NELSON MANDELA
UNIVERSITY

THIRD QUARTER NEWSLETTER

FACULTY OF ENGINEERING, THE BUILT ENVIRONMENT AND TECHNOLOGY

EBET Celebrates Nelson Mandela Day with Community Wellness Day in Zwide

As part of Nelson Mandela Week 2026, Nelson Mandela University took its commitment to community engagement beyond the university campus and into the heart of the Zwide community.

On 16 July 2026, the Faculty of Engineering, the Built Environment and Technology (EBET) joined the University's Nelson Mandela Week activities at Zamukukhanya Primary School in Zwide for a Community Wellness Day. The initiative brought together university staff, students, community members and various support services for a day focused on service delivery, community wellbeing and practical support.

Residents of Zwide were able to access a range of services at no cost, including pharmaceutical services, social development support and legal assistance through the Mobile Law Clinic. The University also contributed to improving the school environment through a school-yard cleaning initiative, reinforcing the importance of creating safe and supportive spaces for learners.

For EBET, the day was an opportunity to be part of a broader University effort to make a meaningful difference in the communities it serves. The initiative demonstrated that the University's role extends beyond teaching and research, with community engagement providing an important platform to apply knowledge, resources and skills to real community needs.

The Community Wellness Day reflected the spirit of Ubuntu and active citizenship associated with Nelson Mandela Week, giving time, sharing resources and working together to create positive change.

Decire-Water Project Engagement

The Faculty of Engineering, the Built Environment and Technology (EBET) hosted a visiting researcher from Brazil on 2 July 2026 as part of the DECIRE-WATER Project.

The engagement brought together project members for discussions focused on strengthening international research collaboration, knowledge exchange and the continued development of the project. The visit formed part of an ongoing series of engagements, with further visits expected as the collaboration progresses.

The engagement highlights EBET's growing international research connections and its role in creating platforms for academics and researchers to share expertise and explore opportunities for collaborative research.

> "International collaboration creates opportunities to exchange knowledge, strengthen research partnerships and work together towards solutions to challenges that extend beyond borders."

The Faculty of Engineering, the Built Environment and Technology (EBET) proudly celebrates Ndalamo Blessings Mutshekwane, a Bachelor of Information Technology student, for achieving second place in the prestigious National Science Month (NSM) Logo Design Competition.

> "Ndalamo's achievement demonstrates how creativity, technology and innovation can come together to communicate science in meaningful and accessible ways."

Ndalamo received her award during the National Science Month 2026 Launch, held at the Vaal University of Technology (VUT) on 4 July 2026. The national competition invited university and TVET college students from across South Africa to design the new official National Science Month logo, with submissions showcasing creativity, innovation and a passion for science communication.

Inspired by the theme of making science accessible to all, Ndalamo created a logo featuring a DNA strand, an atomic structure, stars, a human figure and the South African flag, symbolising discovery, innovation, inclusivity and the message that "Science is for Everyone."

Reflecting on her achievement, Ndalamo said the recognition has strengthened her confidence in her creativity and design abilities while encouraging her to continue using technology and design to educate and inspire others.

Congratulations, Ndalamo, on this outstanding national achievement. Your success reflects the talent, innovation and excellence nurtured within EBET and serves as an inspiration to aspiring innovators across South Africa.

Learning and Teaching Week

The Faculty of Engineering, the Built Environment and Technology (EBET) was strongly represented at the Institutional Learning and Teaching Week 2026, contributing to important conversations on human-centred teaching, student success, digitalisation and innovative approaches to learning and assessment.

The week provided a platform for EBET academics to share research, practices and innovative teaching approaches that respond to the changing needs of higher education. Dr Jean-Pierre Basson contributed to discussions on human-centred teaching, embodied learning through 3D printing, and humanising feedback in higher education, while Mr Gideon Brundson joined him in exploring innovative approaches to learning in the Geosciences.

Prof Farouk Smith presented on using data-informed curriculum renewal to strengthen student success in BEng Mechatronics, while Prof Ann Lourens, Dr Mohlomi Raliile and Mr Hyacinthe Tonga contributed to a workshop on innovative teaching strategies.

Further contributions from Prof Darelle van Greunen and Dr Mark Brand explored assessment innovation, including evidence of graduate capability and item-level analytics for large-scale digital skills assessment. Together, these contributions demonstrated EBET's commitment to transformative, evidence-informed and technology-enabled teaching practices that place student success and meaningful learning at the centre of the educational experience.

Beyond the formal presentations, Learning and Teaching Week created opportunities for academics to exchange ideas, question established practices and learn from approaches being implemented across different disciplines. These conversations are important in ensuring that teaching continues to evolve alongside the needs of students and society.

