

IIUM & RESEARCH INNOVATION DAY 2024

**LEADING THE RESEARCH, PUBLICATION AND
INNOVATION CULTURE: SOARING HIGH IN
RESEARCH EXCELLENCE**

TUESDAY | 2ND JULY 2024 | 25 ZULHIJJAH 1445 H

**GRAND HALL, OFFICE OF CAMPUS DIRECTOR,
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA, KUANTAN**

FOR FURTHER INFORMATION:

[HTTPS://CONFERENCE.IIUM.EDU.MY/IRID/](https://conference.iium.edu.my/irid/)



SCAN ME

ORGANISER:

RESEARCH MANAGEMENT CENTRE, IIUM

The IIUM Research and Innovation Day (IRID) 2024 is a prominent exhibition dedicated to health and sciences research, organized to showcase innovative research findings and foster research collaboration among scholars from the International Islamic University Malaysia (IIUM) and across Malaysia. This year's theme, **“LEADING THE RESEARCH, PUBLICATION AND INNOVATION CULTURE: SOARING HIGH IN RESEARCH EXCELLENCE,”** emphasizes the significance of publishing research outcomes to spread knowledge for humanity's benefit. The event is a joint effort with the Technology Transfer Office of the Research Management Centre, highlighting the potential for research projects to be selected for commercialization.

It offers a platform for interactive poster presentations, discussions, and the exhibition of creative innovations. The program aims to provide constructive feedback, facilitate the sharing of ideas, and encourage networking among researchers. **All submitted abstracts will be published in selected IIUM journals (MYCITE – indexed)** with awards for the best research and innovation in both student and staff categories. Participants are also encouraged to publish full articles in various IIUM journals. This initiative seeks to benefit attendees greatly, promoting experience sharing and the development of lasting relationships within the research community.

The objectives of the IRID 2024 are as follows:

- To identify the prominent researchers in Malaysia mainly IIUM Kuantan.
- To inculcate research culture among academic staff and students (postgraduate and undergraduate).
- To showcase the research findings and products of academic staff and students.
- To encourage inter Kulliyah/ Universities/ Institutions collaboration in research and innovation.
- To identify the best research outputs and products to represent IIUM at national and international competition.

The topics are

1. Basic Health Sciences
2. Applied Health Sciences
3. Medical & Health Sciences
4. Nursing & Midwifery
5. Pharmacy
6. Dentistry
7. Engineering
8. Biological Sciences
9. Art & Social Sciences



Bismillahirrahmanirrahim.

Assalamualaikum warahmatullah wabarakatuh.

Alhamdulillah, it gives me great pleasure to welcome you to IIUM Research and Innovation Day IRID 2024: An Exhibition for Health and Sciences Research. This programme aims to showcase innovative research findings and encourage research collaboration among researchers from IIUM and also around Malaysia.

The theme for this year's event is LEADING THE RESEARCH, PUBLICATION AND INNOVATION CULTURE: SOARING HIGH IN RESEARCH EXCELLENCE.

We want to highlight again the importance of publishing research results as a way to disseminate knowledge for the benefit of mankind.

This year's program is a collaboration with the Technology Transfer Office of the Research Management Centre. Your research has the potential to be selected as a potential research product for commercialisation.

The poster presentation will allow interaction and discussion among researchers. We also invite researchers who have creative innovations to showcase their products at this event.

I hope this event will serve as a good platform for you to receive constructive feedback, share ideas and spark friendships with other researchers.

All submitted abstracts will be published in selected IIUM journals (MYCITE – indexed), and awards will be given for best research and innovation among the students and staff categories. Participants are also invited to publish their research as full articles in IIUM journals.

I hope everyone benefits greatly from this event; I am looking forward to knowing you, sharing our experiences and building a lasting relationship together.

Thank you.



