Curriculum Changes Spark Debate at MIT

After years of soul searching, MIT is revamping its humanities requirements; some say the university's pressure-cooker environment is more in need of change

Cambridge, Massachusetts

NEXT year will be the last chance for wily engineering students at the Massachusetts Institute of Technology to satisfy their humanities requirement by enrolling in such courses as Jazz, The Film Experience, and Creative Seeing.

After 3 years of soul-searching debate and protracted committee meetings, the MIT faculty decided on 20 May to change the way it educates its engineering and science students in the humanities, arts, and social sciences.

Starting with the freshman class in 1988, students will be offered humanities courses that are more focused, more academically rigorous, and selected from a limited menu of options. And students will be allowed, for the first time, to minor in liberal arts.

The change in the humanities curriculum at MIT revolves around one central question: What does an engineer need to know—not only to function in society, but to flourish? MIT's answer will reveal how the 125-year-old institute views its role in society.

"Engineers have traditionally been self-limiting. They say, 'Gimme a job, I'll do it. Gimme a problem, I'll solve it.' We want to broaden that. We think engineers should take a larger role in society, in the decision-making of society, and if they're going to do that they have to understand how people with more humanistic backgrounds think," says Jack Kerrebrock, associate dean of the School of Engineering and one of the architects of MIT's new curriculum.

One committee that recommended change, chaired by Kenneth Keniston, director of the Science, Technology, and Society Program, stressed that "Tomorrow's leaders must be at home in a world where the uses of science and technology can make the difference between progress and annihilation."

Ann Friedlaender, dean of MIT's School of Humanities and Social Science, and a central force behind the new curriculum, is asking, "Are we trying to cram so much information into the engineering students that they do not have time to think?"

What emerges from interviews and committee reports is a sense that students graduate from MIT extremely proficient in science, but without a real understanding of how the rest of the world—the nonscientific world—operates.

A popular belief at MIT is that too few of its graduates take their rightful place in the upper echelons of government and industry because of their narrowly defined and highly vocational education. "Too many MIT graduates work for too many Harvard graduates," says Friedlaender.

Says Margaret MacVicar, dean of undergraduate education, "Our graduates need to be more than just professional problem-solvers who come in, fix the problem, and leave, like technological mercenaries. They must not only solve problems, but frame them."

There is widespread agreement at MIT that the present system of humanities requirements needs to be tinkered with. To satisfy their humanities distribution requirement, students currently must choose three subjects from a smorgasbord of courses, some 156 subjects in 22 fields. (After they meet the distributional requirement, students must complete an additional five humanities courses, of which three or four must be taken in a single concentration.)

Critics of the current system say the choices are too diverse, the courses too specialized, and the pace too relaxed, contending that undergraduates are not receiving the broad-based "general education" that the humanities requirement seems to call for. For example, the class of 1985 graduated with 31% never taking a literature course, 50% never taking art, and 62% never completing a single undergraduate history class.

Says Kerrebrock: "It's not that the current humanities requirements weren't fun and valuable, but they lacked coherence and meaning." The students did not agree. They do not like structure. They like flexibility. They also think highly of the quality of the humanities professors. When the curriculum change was first introduced to the faculty in March, the students initiated a petition urging the faculty to table the proposed revision. It was signed by 1500 students, about one-third of the undergraduate population at MIT.

Ann Friedlaender. *"Are we trying to cram so much information into the engineering students that they do not have time to think?"*

The students were particularly galled by "the attitude of condescension and mistrust on the part of the administration and faculty towards students," according to an ad hoc student report that was hurriedly completed during the last weeks of the semester, a time when it is difficult to get many MIT students to sleep at night, let alone issue a report.

The faculty, though, has explained the student support for the current humanities requirements in a different light. Wrote the Keniston committee: "Students often choose humanities distribution subjects less on the basis of the quality of instruction, or the rigor of teaching, or even the interest of the subject matter, than according to such criteria as the convenience of the hours, the location of the classroom, and—for some—the alleged ease of the grading."

It is the reality of MIT that students must endure large work loads and extreme pressure, particularly in the School of Engineering, where about 70% of MIT's 4500 undergraduates are enrolled. Along with the popular expression that MIT students are expected to "drink from a fire hose," the school is proudly thought of as a kind of hell. Many of the faculty members, particularly in the School of Engineering, are also graduates of MIT. If they survived, so should their students. "Sloth, even the appearance of sloth, is a cardinal sin at MIT," admits Paul Gray, MIT's president.

In their engineering and science programs, students face what has been called the "hidden curriculum," a notorious on-

slaught of problem sets, lab work, quizzes, and exams. It is a system made up of narrowly defined problems to be solved by "right" answers.

Humanities courses have traditionally been a source of release from the pace and pressure of students' engineering and science programs. At best, the humanities classes are a beacon of inspiration and stimulation. At worst, they are viewed by students as "gut" courses that can be "punted." In the arcane lexicon of MIT, a gut is a class that requires little work for a good grade; punting is doing exactly what it takes to get by, and no more.