Feedback remains one of the most important connections between teaching and student progress. The discussions around digital feedback explored how technology can support more continuous and meaningful conversations between students and educators, moving feedback beyond a final mark towards something students can use to improve their learning.

The sessions also raised an important question: what should students be able to do when they graduate? Beyond completing assessments, graduates need to demonstrate problem-solving, adaptability, digital competence, critical thinking and the ability to apply knowledge in real-world situations. These considerations are increasingly shaping how teaching and assessment are designed.

NMU eBaja Team Claims Back-to-Back Victory!

The NMU eBaja Team has once again demonstrated engineering excellence, securing a back-to-back victory in the 1-Hour Enduro Event at the 2026 ACTS UFS Eco Vehicle competition.

The team, comprising Mechanical, Mechatronics and Electrical Engineering students, competed against teams from several South African higher education institutions, including the University of the Free State (UFS), Central University of Technology (CUT), North-West University (NWU) and Vaal University of Technology (VUT).

Facing challenging conditions and a highly competitive field, the NMU team showcased exceptional technical expertise, teamwork, strategic thinking and problem-solving skills. Their ability to balance vehicle performance with energy efficiency was key to their success in the eMobility-focused endurance challenge.

Beyond their performance on the track, the students were also recognised for their professionalism, preparation and ability to engage confidently with members of the public and fellow competitors.
This achievement highlights the value of cross-disciplinary engineering education, bringing together students from different engineering disciplines to apply their knowledge to a real-world challenge.

Congratulations to the 16 student team members, as well as the academic and support staff, Faculty Management, School of Engineering, AMTC, Mechanical Engineering Department and project sponsors whose continued support contributed to this outstanding achievement.

The NMU eBaja Team has once again shown that innovation, collaboration and engineering excellence can drive success both on and off the track.

Civil Engineering Honours Students Tackle Real-World Road Safety Challenges

During the first semester of 2026, Civil Engineering Honours students enrolled in CCSA411 (Computer Applications and Analysis) had the opportunity to apply advanced computational tools to a real-world transportation engineering challenge. The project formed part of the course's focus on the use of MATLAB for data processing, script development, modelling, and simulation.

A key component of the project involved the use of RoadRunner, a MATLAB-based application that enables the modelling and simulation of real traffic environments. By incorporating field-collected data, students were able to recreate existing road conditions, visualise traffic operations, and assess the performance of intersections and pedestrian facilities.

To enhance the learning experience and expose students to industry challenges, the lecturer contacted Dr K. Venter with the Council for Scientific and Industrial Research (CSIR), specifically the Research, Innovation and Road Safety Education section. Through this partnership, a suitable study site was identified along the R75 between Gqeberha and Kariega, near KwaDwesi and Chatty. This section of roadway, managed by SANRAL, had recently been upgraded with a Fluorescent Yellow Sign (FYS) at a pedestrian crossing. The effectiveness of the new signage had not yet been evaluated, providing an ideal opportunity for student-led research.

The project required students to investigate traffic operations at six intersections and associated pedestrian crossings along the route. In addition to analysing vehicle and pedestrian movements, students examined motorists' responses to the newly installed FYS signage and assessed its contribution to road safety.

Working individually and in groups, students conducted traffic analyses, developed improvement proposals, prepared technical reports, and used RoadRunner simulations to evaluate the effectiveness of their recommendations. Their findings included suggestions aimed at improving pedestrian safety, traffic flow, and overall roadway performance at intersections.

The quality and relevance of the students' work gained recognition beyond the classroom. On 22 July 2026, a group of six students, accompanied by Mrs van der Wat, was invited to present their findings at the Road Safety Eastern Cape Management Meeting, attended by representatives from both CSIR and SANRAL. The presentation provided students with a valuable opportunity to engage directly with road safety professionals, discuss practical solutions to transportation challenges, and showcase their technical capabilities.

An additional highlight of the collaboration was the students' exposure to specialised road safety research equipment used to monitor drivers' eye movements and behavioural responses while driving. This hands-on experience offered insight into advanced research methodologies employed within the transport engineering field.

The project demonstrates the Department of Civil Engineering's commitment to combining academic learning with industry engagement. By addressing real transportation issues and presenting their work to leading road safety stakeholders, students not only strengthened their technical skills but also gained valuable professional experience that will support their future careers in the engineering sector.

