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## **US universities in win-win agreement with India to improve engineering education**

The University of California (UC) and four other U.S. universities will join with Indian institutions led by AMRITA University to enhance science and engineering education in India over a new satellite e-learning network. Funding for U.S. participation in the program will come from QUALCOMM Incorporated, Microsoft Corporation and Cadence Design Systems, Inc.

Educational, research and corporate representatives were on hand today in Washington D.C. for the signing of a three-year Memorandum of Understanding, timed to coincide with the official visit of Indian Prime Minister Manmohan Singh to the United States.

"We are delighted to forge this new partnership between Indian institutions and the UC system," said Gretchen Kalonji, Director of International Strategy Development for UC's Office of the President. ""By expanding opportunities for international academic collaborations in critical fields, this partnership will not only help keep the University of California competitive - but it will help drive global innovation and economic prosperity."

Under the agreement, UC Berkeley and UC San Diego, as well as Carnegie Mellon University, Cornell University, the State University of New York at Buffalo, and Case Western Reserve University, will encourage engineering faculty to spend a quarter or semester of their sabbatical at AMRITA University in the southern Indian state of Tamil Nadu. AMRITA will extend use of its e-learning center, making it possible to be beamed over Edusat, a satellite launched by the Indian Space Research Organization to transmit educational programming to multiple educational institutions throughout India.

"It is in everyone's interest to raise the level of engineering education in the global economy," said Frieder Seible, Dean of the Jacobs School of Engineering, who represented UCSD at the signing ceremony. "We expect some of the very best and brightest students participating in this program to come to the U.S. for post-graduate education, giving U.S. technology leaders such as Microsoft and QUALCOMM access to more world-class engineers. So programs like this offer benefits to India and the United States alike."

Composed of four relatively new campuses, AMRITA -- established by the world renowned humanitarian organization Mata Amritanandamayi Math -- is developing world-classis developing undergraduate and graduate engineering courses to be delivered over Edusat, a satellite launched by the Indian Space Research Organization to transmit educational programming. Other Indian partners in the project include the Government of India, and the country's Department of Science and Technology.

"The U.S. universities in this agreement are first-tier engineering schools that can help offset the imbalance in the quality of professors in India's fastest growing colleges and universities," said Venkat Rangan, Vice Chancellor of AMRITA University, a former professor of computer science and engineering at UCSD's Jacobs School, and a graduate of both UC Berkeley and the Indian Institute of Technology. "With the help of American professors, these satellite courses will turn more students into top-level engineers, not just for India, but potentially for Ph.D. programs and businesses in the U.S. as well."

Three U.S. research centers are partners to the agreement: UC's Center for Information

Technology Research in the Interest of Society (CITRIS); the California Institute for Telecommunications and Information Technology (Calit2); and Carnegie Mellon's CyLab.

The program will expose U.S. faculty to potential research partnerships in India, and could also help reverse the recent decline in applications to U.S. engineering schools from India and other countries.

"The number of non-U.S. nationals applying to UCSD's graduate engineering program has dropped almost 33 percent from the peak in 2002," said Ramesh Rao, Calit2's division director at UCSD. "For centers like ours that rely heavily on partnerships with global companies, globalizing our own activities is critical to sustaining the engine of innovation that we are called upon to drive. This initiative is also a living experiment in understanding the effectiveness of distance learning in an environment that is full of promise, but also rife with pedagogical challenges."

According to the most recent figures from the American Society for Engineering Education, nearly 58 percent of students enrolled in Ph.D. engineering programs in the United States are not U.S. citizens.

Funding for travel and salary supplements for participating faculty will come from the private sector. QUALCOMM's corporate sponsorship (\$120,000) will enable the participation of Calit2 and UCSD professors in the program.

"While headquartered in San Diego, QUALCOMM is a global company with an increasing presence in India's wireless market," said Jeff Jacobs, president of global development of QUALCOMM. "We believe it is important to support the education and training of world-class engineers who have the potential to take our business to the next level in innovation. Our company is built on the premise that wireless technology can change the way people live and work, and this partnership with U.S. and Indian institutions is empowering a new generation of future technology leaders."

For its part, Microsoft India is partnering with AMRITA University to set up the International Centre of Excellence in e-learning, for education, research and helping drive e-learning content. In its commitment towards driving IT education in the country, Microsoft India will be instituting a Microsoft Chair for three years at AMRITA university with a grant of 5,000,000 Indian rupees (approximately U.S. \$115,000).

"We have a long-term vision for the cause of IT education, wherein we are committed to empower students, educators and lifelong learners to achieve their fullest potential by providing greater access to the latest technologies and training," said S. Somasegar, Microsoft Corporate Vice President, on hand for the signing ceremony. "There is a pressing need today to accelerate the adoption of IT in the learning process and as a company, we are focused towards connecting the education community through solutions and powerful education initiatives such as this."

Visiting U.S. faculty will also be encouraged to explore research collaboration with participating institutions in India. The U.S. universities have also agreed in principle to make teaching materials available on a non-exclusive basis for a new digital content library being created by AMRITA for future students.

The program will focus initially on engineering and computer science, information and communication technologies, but courses will also include materials science, biotechnology and bioinformatics, nanotechnology, medical sciences, and others.

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