

Varsity clinches eight medals at international conference

MANAGEMENT and Science University (MSU) bagged eight medals comprising two gold, two silver, and four bronze at the International Conference and Exposition on Inventions by Institutions of Higher Learning 2022 (Pecipta'22).

Successfully securing the gold medals for MSU via the Medical and Healthcare category are Assoc Prof Dr Mohd Zaki Awg Isa of MSU Eye Centre (iCARE) and Muhammad Danial Che Ramli from MSU's Faculty of Health and Life Sciences (FHLS); respectively for work on blindness prevention through "MSU Eye Assessment Chart and Ruler for Children with Special Needs", and in Applied Health Sciences through "Behavioural and Histological Study into the Effects of Nevro Forte in Treating Depression in Rat Models Induced with Chronic Mild Stress".

The two silver medals were awarded for engineering innovative solutions in the Smart Technology and Systems category and Applied Health Sciences in the Medical and Healthcare category of Pecipta'22. This went to Assoc Prof Dr Safaa Najah Saud Al-Humairi from the Faculty of Information Sciences and Engineering (FISE) for "TRACE MS: Smart Infrastructure Covid-19 Monitoring, Communication, and Technology Operational System", and Muhammad Danial with FHLS team member Anita Zara Weinheimer presenting "The Potential Effects of Beri Hut Supplement towards BPA-Induced Testicular Dysfunction in Rats".

Senior vice-president for Research, Innovation, Technology, and System Prof Datuk Dr Md Gapar Md Johar heads the bronze medallists, with his work "Smart Poultry Farm Monitoring System" in the key research area of Big



Among the MSU researchers who bagged medals at the conference.

Data via the Agriculture and Forestry category.

Also earning a bronze is Assoc Prof Dr Rabab Alayham Abbas Helmi from FISE via the key research area of Big Data and her "Sustainable Network Simulation and Visualization Tool" in the Smart Cities and Transportation category.

Two more bronze medals came through MSU's key research areas of 21st-Century Education and Halal Studies via Dr Ahmad Mustaqim Yusoff from the School of Education and Social Sciences (SESS) with his "Learning Gateway e-Book" in the Education category, as well as Saeid Mezail Mawaz from the School of Pharmacy (SPH) with his "Halah Lipstick" in the

Medical and Healthcare category.

The biannual conference was organised by the Higher Education Ministry and held at Universiti Malaysia Kelantan with the theme of Innovation, Creativity, Technology, Entrepreneurship, and Society.

MSU is a Quacquarelli Symonds and multi-global-ranked institution focused on building holistic human capital. Envisioning a better and more sustainable future for all, the university champions equality by providing a level playing field with extensive efforts in transforming lives and enriching futures through compelling learning experiences.

MSU focuses on developing and delivering quality human capital in critical-need areas specialised in



The research ecosystem at MSU offers a platform to engage with communities and industries.

postgraduate and undergraduate levels. The university's award-winning academic programmes meet the stringent standards of local and international bodies.

MSU offers advanced postgraduate degrees at MBA, MSc and PhD levels covering wide areas including Management/Business, Accounting/Finance, Educational Management and Leadership, Teaching English as Second Language, International Business, Fashion Business, International Hospitality and Tourism Management, Early Childhood Education, Counselling and Guidance, International Event Management, Computer Science, Information and Communication Technology, Food Service Technology, Biomedicine, Engineering, Applied Science, Health Sciences, Biomedical

Sciences, Information Technology, Clinical Pharmacy, Pharmacy, Applied Science, Design, Medical Physiology, Public Health and Anatomy. These programmes are offered under the School of Graduate Studies (SGS) and Graduate School of Management (GSM).

As an applied, enterprise, holistic and international university, MSU offers foundation, undergraduate, postgraduate and flexible programmes through an entry system that facilitates admission of students from all walks of life, where it aims to transform lives and enrich futures.

■ For more information on postgraduate programmes offered at MSU, call 03-5521 6868, email enquiry@msu.edu.my or visit www.msu.edu.my.

Unique inspirations vs practicality in modern design

MODERN-DAY designs encompass various structures and elements. Design and architecture projects of all types can be inspired by structural forms, distinctive concepts and aesthetic elements. These projects have also been influenced by changes in local demography, technological developments and unique inspirations.