IIUM Research and Innovation Day (IRID) 2024
2nd July 2024 (Tuesday)
Grand Hall, Office of the Campus Director
International Islamic University Malaysia (Kuantan Campus)

Program Schedule

Time	Event
8.30 am	Registration of participants
8.45 am	Arrival of VIP and Guests
9.00 am	Negaraku, Pahang Song, IIUM Song
9.05 am	Recitation of Dua
9.10 am	Opening remarks Prof. Dr. Nazri Mohd. Yusof Chairman IIUM Research and Innovation Day 2024
9.15 am	Officiating Speech & Officiating Ceremony Gimmick YB Dato' Mohamad Nizar Bin Dato' Sri Mohamad Najib, DSAP Pahang State Executive Councillor (EXCO) Investment, Industrial Development, Science, Technology and Innovation
9.25 am	Token of appreciation for external guest
9.35 am	Video Presentation Group photo
9.40am	VIP visit the poster exhibitions and showcase
10.00 am	Refreshments for VIPs and Invited guests
10.30 am	Commercialization Talk 1 Prof. Dr. Mohd Shahir Shamsir Omar (Universiti Teknologi Malaysia, UTM) Title: "From Discovery to Disruption: Transforming Research into Start-up Success"
11.15 am	Poster evaluations
1.15 pm	Lunch break
2.00 pm	Poster evaluations continues
3.00 pm	Commercialization Talk 2 Madam Mariatini Othman (Senior Vice President, Technology Advisory Services, MTDC) Title: "Unlocking Opportunities: The Dynamics of Commercialization Ecosystems"
3.00 pm	Scientific Research Meeting
4.00 pm	Announcement of Winners for best participants
4.15 pm	Prize giving ceremony and closing remarks Prof. Dr. Nazri Mohd. Yusof Chairman IIUM Research and Innovation Day 2024
5.00 pm	End of program and adjourn

Concurrent Events (10.00 am – 4.00 pm) @ Grand Hall, IIUM Kuantan

One Stop Research Clinics by IIUM Gombak

1. Grant Initiative Unit (GIU)
2. Grant Management Unit (GMU)
3. Research Excellent Unit (REU)
4. Technology Transfer Office (TTO)
5. Copyright and MyRA Publication (Dar Al-Hikmah Library)

As of 24/6/2024

Optimization of Solar Hybrid Gravity System with Battery Energy Storage for Elevation Systems

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This research studies the performance and efficiency of a solar hybrid gravity system integrated with battery energy storage. The objective is to optimize the design of a solar hybrid gravity system using Solar PV 50-Watts, SLA (18Ah) Battery and Water Gravity Energy Storage Tank. Energy consumption is measured using SLA (18 Ah) Battery, Solar PV (18Ah) and 22-Watts water Pump at different heights of Water Tank and to quantify efficiency improvements that reduce energy consumption and extension of battery lifespan. The methodology involved three procedures with five data loggers: a flow meter, a pyranometer, and three units of watt meters. First, the system uses a fully charged SLA (18Ah) Battery at different heights of Circulation Water Tank (1.5m, 2m, 2.5m, 3m, and 3.5m) every 15 minutes. Second, the system uses 50-watt solar PV directly at 3 meters height. Third, the system uses Solar Hybrid Gravity System with Battery Energy Storage at 3 meters height in seven days monitoring. Results show that energy consumption for solar hybrid gravity system was reduced to 50% and doubled the battery lifespan. The SLA (18Ah) Battery shows a charging and discharging loss is 22.1% with 5% of Deep of Discharge (DOD) while the 22-Watt Water Pump achieved rate of 11.0 L/min at peak solar radiation, with a maximum motor power of 24.32 Watts. In conclusion, this study was successfully optimizing the solar hybrid gravity system on efficiency improvements, reducing battery dependency and doubled the battery lifespan that making it a sustainable solution for elevation applications.

Keywords: Solar energy, gravity energy storage, battery efficiency, water pumping, energy optimization.
