

# Report on the 1999 Institute Self Study

## Institutional Overview

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## Standard One: Mission and Purposes

The mission of MIT is to advance knowledge and educate students in science, technology, and other areas of scholarship that will best serve the nation and the world in the 21st century.

The Institute is committed to generating, disseminating, and preserving knowledge, and to working with others to bring this knowledge to bear on the world's great challenges. MIT is dedicated to providing its students with an education that combines rigorous academic study and the excitement of discovery with the support and intellectual stimulation of a diverse campus community. We seek to develop in each member of the MIT community the ability and passion to work wisely, creatively, and effectively for the betterment of humankind.

The Massachusetts Institute of Technology was incorporated by an act of the General Court of the Commonwealth of Massachusetts in 1861 as "a school of industrial science...aiding generally, by suitable means, the advancement, development and practical application of science in connection with arts, agriculture, manufactures, and commerce." The Institute admitted its first class of 15 students four years later.

The founding of MIT was the culmination of an extended effort by William Barton Rogers, a distinguished natural scientist, to establish a new kind of independent educational institution relevant to an increasingly industrialized America. He believed that education should be both broad and useful, enabling students to participate in "the humane culture of the community" and to discover and apply knowledge for the benefit of society. His emphasis on "learning by doing", on combining liberal and professional education, and on the value of useful knowledge continues to be at the heart of MIT's educational mission.

Today, the Institute's degree-granting departments, programs, and divisions, are organized within five Schools – Architecture and Planning, Engineering, Humanities and Social Science, Science, and the Sloan School of Management – and the Whitaker College of Health Sciences and Technology. (See table of Degrees Offered, between pages 17 and 20.) In addition, many interdisciplinary laboratories and centers have been organized to facilitate research in fields that cross the boundaries of traditional disciplines.

In addition to its campus-based programs of education and research, the Institute operates the MIT Lincoln Laboratory, a federally sponsored center for research and development in advanced electronics, with special emphasis on applications to national defense, worldwide communication, and civil air traffic control, located in Lexington, Massachusetts.

## Standard Two: Planning and Evaluation

Planning and evaluation of MIT's programs, finances, and campus environment involve faculty, administration, and trustees. This section describes activities related to the general planning for the Institute's programs and finances; the work of the recent Presidential Task Force on Student Life and Learning, planning for the development of the campus environment, planning for MIT's upcoming capital campaign, the role of trustees in planning and evaluating the Institute's activities, and institutional resources that support planning and evaluation.

### Program and Budget Planning

Beginning in the late 1980s, the Institute's strategic long-range planning was coupled with the annual budget process. The process depended on five-year strategic planning documents prepared by the academic units, research laboratories and centers, and administrative areas. Annual budgets for all areas were derived from their program plans.

This coupling of planning and budgeting was designed to ground the planning process in funding realities. Over time, however, it became apparent that the constraints of the budget cycle were not conducive to innovative planning or to substantive discussion between the senior administration, the deans and vice presidents, and the individual units reporting to them. In 1998,

following a review of the budget process by the Provost, the Institute began the process of decoupling yearly budgeting from the five-year planning process in order to allow for more sophisticated and comprehensive strategic planning efforts.

Individual units were asked to begin development of new long-range plans in April of 1999. Preliminary versions of integrated strategic plans for each School or administrative area will be presented to the senior administration at the beginning of November. These strategic plans will provide the essential context for consideration of annual budgets. The anticipated timeline will allow for senior administration input on these plans to be reflected in budget submissions for Fiscal Year 2001.

In the future, it is not expected that all units will prepare new strategic plans on an annual basis. The intensity and frequency of plan revisions will depend on the needs of the unit. Those in especially volatile fields may find annual updates desirable, although a two- or three-year planning cycle is likelier to be the norm.

Some academic units have recently undertaken strategic planning efforts that model possible approaches. The Department of Aeronautics and Astronautics provides an especially clear example. Faced with a generational transition in its faculty, the department conducted a detailed and extensive strategic planning exercise. The department's visiting committee participated actively at all stages of the process. The plan identified three essential disciplinary bases for the future – traditional engine and airframe disciplines, the disciplines of real-time system-critical aerospace information engineering, and the architecture and engineering of complex systems. The plan is guiding the department's current initiatives in faculty hiring, curriculum redesign, and laboratory development.

The senior administration and the Executive Committee of the MIT Corporation are collaborating on development of a long-range plan for the Institute's financial future, which will be based on clearly stated assumptions and assessment against appropriate standard metrics. This planning effort expands on work undertaken in recent years to develop a more comprehensive presentation of the Institute's financial position. The long-range financial planning process is discussed in more detail in Standard Nine, Financial Resources, below.

## **Task Force on Student Life and Learning**

While the Institute regularly evaluates the effectiveness of its curriculum and co-curricular activities, in times of profound institutional and intellectual change it has also recognized the need for a far-reaching assessment of its educational mission and programs. In the fall of 1996, President Charles M. Vest appointed the Presidential Task Force on Student Life and Learning to undertake "a fundamental, comprehensive review of the Institute's educational mission on the threshold of the 21st century." The last review of this scope was carried out by the 1949 Committee on Educational Survey, known as the Lewis Commission, which examined the Institute's educational programs in light of the changes taking place in the aftermath of World War II.

The Task Force was charged with four goals:

- Review and articulate MIT's educational mission,
- Evaluate the interaction between student life and learning at MIT in the context of that mission,
- Evaluate MIT's current educational processes and identify changes that would enhance the educational mission, and
- Identify resources that would be required to support the educational mission including proposed changes.

The membership of the Task Force included one undergraduate and two graduate students as well as faculty members from a wide range of departments and educational backgrounds.

The Task Force began its review by gathering input on strategic issues related to student life and learning. Members examined a multitude of historical and current reports, reviewed statistical data, and conducted surveys of students, faculty, and alumni/ae. Sources of input included faculty, students, student organizations, staff members, Institute committees, alumni, and external individuals and organizations. The Task Force organized a special event for junior faculty, and held internal meetings with a variety of MIT administrators, sponsors, and Faculty committees. Participation in the 1997 retreat hosted by the Committee on the Undergraduate Program, a Standing Committee of the Faculty, offered members the opportunity to meet

with School and department heads as well as undergraduate academic officers. Members also met and corresponded with hundreds of other groups and individuals inside and outside MIT.

The Student Advisory Committee to the Task Force, composed of roughly two dozen graduate and undergraduate students, met regularly during the two years the Task Force was active, providing it with substantial input and feedback. The Student Advisory Committee published a preliminary report in the summer of 1997 and a final report in the spring of 1998. Both of these reports articulated the concept of an educational triad – academics, research, and community – that was endorsed subsequently by the Task Force itself.

The Task Force stressed that bringing students, faculty, and staff together in pursuit of the common educational enterprise entails strengthening the relationship between what happens within the classroom or laboratory and the informal learning that takes place outside. Recommendations addressed academics and research, community, and institutional strategy and structure.

The release of the Task Force report at the beginning of the academic year 1998-99 coincided with the announcement of the Institute's decision to house all first-year undergraduates in campus residence halls – a decision endorsed by the Task Force. While this decision initially generated enormous discussion within the MIT community, during the course of the academic year attention turned to the broader themes and recommendations presented by the Task Force.

No single steering committee has been charged with following up on the Task Force recommendations. Instead, the senior administration and the leadership of the Faculty have worked to integrate consideration of the Task Force recommendations into existing programs and plans for the future.

The Institute has worked to respond to many of the specific recommendations made by the Task Force. More generally, the principles it articulated have provided MIT with an effective framework within which to assess proposals for innovation in all aspects of the educational experience, from the curriculum to housing. The Residence System Steering Committee, for example, is drawing on the ideas expressed by the Task Force as it develops detailed plans for the future of the residence system as a whole and its individual facilities.

The recommendations of the Task Force and the activities underway to address them will be the focus of the 1999 evaluation for reaccreditation by the New England Association of Schools and Colleges (NEASC).

The final report of the Task Force is included as Part Four of the Report on the Institutional Self-Study. The final report of the Student Advisory Committee is included as Part Five. A summary report on Institute activities that respond to the recommendations of the Task Force is included as Part Six. Discussion of these activities will be central to the NEASC evaluation site team visit.

## **Planning the Campus Environment**

Planning for the development of the Institute's facilities is guided by the work of the Building Committee and the Committee for the Review of Space Planning. The Building Committee, chaired by the Executive Vice President and including the President, Provost, Chancellor, and other senior officers, is responsible for review and approval of capital projects.

The Committee for the Review of Space Planning (CRSP), chaired by the Chancellor, reviews all space change requests that will change the parameters of a room, cost more than \$10,000, or require the services of two or more construction trades and allocates Institute funds for such projects. In Fiscal Year 1999 the Committee revised its procedures for the review of funding requests. Previously reviewed on a rolling basis, space change requests are now aggregated for review shortly after the beginning of each academic year. The review of requests has been enhanced through assessment against benchmarks verified by the Planning Office. Cost-sharing through fund raising is encouraged, while senior officers have been more closely involved with prioritization of the requests submitted from their areas.

The Institute is currently developing a campus plan; that process is described under Standard Eight, Physical Resources, below.

The campus has been deeply engaged in a residence system design process that will address the changes in organization, programming, and facilities necessary to implement the decision to house all freshmen in campus residences. This has been a highly collaborative process. A Residence System Steering Committee, appointed by the Chancellor, has been charged with developing a proposal for the design of the new system. This process has involved substantial participation of faculty, students, and staff in a number of ways, ranging from open meetings to a design competition during the Independent Activities Period in January 1999. A final proposal for the design of the new system will be presented in the early fall of 1999. The design of a new undergraduate residence hall, scheduled to open in the fall of 2001, has been developed with the participation of a "founders group," established to involve faculty and students as early as possible and to provide for the development of community among potential residents.

## **Campaign Planning**

In November of 1999, the Institute will begin the five-year public phase of a seven-year capital campaign. The campaign-planning process has been an essential part of the Institute's review and prioritization of its own objectives.

Initial planning sessions involved the senior academic administration of the Institute, under the leadership of the Provost. These reviews of academic priorities were followed by a highly collaborative and consultative process involving the senior administration in both academic and administrative areas, whose discussions were informed by the research and projections of the Institute's professional development staff. This process provided both impetus and opportunity for considerable discussion of new programmatic initiatives and possible sources of funding.

During Fiscal Year 1999, priorities and expectations were reviewed and refined in light of consultation with current and potential supporters of the Institute. Projected campaign outcomes are incorporated into the Institute's long-range financial planning.

The Corporation Development Committee has been involved at all phases of the planning process. The Campaign Steering Committee is chaired by a member of the Executive Committee of the Corporation and includes the Chairman of the Corporation as well as selected other members of the Corporation.

