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## **Auditing Classes at M.I.T., on the Web and Free**

**By CAREY GOLDBERG**

CAMBRIDGE, Mass., April 3 Other universities may be striving to market their courses to the Internet masses in hopes of dot-com wealth. But the Massachusetts Institute of Technology has chosen the opposite path: to post virtually all its course materials on the Web, free to everybody.

M.I.T. plans on Wednesday to announce a 10-year initiative, apparently the biggest of its kind, that intends to create public Web sites for almost all of its 2,000 courses and to post materials like lecture notes, problem sets, syllabuses, exams, simulations, even video lectures. Professors' participation will be voluntary, but the university is committing itself to post sites for all its courses, at a cost of up to \$100 million.

Visitors will not earn college credits.

The giveaway idea, President Charles M. Vest of M.I.T. said, came in a "traditional Eureka moment" as the institute like nearly every other university brainstormed and soul-searched about how best to take advantage of the Internet.

Called OpenCourseWare, the initiative found broad resonance among the faculty members, said Steven Lerman, the faculty chairman.

"Selling content for profit, or trying in some ways to commercialize one of the core intellectual activities of the university," Professor Lerman said, "seemed less attractive to people at a deep level than finding ways to disseminate it as broadly as possible."

Universities have been flocking into "distance learning" offering courses online to off-campus paying students and commercial ventures have been investing tens of millions of dollars in the idea. But those ventures tend to pick and choose among courses and professors, rather than trying to offer a whole university in one swoop.

At the same time, on campus, universities have begun creating a great many course Web sites. The University of California at Los Angeles creates a site for every undergraduate course. But those are generally only for internal use, and the M.I.T. initiative appears to dwarf even those internal programs.

"I think everybody else besides M.I.T. is in the position of being more cautious," and watching to see what Internet strategy works best, said David Brady, vice provost for learning technologies at Stanford University.

A software entrepreneur in Washington, D.C., Michael Saylor, pledged \$100 million to create an online free university a year ago, but he would build it from scratch, and the value of his stock has plummeted. M.I.T.'s plan differs from Mr. Saylor's, President Vest said: "For one thing, it's going to happen."

Another difference between the M.I.T. plan and other Internet initiatives is that it makes no effort to offer full-fledged, for-credit courses online. Rather, it will offer course materials as ingredients of learning that can then be combined with teacher-student interaction somewhere else or simply explored by, say, professors in Chile or precocious high school students in Bangladesh.

Still, is the institute worried that M.I.T. students will balk at paying about \$26,000 a year in tuition when they can get all their materials online?

"Absolutely not," Dr. Vest said. "Our central value is people and the human experience of faculty working with students in classrooms and laboratories, and students learning from each other, and the kind of intensive environment we create in our residential university."

"I don't think we are giving away the direct value, by any means, that we give to students," he said. "But I think we will help other institutions around the world."

Most of the 940 or so faculty members support the plan, Professor Lerman and others said, but some have reservations. Some argued that the institute would be giving away a valuable asset that could be used to subsidize the residential students. (The question of whether university knowledge can be turned into online gold remains a big one, however; most firms that are trying it, Dr. Vest said, have encountered "much rougher sailing" than expected.)

Other faculty skeptics questioned whether it would be a good use of professors' time to labor over Web sites, and still others have questioned whether sub-par Web sites might not end up reflecting badly on M.I.T.

Then there is the question of intellectual property, already a thorny one in academia as the promise of Internet riches exacerbates the question of who owns the electronic rights to a professor's lectures and research. Some professors, Mr. Lerman said, may end up having two Web sites: one for internal use with, say, large portions of a soon-to-be-published textbook, and one for external use.

But he and others said that issues of intellectual property had surfaced little in the months of faculty discussion of the initiative. Rather, they said, a willingness, even an eagerness, to share appeared to dominate.

"This is a natural fit to what the Web is really all about," Dr. Vest said. "We've learned this lesson over and over again. You can't have tight, closed-up systems. We've tried to open up software infrastructure in a variety of ways and that's what unleashed the creativity of software developers; I think the same thing can happen in education."

In fact, M.I.T. is a hotbed of the "open source" software movement; and this new Internet initiative is based on a similar idea, said Hal Abelson, a professor of computer science and engineering who is involved in both.

"Fundamentally, they proceed from the same ethic, which has to do with sharing," Professor Abelson said. "In the Middle Ages people built cathedrals, where the whole town would get together and make a thing that's greater than any individual person could do and the society would kind of revel in that. We don't do that as much anymore, but in a sense this is kind of like building a cathedral."

The initiative is to begin with a two-year pilot program to put materials from more than 500 courses on the Web, work to be done by a combination of professional staff and teaching assistants. One of the advantages of the initiative, M.I.T. officials said, will be that it will unite all the posted courses in one electronic place, allowing students to see how they flow into each other, to search the whole repository and to jump from one to the next when they cross-reference each other.

Professor Abelson and others estimated that at most 20 percent of professors already have substantive Web sites for their courses.

University officials said they were not worried that, with extensive course materials posted online, students would be less likely to come to class. In fact, the university's provost, Robert A. Brown, said, when course materials are already posted, "it pushes the faculty in the direction of 'How do I best use the contact hours so that people learn?' which is clearly critical."

Over all, the vision for 10 years from now, Provost Brown said, was "a world in which you'll find students able to search what will be huge repositories of content" and "they'll be able to use content from many places educationally, and we'll be using other people's as much as they'll be using ours."

Dr. Vest said he did not rule out the possibility that M.I.T. might seek to develop profit-oriented Web programs in the future. But as for this initiative, he said, he suspected its greatest impact might come overseas, among institutions that cannot attract world-class faculty.

"I also suspect," he said, "in this country and throughout the world, a lot of really bright, precocious high school students will find this a great playground." And ultimately, he said, "there will probably be a lot of uses that will really surprise us and that we can't really predict."

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