



NEWS RELEASE

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NTU Singapore announces new interdisciplinary core curriculum for undergraduates

Nanyang Technological University, Singapore (NTU Singapore) today announced that it will introduce a new common core curriculum that places stronger emphasis on interdisciplinary skills, for all undergraduates.

The new curriculum will help to prepare a new generation of NTU graduates who have the ability to make intellectual connections more quickly and easily across disciplines to be better prepared to tackle the world's complex problems, and to develop into problem solvers and leaders.

The university has long prized collaboration amongst faculty and research teams from different disciplines. NTU's faculty and academic leaders believe that interdisciplinary skills will become increasingly more important in a world driven by digital technologies. The impact of such technologies on individuals and society will increasingly be impacted by human behaviour requiring the interweaving of a wide spectrum of intellectual disciplines and considerations.

Starting in Academic Year 2021/2022, NTU's new **Common Foundational & Interdisciplinary Collaborative Curriculum** will comprise learning modules dealing with grand challenges such as climate change and global health. By bringing together different perspectives, students will develop a more comprehensive understanding of complex situations and will learn to apply and knit together ideas from different fields to come up with creative solutions. NTU will pilot the new curriculum next month for the College of Engineering, the College of Science and the College of Humanities, Arts and Social Sciences, before its full adoption a year later.

While students bring insights and ideas from their deep understanding of major disciplines into classroom discussions, they will receive common core training in communication skills, digital literacy, environmental sustainability, enterprise and innovation, ethics, career development and mental wellbeing.

As part of the coursework, students from different disciplines will learn together in the same classroom, and develop their abilities to work in multidisciplinary teams, as

occurs in many real-life work situations. Such educational offerings will also seek to help students to sharpen their ability in determining the credibility and veracity of online and other sources of information. These courses will collectively form about one-fifth of the total academic workload. The remainder will comprise the student's major discipline, and broadening electives, such as a second major or minor programme, Work-Study programme, massive open online courses, or the student's own self-directed courses.

Under the new curriculum, students can also look forward to team-teaching by faculty members of diverse disciplinary backgrounds, and professors whose academic interests overlap with two or more schools or colleges, drawing on their shared, multidisciplinary or interdisciplinary research.

Faculty from different disciplines will also work together to create integrated content that offers a more in-depth and interdisciplinary exploration of knowledge. For example, a course on sustainability may draw on disciplines as varied as climate science, environmental engineering, business, and environmental history, and involve faculty from NTU's Asian School of the Environment, School of Civil and Environmental Engineering, Nanyang Business School and the School of Humanities.

NTU President Prof Subra Suresh said, "The new foundational curriculum is in line with the **NTU Smart Campus** vision that seeks to prepare students for a new world that is being shaped by advanced digital technologies. The challenges the world is now dealing with, and will increasingly be facing, are inter-related and cannot be successfully tackled by single-domain expertise. Addressing these challenges will require an understanding of the bigger picture and of the manner in which people of different disciplines need to be able to work together.

"As educators, we often ask ourselves, what makes an educated person? Those who can thrive in this rapidly changing global environment will have broader interest and knowledge outside of their specific disciplines, while also possessing some deep domain expertise. For example, they should be able to appreciate the ethical dimensions and consequences of writing code that collects people's personal data without their knowledge, or the importance of intuitive and aesthetic design in the engineering of a new healthcare device."

Many NTU faculty across disciplines are collaborating on research to address some of society's greatest challenges and issues. Their expert insight is a critical feature of NTU's undergraduate classrooms that will help students be better prepared to handle complexities and equip themselves for professions and careers that are constantly evolving.

"NTU has always emphasised the importance of a holistic and broad education. Now, we plan to extend this interdisciplinarity to all students through the common

core curriculum that all undergraduates will take from year one, starting next year. This new curriculum will integrate knowledge from different disciplines and offer all undergraduates the opportunity to acquire skills to connect concepts from multiple perspectives and fields,” Professor Suresh added.

New curriculum builds on NTU’s success in multidisciplinary courses

Professor Suresh launched the **NTU Smart Campus** vision in early 2018 when he became its President. This vision seeks to nurture and transform the large and beautiful NTU campus as a place for the discovery, development and deployment as well as a living testbed for sustainable technologies that enhance the human experience and benefit society. In keeping with that vision, the University has also made major revisions to its undergraduate offerings that include the addition of core educational modules in digital literacy to prepare all NTU students for a world shaped by the Industry 4.0 technologies.

To further this vision, the university also announced in 2018 the creation of the NTU Institute of Science and Technology for Humanity (NISTH) which fosters collaborations and partnerships to tackle and discover innovative solutions to real world problems owing to the human dependency on fast-paced advancement of science and technology in everyday lives.

