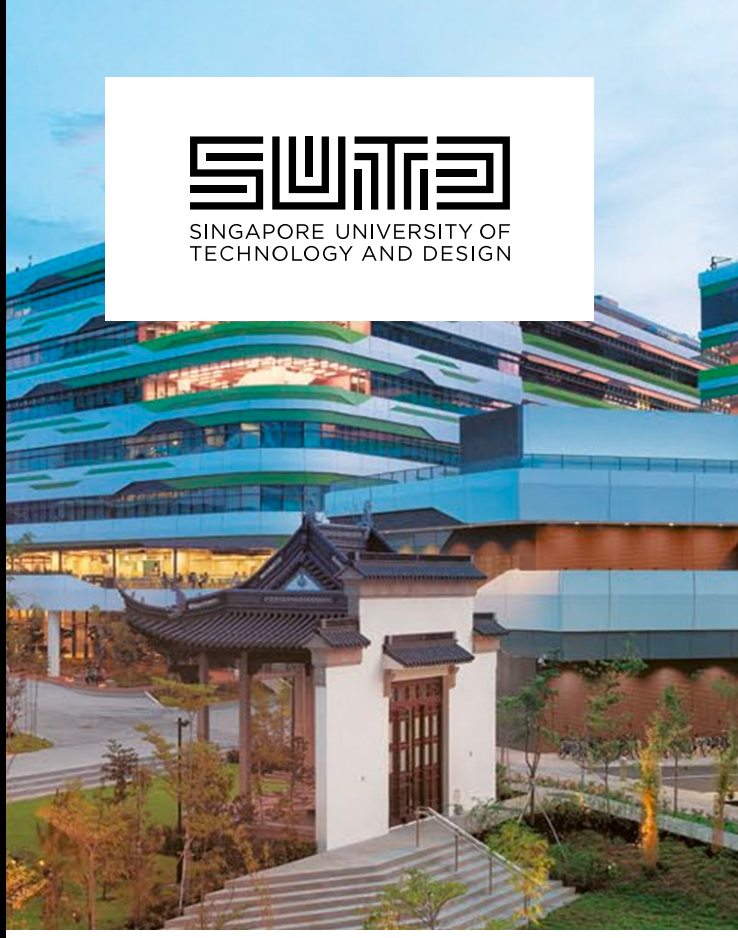
BLACKBOARD LEARN

CASE STUDY

Delivering a fully online biology course at the Singapore University of Technology and Design

With the help of Blackboard® Learn, SUTD was able to make a smooth transition to online learning while maintaining positive outcomes for students.



Since March 2020, when Home-Based Learning (HBL) was announced in Singapore for schools, all courses at the Singapore University of Technology and Design (SUTD), except for the Graduate Capstone Projects, have been delivered fully online. With multiple online learning technologies already available at SUTD, lecturers had to swiftly decide on their choice of platform, delivery mode, and types of assessment for their courses. This was followed by receiving various trainings to prepare them for fully online teaching. Students were also provided with the necessary assistance by the university, and being digital natives, they quickly adapted to remote learning.

We spoke with Dr. Bina Rai, senior lecturer and program director at SUTD, to find out more.

INSTITUTION TYPE:

PUBLIC AUTONOMOUS UNIVERSITY

LOCATION:

SINGAPORE

ANTHOLOGY PRODUCT:

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What's the course structure like?

"The Fundamental Biology Course is a freshman subject with about 450 students taught by me and six instructors at SUTD. The course is designed to be taught in a blended mode. When HBL (home-based learning) was announced and we had to go fully online, we also recognized the importance of a consistent course structure for students. That is why we decided to keep the timetable as similar to the pre-circuit breaker as possible: to ensure minimal disruption to their studies," said Dr. Rai.

The online biology course schedule starts off each week with one-hour flipped learning (consisting of mini video recordings and online quizzes), two-hour cohort sessions, and a one-hour mid-week lecture. Students find pre-class learning activities useful as it helps them stay on track with their lesson.

