

# RISE

*Catalysing Global Research Excellence*

Go Green for Our Future  
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***Sustainability***

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# RISE

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## ABOUT THE MAGAZINE

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RISE Magazine is published by Office of the Deputy Vice-Chancellor (Research and Innovation) with aims to highlight a research and innovation on multidisciplinary expert of fields in UiTM. It serves as a platform for researcher to showcase their high quality and impactful findings, activities and innovative solution through publication. Contribution of these ideas come from academicians, researchers, graduates and universities professionals who will enhance the visibility of research and stride to elevate Universiti Teknologi MARA to global standards. This is an effort to promote research as a culture that is accepted by all expertise.

## ABOUT UiTM

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Universiti Teknologi MARA (UiTM) is a public university based primarily in Shah Alam, Malaysia. It has grown into the largest institution of higher education in Malaysia as measured by physical infrastructure, faculty and staff, and student enrollment. UiTM is the largest public university in Malaysia with numerous campuses throughout all 13 states in Malaysia. There is a mixture of research, coursework and programmes offered to the students. Office of the Deputy Vice-Chancellor (Research and Innovation) or known as TNCPI (*Timbalan Naib Canselor (Penyelidikan dan Inovasi)*) serves as a *Pusat Tanggungjawab* (PTJ) navigate the research and innovation of university in achieving UiTM agenda. TNCPI office strives to mobilize faculty, and campuses to move together and cooperation of researchers to become a leading global university of science, technology, and innovation by 2025.

# EDITORIAL TEAM

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# FOREWORD

*Bismillahirrahmanirrahim.*

*Alhamdulillah*, all praises to Allah SWT and a heartfelt congratulations to the Office of Deputy Vice-Chancellor (Research and Innovation) on the publication of RISE Magazine (October Issue, No. 2) in promoting visibility for UiTM's research and its researchers.

I am thrilled to have witnessed a growing number of article publications and research innovations endeavoured by our fellow researchers. Thank you for all the effort, time, and energy that you have selflessly spent for the university.

The sustainability theme chosen for this edition is wise, apt, and timely. While striving to become a Globally Renowned University (GRU) and attaining Sustainable Development Goals (SDGs), we must ensure that our research activities are in line with the 17 goals set by the United Nations (UN) as well as the university's strategic plan.

UiTM is proud with the progressive development of renewable energy and currently 7 campuses are equipped with solar photovoltaic rooftops. This supports Malaysia's noble cause of becoming a carbon-neutral nation by 2050. Green Retrofit Framework for Sustainable Residential Refurbishment Project was also initiated with

plausible effectiveness to increase the number of green buildings and eventually will help reduce the emission of Green House Gases (GHG).

Our researchers have also begun to use Green Polysaccharides material for wound healing which is greener and environmentally benign. Other noteworthy projects are the use of Resistograph to assess the accuracy of Wood Density (WD) prediction, the application of 3D printing technology in simulating real experiences of halal animal slaughtering, as well as lipid reduction via systematic screening to make our planet more sustainable.

I am delighted with the research ambience that has now become an acceptable culture in UiTM. GRU2025 is definitely achievable with continuous effort and dedication made by members of UiTM as we work towards helping the nation and the world to achieving SDGs by 2030.

Thank you.

**PROFESSOR DATUK TS. DR HAJAH ROZIAH MOHD JANOR**  
Vice-Chancellor  
Universiti Teknologi MARA



## FOREWORD

Congratulations to the editorial team on the publication of RISE magazine Issue 2, 2022, serving as a platform to showcase our pride in UiTM research and innovations.

We chose *Sustainability* as the theme for this edition. Despite its definition that may be contextual and vary across the field, we can't deny its essence and impacts on our daily life, and that every one of us should gracefully embrace.

Under this umbrella, we have witnessed an array of projects carried out by UiTM researches in various genres of research, driven to help the community in the short and long run. Flipping each page of this magazine and seeing how far we have become as a university sends unflagging goosebumps- signaling how proud I am to be part of this huge family.

Research has no longer been alien to us. We could see that the propagated activities in the quest of finding answers to problems have mushroomed over the years. It has become somewhat the bread and butter of academics other than teaching and learning. Its role has been significantly proven to elevate teaching community to a better level.