Industrial Engineering Capstone Plant Tour: Isuzu

On Thursday, 27 August, the Industrial Engineering Capstone group visited the Isuzu plant for a site tour, forming part of the students' exposure to real-world manufacturing and production systems. The group consisted of twenty three Capstone students, one international student, and three accompanying staff members.

The visit began at 10:30 with a safety briefing, after which the tour proceeded through the plant. The first stop was the RG bodyshop, which proved to be a particular highlight for the students: the extensive use of robotic automation throughout the bodyshop's welding and assembly processes drew strong interest, offering a clear, practical illustration of automated production in action. From there, the group moved on to the RF bodyshop to continue the tour.

The group then proceeded to the final assembly line, where they observed the chassis and engine being married to the cab and load bin, a key integration point in the vehicle build process. Watching the completed bakkies drive off the end of the line was a standout moment of the tour, giving students a tangible sense of a finished product emerging from the process they had just walked through. The tour concluded with a walk through the truck assembly plant.

Overall, the visit gave students valuable first-hand insight into automated bodyshop operations, line-based final assembly, and the flow of a high-volume vehicle production facility, directly relevant to the systems and processes concepts covered in the Capstone curriculum.

EBET Academic Promotes Digital Safety Through TruFM Engagement

As part of its commitment to community engagement and promoting digital safety, the Faculty of Engineering, the Built Environment and Technology (EBET) was represented in a recent TruFM radio discussion focused on cybersecurity awareness among young people.

On 16 August 2026, Dr Tapiwa joined TruFM as a guest speaker to engage high school learners and parents on critical cybersecurity issues affecting young people in today's increasingly digital world.
The discussion highlighted practical ways to stay safe online, including social media safety, recognising scams and malicious links, preventing and responding to cyberbullying, strengthening password security through passphrases and Multi-Factor Authentication (MFA), and understanding the long-term impact of one's digital footprint.

The engagement provided an opportunity to take important cybersecurity knowledge beyond the classroom and into the wider community, helping young people and their families make safer and more informed decisions in the digital space.

A great example of EBET expertise making an impact beyond campus.

Industry Insight Through Guest Lecture on Slope Stability

Third-year and Honours Civil Engineering students recently attended a guest lecture on Slope Stability presented by Ayabulela Dube, Project Manager at SANRAL. The session provided valuable exposure to real-world engineering projects, allowing students to connect theoretical concepts with practical industry applications. Students gained insight into how slope stability challenges are addressed in professional practice, the decision-making processes involved in infrastructure projects, and the expectations of the engineering profession. The lecture offered a meaningful opportunity to engage with industry expertise and better understand the role of civil engineers in delivering safe and sustainable infrastructure.

Research and Innovation Week

Nelson Mandela University's Research and Innovation Week 2026 brought together researchers, innovators, students, academics, and other stakeholders for a week of knowledge sharing, collaboration and forward-thinking conversations.

Held under the theme "Forging Intelligent Futures: Research & Innovation Shaping AI • AI Advancing Research & Innovation , In Service of People and Planet," the week explored the growing relationship between Artificial Intelligence, research and innovation, while placing a strong emphasis on responsible and meaningful technological advancement.
The programme featured a diverse range of sessions, including keynote addresses, panel discussions, research presentations, exhibitions, poster showcases and collaborative working sessions. Discussions explored important topics such as responsible AI, AI governance, data ethics, information security, AI in teaching and research, smart technology and interdisciplinary research.

The week also showcased the breadth of research and innovation taking place across the University, with sessions covering areas such as nanomedicine, indigenous medicine, sustainable futures, smart infrastructure, transdisciplinary research and the role of research in addressing societal challenges.

A key highlight was the opportunity for the University community to engage beyond disciplinary boundaries, exchange ideas and identify opportunities for collaboration. The programme also created platforms for emerging researchers and students to share their work, including the Mandela 3MT Doctoral Competition and student research presentations.

Research and Innovation Week ultimately reinforced the importance of research that goes beyond academic outputs to create meaningful impact for people, communities and the planet. As Nelson Mandela University continues to navigate the opportunities and challenges presented by AI and emerging technologies, the week provided an important space to reflect, connect and imagine the intelligent futures we want to build.

ISUZU CHAIR OF MECHATRONICS

Nelson Mandela University recently welcomed executives from ISUZU Motors South Africa to the School of Engineering as part of the ongoing ISUZU Chair in Mechatronics partnership. The visit highlighted the strong collaboration between academia and industry, focused on developing future engineering talent through student projects, vacation training, mentoring, and industry engagement. Discussions also explored opportunities in emerging technologies, including artificial intelligence, while reinforcing a shared commitment to enhancing student employability and addressing the evolving needs of the manufacturing sector.

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