## **Role of the Trustees**

The Corporation – MIT's board of trustees – holds a public trust to see that the Institute adheres to the purposes for which it was chartered and that its integrity and financial resources are preserved for future generations as well as for current purposes. The Corporation and its committees have responsibility for reviewing and providing guidance on strategic directions, approving annual budgets, exercising long-term fiduciary responsibility, approving the establishment of new degree programs or courses of study, approving degrees, electing the President (as well as the other Corporation officers), and being available (individually as well as collectively) to advise the President on issues that he may wish to raise with them.

An essential part of the Institute's planning activities during the last year has been the development of a dynamic long-range financial plan to guide the enhancement and deployment of the Institute's resources. This planning process, which has engaged members of the senior administration and of the Executive Committee, builds on substantial work in recent years to enhance the understanding of the Institute's finances.

## **Visiting Committees**

The Corporation's role in planning is supported by the work of its visiting committees, which operate as advisory groups to the Corporation and the senior administration. The visiting committees offer appraisal, advice, and insight on the Institute's academic programs and closely related activities (Athletics, Physical Education, and Recreation; the Libraries; the Office of the Dean for Undergraduate Education and Student Affairs; and Sponsored Research). The visiting committee system at MIT is among the strongest and most active at a major research university and provides invaluable counsel on current activities and future directions.

Each of the 30 visiting committees normally convenes every two years for a one-and-one-half day session, concluding with an oral report to the senior administration. Committee recommendations and ideas are conveyed to the Corporation, senior administration, department heads and faculty, and students through oral and written reports and on-going assessments. Committee members often visit departments on their own time, to give lectures, or otherwise participate in the business of the department.

Committees consist of distinguished professionals in the academic, corporate, and governmental worlds, many of whom are graduates of the Institute. Each committee typically includes 17 members, including 5 Corporation members, one of whom is chair; 6 alumni/ae nominees; and 6 members nominated by the President, in consultation with the academic departments and others.

Approximately 400 individuals serve on visiting committees at any one time. Many members of the Corporation serve on the same committee for many years, providing valuable continuity and insight to the departments. In determining committee membership, the Institute seeks to achieve appropriate representation among people from academia, business and industry, and government, and take into account alumni/ae and non-alumni/ae status, race, and gender.

The recommendations of the visiting committees are a key component in the strategic planning undertaken by the Schools, individual academic units, and administrative areas.

Many academic units develop advisory mechanisms that supplement the visiting committee process and meet specific organizational needs, such as the Dean's Advisory Group at the Sloan School of Management.

## **Institutional Resources**

The development and management of the Institute's operating and capital budgets is the responsibility of the Office of Budget and Financial Planning (Budget Office). The Budget Office also develops MIT's financial planning tools and tracks the Institute's financial position. The office supports the use of financial information in the strategic planning process, executing operating and capital programs, and providing Institute leadership with the financial knowledge necessary to support strategic planning.

The Planning Office provides an integrated, comprehensive planning capability for the MIT community that will sustain the preparation and maintenance of the long-range campus development plan; maintains accurate, consistent information about the Institute, its external environment, and its peer institutions; supports and maintains a systematic and dependable planning process that reflects MIT's demographic, programmatic, financial, building, campus design, and community development goals and objectives; and provides policy analysis and planning recommendations to the Institute's leadership for planning and campus development purposes.

Staff in the Office of Academic Services undertake professional assessments of student educational experiences, including longitudinal studies as well as statistical analyses. An in-depth survey of graduating seniors was undertaken in the spring of 1998. Since the Class of 1998 had been surveyed after the freshman year, the survey provided an opportunity to look at the same cohort of students at two points in time. It also allowed for comparison with responses to a senior survey of the Class of 1994, the first such comprehensive survey of a graduating class. Major issues addressed in the senior surveys have included faculty-student interaction, the freshman year, knowledge and abilities, major courses of study, and pace and pressure, in addition to overall satisfaction. Data from the 1998 survey of science and engineering majors at four other universities belonging to the Consortium on the Financing of Higher Education provided an important comparative perspective. The Class of 2002 will be surveyed about its first-year experience during the academic year 1999-2000. The Office of Academic Services also undertakes survey work for individual departments and programs.

The Educational Studies Working Group brings together people from many parts of the Institute who share an interest in gathering educational data and conducting studies about the educational experience and student life. Members of the group share data, review proposals and results, and coordinate the many educational research activities on campus.

## Standard Three: Organization and Governance

### The Corporation

The Institute's charter is comprised of the various acts and resolves of the General Court of Massachusetts pertaining to the Institute from its act of incorporation in 1861. The Institute is subject to Massachusetts' statutory provisions governing corporations organized for charitable purposes, which now provide for amendments to the articles of organization by vote of the Corporation.

The Corporation – as the Institute's board of trustees – holds a public trust to see that MIT adheres to the purposes for which it was chartered and that its integrity and financial resources are preserved for future generations as well as for current purposes.

The Corporation and its committees have responsibility for reviewing and providing guidance on strategic directions, approving annual budgets, exercising long-term fiduciary responsibility, approving the establishment of new degree programs or courses of study, approving degrees, electing the President (as well as the other Corporation officers), and being available (individually as well as collectively) to advise the President on issues that he may wish to raise with them. It is also understood that trustees are expected to represent the interests of MIT to outside constituencies as appropriate, provide financial support, and encourage others to do so.

The Corporation is governed by its bylaws, which were last amended as of October 1, 1993. It is currently comprised of 78 individuals. A total of 8 members serve *ex officio* for the duration of their appointments: the Chairman, President, Secretary, and Treasurer of the Corporation; the President of the Alumni/ae Association; and 3 representatives of the Commonwealth of Massachusetts – the Governor, Chief Justice, and Commissioner of Education.

No more than 25 Life Members are elected to serve without specific term until they attain the age of 74, at which point they transfer to the status of Life Member Emeritus. (They may elect to transfer earlier, but not earlier than 65 years of age.) Life Members Emeriti remain interested and active in the Institute's affairs and may attend meetings of the Corporation, although they are not eligible to vote.

Term Members (no more than 25), Alumni/ae Nominees (no more than 15), and representatives of Recent Graduating Classes (no more than 5) serve five-year terms. Only Term members may serve an additional term without a break of at least one year.

Members are proposed by the Membership Committee and elected each spring by the Corporation as a whole. The Membership Committee solicits nominations from members of the Corporation itself, from the Alumni/ae Association, and from the wider world of academia, government, and business. Because of the term system used by the Corporation, about eight positions open up each year. Representatives of recent graduating classes are nominated by vote of their classmates.

Almost all trustees are graduates of the Institute, but this is not a requirement. Other factors that bear on nominations for membership stem from a desire for good representation among geographical regions, professions, gender, and race. In general, the Corporation seeks the highest levels of commitment and sustained involvement in the affairs of MIT.

While the Corporation as a whole meets four times each year, most of the work of the Corporation is conducted through its various committees. These include the Executive Committee, Investment Committee, Audit Committee, Membership Committee, the Corporation Joint Advisory Committee on Institute-Wide Affairs, and the visiting committees. In addition to their service on various standing committees, each Corporation member serves on at least two visiting committees.

The Executive Committee, which is charged with "responsibility for general administration and superintendence of all matters relating to the Corporation," meets 10 times each academic year. Chaired by the President, the Executive Committee includes five members of the Corporation serving staggered five-year terms, two members serving staggered two-year terms, and the Chairman and Treasurer of the Corporation *ex officio*. The Vice President and Secretary of the Corporation serves as the Secretary of the Executive Committee, whose meetings are also attended by the Provost and the Executive Vice President.

During 1998-99, the agenda of the Executive Committee included such topics as developments in interdisciplinary education and research, student recruitment and admissions and financial aid policies, student life; campus planning, external relations, the sponsorship of research, and changes in the senior administration. The Committee devoted substantial time to the discussion of budget processes, financial planning, and the management and enhancement of the Institute's resources.

The Auditing, Development, Investment, and Membership Committees meet from one to three times a year to review Institute policies and operations connected with their areas of responsibility.

The Corporation Joint Advisory Committee on Institute-Wide Affairs associates with the Corporation a representative group at MIT to which the Corporation can turn for consideration and advice on special Institute-wide matters requiring Corporation attention. The Committee, which includes members of the Corporation, members of the Faculty, and students, met three times in 1998-99 for discussion of the issues raised in the report of the Task Force on Student Life and Learning.

The work of the 30 Corporation Visiting Committees is discussed under Standard Two, Planning and Evaluation, above.

## **Institute Administration**

The Institute's chief executive officer is the President. The Provost, Chancellor, Executive Vice President, and the Vice President and Secretary of the Corporation report directly to the President.

The Associate Provosts, the Deans of the Institute's five Schools, and the Director of the Libraries report to the Provost. The Dean of Students and Undergraduate Education reports to the Chancellor. The Vice President and Dean for Research reports to the Chancellor in his capacity as dean and to the Provost in his capacity as vice president with oversight of major research laboratories and centers. The Dean for Graduate Students reports jointly to the Chancellor and to the Vice President and Dean for Research.

The Vice Presidents, who manage the Institute's major administrative divisions, report to the Executive Vice President. The Treasurer reports to the President and the Executive Vice President.

An institutional organization chart is included in Part One.

Senior officers concerned with the overall administration of the Institute and the elected Chair of the Faculty meet as the Academic Council, which is chaired by the President, to confer on matters of Institute policy. The Academic Council meets weekly during the academic year and occasionally during the summer. The Provost and the Executive Vice President chair regular meetings of those Academic Council members with responsibilities for educational and administrative areas, respectively.

Four Institute-wide councils appointed by the Provost focus on areas of growing importance in both instruction and research: educational technology, the environment, industrial relationships, and international relationships. Each is chaired by a member of the Academic Council and has one or more faculty co-chairs.

Each School has a council of department heads and laboratory and center directors, chaired by the School Dean.

## **The Faculty**

The composition of the Faculty of the Institute is defined in the Rules of the Faculty. The officers of the Faculty are its elected Chair, Associate Chair, and Secretary and, ex officio, the President of the Institute, who is President of the Faculty. In the absence of the President, the Chair of the Faculty presides at meetings of the Faculty.

The Faculty determines educational policy for the Institute. The Faculty meets regularly each month during the academic year to deal with matters relating to educational policy, methods, curriculum, and degrees, both undergraduate and graduate. The Faculty develops and carries out policy through its Standing Committees, many of which include student members.

The Faculty Policy Committee (FPC) maintains a broad overview of the Institute's academic programs, deals with a wide range of policy issues of concern to the Faculty, and coordinates the work of the Faculty committees. The Committee is chaired by the Chair of the Faculty and includes eight additional faculty members, one undergraduate and one graduate student, and two nonvoting members designated by the Provost and one designated by the President.