TNCPI Office seeks continuous support from every researcher, academician, and administrator to keep your momentum in doing research and innovations. Perhaps, through a stronger research ecosystem, this will help us to become a Globally Renowned University by 2025. We will keep providing supports, rewards and facilities needed in boosting the morale of our researchers.

Lastly, I hope RISE can be the front page of UiTM exhibiting the business that we are doing. Every time you go for a conference or any meeting with potential collaborators, please share RISE with them. We never know how much opportunities that will come knocking our doors just from that gesture.

Thank You.

**PROFESSOR TS. DR NORAZAH ABD RAHMAN**

Deputy Vice-Chancellor (Research & Innovation)  
Universiti Teknologi MARA

# MESSAGE FROM THE CHIEF EDITOR

Alhamdulillah

It gives me great pleasure to see RISE issue # II published. We have received a huge number of impactful submissions to be featured as our #KeluargaUiTM's research stories. Despite the difficult circumstances of post-covid19, UiTM researchers are proactive in carrying out research activities and events within their respective capacities.

Allow me to express my heartfelt gratitude to all of the authors of the articles in this magazine. Not to forget all editorial members who worked hard to ensure its publication was on schedule. The publication of this issue would have been far more difficult to achieve without their contributions. In this edition, we feature seven researchers from both science and technology and social sciences disciplines with their views and experiences in sustainability-related research and their efforts for mobilising sustainable development. Also, RISE II presents the achievements of the multidisciplinary domains by distinguished UiTM research groups.



I believe that sustainability should be the nucleus of any research agenda. Prominent researchers around the world are focusing on the call to address global livelihood and wellbeing. Hence, we at UiTM should embed and embrace the principles of Sustainable Development Goals in our research efforts.

To all researchers out there, we hope that the amazing stories in RISE II will rekindle our enthusiasm for research. We sincerely hope to bring you more research news from the #keluargaUiTM in the coming issues. I invite you to discover RISE II and be inspired. Enjoy reading!

**ASSOC. PROF. DR MOHD MUZAMIR MAHAT**

Head of Research Communication & Visibility Unit (UKPV)  
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# SMART DATA LOGGER FOR PH-CP REMOTE MONITORING SYSTEM



**Channel Current Data Logger**



**Channel Voltage Data Logger**



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# SAGA INTERNET OF THINGS (IOT) GATEWAY SYSTEM



**IOT in Agriculture**



**IOT in Aquaculture**



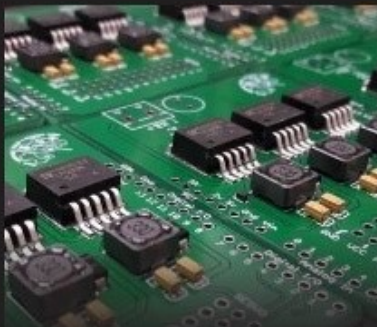
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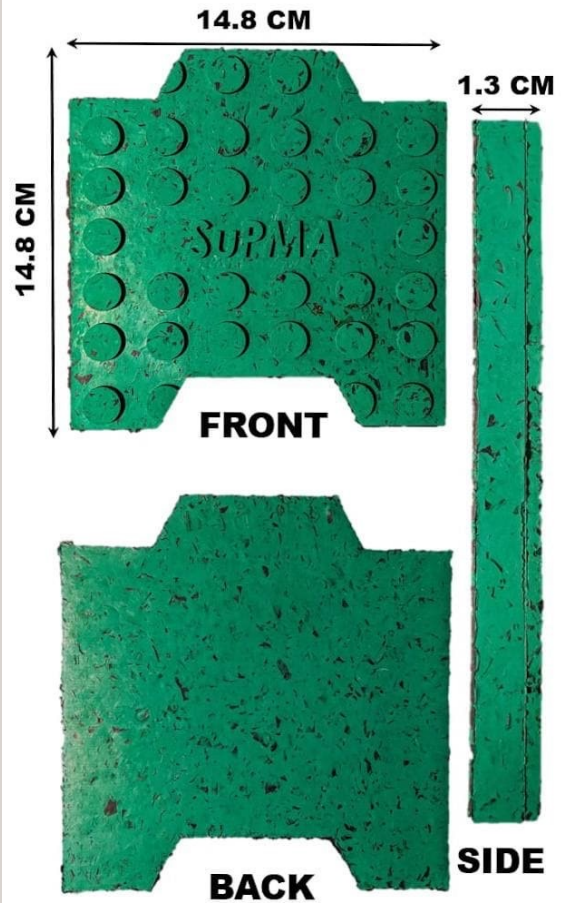
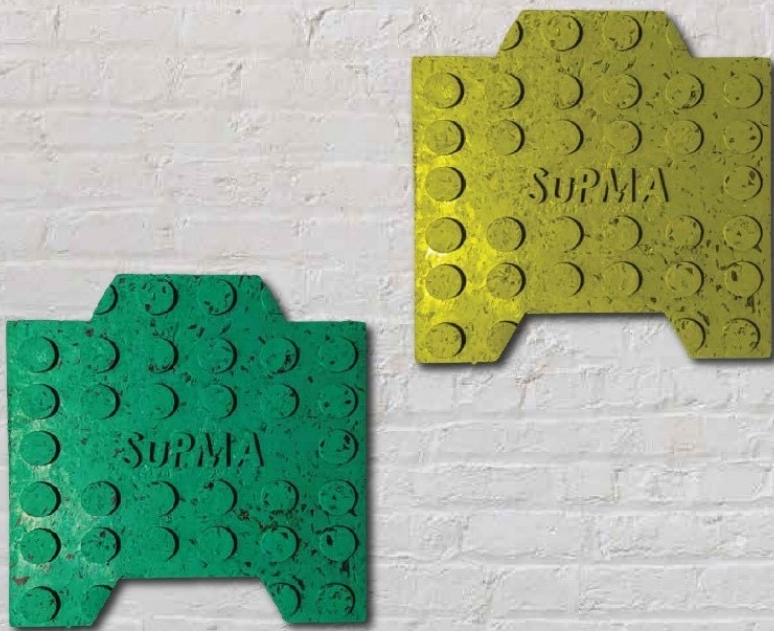
# HIGH FLEXION KNEE IMPLANT



