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MARA

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RISE

Catalysing Global Research Excellence

Go Green for Our Future
Innovation, Transformation &
Sustainability

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ABOUT THE MAGAZINE

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

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.

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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

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We believe that anyone that knows Professor Dr Yarina Ahmad can agree that she's a down-to-earth person despite her outstanding accolades and achievements. Petite, physically but enormous at heart. With that special attribute of her, she devoted years of research on sociology and especially issues related to child abuse, women, and elderlies, aiming at helping those in need through policymaking and law enforcement.

Prof. Yarina believed that sustainability should not only be focused on protecting the environment but the same energy should also be placed on keeping a balance between society and the economy. As the nation is becoming a developed country, it's crucial for every stratum of the society to embrace the concept of *Keluarga Malaysia* which reiterates the sense of belongings or simply termed inclusivity. No one should be left behind regardless of their academic, economic, social, and racial backgrounds. This is one of the many reasons that motivate her research group to do more to help society.

Knowledge and skills should be shared and transferred so no boundaries should ever exist between researchers. Intra-collaboration among UiTM researchers across campuses should be done more actively to ensure the sustainability of the research ecosystem of the university. Competition can be a good booster for one to advance and succeed but only you are competing against yourself.

'They knock me down, and I get up again' is the very line that she sang from the song entitled *The Champion* during the interview. She believed that motivation should come from within to sustain the spirit of doing more for the community and university. Prof. Yarina would love to see that research agenda continuously being the main priority by everyone in UiTM as that will drive the university to a greater height.

*'When they write my story
They gonna say that I did it for the glory
But don't think that I did it for the fame'*

Researcher:

Prof. Dr Yarina Ahmad

*Institute for Biodiversity & Sustainable Development (IBSD)
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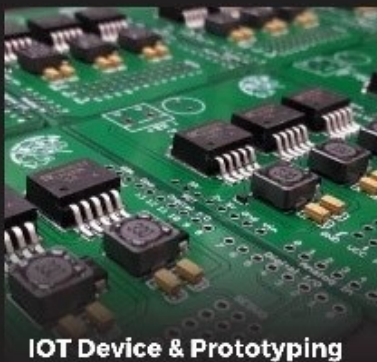
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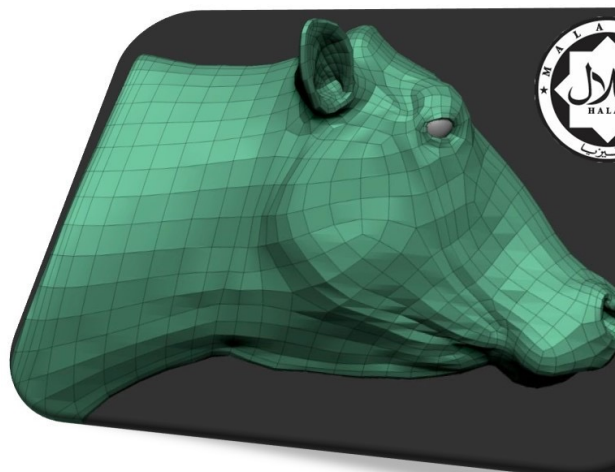
Empowering *Halal* Research Towards Sustainability Through Disruptive Technology



Muhamad Afiq Abd Razak
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Since the introduction of the Malaysian Halal Certification Scheme, research on *halal* has emerged and expanded ever since. *Halal* now has become a full-fledge body of knowledge of its own discipline and sub-disciplines. Although the basis of *halal* research stems on the *syariah* principles, but today it has been broadened to various fields which includes *halal* industry management, *halal* science, *halal* consumerism, naming a few. With the establishment of new schemes offered by JAKIM –Malaysian Halal Certification Scheme, *halal* research developed multi-faceted areas that includes *halal* food, *halal* pharmaceuticals, *halal* cosmetics, *halal* logistics, *halal* consumer goods, *halal* food services, *halal* tourism, and *halal* medical device. Therefore, *halal* research can be regarded as reaching to its maturity and apex, and has become a strategic move into spearheading *halal* industry

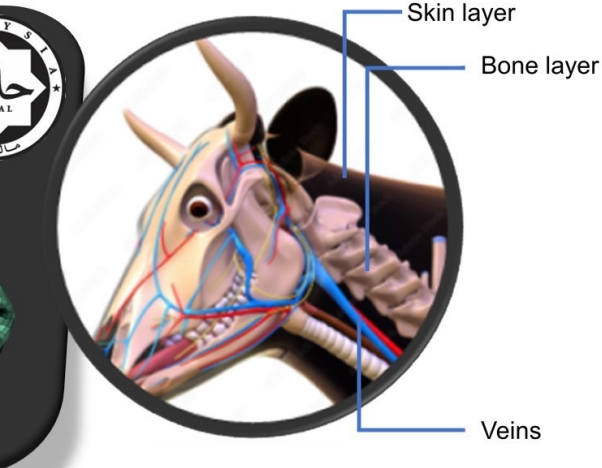
3D Printing



globally. This scenario can be seen as having the potential to develop new talent and professional workforce through *halal* research. Due to the increasing demand and the global potentials, public and private institutions have offered *halal* related courses in the undergraduate and the postgraduate studies. The competency in *halal* is now proven to become more competitive. Thus, continuous supply of workforce in the field relating to *halal* is vital to the industry. Knowledge transfer in *halal* is still important and needs to be continuously implemented in UiTM, as one of the leading public universities in *halal* education, that has embarked on the right path on contributing to fulfil the needs of future *halal* industry.