Because Blackboard® Learn had already been used at SUTD for several years, instructors and students were familiar with the learning management system (LMS) and continued to use it as their one-stop-shop. All lesson materials and video recordings were uploaded to the LMS so students could study at their own pace, or catch up on tasks they could not complete during a synchronous class. Instructors used assignment tools, the grade center, and Turnitin to provide scores, feedback, and ensured students' submissions were free from plagiarism.

During an online, synchronous session:

- Students will first log in to their Blackboard Learn account and their course's virtual meeting room.
- The session starts off in the virtual meeting room with a quiz, followed by an introduction to the topic of the day and the lesson plan indicating the duration they should spend on each mini-video recording.
- Students will then disperse to watch the recordings on Blackboard Learn that had been pre-uploaded by their instructor.
- Once they have finished watching the recording, they will return to the virtual meeting room to ask any questions that they have to confirm their understanding of the topic.
- At the end of the live session, students are expected to complete a worksheet and submit it on Blackboard Learn.

The pre-recorded videos give students the flexibility of replaying videos at their own pace. Meanwhile, instructors are able to use different digital tools to keep students busy and engaged rather than having them stare at the screen, listening to their instructor for the entire two to three hour sessions.

> Students love the pre-recorded videos and found them to be so informative and extremely useful in helping them understand the lesson. They are also able to rewind, pause, and repeat videos after a synchronous session until they fully understand the topic.

What about lab experiments?

Other than video recordings, instructors are using open-source tools and interactive online experimental simulations. SUTD has been using Star Genetics and StarCellBio, both virtual lab simulation platforms developed by MIT. Although there are plenty of free exercises and activities on these platforms, SUTD is also authorized to create their lessons on these platforms, based on their own curriculum and lesson plan.

Virtual labs enable students to carry out experiments themselves online, generate quality data, and analyze results in a short time. This is in contrast to physical lab experiments, which usually require more time. Additionally, Dr. Rai and her colleagues also use Labster, a gamified virtual reality lab simulation. Student feedback indicates that they enjoyed the course design and creative delivery method.

Providing extra help

Dr. Rai and her colleagues made themselves more available to students during HBL by reaching out and conversing in various ways. This included sending reminders through Announcement, personal emails, social networking sites, and making additional recordings to provide clarity on expectations and homework. In addition to the regular remote teaching, help sessions were organized to assist students who were inactive and struggling

to understand the content in virtual sessions. This allowed them to clarify their doubts and receive further help. For those lagging behind, instructors and teaching assistants sent personal emails to offer individualized assistance in the form of office hours, even on weekends if required.

Ensuring cheat-proof exams

To avoid cheating in a proctored virtual exam, Dr. Rai and her team have adopted a variety of creative ways to test their students in their assessment package. For instance, a viva (oral synchronous) continuous assessment was conducted. Instead of structured questions, students are given cheat-proof take-home assignments which include open-ended questions, tasks to design components, or linking all the weekly topics around a theme to demonstrate understanding, application of knowledge, and creativity.

Reflection and thoughts on the future

"Going fully online was definitely something no one expected. However, over the past months, HBL has proved to be equally as effective as face-to-face learning in achieving positive outcomes with regard to our students' academic performance for this course at SUTD. It encourages students to be self-directed and take ownership of their learning, which are important values for tertiary students preparing to step into the working world. But of course, at the moment there is no true replacement for the human connection that happens in a physical classroom and having a blended approach may be a post-COVID teaching model worth considering.

"This teaching model also leaves more for educators to explore in digital teaching and learning and upgrade their technology-enabled teaching skills. Educators are already asking themselves, 'What other methods can be used in the assessment in order to make it a bit fun, innovative, and less stressful?' As educators, we need to constantly upgrade ourselves to match up to the changing needs of students. Always move forward and upward, and never stop learning," said Dr. Rai.

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