

Message From The Dean



As I mark seven months as Dean of the School of Engineering Design and Built Environment, I am excited to share with you my initial reflections and some updates. I am thrilled to be part of Western Sydney University, a unique and dynamic institution within the higher education sector in Australia. Our university is deeply committed to its mission and has achieved tremendous success and global recognition since its inception. Western Sydney University has been transformative for the region, attracting a diverse student cohort, and world-leading academics dedicated to delivering world-class education and pursuing research in areas of relevance to the local community but with global impact. Perhaps then, it should come as no great surprise that WSU should achieve the astounding feat of being ranked first in the world (out of over 2150 Universities from 125 countries), for the third consecutive year, for our social, economic and environmental impact in the 2024 Times Higher Education (THE) University Impact Rankings!

Western Sydney is transforming at an unprecedented rate and as an anchor University spread across 13 campuses in the region, we are playing a key role in this development. The construction of the new Western Sydney International Airport and Bradfield City, along with numerous infrastructure projects, positions our School to leverage these opportunities. As Dean, I am dedicated to ensuring we capitalise on these developments.

I am pleased to report that enrolment in our undergraduate and postgraduate programs has reached its highest levels in recent years. We recently hosted a panel from the Project Management Institute as part of our accreditation process for the Master of Project Management program. The feedback was positive, and we await their final assessment. We are also preparing documentation for the Architects Accreditation Council of Australia to accredit our Master of Architecture program. Accreditation exercises require a substantial effort and I would like to thank all involved for their hard work, commitment, and dedication.

Our research profile continues to improve and we are now leading major research programs such as

the recently announced Australian Research Council's Industrial Transformation Training Centre in digital platforms for Net-Zero Building Ecosystem Lifecycle (NOBEL), led by Distinguished Prof Vivian Tam and Associate Prof Pejman Sharafi.

We recently held a Strategy Day with the School's extended leadership team to develop a set of strategic priorities and actions addressing student growth, lifting research performance, enhancing industry engagement, and transnational education opportunities. A strategy document was shared with the school for consultation and feedback and we are now in the process of developing an operational plan based on the identified strategic objectives.

Finally, on the 8th of June I had the pleasure of presiding over my first set of graduation ceremonies. These events are always joyous, filled with the excitement and pride of students and their families. I was also humbled to receive the title of Distinguished Professor during the first ceremony and delighted to witness my colleague, Vivian Tam, receive the same honour in the second ceremony.

Onwards and upwards!

Distinguished Professor Brian G. Falzon CEng MAICD FRAeS
Dean of Engineering, Design and Built Environment
Chair of Composite Materials and Aerospace Structures



The Buzz



On Tuesday 16 July, Parramatta South Campus came alive with the energy and enthusiasm of our newest cohort of first-year students, embarking on their exciting academic journey with our School.

Spring Orientation was a fantastic opportunity for new students to meet their peers, connect with academics, engage in activities, join social clubs and familiarise themselves with the wealth of resources available to support their success.

Thank you to our dedicated staff who were on hand to offer guidance, answer questions, and provide insights into what lies ahead. The School's presentation was designed not just to inform but to inspire, helping students to feel confident and prepared as they begin their studies.

We wish all our first-year students the very best of luck and look forward to supporting them every step of the way.

Here's to a wonderful Spring Semester!

Teaching and Learning

The Learning and Teaching domain has once again been highly active with several prominent highlights that reflect the ever-strengthening nature of our School's academic culture.

On the Engineering front, we gained membership to the prestigious worldwide CDIO community (Conceive, Design, Implement, Operate). In so doing we will be able to leverage the collective experience of 200+ member schools/institutions worldwide as we prepare our engineering students for a lifetime of innovation as they address the many challenges of the future. Our engineering

team are also increasingly involved in strategic benchmarking activities with 5 of the 7 Innovative Research Universities, as well as an independent benchmarking process with the University of Southern Queensland. These highly valuable activities build connections across institutions whilst also ensuring that our engineering programs are at the forefront of student experience.

The quality of our Industrial Design program was proudly exemplified by alumnus Jacob Bechara who was recognised as a finalist for “Australia’s Next Top Designer” award. Jacob’s Waverly Table design celebrated sustainability and innovation whilst delivering a consultation desk that supports close connection between people as they work together. Described as functional, timeless and elegant, Jacob’s table was on exhibition at the Design Show (June, ICC Sydney). Congratulations to Jacob!



