

NTU offers New Undergraduate Degree Programmes to Deepen Industry Exposure

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- *Six new work-study programmes for more on-the-job training*
- *A new Minor programme that tackles youth-related issues*
- *Six new engineering specialisations in light of Industry 4.0*

Nanyang Technological University, Singapore (NTU Singapore) is launching six new **SkillsFuture Work-Study Degree Programmes** in the new academic year for undergraduates who want a deeper understanding of an industry's inner workings. To help student teachers understand issues plaguing at-risk youths and guide them in their personal development, NTU will introduce a new Minor programme that addresses youth-related issues.

To ensure NTU programmes continue to meet changing industry needs brought about by technological advancements and add value to students, the university will also introduce six new engineering specialisations.

NTU Provost and Vice President (Academic) Professor Ling San said, "By collaborating with renowned industry partners, NTU is able to combine classroom learning with structured on-the-job training to equip students with the essential skills required to move into the workplace with confidence. This integration is paramount with the onset of Industry 4.0, and will greatly enhance our students' employment opportunities in highly competitive industries, while also meeting the sectors' high demand for quality graduates."

Deepening industry exposure

In line with NTU's unique pedagogy and practice of nurturing graduates who are workplace-ready, NTU is ramping up its line-up of work-study opportunities. To deepen industry exposure, NTU is launching six new **SkillsFuture Work-Study Degree Programmes (WSDPs)** through the introduction of an apprenticeship track for corresponding degree programmes. Students from Bachelor programmes in Materials Engineering, Mechanical Engineering (Design), Data Science and Artificial Intelligence, and Maritime Studies can opt for the respective WSDPs, under which they will complete three mandatory internships – 40 weeks in total – and an industry-sponsored final year project within the four years of their undergraduate programme.

There are currently nine industry partners on board these WSDPs, including multinational engineering and electronics company Bosch, pharmaceutical giant GSK, and semiconductor industry heavyweight Global Foundries and German automotive manufacturing company Continental Corporation.

Students pursuing a Bachelor's degree in Business (Business Analytics) or a double degree in Accountancy and Business (Business Analytics) can choose to take up the WSDP by completing three mandatory internships totalling 36 weeks. In addition, those pursuing the double degree who want to have work exposure in different industries can choose to do two more internships, totalling another 18 weeks.

Industry supporters currently on board this work-study track with NTU include SAP Asia, which provides data processing software products and solutions.

Professor Ling San said, "On-the-job learning is popular with students from Nanyang Business School, with many doing additional internships on top of their mandatory attachment programmes. Some even take leave of absence to go on extended internships as they recognise the value that industry exposure can do to jump-start their careers. With these new work-study degree programmes, business students looking to chalk up work experience will now be able to do so and still graduate at the same time as their peers."

These programmes build on NTU's earlier track in **Applied Wealth Management**, NTU's first WSDP launched jointly with DBS Bank. Under this programme, students undergo two internships with DBS Bank for a sound understanding of wealth management, experience first-hand client interactions, and get immersed in the digital banking environment at DBS.

Just last month, NTU also launched a **Co-operative Education track** for its Bachelor programmes in Mathematical Sciences, Chemistry & Biological Chemistry, and Physics/Applied Physics, where students have to complete three mandatory internships totalling 50 weeks.

Together, the new work-study initiatives add to almost 100 degree programmes that require students to undergo mandatory internships or work attachments, including those in Engineering, Biological Sciences, Accountancy, Business, Accountancy & Business, Business & Computer Science, Business & Computer Engineering, Communication Studies, Art, Design & Media and Sport Science & Management.

Prof Ling said, "Companies today want to be assured that their new hires possess not just deep technical knowledge, but also passion and enthusiasm, as well as the ability to integrate into the organisation. Internships and attachments open such doors, and serve as a useful mechanism for attracting and selecting prospective employees."

Managing youth-at-risk

In line with the Singapore government's efforts to ramp up the social service sector, NTU will introduce the new **Minor in Youth Work and Guidance** programme. It will allow undergraduates to gain an understanding of the psychological aspects of human development, and the psychosocial issues faced by youth in contemporary societies.

Some topics covered include psychological disorders common in young adults such as eating and depressive disorders, and developmental issues in childhood and adolescence.

Primarily designed for student teachers at NTU's National Institute of Education (NIE), the Minor programme is also open to all other NTU students, who can select courses under this programme as electives.

Graduates from the programme are expected to fill the rising need for trained manpower in social service, guidance, and counselling-related jobs. As of last year, there were 15,000 professionals in the social service sector, with another 1,000 needed by the end of this year. This number is set to grow.

Prof Ling said, “The new Minor in Youth Work and Guidance will allow our trainee teachers at NIE to develop an awareness of basic counselling skills and motivational strategies to promote task engagement, interest and enjoyment in learning. For other NTU students keen on working on youth-related issues, the programme provides them with the necessary skills to explore a career in the social service sector.

“This new undergraduate offering builds on NTU’s unique pedagogy and practice of grooming workplace-ready students in areas where demand is forecasted. As a leading global university, we are always monitoring the landscape to ensure we offer the most relevant programmes to our students.”

New engineering specialisations to match industry demand

To ensure NTU programmes continue to match changing industry needs brought about by the demands of Industry 4.0, the University will also introduce six new engineering specialisations.

New and existing bioengineering and chemical and biomolecular engineering (CBE) students may choose to specialise in:

- **Advanced Pharmaceutical Manufacturing,**
- **Machine Learning and Data Analytics,**
- **Intellectual Property for Chemical and Biomolecular Engineering,** and
- **Intellectual Property for Bioengineering.**

These courses will equip students with skill sets and specialised knowledge that will give them a competitive edge over others in becoming technical specialists in their respective fields.

Prospective and current electrical and electronic engineering (EEE) students may choose to specialise in **Data Intelligence & Processing**, which replaces and updates the existing Digital Media Processing specialisation.

This new specialisation will add value to the student’s degree by providing training and knowledge in Singapore’s rapidly developing data intelligence and analytics industry, where the skills required are different from those used in traditional multimedia processing methods.

Mechanical and aerospace engineering students can opt for the new **Smart Manufacturing and Digital Factory** specialisation, which will provide students with knowledge on digital advances that are changing manufacturing technologies and capabilities. Industry 4.0 and its components are taught in the courses offered as part of this new specialisation.