



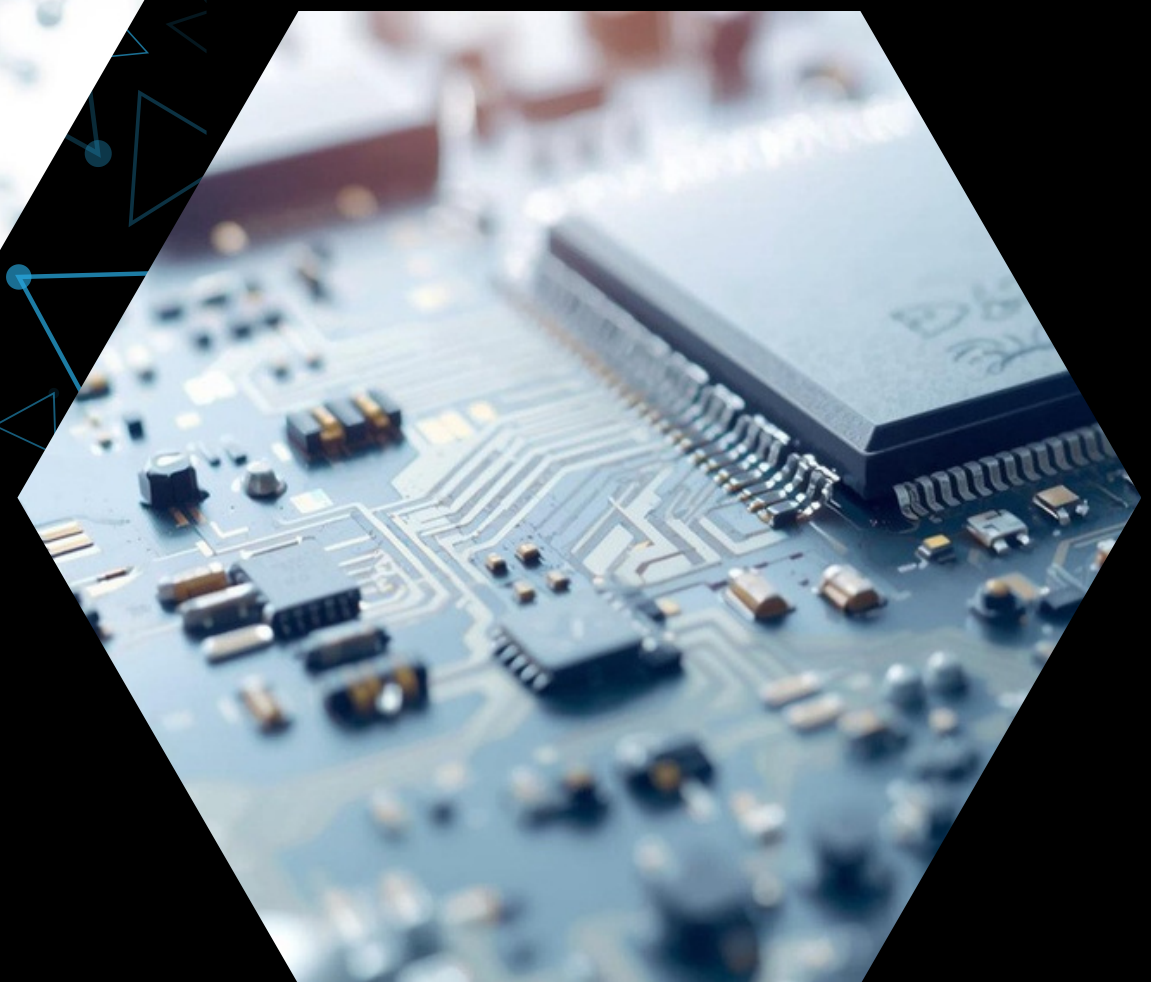
الجامعة الإسلامية العالمية ماليزيا
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA
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Garden of Knowledge and Virtue