The profile of our architecture program continued to rise. Supported by the Powerhouse, the architecture team hosted Moreau Kusunoki and Gabriel Duarte. Moreau discussed the impressive new Powerhouse Parramatta undertaken in collaboration with Genton. This project is taking shape on our doorstep and provided an exciting end to the semester for our architecture students. Gabriel is a senior architect at the Office of Metropolitan Architecture with a diverse academic background spanning design, planning, policy and research; full of insights and inspiration for our students.



Led by Yingbin Feng and his team, 40 of our Construction Management students enjoyed an outstanding opportunity to meet with senior representatives of the Australian Institute of Quantity Surveyors, the Chartered Institute of Building, and the Royal Institution of Chartered Surveyors. Through the course of engaging presentations and discussions, our students gained insights into their chosen professions from industry leaders.

Research News

Our School is elated by the unprecedented success in securing funding for the ARC Industrial Transformation Training Centre, in Digital Platforms for Net-Zero Building Ecosystem Lifecycle (NOBEL). The Centre was awarded \$5,000,000 from the ARC and has attracted \$2,445,000 from partner organisations and \$5,476,000 in-kind contribution from partners and other eligible organisations combined. The Centre aims to train the next generation of transdisciplinary leaders in the building construction sector and provide the knowledge needed to transform the sector into a net carbon-zero ecosystem.

Our school has also contributed into two more successful ARC Industrial Transformation Research Hubs: (i) ARC Research Hub for Human-Robot Teaming for Sustainable and Resilient Construction, led by UTS and (ii) ARC Research Hub for Infrastructure Net Zero, led by Monash university.

Congratulations to all participants of these successful grants!

HDR

On Friday 21 June 2024, we successfully held this year’s HDR 3-Minutes (3MT) presentation

competition and annual interview. More than 70 PhD candidates from the School presented their research in a wide range of engineering fields. The presentations were of high quality and very engaging. Five students were selected as finalists, with Mr John Rao awarded as the winner and People's Choice, and Ms Monisha Anindita as the runner-up. The presentations showcased SoEDBE's solid and sustainable contribution to WSU's research impact, especially to the UNSDG goals of 6, 7, 9 and 11. We hope our school's representatives will go far in the university and Asia-Pacific 3MT Competitions. We also thank our colleagues for their enormous support in assessing and chairing the 3MT presentations and annual interview.



Engagement News

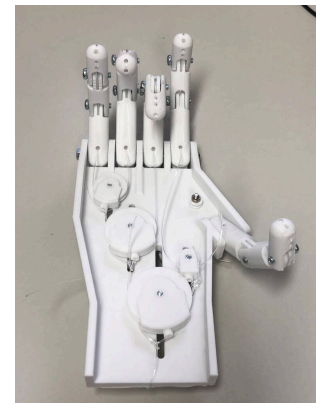
The School continued its outreach programs to schools during the second quarter of 2024.

Our staff presented as guest lectures at The King's School on 31 May. Thank you to Prof Ming Zhao and Dr Md Abdul Alim for presenting to the 22 Year 12 students undertaking subjects such as Engineering Studies, Physics, Mathematics Advanced, Mathematics Extension 1 & 2, Computing Studies, and HSC Industrial Technology.

The School would also like to thank Mrs Samantha-Jane Odberet and the staff at The King's School as well as A/Prof Surendra Shrestha for their support in organising this event.

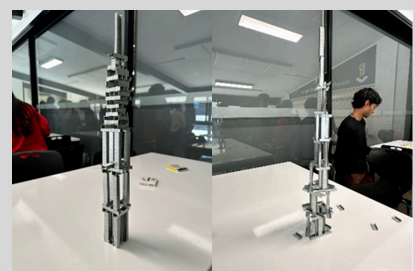
On 21 June, 2024, the Engagement Team participated in 'Experience Engineering', in honour of International Women in Engineering Day. This inspiring day hosted by Engineers Australia saw 320 female students in Years 7 to 10 from schools around the Central Coast to Wollongong, gather at University of Technology Sydney for a day of interactive engineering workshops.

Western Sydney University facilitated the Arduino prosthetic hand workshop, where students delved into the fascinating world of biomedical engineering. Using 3D-printed parts and nylon string, students were tasked with constructing a functional prosthetic hand. This challenging yet rewarding activity provided the students with a unique opportunity to apply their problem-solving skills, creativity, and teamwork in a real-world context.



The workshop not only highlighted the technical aspects of engineering but also underscored the importance of innovation and inclusivity in the field. As they assembled the prosthetic hands, students gained valuable insights into the potential of engineering to improve lives and drive positive change.