Indeed, the faculty seems to encourage this view. "If anything is really going to change at MIT, the engineering faculty needs to ease up, and we in the humanities need to be more demanding," says Travis Merritt, a professor of literature and director of the Humanities, Arts, and Social Sciences Office. "Right now, we're in effect telling students, 'Look, I know your backs are against the wall with your engineering subjects, so next week we'll just take it easy and rap a little about *Crime and Punishment*.' "

"There are a significant number of students really involved in the humanities and another significant number who really loathe the humanities. The majority of us are interested, but our science and engineering courses are more important and take up more time," explains Seth Brown, a sophomore chemistry student who cared enough about his humanities education to serve on the student ad hoc committee. Brown agrees with Merritt: "Nothing will change in the humanities until MIT deals with the question of pace and pressure in engineering and science."

This is not the first time MIT has grappled with the unique challenges of educating engineers and scientists. "Twenty years ago schools of technology were criticized on the grounds that they taught men to make a living rather than to live. In response to this criticism, many schools of applied science—of which the Institute was a leader—have added to their courses of study a growing amount of so-called culture studies. I think I express the opinion of many teachers in saying that the result has not been all that might be hoped for." This is from the MIT president's annual report of 1907.

Through the 1930s, MIT students were required to take 1 year each of composition, history, economics, and a single elective. After World War II, the institute initiated a humanities core curriculum, with such broad-based survey classes as Foundations of Western Civilization and The United States: Men and Issues. In the tumultuous days of the early 1970s, the core curriculum was condemned as monolithic and authoritarian. It was scrapped and replaced by the current humanities distribution requirement.

Paul Gray.

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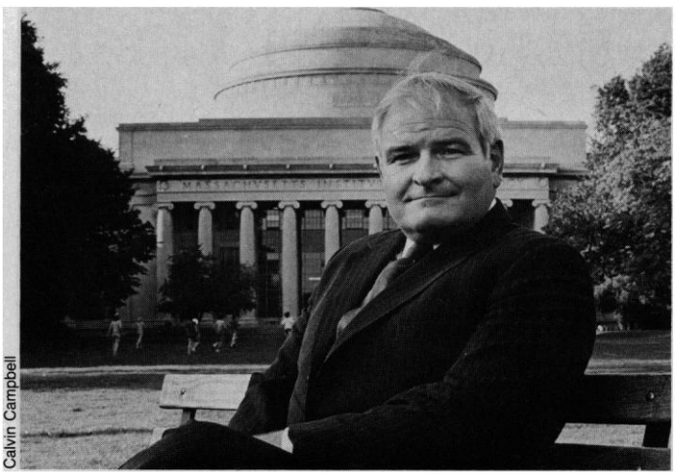

Calvin Campbell

There was a great deal of debate about how to remedy the current humanities requirements. Some faculty members would like to see a return to the old days of the core curriculum, when students were exposed to the "great books" and "great ideas" of Western civilization. But, as a committee chaired by Pauline Maier, professor of history and head of the history faculty, concluded, "If there was a time when acquaintance with the great works and formative events of Western culture defined the community of educated people and provided the foundations of intellectual discourse, that time has passed." We no longer live in a European world. To illustrate, 19% of the entering class of MIT in 1986 were Asian Americans.

In the revised curriculum, students will choose their classes from five broad areas: literary and textual studies; language, thought, and value; the arts; culture and societies; and historical studies. Students must take a course from three of the five areas, dividing their choices between the humanities and social sciences.

A cap limiting the number of course options was removed from the final vote as a compromise to the students and humanities faculty, although the language of the proposal still speaks of "a limited number of subjects." The number being batted around is between 50 and 60, and according to the new requirement, "each category is to consist of subjects that are appropriate for students who may never take another subject in that area of learning." Instructors will be encouraged to make their courses more demanding, though again the proposal shies away from stipulating quizzes and exams.

In other steps, MIT is planning to require that students take a special course investigating "the human context" of science and technology. One possible topic for next spring is the trendy subject of industrial competitiveness between the United States and Japan. Taboo are context classes that would investigate the failures of technology, such as the Challenger explosion, says Kerrebrock. Also, in addition to creating a minor in liberal arts, educators at MIT are considering a special program for dual majors in engineering and humanities.

Says Kerrebrock: "We are taking the humanities requirement very seriously, and that is quite different from attitudes here even a few years ago. We're saying every engineer should know this. Not so they can just be a better member of society but so they can be better engineers. This is tantamount to redefining the engineer."

Whether all this will help MIT create engineering *Übermenschen* is not certain. Perhaps it is not possible for MIT to educate engineers who will be equally at home in the Middle East, the communist bloc, art museums, concert halls, and in the immediate vicinity of people who quote James Madison and William Shakespeare.

"If you listen to the message the administration is giving out, it is this: If students take a more rounded curriculum, they'll end up in top management. If they're in top management, they'll be taken more seriously. I haven't seen any kind of study that proves this is what happens," says Louis Kampf, a professor of literature and one of a handful who spoke out against the new curriculum at the May faculty meeting.

Sophomore Seth Brown is not taking his humanities courses to rise to the pinnacle of corporate America, or to get a better salary, or even to be more competitive with the Japanese. Says Brown, "I just want to be a reasonable human being." ■

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