Other Standing Committees of the Faculty, whose composition and duties are defined in the Rules of the Faculty, are the following: Academic Performance, Corporate Relations, Curricula, Discipline, Faculty-Administration (Faculty Section), Graduate School Programs, Library System, Nominations, Outside Professional Activities, Student Affairs, Undergraduate Admissions and Financial Services, and Undergraduate Program. The work of many of these committees is discussed under individual standards for accreditation.

## **Student Participation in Governance**

The MIT Undergraduate Association (UA) – the major undergraduate governmental body, to which all undergraduates belong – works to improve the quality of student life at MIT. It serves as a liaison between students and MIT faculty, staff, and administration. Much of its work is conducted through committees. These include the Finance Board, which coordinates budgets and allocates funds to student organizations; the Student Committee on Educational Policy, which provides student feedback to the departments and the Institute on important educational issues; the Nominations Committee, which recommends student representatives for more than 50 administrative and Faculty committees; and the Social Council, which produces major social events including autumn and spring weekends. Each undergraduate class annually elects a president and executive committee to handle class activities.

All graduate students are represented by the Graduate Student Council (GSC). The Council consists of elected representatives from all academic departments and graduate residences, as well as members-at-large. The GSC organizes and encourages academic, athletic, cultural, social and other co-curricular activities; promotes closer relations between graduate students and faculty outside formal academic contexts; and voices the concerns, ideas, and suggestions of graduate students. The GSC nominates two students to serve on the Committee on Graduate School Programs and one to serve on the FPC and is represented on many other Institute committees.

The Association of Student Activities, a joint committee of the UA and the GSC, is responsible for recognizing student groups and activities, allocating resources, and organizing the Activities Midway that takes place during Orientation.

The Interfraternity Council (IFC) serves as the governing body of the 38 fraternities, sororities, and independent living groups at MIT. The goals of the IFC are to assist in providing a total educational experience, intellectual, social, and physical; to represent the body and assume responsibility for its relations with the MIT administration and faculty, and with the communities of Cambridge, Boston, and Brookline; to foster the exchange of practices and information, so that each group may learn what the other has to teach; and to encourage cooperation and interaction to improve and enhance the relations between its members.

The Dormitory Council is the governing body of all MIT undergraduate residence halls. Its purpose is to engage in those activities that cannot be better performed by the individual house committees. The voting members of the Council are the house presidents, although all house residents are members and may attend meetings. The Council's main function is to act as a student advocacy group, representing the interests of all dormitory residents to the administration.

The Student Information Processing Board operates free computer services for student use and advises on computer policy at the Institute.

The Corporation Joint Advisory Committee on Institute-Wide Affairs includes six student members, including the presidents of the UA and the GSC, two undergraduate students nominated by an elective process by undergraduates, and two graduate students nominated by an elective process by graduate students.

## Standard Four: Programs and Instruction

### Establishment of Degree Programs

An outline of degrees offered by the Institute appears on the chart between pages 17 and 20. The requirements of each MIT degree are determined by the Faculty and reviewed regularly to ensure that they are consonant with the mission and purposes of the Institute. New programs are proposed first at the departmental level and then to the relevant School(s). After receiving School approval, the curriculum of proposed programs is reviewed by a Standing Committee of the Faculty – the Committee on Curricula in the case of undergraduate programs or the Committee on Graduate School Programs in the case of graduate programs. If approved, undergraduate programs are then reviewed by both the Committee on the Undergraduate Program (CUP) and the Faculty Policy Committee (FPC), while graduate programs typically pass directly to the FPC.

Proposed programs at both the undergraduate and graduate levels are generally reviewed twice by members of the Academic Council. They are discussed at an early stage in their development by the Education Committee of the Council, which is chaired by the Provost, and are reviewed by the full Academic Council before they are brought to the Faculty. If endorsed by the appropriate committees, proposals are brought before the Faculty at a regular meeting, where the Faculty is asked to approve the establishment of the degree program. Finally, the proposal passes to the Corporation for approval.

### Degrees Offered

|   | Undergraduate | Graduate                                     |
|---|---------------|--|
| <b><i>School of Architecture and Planning</i></b>     |               |  |
| Architecture, Course 4                                | S.B.          | M.Arch., S.M., Ph.D.                         |
| Media Arts and Sciences, MAS                          |               | S.M., Ph.D.                                  |
| Urban Studies and Planning, Course 11                 | S.B.          | M.C.P., S.M., Ph.D.                          |
| <b><i>School of Engineering</i></b>                   |               |  |
| Aeronautics and Astronautics, Course 16               | S.B.          | S.M., M.Eng., E.A.A., Ph.D., Sc.D.           |
| Bioengineering and Environmental Health, BEH          |               | S.M., Ph.D., Sc. D.                          |
| Chemical Engineering, Course 10                       | S.B.          | S.M., Ph.D., Sc.D.                           |
| Civil and Environmental Engineering, Course 1         | S.B.          | M.Eng., S.M., C.E., Env.E., Ph.D.            |
| Electrical Engineering and Computer Science, Course 6 | S.B.          | M.Eng., S.M., E.E., E.C.S., Ph.D., Sc.D.     |
| Engineering Systems Division, ESD                     |               | S.M., Ph.D, Sc.D.                            |
| Materials Science and Engineering, Course 3           | S.B.          | S.M., Met.E., Mat.E., Ph.D., Sc.D.           |
| Mechanical Engineering, Course 2                      | S.B.          | S.M., Mech.E., Ph.D., Sc.D.                  |
| Nuclear Engineering, Course 22                        | S.B.          | S.M., M.Eng., Nucl.E., Ph.D., Sc.D.          |
| Ocean Engineering, Course 13                          | S.B.          | S.M., M.Eng., Ocean E., Nav.E., Ph.D., Sc.D. |

***School of Humanities and Social Science***

|   |      |             |
|---|------|-------------|
| Comparative Media Studies, CMS                |      | S. M.       |
| Economics, Course 14                          | S.B. | S.M., Ph.D. |
| Humanities, Course 21                         | S.B. |             |
| Anthropology, Course 21A                      | S.B. |             |
| Foreign Languages and Literatures, Course 21F | S.B. |             |
| History, Course 21H                           | S.B. |             |
| Literature, Course 21L                        | S.B. |             |
| Music and Theater Arts, Course 21M            | S.B. |             |
| Writing and Humanistic Studies, Course 21W    | S.B. |             |
| Linguistics and Philosophy, Course 24         | S.B. | S.M., Ph.D. |
| Political Science, Course 17                  | S.B. | S.M., Ph.D. |
| Science, Technology, and Society, STS         | S.B. | S.M., Ph.D. |

***Sloan School of Management***

|                       |      |                     |
|-----------------------|------|---------------------|
| Management, Course 15 | S.B. | S.M., M.B.A., Ph.D. |
|-----------------------|------|---------------------|

***School of Science***

|   |      |                    |
|---|------|--------------------|
| Biology, Course 7                                     | S.B. | S.M., Ph.D.        |
| Brain and Cognitive Sciences, Course 9                | S.B. | Ph.D., Sc.D.       |
| Chemistry, Course 5                                   | S.B. | S.M., Ph.D., Sc.D. |
| Earth, Atmospheric, and Planetary Sciences, Course 12 | S.B. | S.M., Ph.D., Sc.D. |
| Mathematics, Course 18                                | S.B. | Ph.D., Sc.D.       |
| Physics, Course 8                                     | S.B. | S.M., Ph.D., Sc.D. |

***Whitaker College of Health Sciences and Technology***

|  |  |             |
|--|--|-------------|
| Harvard-MIT Div. of Health Sciences and Technology,<br>HST |  | S.M., Ph.D. |
|--|--|-------------|

At each stage of this process, the various aspects of proposed programs are scrutinized for viability and merit. Close attention is also given to the anticipated impact of a new program on faculty, space, and teaching resources and its relationship to existing programs. In the most recent academic year (1998–99), the Institute approved two new undergraduate degree programs: an S.B. in Aerospace Engineering with Information Technology and an S.B. in Linguistics and Philosophy. At the

graduate level, new interdisciplinary Ph.D. programs were approved in Archaeological Materials, Bioengineering, and Chemical Engineering Practice.

For both undergraduate and graduate registration, one unit of credit toward degree requirements represents approximately one hour per week of lecture, exercise, or preparation for one term. Unit designations for courses are normally multiples of three units. Grades are not rigidly related to any numerical scores or distribution function. In the first year, undergraduates are graded Pass/No Record; most subjects report grades to first-year students' advisors, but the Institute keeps no official record. Some subjects, including most seminars, are graded on a Pass/D/Fail basis. Juniors and seniors may elect to have a total of two subjects graded Pass/D/Fail as long as they are not needed to fulfill a departmental, Institute, or minor requirement. In 1995, the Faculty approved the experimental introduction of plus-minus grading, for internal purposes only. This system was adopted for permanent use in 1999. Intermediate grades do not appear on transcripts or affect the calculation of grade-point averages.

## Accreditation

Overall accreditation of the Institute is under the auspices of the New England Association of Schools and Colleges. MIT works to ensure that individual degree programs are accredited by national accrediting bodies as appropriate. Currently, programs offered by the Institute are accredited by the American Assembly of Collegiate Schools of Business, the Accreditation Board for Engineering and Technology, the American Chemical Society, the Computer Sciences Accreditation Board, the National Architectural Accrediting Board, and the Planning Accreditation Board.

## Undergraduate Degree Programs

### Overview

The Institute's undergraduate programs are designed to help students develop the understanding, maturity, and capabilities needed to meet the challenges of modern society. An MIT education has its roots in a wide variety of disciplines, with a view to joining the power of these disciplines to a concern for values and social goals. In addition to developing a basic knowledge and a continuing interest in a given field, undergraduates are encouraged to take advantage of the opportunities for broad liberal learning at the Institute, and to become creative intellectual explorers who will continue to learn on their own.

The program for the S.B. takes four years of full-time study for most students. Of the students who entered in the fall of 1992, 91.5 percent had graduated by the end of six years.

Students base their studies on a core of subjects in science, mathematics, and the humanities, arts, and social sciences – the General Institute Requirements (GIRs) – approved by the Faculty and outlined in *Regulations of the Faculty*.

To complete work for a bachelor's degree in any major (Course), each student must also complete the departmental program specified by the Course. Students can major in the physical or biological sciences; management; architecture or urban studies and planning; an area of the humanities, arts, and social sciences; or one of the engineering fields. In the first year, many students take subjects from a variety of options in mathematics, physics, chemistry, biology, humanities, arts, and social sciences. During the second year, students generally continue their studies with subjects meeting various additional Institute requirements and introductory subjects in departmental programs. In the third and fourth years, students focus on the departmental programs.

The general degree requirements are designed to allow students to take elective subjects each year, allowing them to cultivate special interests and enrich their educational backgrounds. Students may also use electives to prepare for graduate or professional study. The number of undergraduate subjects whose enrollment is restricted by a lottery is relatively small.