The issues in unique inspirations

A building should be constructed to meet the standards for safety, functions, and efficiency while also ensuring durability. With that, designers must understand the issues within their inspirations. The climate in certain regions should be paid close attention to as it influences the layout and material selection. Material like wood should be avoided in hot and wet climates as it will fade and change appearance fast. Buildings in flood and landslide-prone areas should be

designed with flood mitigation and erosion in mind while high-rise buildings should accommodate high winds.

Budget is also an issue when it comes to design and architecture. The client may reject the project because the materials chosen exceed the limit despite being unique and aesthetically pleasing. Likewise, even if the materials are inexpensive, the skills required for construction according to the unique design may be scarce. This could cause an increase in time and money. Architects need to design the project within the budget given by their clients, even if the building becomes less unique. Understanding these elements ensures the building is both practical and sustainable.

When inspirations turn practical

The Petronas Twin Towers is a perfect balance of inspiration and practicality. The building was

inspired by the different elements of Islamic architecture, primarily in the use of arabesques and repetitive geometries. The Islamic pattern 'Rub El Hizb' was used for the exterior design. However, the designer of the Twin Towers, César Pelli, was concerned about the limited floor space with the new design. To solve the issue, he added semicircles to each of the inner angles. For the interior, the designs were inspired by the weaving patterns of a "songket". The floor design is also very traditional with pandan weavings and palm wall matting designs.

In terms of practicality, both towers are equipped with a complete system that coordinates telecommunications, environment control, power supply, fire, smoke and control, lighting and security. The double-decker sky bridge was designed for both stability and to allow small movements during strong winds. It also connects the towers for business purposes and acts as an alternate fire escape in the event of an emergency. Several



The Petronas Twin Towers is a perfect example of unique design and practicality.

practical measures were taken for the interior as well. The glass panels are covered with stainless steel visors that protect visitors from the sun and harmful UV rays while vision glass is used to filter light and reduce noise for a comfortable environment. Today, the magnificent architecture is still standing strong and functioning well as a representation of Malaysia.

The need for balance

Unique inspirations create unique structures, but practicality is just as important in modern design. Practicality refers to the functionality and efficiency of a building. Factors that constitute

practicality include safety, harsh climates, sustainability, population, user experience and more. A building built for the sake of being unique would not be practically functional. Therefore, requirements should be discussed before construction to achieve the ideal mix of inspiration and practicality.

Architecture is a blend of art and science. Inspiration by itself is not sufficient, but a postgraduate degree in architecture will enable an individual to plan structures and designs that align with their inspirations and practicality. With many universities offering placement years, a master's degree in this field would open the doors to the professional world.

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Public Health (MSc) ★ Mar / Sep

KPT/JPT(R2/720/7/0077)09/2025 A10261
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KPT/JPT(R2/720/7/0049)06/2026 A10618
KPT/JPT(R2/721/8/0043)01/2027 A3767



Our civic contribution

By
**ASSOC PROF
DR JASON
PANDYA-
WOOD**



AS someone who teaches and does research in public policy, following politics is more than a passing interest. I am an avid consumer of all things political, from the daily debates in parliament to the unfolding drama of a general election. I have taken part in campaigns, written about ways to better engage the public in the political process, and done some fascinating research on young people's perceptions of being active citizens.

I am from the UK, so this is a particularly interesting time for me to be watching my home country from afar. If you had asked me just 12 months ago to predict what would happen in UK politics, I would have got it all wrong. Three Prime Ministers in six months? No chance, but here we are, with reality proving to be stranger than any predictions. The issues that my home country faces are numerous. The afterburn of our decision to leave the European Union, the war in Ukraine, and the hike in the cost of living are three ingredients of a perfect storm. I do not envy anyone who now has the keys to Number 10 Downing Street.

The local focus

Closer to home in Malaysia, we have our own dynamic political situation. With Budget 2023 a distant memory, we are now, at the time of writing, in the last few days before people go to vote in Malaysia's 15th general election (GE15). Candidates are out on the doorsteps and across social media, drumming up support. In these heady times, everything is political.

