

MIT–Singapore University of Technology and Design Collaboration

The MIT-Singapore University of Technology and Design (MIT-SUTD) Collaboration, which builds on more than a decade of MIT education and research activities in Singapore, is to date the largest and most complex university capacity-building endeavor in MIT's history. Founded in 2009 through a partnership between MIT and Singapore's government, the MIT-SUTD Collaboration was established to promote a better exchange of information between MIT and the Singapore University of Technology and Design (SUTD). This collaboration is multifaceted and includes the development and offering of curriculum, establishment of a major co-located research center, and recruitment and professional development of SUTD's university leadership team and faculty.

Activities in 2012–2013 continued to build on the previous year's successes. SUTD's second cohort began their three-and-a-half-year journey on May 13, 2013, with 264 students. Of these, 38.6% were female and 27% international. As of summer 2013, faculty—including tenure-track faculty and lecturers—numbered 121, of which 76 were either tenured or on a tenure track. Recruiting world-class faculty is a top priority of the university, and recruiting continues on an ongoing basis.

On the education side, more than half of the 90-plus courses to be developed at MIT have been completed and transferred to SUTD. A strong contingent of 11 MIT faculty members participated in the first semester of SUTD's second cohort in summer 2013. Coteaching faculty members from MIT visit SUTD for two- and four-week residencies in support of all SUTD classes. To date, nearly 20 MIT faculty members have participated in these short-term residencies. Professor John Brisson, director of the MIT-SUTD Collaboration (replacing professor Sanjay Sarma), completed his extended residency as a colead for the freshman curriculum in summer 2012. John Fernandez (Architecture) and Sang-Gook Kim (Mechanical Engineering) also completed their extended residencies. Stephen Graves (Sloan School of Management and MIT lead for the Engineering Systems and Design [ESD] pillar at SUTD) will go to Singapore from January through March 2014 to mentor SUTD ESD faculty and assist in ESD classes. To date, seven two-year postdocs, five MIT PhD students, and two research associates have participated in the SUTD-MIT Graduate Fellows Program, a 50% teaching/50% research appointment during which the graduate fellows spend significant time on the ground in Singapore assisting in teaching SUTD classes. Other programs arising from the collaboration include the SUTD-MIT Postdoctoral Fellows Program for postdoctoral fellows who perform research for one year at MIT and one year at SUTD, and the MIT-SUTD Dual Master's Program, in which students earn a master's degree in one year from one of four MIT programs, then complete a second master's degree by doing research in Singapore. SUTD's first graduate, Karthikeyan Rajasekharan, a graduate of the System Design and Management program in 2012, completed his master's degree at SUTD in 2013.

In June 2013, the entire senior management of SUTD, including the president, the provost, two associate provosts, and the four pillar heads, came to MIT to participate in a two-and-a-half-day curriculum review. It was the first major review of the curriculum

since it had been approved in November 2010. A full complement of MIT pillar heads and cluster leads also participated. Attending from MIT were John Brisson (freshmen courses), John Fernandez (Architecture and Sustainable Design pillar), Leslie Kaelbling and Tomás Lozano-Pérez (Information Systems Technology and Design pillar), Stephen Graves (Engineering Systems and Design pillar), Edward Greitzer (Engineering Product Development pillar), Anthony Patera and Sang-Gook Kim (sophomore cluster lead), Jung-Hoon Chun (capstone cluster lead), James Buzard (Humanities, Arts, and Social Sciences cluster lead), and Gilbert Strang (mathematics course developer).

For the second summer, MISTI-Singapore (MIT International Science and Technology Initiatives) sent 18 MIT students to SUTD to help establish clubs and extracurricular activities. Additionally, entrepreneurship activities begun at SUTD over the previous summer with the assistance of MIT graduate students and staff continued in summer 2013. This summer also marked the arrival of 28 students from SUTD at MIT for a 10-week Global Leadership Program. These students, chosen from 180 applicants, participated in a wide variety of activities, including a summer-long electric vehicle design challenge, art and communication courses, instruction in the MIT Game Lab, and a series of leadership speaker seminars made up of MIT faculty, alumni, staff, and administrators. One of the key elements of the Global Leadership Program is to demonstrate the entrepreneurial environment that is a hallmark of an MIT education.

Current budgets for research at MIT in the MIT-SUTD collaboration run about \$2 million per year for a total of \$20 million over the 10-year research component contract. Approximately 55 faculty researchers and students at MIT worked on projects associated with the MIT-SUTD International Design Centre (IDC). John Fernandez and professor of the practice Christopher Magee (Engineering Systems Division) are codirectors of the IDC. The two MIT codirectors along with SUTD codirector, professor Kristin Wood, conducted a research summit in January 2013 in Singapore to encourage more collaborative research between the two universities. MIT principal investigators involved with the IDC must complete residency requirements at SUTD. This past year, professors Daniel Frey, Karen Willcox, Lawrence Sass, Susan Silbey, Christopher Magee, Richard de Neufville, and J. Kim Vandiver completed their residency requirement. John Fernandez completed an extended residency of six months at the IDC in spring 2013. The IDC in Singapore is currently using space at an interim campus. A new state-of-the-art design center is being planned for the new campus, expected to be completed in 2014. The MIT International Design Center is located on the third floor of N52.

MIT provost Chris Kaiser, associate provost Philip Khoury, and School of Engineering dean Ian Waitz serve on the Collaboration Governing Board. Professor Thomas Magnanti is on leave from MIT to serve a three-year appointment as SUTD's founding president. His appointment reflects the close relationship that SUTD has with MIT.

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