Students may also pursue optional minors in many of the fields in which MIT offers undergraduate degrees and in a number of interdisciplinary areas that do not offer undergraduate majors, such as biomedical engineering. The minors are coherent programs providing significant experience in their disciplines.

An important feature of undergraduate education at MIT is the opportunity for students to join with faculty in ongoing research projects. The Undergraduate Research Opportunities Program (UROP) encourages intellectual commitment and self-direction and may provide a focus for students' undergraduate studies. During the Independent Activities Period each January, students spend time in workshops, independent research projects, intensive subjects and seminars, field trips, lecture series, and other activities that do not fit easily into the traditional academic calendar.

MIT is currently engaged in a number of new initiatives and educational experiments. In 1997, the Faculty approved an experimental Communication Requirement, which is discussed below. A new experimental first-year program in Media Arts and Sciences (MAS) emphasizes project-related work. Students involved in this program attend mainstream lectures for the core freshmen subjects, but take recitations led by Media Laboratory faculty and participate in laboratory research through UROP. This experimental program joins the existing alternative first-year programs discussed below.

In recent years, considerable attention has been focused on the experience of the first year. In the wake of recommendations from the Presidential Task Force on Student Life and Learning, the CUP charged a faculty design team with developing proposals for a new and enhanced common educational program directed at the first year. This Educational Design Project (EDP) has focused primarily on the period before students choose their majors and has worked to identify those aspects of the GIRs that support the vision articulated in the Task Force report. In addition, the EDP has investigated models for improving the core educational experience and designed pilot initiatives to increase intellectual excitement and expand opportunities for inquiry-based learning in the first two years.

### **General Institute Requirements**

To be recommended for the degree of Bachelor of Science, students must have attended the Institute for not fewer than three regular academic terms, which ordinarily must include the term of graduation, and have completed satisfactorily programs of study approved in accordance with the Faculty regulations, including the GIRs described below and the departmental program of the Course in which the degree is to be awarded. A student must petition the Committee on Curricula for any substitutions in the GIRs. Departures from the departmental programs are allowed with departmental permission.

Reviews by the Faculty ensure that the content and methods of the GIRs are suited to the educational needs of the times. During the 1980s, a series of such reviews was undertaken including a review of the Science Requirement which resulted in the addition of the biology requirement. In 1998–99, the Humanities, Arts, and Social Sciences (HASS) Overview Committee conducted a comprehensive review with special emphasis on the distribution system within HASS and the experimental Communication Requirement. Final recommendations included simplification of the HASS distribution requirement and encouragement for students to take distribution subjects as freshmen, as well as specific suggestions regarding integration of the Communication Requirement into the HASS curriculum.

The General Institute Requirements include:

- Science Requirement – biology (1 subject), chemistry (1 subject), physics (2 subjects), and mathematics (2 subjects);
- Laboratory Requirement – 1 laboratory subject of a least 12 units, or 2 of at least 6 units;
- Restricted Electives in Science and Technology – 2 subjects; at least 1 of these must be outside a student's own department, although it may fulfill the requirements for the student's major;
- Humanities, Arts, and Social Science Requirement – 8 subjects, with distribution and concentration;
- Writing Requirement; and
- Physical Education Requirement.

### **Science, Laboratory, and Restricted Electives in Science and Technology Requirements**

MIT expects its graduates to have an understanding and appreciation of the basic concepts and methods of the physical and biological sciences. They are an essential part of the background that MIT graduates bring to their roles as professionals and as broadly educated citizens in a world strongly influenced by science and technology.

To provide this understanding, the Institute offers a variety of subjects and programs by which the students can fulfill the Science, Laboratory, and Restricted Electives in Science and Technology (REST) Requirements. These programs introduce basic elements of the scientific method – experimental foundations and techniques, mathematical analysis, and conceptual models for experimental facts. Important experimental as well as conceptual aspects are introduced by the chemistry and biology requirements and by the Laboratory Requirement. Mathematical methods common to much of science and technology are explored in the calculus requirement. Basic concepts that underlie many physical phenomena are defined and elucidated in the physics and REST requirements.

In addition to a rigorous introduction to the sciences, these requirements are intended to stimulate and challenge each student to review critically his or her knowledge and to explore alternative conceptual and mathematical formulations, which may provide better explanations of natural phenomena or may lead to better applications of technology.

### **Humanities, Arts, and Social Sciences (HASS) Requirement**

MIT provides a substantial and varied program in the humanities, arts, and social sciences, intended to ensure that undergraduates develop a broad understanding of human society, its traditions, and its institutions. The HASS Requirement seeks to develop skills in communication, both oral and written; impart knowledge of human cultures, past and present, and of the ways in which they have influenced one another; promote awareness of concepts, ideas, and systems of thought that underlie human activities; encourage understanding of the social, political, and economic framework of different societies; and develop sensitivity to modes of communication and self-expression in the arts. Where appropriate, work in these areas displays a special concern with the relation of science and technology to society.

Every candidate for a bachelor's degree must have completed a minimum of eight term subjects (of at least nine units each) in the humanities, arts, and social sciences. This eight-subject requirement also includes a three- or four-subject concentration in one field, arranged in consultation with a designated advisor in the field, and three subjects that satisfy the distribution requirement in the humanities, arts, and social sciences (HASS-D).

The HASS-D Requirement emphasizes modes of inquiry and discourse that are qualitative and contextual, and aims to develop substantive knowledge and analytical skills. HASS-D subjects are to have a broad intellectual range and include a generous view of the alternative and often competing assumptions, perspectives, and intellectual tendencies in the field. Most HASS-D subjects meet in sections small enough to foster discussion, and call for a substantial amount of writing.

HASS-D subjects may be taken at any stage of a student's undergraduate career, but students are encouraged to complete the requirement by the end of their junior year. HASS-D subjects are among the few undergraduate subjects open only to participants in a preregistration lottery. The HASS-D lottery treats all students equally, regardless of year, major, or minor.

### **Writing Requirement**

The primary objectives of the Writing Requirement are to see that clear, effective writing is valued and fostered throughout the curriculum as an essential part of an MIT education, and to ensure competency in writing of all undergraduates, with special emphasis on writing in professional contexts.

Phase One focuses on competence in expository writing. Students normally complete Phase One by the end of the freshman year and must complete this phase of the requirement by the end of the first term of the sophomore year.

Phase Two is designed to engage upperclass students in the more specialized forms of writing that are necessary within their disciplines and is administered by individual departments. Phase Two should be satisfied by the end of the junior year.

The general guidelines for the Writing Requirement are set by the Faculty and overseen by the Committee on the Writing Requirement, a Special Committee of the Faculty. The committee also specifies standards and criteria for satisfying the requirement, and promotes development and coordination of appropriate services and programs.

### **Communication Requirement**

In April 1997, the Faculty approved the development of experimental writing and communications subjects that would test different models for incorporating communication-intensive experiences into the first-year curriculum, the GIRs, and departmental degree programs. A subcommittee of CUP was charged with recommending a Communication Requirement that would replace the current Writing Requirement. The efforts of this subcommittee have been aided by a grant from the National Science Foundation.

It has become clear from the subcommittee's work that a revised requirement should be met by developments in existing subjects rather than by establishing additional subject requirements. The new requirement should involve students in communications-related experiences in all four years of their undergraduate program.

All departments are currently participating in a communications-related pilot program. Pilot experiments in 24 subjects involve about 300 students in communications experiences. Another pilot program involves all freshmen who fail the Essay Evaluation Test. The subcommittee will make its final recommendations on a Communication Requirement in the spring of 2000.

### **Physical Education Requirement**

All students must complete eight units of physical education credit and are encouraged to do so by the end of the sophomore year. Freshmen are urged to complete a minimum of four units. Students must also pass either the swim test or one quarter of beginning swimming.

### **Freshman Year**

During the first year at MIT, students lay the foundation for their college education. First-year students may accommodate their individual preparation and learning styles by choosing among a variety of ways to complete the core subjects and prepare for further undergraduate study. Students select specified subjects from a range of offerings.

A typical first-year program includes completion of five of the six science core subjects in mathematics, physics, biology, and chemistry, and two of the eight HASS subjects. Students may round out their programs with electives, usually including a seminar. The Office of Academic Services administers advising programs for entering students. The majority of first-year students participate in freshman advising seminars, whose leaders serve as their academic advisors. The 100 or more advising seminars offered each year cover a wide range of topics. All first-year students, whether or not they choose to join an advising seminar, work with a faculty or staff advisor and an upperclass student associate advisor, who together assist them in designing an effective program of study. Some freshmen also elect to become involved in UROP. All subjects taken by freshmen are graded on a Pass/No Record basis.

Freshmen may also enroll in one of several special freshman programs that offer alternatives to the traditional format, such as the Concourse Program, the Integrated Studies Program, the Experimental Study Group, and the new MAS program discussed above. These programs combine lectures and recitation sections and have their own faculty, meeting places, and methods of operation. Participating students make progress comparable to that of other freshmen, but the manner in which individual Institute requirements are met varies from program to program and among students within each program. All these programs offer an especially high level of student-faculty interaction.

### **Major Course of Study**

Candidates for the bachelor's degree must complete a Major Course of Study. The major normally requires up to 132 units and the equivalent of 11 subjects in a departmental program. The Committee on Curricula, a Standing Committee of the Faculty, must approve all departmental programs and may approve programs requiring up to 150 units and the equivalent of 12.5 subjects.

Many entering students plan to pursue a specific field of study, while others have not yet decided on a field of concentration. A substantial percentage of those who enter with a decided preference later choose other areas of study. Students are encouraged to explore the entire range of majors available at the Institute.

First-year students are encouraged to attend departmental orientation programs to talk with faculty and others with experience in the fields of potential interest. They are advised to select electives that will help them think about possible majors. The Independent Activities Period in January provides students with additional opportunities to investigate different fields. For many students, this consideration of different fields will reinforce existing convictions, while for others it will open up new avenues of interest.

Students usually choose a major at the end of the first year, though they need not do so until the end of the second year. All undergraduate degree programs combine the study of basic principles with practical applications, and there is sufficient overlap and flexibility to allow changes in major with relative ease in the second year.

Students may work for two bachelor's degrees to be received separately or concurrently. However, the requirements of each department must be satisfied, and the combined program must contain at least 90 units in addition to the requirements for one of the degrees (that is, a total of at least 270 units beyond the GIRs).

### **Minor Programs**

A number of fields in architecture, the arts, engineering, the humanities, science, and the social sciences offer minor programs. Minors were first offered – in fields in the humanities, arts, and social sciences – in 1988; they have been offered in other fields as well since 1992. In response to growing undergraduate interest in management, the Sloan School is developing a proposal for the establishment of a minor program.

The minors are coherent programs providing significant experience in their disciplines. Students who complete minor programs will have their fields of study specified on the Bachelor of Science degree, providing recognition for focused work in other disciplines. The general guidelines for a minor program state that the program must consist of five to seven subjects, though generally six. These subjects may count toward GIRs and departmental program requirements. Minors should be designated by the end of the sophomore year.