Aside from the usual excitement and drama of a general election campaign, this one promises to be particularly interesting and not just for the issues that are up for debate.

The added component this time around is the introduction of around 5.8 million new voters brought about by the implementation of automatic voter registration, and the lowering of the voting age from 21 to 18 years old.

It is hard to believe but some people still question the wisdom of lowering the voting age to 18, suggesting that young people cannot make reasoned choices about who should be elected to serve them. Such arguments do not hold much water with me.

Young people are amongst the most passionate in their concerns about the future. They are or have recently been in education, they are often in the most precarious and changing job markets, and they are probably, more than most, concerned about the future of the planet. These are precisely the issues on which young people need to have a say: education, employment, and sustainability. Perhaps it is better to reframe the question.

Rather than asking "should young people be allowed to vote?" we should be asking, "how can we best prepare people (including young people) to feel more engaged in the issues which matter most to them?"

Making the difference in university

For institutions like the University of Nottingham Malaysia (UNM), this is a live question and one which we embrace. We never take it for granted that the university campus is full of bright and engaged young people, many of whom are motivated by wanting to make a difference in the world around them. Among the many efforts we make to increase their engagement during these important political moments, I would point to three that I consider most important.

Firstly, our students help others to realise their civic duty. I have been

"Our teaching and leaning environments tackle important issues and create 'living laboratories' of democracy. Modules throughout campus tackle everything from big global challenges such as climate change to the art of influencing policymakers."

Assoc Prof Dr Jason Pandya-Wood

impressed with the work done by our student societies to help raise awareness about the importance of voting, answer questions about what is involved in GE15 and give important advice on how to exercise the right to vote. When students talk to other students about these issues, they can translate issues into their shared language and experience.

Secondly, our teaching and learning environments tackle important issues and create 'living laboratories' of democracy. Modules throughout campus tackle everything from big global challenges such as climate change to the art of influencing policymakers. We do this, as I wrote in the last column, using teaching methods that drive up participation and debate, encouraging questions and critical inquiry. Altogether, these are the attributes one would hope to see in an engaged electorate.

Thirdly, our research is of real-world significance, and even more so when considering the big issues we think about as we cast our votes.

Just in the past couple of months, we have hosted important events on the future of human rights and the need to think afresh about food insecurity. Our staff have contributed media and opinion pieces on topics as diverse as how to design greener and more equal urban environments through to the needs of small and medium enterprises in Budget 2023.

At UNM, we take very seriously our roles as custodians and translators of knowledge and experience. This is more than arming people with facts, theories and research. It is about doing our part to ensure everyone whom we engage with can go on to make their contribution as active and effective citizens.

■ Assoc Prof Dr Jason Pandya-Wood is dean of the Faculty of Arts and Social Sciences at the University of Nottingham Malaysia.

THE world we live in now is the outcome of decades of revolutionary inventions by brilliant minds. The list of mechanical engineers who have played a crucial role in laying the foundations for modernisation is long and ever-growing. Let's look at some of these profound people.

Father of Railways

Self-taught civil and mechanical engineer, George Stephenson from England was one of the pioneers of the railroad locomotive. He built the first steam locomotive for public transport. Other notable inventions were the 'Blucher', a locomotive created to haul coal followed by the 'Geordie', a safety lamp used in coal mines. Along with his son, Robert, the Stephensons built the 'Rocket' steam engine which featured a more effective boiler and a blast-pipe exhaust that allowed the engine to perform much faster and more efficiently.

The success of the 'Rocket' and the opening of multiple railways sparked the changing landscape of rail.

Shipments via rail were now swift and convenient with steam locomotives. The lumber and steel industries were also flourishing as rail companies built more rail infrastructure to match the rapid interest in rail travel. Many people were employed in these industries, and as a result, many new sectors were developed. This made the 'Rocket' one of the most important technological advancements in the 19th century and a key component of the first Industrial Revolution.

America's greatest inventor

Thomas Alva Edison is certainly

Mechanical engineers who helped build history



Thomas Alva Edison with his second phonograph.

one of the most prolific inventors who ever lived. According to an article in *The Journal of Otology and Neurotology*, he holds approximately 1,093 US patents in several fields. He was partially deaf in one ear and completely

deaf in the other, but he viewed his deafness as an asset because it made him focus more on his research and experiments.