NTU also introduced a new interdisciplinary undergraduate programme in Data Science and Artificial Intelligence in 2018. A collaboration between the Schools of Computer Science & Engineering and Physical & Mathematical Sciences, the programme was recently named by **Forbes** as **one of the world’s 10 best AI and data science undergraduate courses for 2021**.

Currently, NTU offers multidisciplinary learning opportunities through a variety of programmes and options that include more than 20 double degrees and double major degrees. NTU also offers four dedicated premier scholars programmes to nurture future leaders with multidisciplinary expertise and perspectives, such as the Renaissance Engineering Programme and University Scholars Programme. These programmes offer a hybrid of knowledge and skills that span deep domain expertise and broad competency across different subject disciplines. By providing variety, NTU caters to a diverse range of students’ aptitudes, abilities, interest and aspirations.

The new core curriculum builds on the University’s success in these programmes. It will apply to all undergraduates except those in the Bachelor of Medicine and Bachelor of Surgery (MBBS) degree programme, which has a different educational and professional framework.

The new core curriculum will replace NTU’s existing General Educational Requirement courses, where students select from a basket of elective courses

focused on Science, Technology & Society, Liberal Studies or Liberal Arts, and Business & Management.

Professor Ling San, NTU Deputy President and Provost, said, “This new curriculum framework involves integrated learning from a range of disciplines across the sciences, arts and design, technology, the social sciences, and the humanities. The new curriculum helps students to break away from thinking in siloes when considering the complex and volatile global environment.

“More importantly, the new framework deepens our students’ interdisciplinary learning in a more collaborative setting. The courses and programmes will be spread throughout the undergraduate’s candidature, with most of these being completed in the first two years of study, so that students will embrace interdisciplinary learning as part of the overall academic expectation from the start of their university education. Each student also gets exposed to learning certain issues in an interdisciplinary manner, and they will be encouraged to pursue interdisciplinary collaborations in their subsequent years of study.”

Students will be expected to apply the knowledge from their respective disciplines to collaborate on group projects, and mirror the workplace setting where members of a team contribute their individual expertise and knowledge to group discussions.

This enables them to develop skills such as teamwork, ethical decision-making, critical thinking and the ability to apply knowledge in complex, multidimensional, and multidisciplinary settings, all of which are valued by employers today.

Professor Ling San said, “A key desired outcome of the new curriculum is to develop a lifelong learning mindset among students. Interdisciplinary exposure makes students more aware of the need to pick up new knowledge and integrate it with their existing repertoire of knowledge. This is particularly important as the connection between employability and interdisciplinary skills is set to become more prominent as a result of the Industry 4.0 era. COVID-19 has already accelerated the growing need for interdisciplinary skills to help businesses keep pace with today’s rapidly evolving technologies, and navigate a volatile, uncertain, complex and ambiguous world. Graduates who have a lifelong learning mindset and transferable skills that are portable across any industry or job will be able to transit through different jobs and careers in a rapidly changing and disruptive work landscape. Employers will also benefit from a more interdisciplinary way of looking at the world.”

The new curriculum will also comprise non-credit bearing modules in topics such as integrity, ethics, resilience, and social and leadership skills. More details will be announced next month.

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About Nanyang Technological University, Singapore

A research-intensive public university, Nanyang Technological University, Singapore (NTU Singapore) has 33,000 undergraduate and postgraduate students in the Engineering, Business, Science, Humanities, Arts, & Social Sciences, and Graduate colleges. It also has a medical school, the Lee Kong Chian School of Medicine, established jointly with Imperial College London.

NTU is also home to world-class autonomous institutes – the National Institute of Education, S Rajaratnam School of International Studies, Earth Observatory of Singapore, and Singapore Centre for Environmental Life Sciences Engineering – and various leading research centres such as the Nanyang Environment & Water Research Institute (NEWRI) and Energy Research Institute @ NTU (ERI@N).

Ranked amongst the world's top universities by QS, NTU has also been named the world's top young university for the past seven years. The University's main campus is frequently listed among the Top 15 most beautiful university campuses in the world and has 57 Green Mark-certified (equivalent to LEED-certified) buildings, of which 95% are certified Green Mark Platinum. Apart from its main campus, NTU also has a campus in Novena, Singapore's healthcare district.

Under the NTU Smart Campus vision, the University harnesses the power of digital technology and tech-enabled solutions to support better learning and living experiences, the discovery of new knowledge, and the sustainability of resources.

For more information, visit www.ntu.edu.sg