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Heat Healable Rubber Tile



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## HAND SANITIZER SHIELD +



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**T**he field of solar energy offers promising prospects in terms of the viability of its use. The environmental benefits arising from the use of solar energy have been widely acknowledged. Associate Professor Ir Dr Nofri Yenita Dahlan, Director of Solar Research Institute (SRI), UiTM spoke passionately about this source of energy and its unique features, “solar energy can renew itself, cannot be depleted, non-polluting thus resulting in no global warming emissions.”

She then shared with us the stark reality regarding a more common energy resources in Malaysia – coal and gas. “The fossil fuels are depleting, yet renewable energy is expensive. It is possible that the cost of renewable energy can be reduced in the future. It is important that we are aware of the challenge that we are facing today concerning environmental protection - which is sustainability,”

Nevertheless, we are now witnessing energy transition. According to Associate Professor Nofri, Malaysia has committed to its aim of becoming a carbon-neutral nation by 2050. The Malaysia Renewable Energy Roadmap (MyRER) was launched to support further decarbonization of the electricity sector in Malaysia. Reflecting on the development of renewable energy in UiTM, at the moment, there are seven (7) UiTM campuses with solar photovoltaic rooftops, which is a new business of its own. It involves a solar power purchase agreement with zero (0) % capital expenditure (CAPEX), of which this cost will be borne by the CAPEX developer, and two (2) large scale solar photovoltaic plants that sell energy to the electricity grid.

The Solar Research Institute (SRI) is a Center of Excellence in UiTM that was established to pragmatically enhance research activities, and provide expert advisory services. The latter is to be accomplished through training and consultancy or commercialisation linked with sustainable energy systems. There are four (4) units in SRI, which are 1) Smart Grid and System Integration, 2) Advanced and Efficient Technology, 3) Socio-Economic, Policy and Climate Change Management and 4) Infrastructure, agro-voltaic and supporting eco-system.

As a researcher holding the highest leadership position at SRI, Associate Professor Nofri spoke about overcoming challenges which she encountered. She highlighted the importance of management and leadership, as well as having the right resources to accomplish set targets. Reflecting on her own personal experience as a researcher, Associate Professor Nofri highlighted that in order to progress in the industry, it is essential to be visible which could be achieved through good networking. Researchers could also equip themselves with relevant professional certifications and training, which strengthen their expertise, capabilities and profile.

In looking at the projection for the next twenty (20) years, Associate Professor Nofri anticipates that the electrical industry will be democratised. The consumers will be empowered with choice, and they will be able to choose energy resources that are sustainable. Therefore, awareness will be very important in guiding the consumers to make the right choice.

