systems, control strategies, and applied technologies.

Muhammad Sajjad et al. investigate the integration of Virtual Power Plants to enhance grid stability, while Sabab Zaman et al. propose hybrid renewable energy solutions tailored for hilly regions in Bangladesh. S. Gunasegaran et al. introduce a novel fuzzy logic-based control algorithm to improve the performance of Malaysia's TRIGA reactor. Moegamat Tashreeq Samodien et al. evaluate a decoupled model reference adaptive controller for flotation processes, and Ladislas Kangaji et al. present an optimization model for offshore wind and tidal energy systems in South Africa.

Rohaizah Mohd Ghazali et al. analyze the impact of unbalanced faults on power system bus networks. Awais Khan, Sajjad et al. demonstrate the potential of Particle Swarm Optimization in reducing power losses. Siti Nur Lyana Karmila et al. develop an innovative AGV path planning approach using reinforcement learning. Tamer Khatib et al. provide an assessment of PV system TVET programs in Palestine, and Golden Enobakhare and Usiju Mallum Bura introduce an advanced motorized MPPT solar tracking system for enhanced energy harvesting.

I wish to express my sincere appreciation to all authors, reviewers, and editorial board members for their unwavering commitment and contributions. I warmly invite our readers to engage with these impactful studies, which pave the way for more sustainable and innovative engineering solutions.

Ir. Dr. Maaspaliza Azri

Chief Editor, IJEEAS