A student may earn no more than two minors, which are awarded only when the student receives the S.B. degree, and which must be associated with a specific degree. This two-minor maximum applies even if the student receives two S.B. degrees.

### **The Arts**

MIT has exceptional programs in the performing arts, visual arts, architecture, literature and creative writing, and media arts. Beyond fulfilling the HASS Requirement, students have many opportunities to participate in and study the arts. MIT's faculty includes many distinguished artists, while a flourishing Artist-in-Residence program complements the curriculum.

While some students choose to major or minor in subjects such as music, visual arts, and theater arts, others pursue a double major or a joint major in science and engineering and the arts and humanities. In addition, there are many programs, activities, and resources that encourage extracurricular involvement in the arts for undergraduate and graduate students alike. More detail on extracurricular arts activities is provided in Standard Six, Student Services, below.

The Associate Provost for the Arts has responsibility for the Office of the Arts, the List Visual Arts Center, and the MIT Museum. The Associate Provost for the Arts chairs the Creative Arts Council, which brings together the leaders of academic programs and administrative units in the arts.

### **Undergraduate Seminar Program and Freshman Advising Seminars**

The Undergraduate Seminar Program offers students an opportunity to interact closely with faculty members on topics of current interest. Seminars carry six units of credit and are restricted to a small group, typically eight students. All are graded P, D, or F (with no record of D or F record for freshmen). In addition, the Office of Minority Education sponsors Program XL, an academic enrichment seminar that brings together small groups of students for up to six hours a week.

Over 80 percent of freshmen enroll in Freshman Advising Seminars whose leaders serve as freshman advisors for the seminar participants. Seminars vary tremendously both in style and topic. Some are oriented around small group discussion; others have speakers, go on field trips, or engage in hands-on research. Many topics are interdisciplinary in nature.

### **Independent Activities Period**

The Independent Activities Period (IAP) takes place over four weeks in January when faculty members and students are freed from the constraints of regularly scheduled subjects. IAP allows for flexible teaching and learning and independent study and research. Students are encouraged to explore the educational resources of the Institute by taking specially designed subjects, arranging individual projects with faculty members, or organizing and participating in IAP activities. They may also pursue independent interests whether on or off campus. Departmental programs may require students to complete a subject (of no more than 12 units) during one IAP.

### **Cross-Registration**

MIT undergraduates are permitted to take subjects at Harvard University (except for Harvard Business School) for degree credit at no extra charge. In general the subjects that MIT students take at Harvard are not offered regularly at MIT. Cross-registration is normally limited to upperclass students who must be regularly enrolled at MIT and paying full tuition for the term in question. Similarly, Harvard students may take subjects at MIT.

In addition, students may choose to participate in the Wellesley-MIT Exchange Program. Under this program, students may cross-register for any subjects at the other school, if they present the necessary prerequisites. MIT students may use Wellesley and Harvard subjects to meet certain Institute requirements.

Each term, a small number of MIT undergraduates in any department may register for subjects at the Massachusetts College of Art and the School of the Museum of Fine Arts. Applications are coordinated by the Visual Arts Program in the Department of Architecture.

### **Graduate Degree Programs**

For more than a century, MIT graduate programs have involved faculty and students working together to extend the boundaries of knowledge. The Institute has traditionally been a national leader in engineering graduate education, and is renowned as well as for its graduate programs in mathematics; the physical and life sciences; architecture and urban studies; economics; linguistics; management; political science; and science, technology and society.

The Committee on Graduate School Programs (CGSP), a Standing Committee of the Faculty, exercises general overview of graduate programs and of students working for advanced degrees. The Committee makes recommendations to the Faculty on matters of policy and the awarding of advanced degrees. It acts with power on proposals for changes in graduate-level subjects of instruction; on requests from graduate students for approval of minor departures from general requirements for advanced degrees; in evaluating the academic performance of graduate students; and in evaluating the academic performance of graduate students, including issuance of formal warnings and denials of further registration in graduate subjects. The membership of CGSP consists of faculty, staff, and two graduate students. Each faculty member who represents a department or the Whitaker College must be a member of that unit's own Committee on Graduate Students.

The Graduate Strategy Group, a subcommittee of the FPC, provides advice and input to the Faculty on strategic matters relating to graduate education. Such issues include student tuition, graduate student housing, and admissions procedures. Membership on this group includes a faculty member from each School, the president of the Graduate Student Council, and members of the Academic Council with oversight of graduate education.

Academic departments exercise a large measure of autonomy for their graduate programs, under general guidelines established for the Institute as a whole. Each department has a departmental committee on graduate students, including one or more graduate registration officers, to administer department and Institute procedures.

The most far-reaching change of recent years in graduate education at MIT has been the introduction of the Master of Engineering (M.Eng.) degree, established in recognition of the increasing need for education focused on preparation for the practice of engineering at what has traditionally been the masters level. Since 1992, six academic units in the School of Engineering have begun to offer these practice-oriented professional degrees, usually completed in a single intensive academic year. The M.Eng. programs are characterized by an emphasis on problem-solving, teamwork, practical applications, and field experience. Several of the programs are designed to allow students to make a relatively seamless transition from MIT undergraduate programs in the same departments. The largest such program is offered by the Department of Electrical Engineering and Computer Science, where in recent years approximately two-thirds of undergraduate majors have proceeded to the M.Eng. Some of the other M.Eng. programs attract students largely from outside MIT.

Many of the graduate programs at MIT place special emphasis on the relevance of science and technology to the complex problems of contemporary society. Such problems sometimes require an interdisciplinary approach involving expertise in several different departments. Although most graduate students find their interest served by programs available within a single department, many elect to work in interdisciplinary fields that may reach into two or more departments and involve work in any of MIT's laboratories and centers. Special committees provide guidance in certain areas such as economics and urban studies, environmental engineering, instrumentation, the management of technology, operations research, technology and policy, and transportation. In other fields, ad hoc committees appointed for each student and approved by the Dean for Graduate Students administer interdepartmental programs.

The Institute has also established interdisciplinary programs that address particularly important areas of intersection among fields. The School of Engineering has recently created two divisions – the Division of Bioengineering and Environmental Health (BEH) and the Engineering Systems Division – that will develop and support new curricula in these areas. The initial focus of activity in these new divisions is on developing graduate-level programs. In 1998–99, BEH established a new doctoral program in bioengineering that will educate students to solve problems through the use of modern biological technology.

Another new interdisciplinary initiative, a Ph.D. program in Chemical Engineering Practice to be offered by the Department of Chemical Engineering, was also approved in 1998–99. This program will integrate the research and manufacturing components of chemical engineering with management education offered by the Sloan School.

Graduate degree programs are reviewed regularly by the Institute. In 1998, for example, the Department of Electrical Engineering and Computer Science conducted a thorough review of the first five years of its M.Eng. program. The department concluded that the program was largely satisfying its educational goals, but is working to address several areas of concern that were identified, including increases in undergraduate enrollment and the resulting stress on upper-level teaching resources.

### **Joint Degree Programs**

Since 1968, MIT and the Woods Hole Oceanographic Institution have conducted a cooperative academic program leading to graduate degrees in oceanography and oceanographic engineering. These joint degrees are single documents awarded by both institutions. The range of joint degrees offered was expanded in 1997–98 with the addition of an M.Eng. in Ocean Engineering.

### **Scholarship and Research**

MIT is one of the leading research universities in the country. The Institute's commitment to joining education with the creation of new knowledge provides a fertile setting for research that has generated a host of scientific breakthroughs and technological advances. Independent scholarship and research are an integral part of the Institute's undergraduate programs as well as the foundation for graduate education.

One of the hallmarks of an MIT undergraduate education is participation in the Undergraduate Research Opportunities Program (UROP). The first program of its kind in the US, UROP allows undergraduates to participate with faculty in a wide range of research activities in every academic department and most interdisciplinary laboratories and centers. Approximately 80 percent of all undergraduates participate in UROP at some point. To help prepare freshmen for research work, UROP sponsors a Research Mentor Program during the Independent Activities Period. This program teams freshmen UROP novices with upperclass students (Research Mentors) who have generally had at least one year of UROP experience.

UROP offers students the opportunity to gain a better understanding of the intellectual process of inquiry, as well as personal and professional growth. The program provides unique opportunities for establishing ties to faculty; acquiring access to the advising, counseling, and tutoring resources of a professional group; investigating a potential major; acquiring data gathering and laboratory techniques; exploring the frontiers of a field; undertaking topics not amenable to the classroom; facing a real-world problem; and establishing a focus for educational experiences. Students may earn either stipends or academic credit, or may work on a volunteer basis. The Undergraduate Corporate Research Fellows program offers companies the opportunity to sponsor UROP students' research. Whatever the chosen mode, all UROP work is expected to merit academic credit and is noted on transcripts.

Students often find they are better able to master concepts in science and technology through invention and discovery than in lectures and problem sets. The Edgerton Center provides hands-on educational experiences for undergraduates. Continuing the legacy of the late Professor Harold E. Edgerton, the Center creates opportunities for students, especially freshmen, to engage in project-based learning. In the fall term, freshman advisors lead seminars that focus on devices designed, built, and tested by students. Spring term seminars continue the same hands-on focus and are available to all undergraduates. Students come to the Edgerton Center year-round for help with independent projects for which they need a workplace, test equipment, access to a shop, or advice and encouragement. Several hundred undergraduates participate in Edgerton Center programs each year.

In the summer of 1999, the Institute established the position of Dean for Undergraduate Research, which has special responsibility for UROP, the Edgerton Center, and issues involving project-based learning. The goal of this position is to facilitate the integration and coordination of programs and activities that involve students with mentors in challenging, exciting, and inventive research activities.

## **Instruction**

With few exceptions, undergraduate subjects are taught by members of the faculty. Over the last decade, MIT has paid special attention to the quality of instruction and the overall educational experience of undergraduates. Specific initiatives have ranged from recognition for outstanding and innovative teaching to new programs and resources to strengthen instructional quality across the Institute.

### **MacVicar Faculty Fellows Program**

Established in 1991, the MacVicar Faculty Fellows Program was named to honor the life and contributions of the late Margaret L. M. MacVicar, Professor of Physics and Dean of Undergraduate Education. Appointment as a Fellow recognizes exemplary and sustained contributions to the teaching and education of undergraduates at MIT and is regarded as a reward for exceptional and creative service. Nominations for fellowships are solicited annually from the members of the Academic Council and the heads of academic programs. Fellows are designated by the Provost upon recommendations of an advisory committee after consultation with the Chair of the Faculty.

