

NTU's second learning hub boasts 'smart' classrooms



The "smart" classrooms are equipped with multiple LED screens, flexible clustered seats and wireless communication tools to encourage more interaction and discussions.

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Newly opened The Arc has 56 such rooms to encourage more discussions, better learning

Classrooms with university students sitting in rows inside mass lecture halls, listening passively to lecturers dish out information, are becoming a less common sight.

For one university, a drive to improve how students learn - by encouraging more interaction and discussions - has been gaining momentum.

The Nanyang Technological University (NTU) now has more than 280 "smart" classrooms on campus for such learning. Each is equipped with multiple LED screens, flexible clustered seats and wireless communication tools.

Since 2015, NTU has done away with traditional classroom layouts so that students can learn more proactively and in groups, to keep up with the changing demands of workplaces.

Yesterday, NTU launched its latest learning hub, The Arc, a six-storey building with 56 smart classrooms.

The building, which cost \$41.5 million, is designed by local firm DCA Architects. It has 13 project discussion rooms, a room for quiet reading and a 108-seat lecture theatre. Its two lower levels have rooms that serve as workshops for engineering students.

The facility, which has a gross floor area of 18,113 sq m, also houses most of NTU's Singapore Centre for 3D Printing facilities, which will conduct research in smart technologies such as printable electronics, lightweight aircraft components and 3D-printed medical implants.

280 Number of "smart" classrooms at Nanyang Technological University.

\$41.5m Cost of building the six-storey The Arc learning hub.

SMART CAMPUS

The Arc is an integral part of our Smart Campus approach - adopting digital technologies to support better learning and discovery, and to improve the sustainability of resources.

NTU PRESIDENT SUBRA SURESH

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NTU president Subra Suresh said The Arc is designed to create avenues for students to discuss ideas and interact across disciplines.

Facilities and infrastructure are important as "the way a classroom is designed influences the style of teaching, the delivery of knowledge and the effectiveness of the whole learning experience", he added.

With the new learning arrangements, termed the "flipped-classroom" model, NTU students access materials online before class.

Class time is then used for deeper learning activities such as tackling problems in teams of five or six and engaging in more discussions with professors as guides.

Third-year mechanical engineering student Edward Lim said that with the redesigned courses, students can take more ownership of their learning.

"We can learn at our own pace... we can fast-forward the recorded lectures or backtrack, compared with physical lectures - once (a physical lecture) is gone, it's gone," said the 23-year-old.

"Lessons are also more engaging and there's more interaction with professors."

Other universities such as the National University of Singapore are also moving towards more interactive and in-depth learning in classes. Singapore Management University also employs seminar-style teaching in smaller classes instead of huge lectures.

The Arc is NTU's second learning hub, after its first, The Hive, was launched in 2015. The Hive, which has been nicknamed the "dim sum basket building", has 55 smart classrooms with similar features.

At the event yesterday, Professor Suresh gave an update on NTU's target to redesign at least 50 per cent of its undergraduate courses to use the flipped-classroom method by 2020. To date, 32 per cent - or 314 courses - have been converted, with another 170 courses in the works.

"The Arc is an integral part of our Smart Campus approach - adopting digital technologies to support better learning and discovery, and to improve the sustainability of resources," he said.

The building incorporates eco-friendly features such as energy-saving LED lighting, motion sensors and solar-powered systems.

Instead of walls, it comes with an aluminium sunscreen that reduces solar glare and heat, and keeps rain out while allowing ventilation throughout the day.

Its air-conditioning system saves energy by using passive cooling coils to chill the air without the use of fans. These coils cool the air as it sinks downwards, which moves warm air upwards.

Last year, The Arc was awarded the Green Mark Platinum, the highest award for sustainable building design in Singapore from the Building and Construction Authority.

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