ng Technology



One of the prospects of *halal* research that can explored is innovation. In Malaysia, *halal* research has produced innovations, mainly focusing on the detection mechanism for porcine elements. With the use of technology, DNA porcine which is an indicator of contamination in *halal* products can be detected precisely. Newer approaches should be adopted in *halal* innovation – through the usage of disruptive technology. Furthermore, utilization of disruptive technology will drive the *halal* industry towards sustainable goals. Through the application of disruptive technology such as the 3D printing technology, it is the next game changer in *halal* learning experience. As an example, the 3D printing can be applied in *halal* animal slaughtering, simulating the real experience to enhance competency of the

learners. In the situation where we are struggling with food security, live animal can be substituted with the usage of 3D printing technology for 21st learning experience. Therefore, more research in *halal* discipline ought to incorporate disruptive technology as it ensures sustainability.



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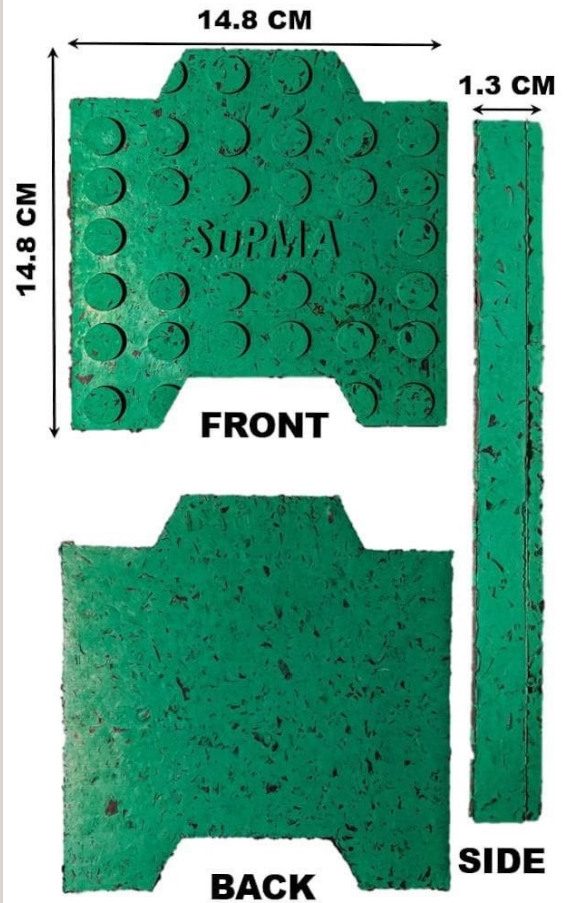
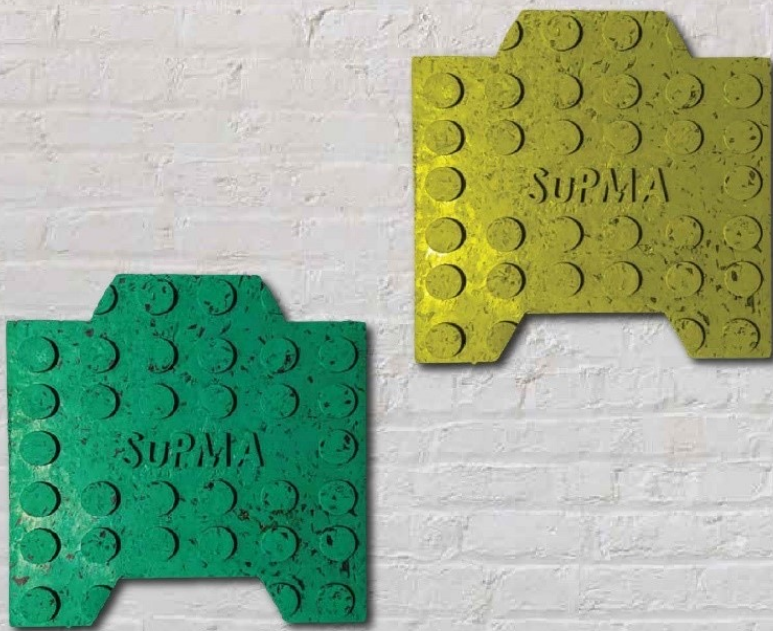
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