Fellows receive discretionary funds for support of educational activities, research, travel, and other scholarly expenses in each year of the ten-year fellowship. The Dean of Students and Undergraduate Education convenes regular meetings of the Fellows with the goal of enriching the discourse among educators at MIT, developing a greater sense of common purpose, and stimulating new educational ideas and projects. Beginning in the academic year 1999–2000, untenured faculty will be eligible for three-year fellowships, which will be converted to the full ten-year term in the event the holder is awarded tenure.

### **The Teaching and Learning Laboratory**

In the spring of 1997, the Institute centralized many of its efforts to foster better teaching in the Teaching and Learning Laboratory (TLL). The TLL now houses a number of initiatives that were begun elsewhere on campus, including classroom videotaping and consulting, teaching workshops, information on grants, and maintenance of a resource library. TLL oversees orientation programs for new faculty members and graduate teaching assistants each fall. In recent years, these orientation programs have been greatly expanded; they also include follow-up activities later in the year. In addition, the staff of TLL also cooperate with the Schools, departments, and academic support programs at MIT. TLL is committed to pursuing research in science, technology, and engineering education and applying research results to actual classroom practice.

### **Council on Educational Technology**

Recent years have seen tremendous changes in the ways faculty, students, and staff use technology, exemplified by the burgeoning use of the web. At MIT, there has been particular interest in the ways in which new technologies might enhance existing educational programs. There has also been exploration of the ways in which new distance learning capabilities might strengthen graduate professional education.

Recent discussions have been informed by the recommendations of an Institute-wide Council on Educational Technology, which released its report in 1997, as well as of the Task Force on Student Life and Learning. There is substantial agreement that the Institute's will make its best contributions by focusing on excellence in education rather than on educational technologies themselves. At the undergraduate level, this will mean supporting and enhancing, rather than supplanting, the residential campus community.

In early 1999, the Provost announced plans for a new Council on Educational Technology. The Council will serve as a forum for the review of ongoing activities, assess specific programmatic opportunities, and provide strategic direction. Subcommittees will address such issues as the information infrastructure for education, the role of personal computers, pedagogical experimentation, and strategic planning. The Council will not have operational responsibilities or authority over locally supported activities, nor itself be responsible for conducting evaluations. It is expected to develop a broad vision and take responsibility for the development of programmatic initiatives as well as for oversight. It will be co-chaired by the Provost and a faculty member.

An important part of the new Council's work will be undertaken through a grants subcommittee chaired by the Chancellor. This subcommittee will administer Institute funding and coordinate responses to funding opportunities. The Council has been encouraged by the Provost to support scalable experiments with real impact, building in requirements for sophisticated assessment from the beginning, and expects to provide seed money for a wide range of projects.

### **Educational Media Creation Center**

An educational media creation center, whose establishment is expected to be announced in the fall of 1999, will provide effective support for technology-enhanced education. This new unit within the Center for Advanced Educational Services will develop standardized platforms and templates for customization in consultation with individual faculty members. This initiative is discussed in more detail under Standard Seven, Library and Information Services, below.

### **Subject Evaluation**

In the spring of 1999, the Office of Academic Services assumed responsibility for end-of-term subject evaluations, previously compiled and distributed by a student group. Academic Services has introduced a new system of in-house evaluation and expanded its scope to include questions on the use of information technology, and subject hours, subject-specific questions, and a better framework for open-ended comments. Students will continue to be involved in the process, preparing short summaries compiled from their peers' open-ended comments. Within one month from the end of each term, academic units will receive page-long reports for each instructor. Beginning in the fall of 1999, the evaluation results for the previous term will be available to students and faculty through a secure website.

### **Funding for New Initiatives**

Efforts to enhance the quality of teaching have benefited from the establishment of a number of endowed funds that support new initiatives. The Office of Academic Services administers the Class of 1951 Fund for Excellence in Education, the Class of 1955 Fund for Excellence in Teaching, and the 1972 Fund for Educational Innovation. These three funds support approximately eight to nine projects annually. Recent projects have included work towards establishing an online communications resource center, a project to integrate multimedia technology into Theater Arts, and a collaboration between mechanical engineering and physics faculty to integrate the curricula of several key subjects.

In March of 1999, the Institute announced a gift of \$10 million to establish the Alex and Brit d'Arbeloff Fund for Excellence in MIT Education, which is intended to support innovations in teaching science and engineering. In May, a select group of about 60 faculty members, students, and senior officers gathered for an intense brainstorming session on how to use the fund. There was substantial convergence in the recommendations made by participants. Many called for more undergraduate coursework in which learning occurs through team-based problem solving and fieldwork. There was strong support for even closer integration between teaching and research. The d'Arbeloff Fund is expected to help translate into action the range of pedagogical ideas welling up throughout MIT, many of which involve the creative use of new technologies.

## Admissions and Retention

Almost all undergraduates enter MIT as members of the freshman class, directly following completion of secondary school. Most good public, parochial, and independent secondary schools in the United States and equivalent schools in other countries provide suitable preparation for the student who takes full advantage of the opportunities that they afford.

In 1999, MIT received 9,138 undergraduate applications and admitted 19 percent (1,744) of those who applied. Of those offered admission, slightly more than 60 percent decided to enroll. The mean verbal SAT score of those admitted was 714; the mean mathematics score was 756. Of the applicants, 40 percent were valedictorians and 90 percent ranked in the top 5 percent of their classes. Of those admitted, 47 percent were women, and 44 percent were members of minority groups (Asian American, African American, Hispanic, and Native Americans).

In recent years, 97 percent of freshmen have returned for their sophomore year.

Each year, the Institute accepts a small number of qualified students for transfer. Students who have completed a minimum of one year and maximum of two and one half years with high standing at a recognized college, university, engineering school, or junior college may be considered for transfer admission.

MIT has always encouraged students to move ahead academically according to their capabilities. There are four procedures by which students entering from secondary school may receive MIT credit and/or advanced placement: the College Board Advanced Placement Program; GCE/GCSE A-levels, the International Baccalaureate and other international examinations; a college or university transcript; and advanced standing examinations at MIT. Requests for advanced placement or credit are carefully evaluated.

The Committee on Undergraduate Admissions and Financial Aid (CUAFA), a Standing Committee of the Faculty, is responsible for formulating and reviewing policies on the admission of all undergraduate students, including college transfers, except in cases of students applying for readmission, and on financial aid to students, including undergraduate scholarships, loans, and student employment. In addition, CUAFA reviews MIT publications and formal releases directed toward the prospective undergraduates. In 1998–99, the Committee was closely involved in the work of the Financial Aid Strategy Group, discussed under Standard Six, Student Services, below.

Undergraduate academic success is supported by the advising system discussed under Standard Six. Progress toward degree completion is reviewed regularly by both the Institute and the department(s) of a student's major, minor, and/or HASS concentration.

The Committee on Academic Performance (CAP), a Standing Committee of the Faculty, makes recommendations to the Faculty on such matters as minimum scholastic standards, calendar changes, examinations, and grading. On matters that also relate to graduate students, it consults with the CGSP. The Committee acts with power on petitions from individual undergraduate students relating to exceptions to established academic standards, and on applications for readmission at the undergraduate level. At the end of each term, the Committee presents to the Faculty its recommendations on candidates to be awarded bachelors degrees.

In conjunction with the Office of Academic Services, the CAP produces the *Academic Guide for MIT Undergraduates and Their Advisors*, which contains detailed information about the undergraduate program and its requirements. In addition, the

Committee maintains a website that offers information about the Committee and its responsibilities, and facilitates the appeals process by allowing students to file petitions via the web.

## Standard Five: Faculty

At MIT, a single faculty instructs both graduate and undergraduate students and engages in research. In the academic year 1999–2000, 925 faculty hold appointments at the Institute. Of these, 909 are full-time appointments, and 669 are tenured; 782 are men, 143 are women.

The Institute is committed to hiring and supporting faculty of the highest possible caliber. One hundred and four faculty members, both active and emeriti, belong to the National Academy of Engineering, 102 to the National Academy of Sciences, 24 to the Institute of Medicine, and 210 to the American Academy of Arts and Sciences. Ten members of the current MIT faculty and an MIT physician are Nobel laureates. Four members of the MIT faculty have been awarded the Kyoto Prize. Twenty-one past or present members of the MIT faculty have received the National Medal of Science, and one was awarded the National Medal of Technology.

### Types of Appointments

Appointments to faculty positions are made at the following ranks: assistant professor, associate professor without tenure, associate professor with tenure, and professor. In the Athletics Department, faculty appointments are made at the ranks of assistant professor/coach, associate professor/coach, and associate professor/senior coach; no current appointments or promotions to these ranks include tenure.

A professorial appointment normally obligates a faculty member to render full-time service to the Institute. In those special instances where full-time service is not appropriate or feasible, an appointment may be made with a specified part-time obligation. In the rare cases where joint appointments by MIT and another institution are made, the individual's responsibilities to each institution are well defined by formal agreement.

In general, faculty teaching loads vary little by rank at MIT, but may vary from department to department, depending on the nature of the discipline. Humanities faculty tend to teach more subjects, but with smaller enrollments. Science and engineering subjects often require faculty to devote considerable time to coordinating the work of teaching and laboratory assistants and developing section assignments and projects. Teaching loads are tracked at the departmental level and are not kept on an aggregated basis.

### Hiring, Promotion, and Tenure Policies

The Institute's procedures for appointment, promotion, and tenure ensure that candidates receive a thorough and fair review of their qualifications and accomplishments. Schools and departments have considerable latitude in developing policies and procedures complementary to those detailed in *Policies and Procedures*, as long as they are consistent in spirit with overall policies related to faculty appointment, promotion, and tenure; are distributed to all faculty in the respective units; and are filed with the Office of the Provost. Procedures for appointment and promotion to the faculty ranks within the Athletics Department differ somewhat.

Departments may undertake faculty searches after approval of their search plan by the Dean of the School. Departments must also originate recommendations for reappointment and promotion of faculty already holding appointments. Appointments to the faculty are made without prejudice with respect to child-rearing responsibilities or other family obligations covered by the Family and Medical Leave Act. All appointments to the faculty are subject to the affirmative action serious search procedures, except in rare cases with the permission of the Provost for good cause.

Promotion to the successive professorial ranks involves an increasing measure of participation and review by the appropriate School and monitoring by the Provost and a subgroup of the Academic Council chaired by the President. Consideration is given to internal and external assessments of the candidate's research ability and professional promise and to review and

evaluation of teaching performance and other contributions. The Institute has in place policies that mandate promotion and tenure reviews based on faculty members' age and years of service.

Department heads are expected to review annually the prospects of every untenured member of the faculty for future and permanent appointment at the Institute. Interim decisions in the career of a faculty member – reappointment as assistant professor and promotion to associate professor without tenure – are made based on a judgment by the department and School Councils that the faculty member is making satisfactory progress and shows promise of meeting the standards of tenure. Promotions to the rank of associate professor without tenure are reviewed by the Academic Council as well.