The School held a workshop at Penrith Selective High School on the 1 July in collaboration with Engineers Australia's School Programs and Partnerships. This event was part of the Engineering Immersion program at Penrith Selective High School. The engineering programs at Western Sydney University were presented to the students. The students were shown how different engineering disciplines are required to work together in the design, construction and maintenance of infrastructure.





Around 70 students from Year 10, 11 and 12 attended and participated in the Skyscraper Challenge which formed the main part of the workshop. The School would like to thank Prof Olivia Mirza (WSU), Caryn Morgan (Engineers Australia) and Ms Natasha O'Regan, Ms Julianne Becroft and Ms Lisa Andreatta (Penrith Selective High School) for organising this event. Thanks also to our PhD students Tharika Kahandawa Arachchi, Saman Karimi and Muhammad Ali for supporting the event.

Finally, the School once again hosted the Science and Engineering Challenge from the 2 to 4 July. A total of 14 High Schools participated in the event across the two days with an average of 100 students attending each day. The schools worked in teams to build and test science and engineering based projects to score points throughout the day. Students were challenged to efficiently provide electricity to as many cities on an electric board; construct fish traps on a magnetic board similar to how the First Nations people engineered techniques to harvest different species of fish; and design autonomous gliders to deliver essential supplies to regional towns. But the highlight of the day certainly was testing the strength of bridges!



A huge thank you to the 20 incredible student volunteers (some of who did not have a background in engineering!) and the Engagement Team for their effort in facilitating activities, setting up and packing down almost 100 boxes of equipment and judging the bridge testing. Thank you also to the School for allowing us to deliver this Challenge year on year, to provide students with opportunities to engage directly with STEM, demonstrating that these fields are accessible and achievable.

We look forward to hosting the Science and Engineering Challenge again next year!

International News



The conclusion of Autumn Semester coincided with the commencement of the new post-study visa scheme that created a challenge for our School to address. The new eligibility criteria rendered six of our Master of Engineering students ineligible to apply under the new arrangement. Under Prof Fang's leadership, our School was able to successfully finalise the affected students' results before the end of June. As we approach the commencement of Spring Session, the international portfolio's focus reverts back to new enrolments. As of 4 July 2024, we have 149 new commencements. As a new measure to reduce the number of unsuccessful visa applications, the Intentional Office stopped issuing offers within six

weeks to the start of the semester and hence we may expect a reduction in our spring enrolments compared to 2023.

Led by Dr Hagare, WSU signed an MoU with Malnad College of Engineering (India). School also received delegations from Indonesia and India.

Expert Corner

Dr. Sameera Pathirana is a lecturer in Fire Safety Engineering and is the APA of the PG Construction Management programs including Fire Safety Engineering, Building Surveying and Bushfire Protection sub-programs. He is leading the cyclical review of the program and AIBS re-accreditation for Building Surveying programs this year. In addition, Sameera is working closely collaborating on program development and engagement with various industry partners. He is a theme leader at the Centre for Smart Modern Construction research group at WSU. Some of his current research projects include virtual water estimation in buildings, smart fire insulating concrete with PCM, challenges in mass wood adoption in Australian designs, and the application of digital technologies for damage management and identification.



If anyone is interested to do research related to fire, structures, composite structure, smart materials and technologies, or needs further information on the program contact Dr. Sameera Pathirana: i.pathirana@westernsydney.edu.au



Dr Md Kamrul Hassan is a Lecturer in Fire Safety Engineering. His expertise is on fire, materials, and composite structures. He has been teaching the UG and PG courses related to fire safety engineering and construction management subjects. He has been working with Professor Zhong Tao to establish the greater Fire Lab Facilities for research and teaching for the Master of Fire Safety Engineering program. Dr Kamrul is also a prolific research supervisor with exceptionally high involvement in PhD, masters, and undergraduate level research project supervision. Dr Kamrul has co-supervised 6 PhD students to completion and is currently supervising 2 PhD and 1 MPhil students as principal supervisor and 4 PhD students as co-supervisor. Dr Kamrul is currently working with his research team which includes Md Rayhan Hasnat and Touha Nazrun, to develop novel energy-efficient fire safe core materials and intumescent

coating for sustainable cladding used in high-rise buildings.

If anyone is interested to do research related to fire, materials, and composite structures, please contact Dr Kamrul at k.hassan@westernsydney.edu.au

Mr Tim Carroll was recently appointed as a Lecturer in Bushfire Protection at the School of Engineering, Design & Built Environment, following a 30-year career in emergency management and local government. The Bushfire Protection program offers PG courses that provide students with a comprehensive understanding of bushfire behaviour in relation to vegetation, topography, land management, and weather, as well as the legislation and building standards related to development in bushfire-prone areas. Mr. Carroll is currently researching the use of external bushfire sprinklers to protect dwellings from bushfires.

