

# Elite colleges transform online higher education

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(AP) — When the Massachusetts Institute of Technology offered its first free online course this spring, Ashwith Rego jumped at the chance to learn from some of the world's leading researchers — without leaving his home in India.

"I never imagined that I would be taught by professors from MIT, let alone for free," said the 24-year-old engineer who works in Bangalore.

From Harvard to Stanford, a growing number of elite universities are throwing open their digital doors to the masses. They're offering their most popular [courses](#) online for no charge, allowing anyone with an Internet connection to learn from world-renowned scholars and scientists.

Many colleges have offered Web-based courses for years, but the participation of top-tier research universities marks a major milestone in the expansion of digital learning.

The proliferation of so-called massive open online courses, or MOOCs, has the potential to transform higher education at a time when universities are grappling with shrinking budgets, rising costs and protests over soaring tuition and student debt.

Supporters say these online courses can lower teaching costs, improve learning online and on campus, and significantly expand access to higher education, which could fuel technological innovation and economic

growth.

"It holds the potential for serving many, many hundreds of thousands of [students](#) in a way we simply cannot today," said Molly Corbett Broad, president of the American Council on Education.

Last month, a dozen major research universities announced they would begin offering courses on the online learning platform Coursera, joining Stanford and Princeton universities and the universities of Pennsylvania and Virginia.

The University of California, Berkeley said it would start making online courses available this fall through edX, a competing Web portal launched in May by Harvard University and MIT with \$60 million in funding from the two schools.

"I believe it will ultimately revolutionize education," said UC Berkeley Chancellor Robert Birgeneau.

So far students can't earn college credit for the courses, but that hasn't dampened demand.

EdX officials say 154,000 students from more than 160 countries registered for MIT's first online course, "Circuits and Electronics," this past spring. Only about 7,100 students passed the course, but that's still a lot more than can fit in a lecture hall.

More than 120 universities have expressed interest in joining the consortium, said edX President Anant Agarwal, who heads MIT's Computer Science and Artificial Intelligence Laboratory.

"Our goal is to reinvent education," said Agarwal, who created the first MITx course. "It will dramatically improve the quality, efficiency and

scale of learning worldwide and on our campuses."

So far, the new online courses are attracting mostly older workers who want to upgrade their skills and knowledge, but may not have the time or money to attend classes on campus.

The new generation of online courses features interactive technology, open admissions, high-caliber curriculum and the ability to teach tens of thousands of students at once. The universities say the online courses are as rigorous as their campus counterparts.

Some schools, including the University of Washington and University of Helsinki, say they will offer college credit for Coursera courses.

If more schools follow suit, the online teaching could allow more students to attend college and graduate faster, experts say.

Besides potential cost savings, the new generation of online classes can change how students learn on campus by relieving professors of lecturing duties and freeing up more time for research and discussion with students.

"It's going to transform the work of professors," said William Tierney, a higher education expert at the University of Southern California.

But many questions remain. Are the courses rigorous enough to justify college credit? How do schools prevent cheating? Can colleges keep charging students thousands of dollars for courses they can take free online?

Some educators say these cyber courses can't replace the academic community and learning experience of a traditional campus education.

But others warn that MOOCs have the potential to undermine the finances of colleges and universities — much like how free Web content has upended newspapers, magazines and other media industries.

If students can get high-quality academic material for free, colleges and universities will be pressed to demonstrate the education value they offer beyond lectures and exams.

"I don't think you can just dismiss this," Tierney said. "People think that what happened to the newspaper industry is not going to happen to academia."

Once up and running, most courses can almost run by themselves. They typically feature short video lectures followed by quizzes that test students on the concepts they just learned. Most math and science exams can be graded by computer, while students in humanities courses evaluate each other's writing assignments.

The courses run on set schedules ranging from several weeks to several months, so that students can form discussion groups and help each other with homework assignments.

"There was a tremendously vibrant online community of fellow students," said George Skelly, a Boston attorney who took the MIT electronics class this spring. "It was as if I had a thousand teaching assistants available to me instantaneously."

This year several competing online platforms have emerged and attracted elite universities eager to develop their digital learning programs.

Coursera was founded by Andrew Ng and Daphne Koller, two Stanford professors who started the platform after they taught an online computer

science course that attracted more than 100,000 students last fall.

This fall Coursera will offer 116 courses from 16 universities in disciplines such as medicine, philosophy and artificial intelligence. So far about 900,000 students have enrolled.

The Mountain View-based startup has raised \$16 million from Silicon Valley venture capital firms as well as \$3.7 million from the California Institute of Technology and University of Pennsylvania.

While Coursera is a for-profit venture, the company remains committed to keeping the courses free, Ng said.

"If a poor kid in India cannot take the class, I think that would just be a tragedy," Ng said. "If a place like Princeton could teach millions of students, I think the world would be a better place."

Coursera is exploring ways to generate revenue, including charging students for certificates and charging employers who want to identify top students.

Faced with a shortage of engineering talent, many tech companies have already asked for introductions to students who successfully completed his online course, Ng said. Some students told him they landed new jobs after showing employers their Coursera certificates.

The Georgia Institute of Technology plans to offer five Coursera courses this fall, said Richard DeMillo, a computer science professor who heads the Center for 21st Century Universities.

"We're in the middle of a potentially groundbreaking experiment," DeMillo said. "Really big things could come out of it."

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