Assistant professors receive reappointment reviews one year prior to the end of their first appointment. Each department establishes a process for such a review to determine if the faculty member is making satisfactory progress in developing his or her research and teaching, and whether the progress is sufficient to hold promise for further progress towards tenure. When progress is determined to be sufficient, the department recommends reappointment to the Dean. Otherwise, the department may choose not to reappoint the candidate, and employment ends with the current appointment.

When a department or School review reaches a conclusion that the candidate has not earned reappointment or promotion, the process mandates discussion with the Dean and the candidate. In some cases the Provost may review the dossiers of such candidates, and the candidate may appeal the decision made at the department or School level through normal Institute procedures. Termination for cause may be made at any time.

The Institute regards the tenure review process as vital to ensuring the excellence of the faculty and tenure itself as important to ensuring academic freedom in teaching, research, and extramural activity. A department and School make a career commitment when the award of tenure is recommended. The Institute as a whole, acting through the Academic Council and the Corporation, joins in this commitment when tenure is awarded. Tenure appointments are not made in the ranks of assistant professor, visiting professor, adjunct professor, or professor of the practice, or to teaching appointments in the Department of Athletics, the Medical Department, or ROTC.

Persons awarded tenure must be judged by distinguished members of their discipline to be of first rank among scholars and show promise of continued contribution to scholarship. Tenured members of the faculty must also demonstrate outstanding teaching and university service; however, teaching and service are not a sufficient basis for awarding tenure.

A single standard for tenure applies across the Institute, for all Schools, disciplines, and modes of inquiry. Although the single standard requires that all candidates be of exceptional quality as confirmed by distinguished members of their disciplines, it may be appropriate, based on the culture of the discipline or the modes of inquiry, to look at different factors as evidence of significant scholarly achievement.

Promotion to tenure is granted through systematic evaluation process beginning within the departments and culminating in a specific recommendation to the President by the Academic Appointments Subgroup of the Academic Council and, following the President's recommendation, explicit approval by the Executive Committee of the Corporation. Tenure is an indefinite appointment relinquished upon retirement or resignation.

## **Leave Policies**

Sabbatical leaves enable faculty members to take time off from normal academic duties for scholarly research and study. MIT's plan is based on the normal expectation of a one-half-year leave at full salary, or a full-year leave at half salary, following six years of full-time service as a member of the faculty. Faculty members apply to their department heads and describe their proposals for the use of the sabbatical. In considering whether the request for sabbatical leave can be recommended to the Dean, department heads take into account the commitments for teaching and research in their departments. The final allocation of sabbaticals is made by the Provost.

Members of the faculty may also request professional and personal leaves. Unpaid professional leaves allow faculty members to undertake professional development or public service opportunities, whereas personal leaves allow faculty time to address

urgent medical, personal, or family matters that prevent full attention to academic and scholarly duties. Leaves are granted by department heads with the approval of the Dean.

For untenured members of the faculty, professional leaves are included in the determination of years of service for tenure decisions. In extraordinary cases, and in further consideration of the School's mission and faculty development, one professional leave for up to one year may be excluded in determination of years of service for tenure decisions. This exception requires the prior approval of the Provost.

## **Other Instructional Staff**

In addition to faculty appointments, MIT makes academic appointments of instructional staff to such positions as professor without tenure (retired), adjunct professor, professor of the practice, visiting professor, instructor, technical instructor, instructor/coach, lecturer, senior lecturer, visiting lecturer, and honorary lecturer. Academic departments may appoint members to the instructional staff to provide supplementary teaching to meet unfilled or temporary needs, to incorporate teaching for professional practice subjects, or to host visiting colleagues. Appointments are for a definite term and carry no expectation of tenure or promotion, but may be renewed at the discretion of the department, on the basis of continuing need, fit with current mission, and availability of resources.

Appointments to the ranks of adjunct professor and adjunct associate professor and the more recently established ranks of professor of the practice and associate professor of the practice allow MIT academic programs to benefit from the insight and experience of distinguished practitioners. Responsibilities include teaching and conducting and supervising research. The total number of such appointments is limited to 10 percent of the full-time faculty in each department of the School of Architecture and Planning and five percent of the full-time faculty in each department in the other Schools.

MIT employs about 600 graduate students each year as instructors or teaching assistants. Many students enjoy the new perspectives afforded by a teaching appointment and find that it provides invaluable experience in preparation for a career in university teaching. Training for graduate teaching assistants is offered each fall by the Teaching and Learning Laboratory in conjunction with the orientation program organized by the Graduate Student Council. In addition, a number of departments sponsor teaching workshops for new teaching assistants.

Students holding teaching assistantships share a responsibility for promoting the scholarly and educational objectives of the department in which they work. Their duties include assisting faculty members in grading homework and quizzes, classroom and laboratory instruction, preparing apparatus or material for demonstrations, and conducting tutorials and discussion sections. Applications for reappointment are considered individually on merit. Reappointment depends on academic progress as well as on performance as an assistant.

## **Professional Development and Support for Research**

The encouragement of research and inquiry into intellectual areas of great promise is one of the most basic obligations MIT has to its faculty, to its students, and to society at large. The primary purpose of Institute research is to advance knowledge and further the educational program. Instruction and research are integrated and interwoven throughout the entire academic and administrative structure, and MIT maintains one of the most active programs of research of any American university.

The Institute also has an inherent obligation to render public service, especially to any branch of local, state, or federal government, and in fulfilling this special responsibility undertakes research when it can do so without impairing its primary functions and when its available personnel and facilities and its experience qualify it to perform a needed service.

Institute research programs receive substantial support through contracts, grants, and other arrangements with government, industry, and foundations. In addition, governmental and private sponsors provide support for the construction and renovation of facilities, fellowships and training programs, curriculum improvement, teacher training, and other initiatives designed to strengthen graduate and undergraduate education.

The Vice President and Dean for Research chairs the Research Council, which includes the Chancellor and six laboratory or center directors and addresses issues of research policy and administration.

The Office of Sponsored Programs conducts the centrally organized administrative, business, and financial functions related to grant and contract administration and assists faculty, principal investigators, and their administrators in the identification of resources for and the management of individual sponsored projects. The office ensures that management of sponsored projects is consistent both with MIT's academic and research policies and with the stewardship requirements of and obligations to external sponsors.

## Faculty Diversity

The Institute is committed to increasing the representation of women and members of underrepresented minority groups in its faculty. In the academic year 1998–99, the faculty included 19 African or African American men, 6 African American women, and 1 Native American man. Hispanic faculty included 16 men and 2 women. There were 73 Asian or Asian American men and 5 Asian American women, and 675 White men and 128 White women.

Efforts to attract and retain a diverse faculty include programs that aid departments in hiring talented candidates as well as initiatives to make MIT a supportive environment for all faculty. While more work lies ahead, there has been real progress in these areas. In the academic year 1998–99, for example, one-third of those promoted to tenure were women. The Institute is also actively engaged in efforts designed to increase the numbers of women and minorities pursuing careers in teaching and research.

From the fall of 1992 through the spring of 1999, 132 minority and women faculty were hired under the Provost's Initiative, which was implemented in the fall of 1991. Under the terms of this initiative, departments are awarded a new faculty slot with funding upon the appointment of a minority or woman scholar to a regular (assistant, associate, or full professor) faculty position. The department retains the slot as long as the appointee remains on the faculty. In addition, a regular faculty search resulting in the appointment of a woman or minority candidate will result in an increase of \$30,000 in the department's general operating budget, with the stipulation that at least half of the increase be made available to the new faculty member as a discretionary scholar's allowance for a period of five years. The Provost's Office has also been engaged in research and outreach activities intended to lay the groundwork for a faculty diversity initiative.

Retaining talented women and minority members of the faculty requires that MIT support their professional development and recognize their accomplishments. In the spring of 1999, the Institute released a report on a study and follow-up actions concerning gender bias in the School of Science.

The study in the School of Science had been initiated by senior women faculty and was undertaken with the support of the Dean of the School, who then appointed a committee that included both tenured women faculty and male faculty with experience as department heads. The key conclusion of the committee was that there had been subtle but pervasive gender discrimination, manifested in inequities in salaries, space, research support, and opportunities for participation in institutional governance. These inequities appear to have stemmed largely from unconscious ways of thinking, but were, nonetheless, real.

As noted in the report, the Dean of Science took immediate steps to redress individual inequities, and through discussions with department heads, the inclusion of women in significant departmental activities was increased. Working with department heads the Dean has also intensified efforts to identify and recruit women to all faculty ranks.

The Provost is now working to ensure that equivalent efforts are taken to assess the condition of women faculty in the other Schools and to address inequities that may be discovered. The Institute is also assessing how it can best evaluate the experiences of its minority faculty members and support their work.

In addition to initiatives in the Provost's Office, programs to increase the presence of minority faculty on campus include the Dr. Martin Luther King, Jr. Visiting Professor Program, established in 1995. Six to 12 visiting professors are supported each year. Selection is based on candidates' professional achievements and their potential for significant contribution to the

intellectual life of MIT. Appointments are for a duration of between one term and two academic years and are initiated by academic units.

The MIT/HBCU Faculty Partnership Program seeks to stimulate and strengthen research collaborations between MIT and the Historically Black Colleges and Universities (HBCU). The program was developed to encourage minority students to pursue graduate studies in science, engineering, and business and increase the number of outstanding candidates in the academic pipeline. In recent years, the initiative has been expanded to foster collaboration between MIT faculty and faculty from Clark Atlanta University, Howard University, Morehouse College, Spelman College, and Tuskegee University.

## Faculty Renewal

MIT believes strongly in the importance of maintaining the intellectual vitality and leadership of its faculty. This is achieved through a vigorous review process for appointment, promotion, and tenure. In addition, like other universities, the Institute has sought to develop appropriate ways to provide for faculty renewal in light of the financial pressures that constrain the growth of the overall size of the faculty and the absence of a mandatory retirement age. In 1996, as part of a retirement incentive, MIT offered an additional incentive for eligible members of the faculty in order to increase the opportunity for faculty renewal. Of the 297 faculty members eligible, 79 elected to take the retirement incentive.

Since then, the Committee on Faculty-Administration (CFA), a Standing Committee of the Faculty, has continued to review the Institute's Retirement Plan and make recommendations designed to help faculty members make the transition into retirement. The CFA has based its recommendations on the principle that, on retirement, faculty members not only give up tenure, and any academic chair, but also change their relationship to the Institute in other ways. While they may remain active in teaching or research, they are expected step aside from key governance activities. The Institute is also exploring mechanisms that would facilitate a part-time phase-down to retirement.

## Standard Six: Student Services

### Organizational Overview

During the late 1990s, the office and role of the Dean of Students and Undergraduate Education changed dramatically, as previously dispersed services for MIT students were brought into a single organization. This administrative restructuring, together with substantial process reengineering, support continuing improvements to the quality of student life and learning. The integration of academic services with residential and student life programming is intended to ensure that all facets of the student experience further the Institute's educational mission. MIT continues to refine processes and programs in order to make the best use of the synergies that are now possible within an organization that considers the needs of the student holistically.