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LEADING THE WAY

UMMATIC EXCELLENCE
LEADING THE WORLD

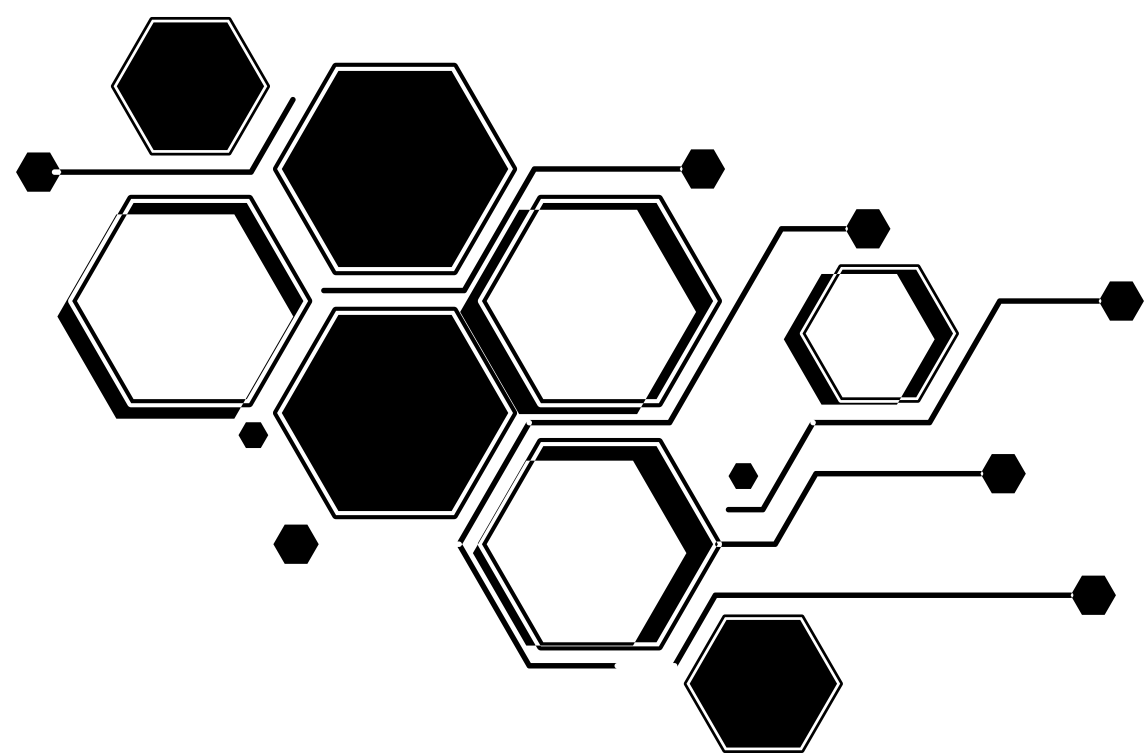
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ADVANCING FRONTIERS: KULLIYYAH OF ENGINEERING RESEARCH, INNOVATION & COMMERCIALISATION EXHIBITION (KERICE 2025)



