

Empowering the Future Workforce: NTU's Future-ready Courses

Alita Sharon | November 13, 2024



Nanyang Technological University, Singapore (NTU Singapore) is set to launch two innovative undergraduate degree programmes in robotics and advanced chemical and pharmaceutical manufacturing. These programmes will commence in August 2025, addressing the growing [global demand for skilled professionals](#) in these high-tech fields.

Both degrees are meticulously crafted to address technological shifts, preparing students for emerging careers in automation, AI, and sustainable industrial processes, thus reinforcing Singapore's strategic position as a leader in innovation and smart manufacturing.

The new Bachelor of Engineering in Robotics and the Double Major Bachelor of Engineering Science in Process Engineering and Synthetic Chemistry are designed to meet the increasing need for specialised talent as industries embrace automation and advanced manufacturing technologies. NTU Deputy President and Provost, Professor Ling San, highlighted the university's commitment to aligning academic offerings with industry trends, ensuring graduates are equipped with skills relevant to the evolving job market.

"These programmes will enable our students to seize opportunities in robotics and advanced manufacturing – sectors critical to Singapore's high-tech economic growth," said Professor Ling. "Incorporating AI-related elements ensures our students thrive in a technology-driven world."

NTU's new robotics degree, offered through the School of Mechanical and Aerospace Engineering (MAE), focuses on equipping students with practical, future-ready robotics skills aligned with Singapore's Smart Nation initiative. Unlike existing specialisations, this comprehensive programme covers mechanical, mechatronics, electrical, and artificial intelligence (AI) disciplines, ensuring graduates are prepared to excel in various sectors, from logistics to healthcare.

Students will benefit from hands-on, immersive learning experiences, including NTU's Work-Study Degree pathway, which integrates on-the-job training to enhance employability. This initiative is supported by NTU's strategic location within the Jurong Innovation District, fostering collaboration with technology companies and research centres.

NTU's deep expertise in robotics research – spanning areas like biorobotics, robotic microsurgery, and intelligent transport systems – further strengthens this programme. Since the establishment of its Robotics Research Centre in 1994, NTU has been a leader in robotics innovation, making its graduates highly sought after for roles in designing and integrating robotic systems.

The Double Major in Process Engineering and Synthetic Chemistry, offered by the School of Chemistry, Chemical Engineering and Biotechnology (CCEB), is the first of its kind in Singapore. This interdisciplinary programme aims to develop a unique talent pool proficient in both synthetic chemistry and chemical engineering. Graduates will be pivotal in driving innovation in sectors such as pharmaceuticals, petrochemicals, and semiconductors.

The curriculum integrates AI, machine learning, project management, and intellectual property to equip students with a competitive edge. Specialisations in Advanced Pharmaceutical Manufacturing or Machine Learning and Data Analytics are also available, providing targeted expertise in emerging fields.

With a focus on sustainable and efficient production processes, graduates will be prepared for roles that involve developing new materials and optimising manufacturing. This aligns with Singapore's goal to become a hub for advanced manufacturing and innovation, fostering talent capable of bridging scientific research with practical engineering solutions.

Both programmes will feature NTU's Interdisciplinary Collaborative Core (ICC) courses, mandatory for all undergraduates, which cover essential skills such as digital literacy, ethics, and global challenges. This interdisciplinary approach ensures students are not only technically proficient but also adaptable to a rapidly changing industrial landscape.

By collaborating with industry leaders, NTU continues to evolve its academic offerings to align with future workforce needs. These new degree programmes are a testament to NTU's commitment to nurturing talent that can drive Singapore's high-tech innovation agenda.

As Singapore pushes forward with its Smart Nation initiatives and aims to be a leader in advanced manufacturing, NTU's new degree programmes are poised to produce graduates ready to lead in a tech-driven world.

<https://opengovasia.com/2024/11/13/empowering-the-future-workforce-ntus-future-ready-courses/>