## “A Brighter Future and Greener Earth with Solar Power”



Researcher:

**Assoc. Prof. Ir Dr Nofri Yenita Dahlan**

*Director, Solar Research Institute (SRI)  
College of Engineering  
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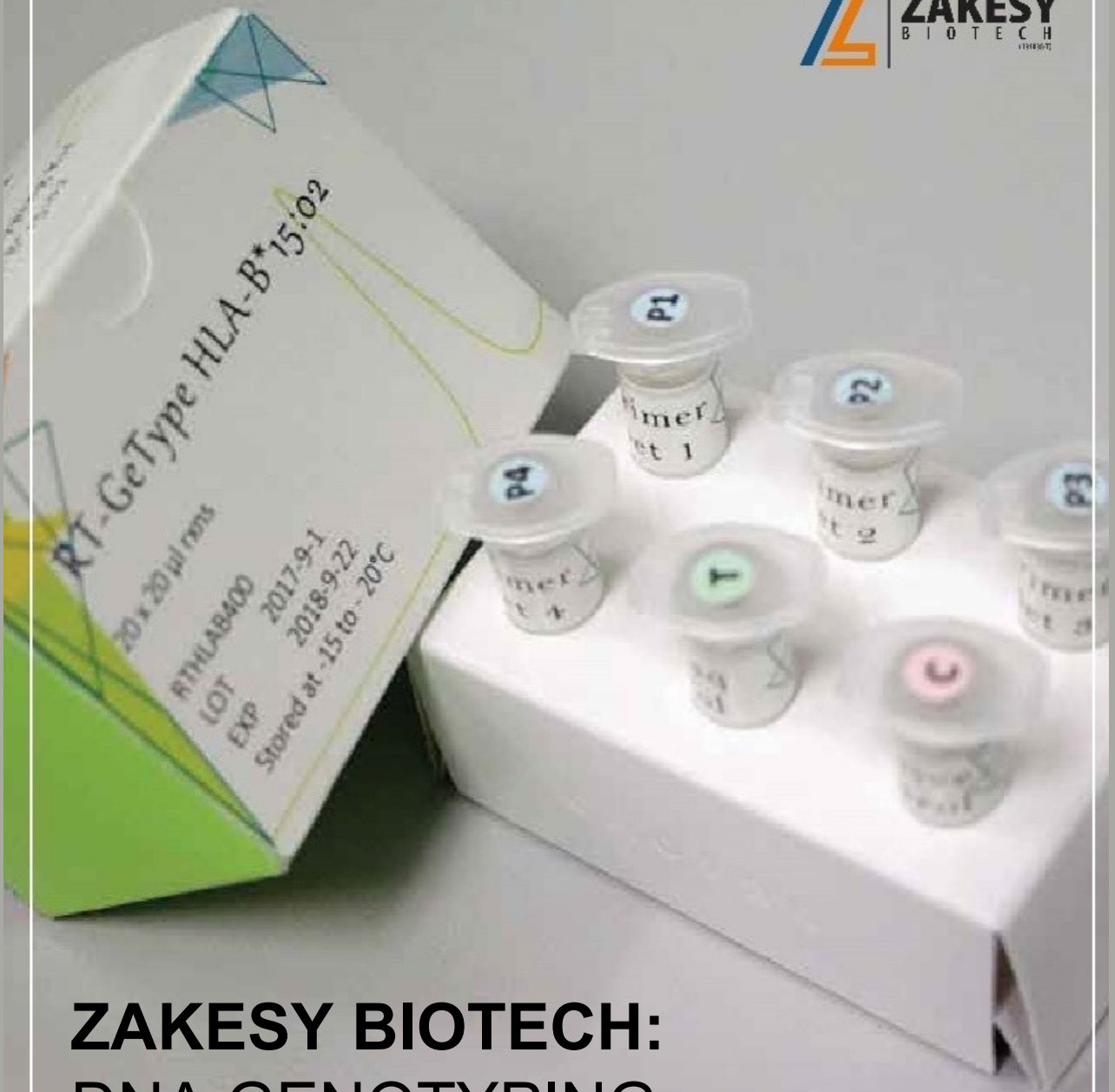


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# ZAKESY BIOTECH: DNA GENOTYPING



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