THEME: SUSTAINABLE ACADEMIA-
INDUSTRY-COMMUNITY COLLABORATION
FOR HUMANITY

**ADVANCING FRONTIERS:
KULLIYAH OF ENGINEERING
RESEARCH, INNOVATION &
COMMERCIALISATION
EXHIBITION
(KERICE 2025)**



Edited by

Assoc. Prof. Dr. Maziati Akmal bt Mohd Hatta

Dr. Hanisah Manshor

Ir. Ts. Dr. Suazlan bin Mat Aznam

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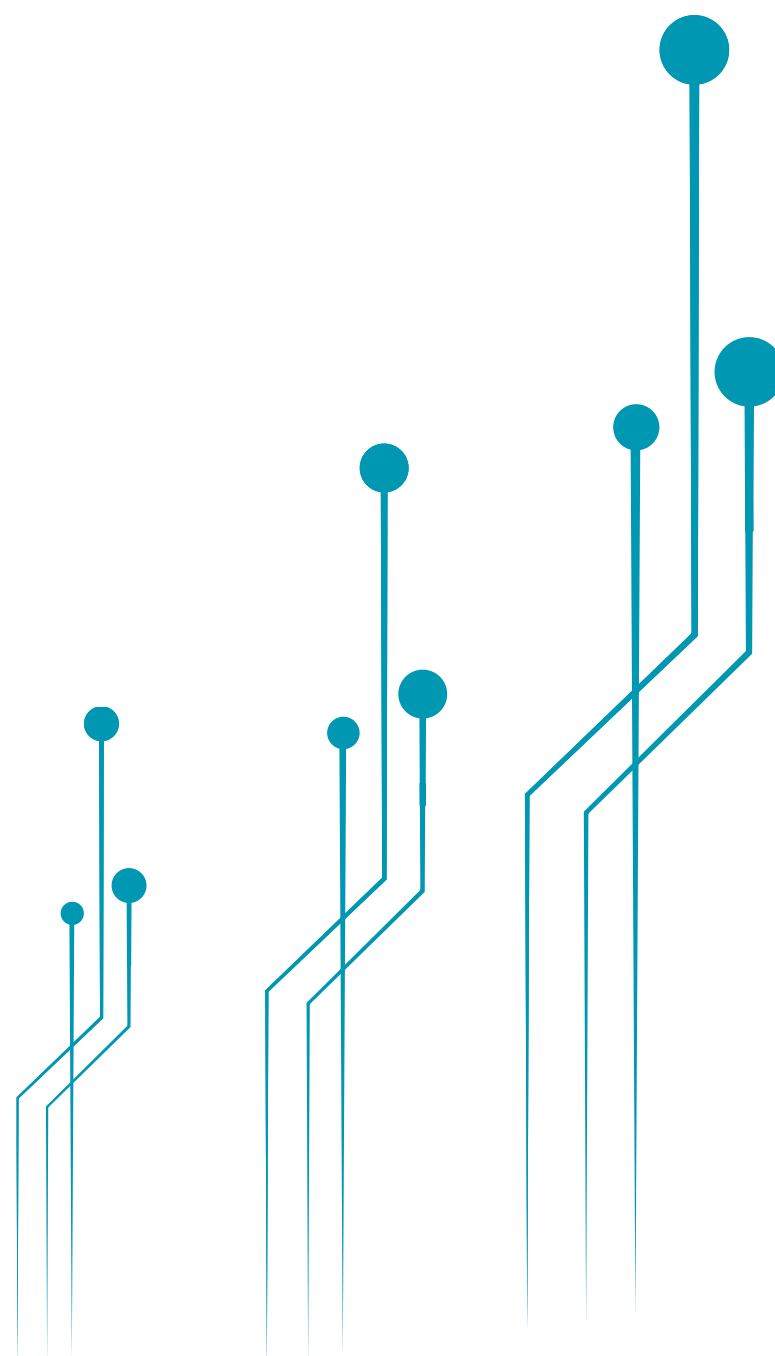
Preface

Advancing Frontiers: Kulliyyah of Engineering Research, Innovation and Commercialisation Exhibition Book is published to bring together research findings, innovations, and scholarly ideas that have been presented in the form of posters. This publication aims to document the contributions of researchers while serving as a reference for both the academic and industrial communities.

This book compiles more than 50 posters, covering a wide range of themes including renewable energy, green technology, materials engineering, innovations in education, etc.

KERICE 2025 also serves as an avenue for postgraduate and undergraduate students to interact, exchange ideas, and learn from each other's work. Furthermore, the event offers a space to exhibit the Kulliyyah's research outputs and serves as a bridge between academia and industry, reducing the gap between innovation and real-world application.

With the theme "Sustainable Academia–Industry–Community Collaboration for Humanity," KERICE 2025 emphasizes the importance of partnerships that integrate knowledge, technology, and human values for the betterment of society. It is our hope that this publication will not only serve as a record of these valuable contributions but also as a source of inspiration for future research, collaborations, and innovations that benefit humanity at large.





Foreword

Assoc. Prof. Dr Khairul Azami Sidek
DEAN,
KULLIYAH OF ENGINEERING, IIUM

In the Name of Allah, the Most Gracious, the Most Merciful.

It gives me great pleasure to extend my warmest welcome to all participants, exhibitors, students, researchers, academicians, and industry partners to the **Kulliyah of Engineering Research, Innovation and Commercialisation Exhibition (KERICE) 2025**.