For further information on the program contact Tim at t.carroll2@westernsydney.edu.au



Staff Awards

The Australian Institute of Building (AIB) has a long and proud history of supporting individuals who contribute to the well-being of both the Institute and the building profession. For more than fifty years the Institute has recognised these individuals, providing awards at different levels. Western Sydney University won two NSW AIB professional excellence awards in Research and Development in 2024.



One award was Professional excellence award in the Research Development & Technology category for “Digitalisation of Design and Construction of Class 2 Building in NSW, by Professor Srinath Perera, Associate Professor Xiaohua (Sean) Jin, Dr Marini Samartunga and Dr Kasun Gunsekera.



Another award was High Recommendation Award in the Research Development & Technology for “Alternative Fire Performance Screening Method of the Cladding System Using Cone Calorimeter Test” by Professor Swapan Saha, Touha Nazrun, Md Rayhan Hasnat, Dr Md Delwar Hossain and Dr Md Kamrul Hassan.

Student Success

School of Engineering, Design and Built Environment organises Three Minute Thesis (3MT) competition every year. The 3MT is an annual competition where HDR candidates are challenged to present their thesis in just three minutes using only one slide. It's a fantastic opportunity to support our HDR candidates and find out more about some of the amazing research happening across our Schools and Institutes.

This year, the winner and People's Choice of 3MT was John Rao and Runner Up was Monisha Anindita.



John Rao, Winner and People's Choice
3MT competition, 2024



Monisha Anindita, Runner up
3MT competition, 2024

Alumni Achievements

Mr. Hakeem Khan, a Bachelor of Engineering and Business student, has been awarded the winner of 2024 Undergraduate Thesis Award. This is a very competitive national award. His statement reads:

"I am deeply honoured to receive the 2024 RTSA Undergraduate Thesis Award for my research on 'Numerical Investigation on Fatigue Behaviour of Macro-synthetic Fibre Reinforced Concrete Sleepers.' This prestigious recognition would not have been possible without the unwavering support and guidance of my supervisor, Prof Olivia Mirza, and co-supervisor, Dr Christophe Camille. Their invaluable insights and encouragement were instrumental throughout my research. I extend my heartfelt gratitude to the RTSA Executive Committee for this honour. I look forward to contributing to the field of engineering as a graduate engineer at SMEC, a position I secured through a university speed networking event."



People Who Inspire



Dr Karthick Thiyagarajan

1. Welcome to Western Sydney University. Could you please tell us about your career path?

I am currently a Lecturer in Mechatronic and Robotic Engineering. Before joining WSU, I was a Research Fellow at the UTS Robotics Institute, where I also completed my PhD. I hold a Master's degree in Mechatronics from Newcastle University, UK, and a Bachelor of Engineering degree from Anna University, India.

2. Which people, places or others had impact on your career and research choices?

I had the privilege of being mentored by globally renowned roboticists, Prof Sarath Kodagoda and Prof Gamini Dissanayake, at the UTS Robotics Institute. Their guidance on various industry-driven collaborative projects profoundly influenced my research, emphasizing real-world outcomes with significant industry and societal impacts. Inspired by their expertise and leadership, I started exploring unconventional sensors for robotic perception. This enabled me to secure \$1.4 million in research grants as Chief Investigator from the ARC, and various companies.

3. What are you aiming to bring to the School of Engineering, Design and Built Environment?

As Western Sydney becomes a vibrant economic powerhouse, I am committed to keeping our robotics curriculum at the forefront of technological advancements and equipping future engineers with essential skills for today's dynamic job market. I am also excited to lead specialised robotics microcredential programs. These programs will upskill industry professionals, contribute to the region's economic growth and innovation, and keep participants at the cutting edge of their fields.


On the research front, I am establishing the Smart Sensing and Robotics Research Lab to explore "How can robots perceive the world through novel sensing methods for next-generation autonomy?" Aligned with SoEDBE's research themes, the lab will focus on transformative applications in advanced manufacturing, assistive technology, and resilient infrastructures.

4. If you were able to travel in time, what do you see in 10-years?


I envision myself advancing to higher ranks and leadership positions within the discipline and WSU's

robotics group. I see our team as a global leader in novel sensing-driven perception research, as well as an Australian leader in robotics microcredentials for industry professionals.

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