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TEKNOLOGI
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2024



International Industrial Revolution 4.0 Exposition

"INNOVATING IDEAS, TRANSPIRING DREAMS"

ABSTRACT BOOK

Strategic Partners:



Perpustakaan
Sultan Badlishah

Organized By:

**COLLEGE OF COMPUTING, INFORMATICS AND MATHEMATICS,
UNIVERSITI TEKNOLOGI MARA, KEDAH BRANCH**

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IREx 2024

The successful inauguration of IR4.0 Exposition IREx 2019 has witnessed ground breaking initiatives, ideas, and innovations materialised into numerous practical devices today. Treading on the same triumph, the College of Computing, Informatics, and Mathematics, UiTM Kedah is thrilled to announce the continuation of said event, IREx 2024 with the theme: *Innovating Ideas, Transpiring Dreams*.

The IREx 2024 aspires to incorporate even more exciting new technologies including, but not limited to, Information & Communication Technology (ICT), Educational Technology & Innovation (ED), Operational Excellence (OE), Internet of Things (IoT), Process Improvement, Ideas & Design, Multimedia, and Electronics that will chart new milestones in human history. This will serve as an excellent platform for scientists and innovators alike to meet the like-minded individuals and showcase inspiring ideas and notable innovations.

PROGRAM SCHEDULE

International Industrial Revolution 4.0 Exposition (IREx 2024)
21ST May 2024 (Tuesday)
Dewan Perdana, UiTM Kedah Branch

TIME	EVENT
8.00 – 9.00 am	Registration & Booth Set Up
9.00 am – 12.00 pm	Exhibition & Judging Session
12.00 pm – 2.00 pm	Obedient Drone Session & Break
2.00 pm – 5.00 pm	Official Closing & Prize Giving Ceremony
5.00 pm	Program Ends

Official Closing Ceremony

International Industrial Revolution 4.0 Exposition (IREx 2024)

TIME	EVENT
2.00 pm	Arrival of Guests and Participants
2.30 pm	Arrival of VVIP
	National anthem - Negaraku And Wawasan Setia Warga
2.40 pm	UiTM
	Welcoming Speech
3.00 pm	Rector's Welcoming Speech
	Officiating Speech
3.10 pm	Gimmick & Montage presentation
3.30 pm	Prize Giving Ceremony
4.00 pm	Photography
5.00 pm	Program Ends

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CATEGORY C

PET-POFA COMPOSITE SOLID CEMENT BRICK MICROWAVE ABSORBER

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ABSTRACT - The rapid advancement of technology and industrial growth has significantly increased electromagnetic (EM) pollution, posing potential health risks and environmental concerns. Concurrently, the accumulation of non-biodegradable waste, such as Polyethylene Terephthalate (PET) and agricultural waste such as Palm Oil Fuel Ash (POFA) intensifies environmental degradation with PET contributing to plastic pollution and POFA to land and air pollution. Despite the known risks associated with EM pollution and the urgent need for sustainable waste management practices, traditional construction materials offer limited solutions to these critical issues. In response to these challenges, this study introduces the PET-POFA composite brick, an innovative advancement in the construction industry. Leveraging the recycling of Polyethylene Terephthalate (PET) and Palm Oil Fuel Ash (POFA), this research aims to develop a sustainable building material that not only mitigates EM pollution but also promotes environmental sustainability. The PET-POFA composite brick, characterized by its structure and standard commercial size, is designed for optimum microwave absorption. Using the NRL Arch Free Space Method, the study measured the brick's absorption capability, which impressively exceeded – 20dB. The strength of the brick is tested to exceed the Malaysian Standard at more than 1.4 MPa. This finding features the brick's potential to significantly contribute to healthier and cleaner environments by addressing the issues of EM pollution and waste management in the construction industry.

Keywords: Electromagnetic pollution, Sustainable waste management, Composite Brick, Microwave absorption.



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