This annual event reflects the Kulliyah's unwavering commitment to advancing research excellence, promoting innovation, and strengthening the bridge between **academia, industry, and the community**. The theme for this year's exhibition, "*Sustainable Academia-Industry-Community Collaboration for Humanity*", resonates deeply with IIUM's overarching vision of Tawhidic-based knowledge, holistic development, and ummatic excellence. It emphasizes our collective responsibility to drive impactful solutions that benefit not only the industry but also the society at large.

KERICE 2025 provides a vital platform for **our undergraduate and postgraduate students** to present their research ideas and innovations to a broader audience, including fellow scholars and potential industry collaborators. It fosters a culture of creativity, interdisciplinary dialogue, and knowledge-sharing—an environment where ideas are refined, partnerships are formed, and solutions are born.

I would also like to acknowledge the tireless efforts of the organising committee, our dedicated academics, and the participating students for making this event possible. Your passion and perseverance in driving innovation and excellence continue to inspire our Kulliyah to strive for greater heights.

Let this event be a testament to our shared goal of nurturing research that is not only academically rigorous but also socially responsible and economically relevant. May KERICE 2025 pave the way for future collaborations, impactful commercialisation efforts, and sustainable solutions for humanity.

Thank you and may this exhibition be a success, bi-iznillah.

Wassalamu'alaikum warahmatullahi wabarakatuh.



Foreword

Assoc. Prof. Ir. Dr Fathilah binti Ali
HEAD OF RESEARCH AND INNOVATION,
KULLIYAH OF ENGINEERING, IIUM

In the Name of Allah, the Most Gracious, the Most Merciful.

It gives us great pleasure to welcome you to the **Kulliyah of Engineering Research, Innovation and Creativity Exhibition (KERICE 2025)**, organized by the Kulliyah of Engineering, International Islamic University Malaysia (IIUM). Building on the success of previous years, this year's exhibition is held under the theme “**Sustainable Academia-Industry-Community Collaboration for Humanity.**”

This theme reflects the Kulliyah's strong commitment to fostering impactful partnerships that transcend the boundaries of academia. We believe that true innovation emerges not only from the pursuit of knowledge but also through meaningful engagement with industry and the wider community. By aligning research, creativity, and innovation with the needs of society, KERICE 2025 aspires to strengthen the role of engineering in advancing solutions that are sustainable, ethical, and beneficial to humanity at large.

The Kulliyah of Engineering views research and innovation as a trust (amānah), one that must be directed towards solving real-world problems and creating a better future for generations to come. Guided by Islamic principles and values, KERICE 2025 provides a platform for our students, researchers, and staff to showcase their work, ranging from cutting-edge technologies to creative solutions with social, environmental, and economic significance.

Over the years, KERICE has evolved into more than just an exhibition. It has become a celebration of dedication, perseverance, and collaboration, an environment where knowledge meets practice, and ideas meet opportunities. The projects presented here represent the efforts of our academic community in striving towards excellence, while also embodying the spirit of “Engineering for the Ummah.”

We wish to extend our deepest appreciation to all participants, supervisors, committee members, and partners who have contributed their time, expertise, and support in making KERICE 2025 possible. Your commitment ensures that this event continues to serve as a platform for knowledge-sharing, innovation, and sustainable collaboration.

It is our sincere hope that KERICE 2025 will inspire greater creativity, strengthen academia-industry-community linkages, and spark initiatives that contribute to the betterment of humanity. May Allah (SWT) bless these efforts and guide us in our mission to uphold knowledge, innovation, and service for the benefit of society.

Wassalāmu‘alaikum warahmatullāhi wabarakātuh.

KERICE 2025

Programme

Schedule

08:00 AM	●	Registration & Breakfast (Coliseum)
09:00 AM	●	Judges' Arrival (Banquet Room, E1)
09:15 AM	●	Judges' Briefing
10:00 AM	●	Judging Session
01:00 PM	●	Lunch Break & Zohor Prayer

Closing Ceremony (Audi A, E2)

02:00 PM	●	Arrival of VIPs & Guests
02:10 PM	●	Welcoming Remarks by MC
02:20AM	●	National Anthem, IIUM Song & Du'a
02:30 PM	●	Closing Remarks by Assoc. Prof. Dr. Khairul Azami bin Sidek (Dean, Kulliyyah of Engineering)
02:35 PM	●	Closing Speech by Prof. Ts. Ir. Dr. Ahmad Fadzil bin Ismail (Director, Research Management Centre)
02:45 PM	●	Award Presentation
03:45 PM	●	Souvenir Presentation to Assoc. Prof. Dr. Khairul Azami bin Sidek (Dean, KOE) & Prof. Ts. Ir. Dr. Ahmad Fadzil bin Ismail (Director, RMC)
03:50 PM	●	Photography Session
04:00 PM	●	Disperse