His inventions are noteworthy and significant as they lay the groundwork for modern

technology and electronic development. Among his inventions are the incandescent lightbulb, the motion picture camera and the phonography. Besides, he also improved Alexander Graham Bell's telephone and telegraph to make it more practical for everyday use.

The founding father of the diesel engine

Rudolf Diesel was a German mechanical engineer who invented the diesel internal combustion engine we know today. Because of its efficiency, the engine was used to power vehicles, pipelines, electric plants and other major industries.

During the first Industrial Revolution, the diesel engine had a significant influence because it supplied power more efficiently and at a lower cost than alternatives during that era. Train transport and shipping companies were able to save money since the engine did not require burning coal to operate. This revolutionised modern civilisation as industries were able to significantly increase production with fewer resources.

Mechanical engineering will always be in demand to address

current issues, regardless of industry, be it healthcare, transportation, space exploration or heavy machinery.

The required engineers to population ratio for the country to become a developed nation is 1:100. Therefore, with a population of 32 million citizens, Malaysia should have approximately 300,000 engineers.

However, according to the Board of Engineers Malaysia, only a total of 137,073 engineers are registered. In the 2020/2021 *Critical Occupation List (COL)* technical report led by TalentCorp and the Ministry of Human Resource, mechanical engineering is on the list of critical occupations, along with civil engineers. On top of that, mechanical engineering was also listed as one of the many occupations that have appeared in the *COL* for consecutive years.

Rapid technological and economic advancements call for more mechanical engineers. Mechanical engineers have a wide range of opportunities as there are different sub-disciplines within mechanical engineering that can be explored. Malaysians with a passion for engineering are encouraged to enrol in mechanical engineering courses at universities for the development of this country.



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Public health research during the pandemic

RESEARCH training is an essential component of postgraduate education. This component is emphasised in the Master of Science in Public Health (MScPH) at the International Medical University (IMU). The university caters to the needs of the public health workforce, by offering a MScPH in both conventional (face-to-face) and open and distance learning (ODL) modes. The conventional mode is open to both local and international students while the ODL mode is catered for those who cannot attend physical classes on campus and is available to local students only.

The course is delivered via lectures, tutorials, practicals, student presentations, site visits, and attachments by teaching faculty who are medical doctors specialising in public health with decades of research and teaching experience, both locally and internationally. In both modes,

students should complete a dissertation where they design and conduct a primary research project and defend it.

Students intending to pursue a research career in public health must hone their skills in quantitative and qualitative research methods. During the movement control order implemented to control the Covid-19 pandemic, the MScPH students were given a new challenge to design, plan and implement their

research without having any physical communication with either their supervisors or research subjects. During the pandemic period, students developed their proposals through online meetings with their supervisors on Microsoft Teams.

The research journey of two MScPH students, Dr Anuradha Nadarajah and

Students intending to pursue a research career in public health must hone their skills in quantitative and qualitative research methods.

Abigail Nathan illustrates vividly the challenges faced and how they were addressed. Dr Anuradha did her research on the speciality career choices of house officers and the factors influencing the decision. Abigail's study was on factors influencing the counselling provided by community pharmacists about topical corticosteroids.

Both projects involved interviews with research participants. Due to Covid restrictions, initial interviews and follow-up interactions were done completely online in both research projects.

Abigail, a practising pharmacist states, "The Covid-19 pandemic has shifted the way we do almost everything, including conducting research. Despite the challenges, I managed to complete the module, all while adhering to both research ethics and movement restrictions.

She acknowledges, "Flexible working hours, stable Internet, and the support from my supervisors, at IMU, enabled me to complete the module remotely."

Both students have also gone further by publishing two peer-reviewed publications from their research projects.

Having conducted their research as part of graduation requirements, Dr Anuradha graduated with her degree on Dec 14 last year while Abigail graduated with her degree on June 25.

The commencement of this programme is in March and September of each year. If you are interested to join this programme, make an online application today.

■ For more information about this or other

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Datuk Grace Chia Hui Yen

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