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Dr. Norhuda Hidayah Nordin (Head)
Ir. Dr. Nadiah Binti Md. Husain



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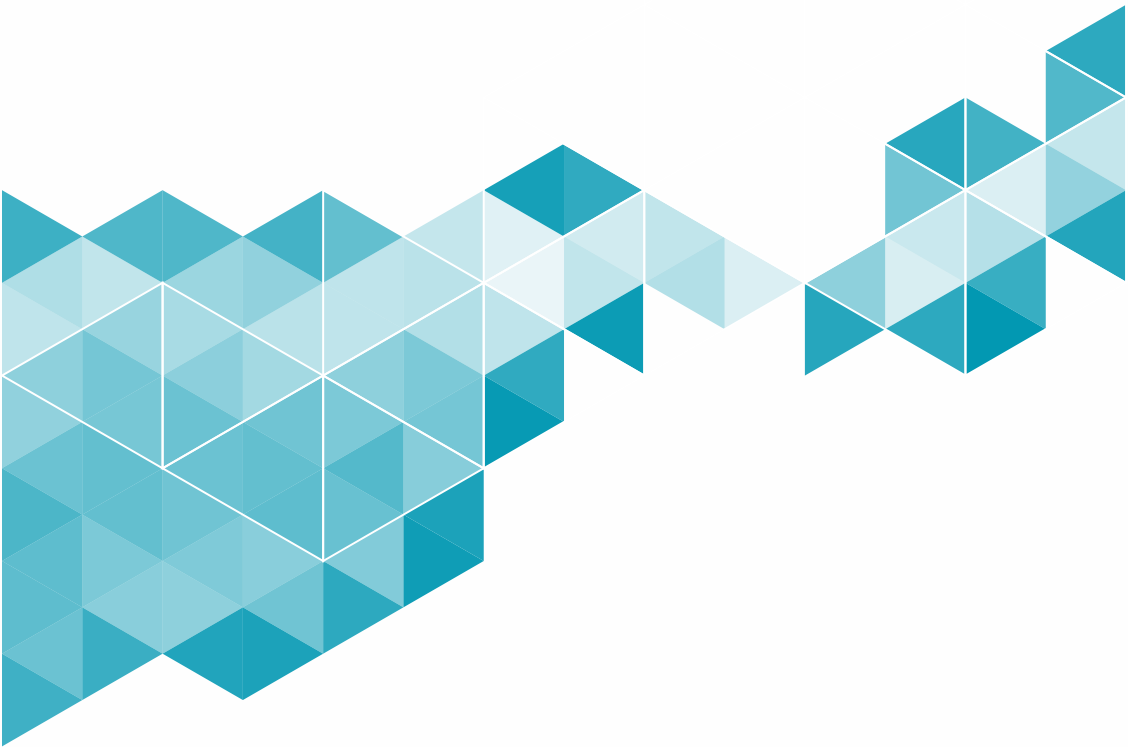
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Advancing Frontiers: Kulliyyah of Engineering Research, Innovation & Commercialisation Exhibition (KERICE 2025) brings together the diverse research outputs, innovations, and scholarly ideas from the Kulliyyah of Engineering, International Islamic University Malaysia.

With the theme “Sustainable Academia–Industry–Community Collaboration for Humanity”, KERICE 2025 provides a platform to promote quality research, foster exchange of ideas, and highlight the Kulliyyah’s research excellence. It also serves as a bridge between academia and industry, strengthening collaborations that translate knowledge into impactful solutions.

Since its establishment in 1994, the Kulliyyah of Engineering has aspired to be “A Global Centre of Innovative Engineering Education and Research with Values and Professional Ethics.” This publication reflects that vision and celebrates the spirit of innovation that drives engineering towards advancing frontiers for humanity.

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Kulliyyah of Engineering, International Islamic University Malaysia