The major divisions within the Office of the Dean of Students and Undergraduate Education (ODSUE) are the Office of Academic Services; Admissions Office; Athletics, Physical Education, and Recreation; the Campus Activities Complex; the Office of Campus Dining; Career Services and Preprofessional Advising; Counseling and Support Services; the MIT Card Office; the Office of Minority Education; Residential Life and Student Life Programs; and Student Financial Services. ODSUE Information Technology provides support for the range of operations within ODSUE.

- The Office of Academic Services encompasses many of the services that support the MIT educational program and allows staff to collaborate on activities that support faculty in teaching and advising. The establishment of this office has allowed the Institute to improve services in the areas of academic policy, curriculum support, classroom management and scheduling, and student advising.

Academic records are maintained by the Office of the Registrar, a division of the Office of Academic Services. An integrated student information system, MITSIS, allows for online real-time interactive access to current and archival records and provides audit trails of financial and academic transactions. The emergence of the web has enabled the Institute to further streamline student information activity. Students now have access to personal financial and

academic information via WebSIS on the web, which also allows continuing students to preregister and build their schedule grid while using the integrated subject listings and schedule.

- The mission of the Admissions Office is to attract undergraduate applicants from the broadest socioeconomic and international backgrounds whose academic and personal accomplishments and promise meet the expectations of the Faculty, to convey an authentic image of MIT to prospective applicants, and to coordinate the admission of graduate students.
- Physical education is required for all undergraduates, and the Department of Athletics, Physical Education, and Recreation offers opportunities for sports instruction and participation at all levels. MIT's athletics programs seek to enhance the student experience through a wide range of intercollegiate and intramural teams and fitness activities.
- The Campus Activities Complex (CAC) and the recently established Office of Campus Dining work together to ensure the smooth operation of a number of programs and services supporting community life at MIT.
- The Office of Career Services and Preprofessional Advising assists students in career exploration, academic planning, and developing professional skills and competencies development. In addition to advising, the career services staff offers a variety of career development and professional advising workshops.
- Counseling and Support Services offers varied services including confidential counseling for all students and programming and support to various underrepresented groups. It also supervises the Institute's student peer counseling hotline, arranges for leaves of absence, voluntary and medical withdrawals, and works closely with the Committee on Academic Performance, a Standing Committee of the Faculty.
- The MIT Card Office produces the MIT identification card for students, faculty, employees, visitors, and affiliates of MIT. The MIT card is also used for security and access privileges; for transactions in the Libraries; and as a debit card for a wide variety of point-of-sale transactions.
- Programs to build and maintain effective academic support services for underrepresented minority students at MIT are offered through the Office of Minority Education. The office also coordinates a number of career development programs designed to help minority students find mentors and internships.
- Residential Life and Student Life Programs is structured to reflect MIT's commitment to integrating student-residence issues into the mission of the Institute and creating a supportive living environment for students.
- Integrating the former Student Financial Aid Office and the Bursar's Office, Student Financial Services was established to accommodate students' needs for greater efficiency in a wide range of services.

The Student Services Center (SSC) is operated jointly by the Office of Academic Services and Student Financial Services. Located along the Infinite Corridor, MIT's "main street," the SSC provides students with information about their financial and academic records as well as a central location for services such as enrollment certification, loan processing, refund checks, registration, scholarship checks, student employment listings, tuition payments, and transcripts. Prior to the establishment of the SSC, students had to visit several different offices at different locations around the campus in order to conduct these academic and financial transactions. Computer terminals adjacent to the SSC provide students 24-hour access to their academic and financial records and to online forms.

The Graduate Students Office (GSO), under the direction of the Dean for Graduate Students, serves as a central resource on policy and administrative issues related to graduate education and publishes the *MIT Graduate Education Manual*. The deans in the GSO are resources outside of the academic units for students who need advice and counsel about their graduate careers. The office administers endowed graduate fellowships, a number of competitive Institute fellowships, and other special-purpose funds for graduate education and activities. In addition, the GSO acts as the local agent for a wide variety of corporate, federal, foundation, and private fellowship programs, including the Ford Foundation, Hertz Foundation, and National Science Foundation programs. The office also oversees all research and teaching assistantship appointments, to ensure their accuracy and continued adherence to rules governing them.

Other Institute offices with substantial responsibility for the provision of student services, including the Disability Services Office, the International Students Office, and the MIT Medical Department, are discussed under the relevant topics below.

## Orientation for New Students

Orientation activities for entering undergraduates are coordinated by the Office of Academic Services with substantial participation by upperclass students. The program was substantially redesigned for the fall of 1998 to provide a more cohesive

introduction to the Institute as a community and an educational institution, with greater emphasis on the intellectual life of MIT. The strengthened programming of Orientation '98 drew on intensified collaboration among different administrative offices and benefited from more involvement on the part of the faculty. Additionally, there were enhanced programs on general issues of health and community including alcohol education.

The schedule and activities for Orientation '99 built on the success of the comprehensive redesign implemented the preceding year. MIT has worked to maximize the time available for community-building activities by streamlining freshmen diagnostic exercises, which are increasingly taken online. The Institute continued to expand pre-orientation opportunities for leadership development; these programs are discussed under Leadership Training, below.

Over the last two years, the residence selection process has also been restructured, to reduce pressure and focus more closely on the needs of the incoming students. Approximately 70 percent of first-year students elect to live in campus residence halls. Rooms are assigned through a lottery system that takes into account student preferences. In 1998–99, 99.7 percent of the students participating in the lottery were placed in one of their top three choices. Approximately 30 percent of freshmen choose to live in one of the residential fraternities, sororities, and independent living groups approved by the Institute.

## Residential Life

At the undergraduate level, MIT is essentially a residential university. The Institute believes that it is to the advantage of all undergraduates who do not live at home to reside in Institute-approved housing. First-year students particularly gain from associations with upperclass students and participation in residence programs. Therefore, all unmarried first-year students who do not commute daily from their own homes or those of close relatives in the greater Boston area are required to live in MIT-approved housing.

Of the Institute's 4,500 undergraduates, about 2,800 single men and women live in the 10 Institute houses on the campus. About 1,350 single men and women live in other residence groups including MIT-approved fraternities, sororities, and independent living groups (FSILGs). The Institute makes every effort to provide housing for transfer students if requested.

Beginning in the fall of 2001, all freshmen will be required to live in MIT residence halls. The campus has been deeply engaged in a residence system design process that will address the necessary changes in organization and programming needed to facilitate this transition. In 1998, the Chancellor appointed a Residence System Steering Committee to lead the development of the new residential system. The Steering Committee is expected to present a final proposal for the design of the new system to the Chancellor at the beginning of October 1999. This proposal will draw on the ideas developed during a residence system design competition, which took place during the Independent Activities Period in January 1999 and involved teams including students, faculty, staff, and alumni/ae.

Residential Life and Student Life Programs works to promote learning beyond the classroom by creating a variety of opportunities that encourage faculty-student interaction, support student responsibility, and reinforce a high standard of conduct. Some residence halls and independent living groups have faculty and alumni/ae House Fellows.

Each undergraduate residence hall is managed by a team comprised of the housemaster(s), the house manager, and graduate resident tutors. Residence teams receive extensive training at the beginning of each academic year; last year, this training was expanded to include the resident advisors now required to live in each FSILG. These teams work to build strong, supportive communities.

The faculty families who serve as housemasters are chosen for their understanding of and interest in the students who live in each of the Institute residences. They are not charged with formal academic or operational responsibilities, but work to build a sense of community in the houses and provide support and guidance to members of the house team as well as to individual students and the house officers. House managers provide informational, operational, and security services to all building residents and work collaboratively with the housemasters, house government, and campus administrative offices. Graduate resident tutors support the faculty housemasters in providing personal and educational assistance to undergraduates in the undergraduate residences. The ratio of graduate residents to undergraduates ranges from a low of 1:25 to a high of 1:58, with

an average of approximately 1:40. An ongoing discussion group for graduate resident tutors and advisors, led by ODSUE staff, has been established to help facilitate guidance and peer support.

Individual students and student government organizations within the residences contribute significantly to house governance, working closely with the housemasters and other members of the residence team. Student governing groups establish and administer many house regulations and maintain standards of community behavior. Residential student governments also organize social, athletic, and intellectual programs for house members. In each Institute house, a "house tax" determined by the residents is collected by MIT and made available to the house government to help support activities. Individual FSILGs have analogous charges to support their extracurricular programs.

All of the Institute undergraduate residences have coeducational living facilities with the exception of McCormick Hall, which is for women only. Most of the coeducational houses offer some single-sex living areas. Although first-year students are not guaranteed an assignment to a particular house or to a single-sex area, every effort is made to assign students to one of their top choices. Undergraduates in their sophomore and subsequent years do not currently participate in a housing lottery.

MIT recognizes a total of 38 FSILGs, 36 of which are residential. Of these, 27 are nationally affiliated fraternities, two are local, and two are coeducational. All five sororities are nationally affiliated. There are also four non-Greek independent living groups, of which three are coeducational and one is for women. The FSILGs are located in Cambridge and nearby Boston and Brookline. The governing body of the FSILGs is the Interfraternity Council, which also works to represent their interests in the MIT community. The Institute works closely with the Council and individual FSILGs and has ultimate responsibility for their activities as residences for MIT students.

Each fraternity, sorority, or independent living group is self-governing, manages its own operations and maintenance, and develops its academic, social, membership, and recreational policies and programs. These residential experiences provide opportunities for leadership, community planning, and group interactions. Since the fall of 1998, all MIT-recognized FSILGs have been required to house a resident advisor. The houses receive reimbursement from MIT for the cost of providing room and board to their resident advisors, and the advisors are included in the training provided to residence teams.

The high cost and low availability of housing in the area are problems for both new and continuing graduate students, particularly those with families. This situation has been greatly exacerbated by the removal of rent control in the city of Cambridge in 1996. The growing percentage of older students coming to campus with their families increases the demand for the Institute's student family housing.

The Institute currently provides housing for 28 percent of all graduate students, and the number of applicants grows each year. By giving preference to new students who are not continuing from another MIT program, the Institute is able to accommodate 90 percent of new graduate students who request on-campus housing. The Institute is exploring how best to meet the increasing demand for graduate housing.

Students who do not live on campus can utilize the Off-Campus Housing Service, which maintains listings of available rentals in the greater Boston area. The staff helps students to locate accommodations that suit individual preferences and finances.

## **Diversity**

Students, faculty, and staff at MIT live, work, and play on a campus that includes an extraordinary variety of cultures, races, ethnicities, and points of view. White Americans make up 48 percent of the undergraduate Class of 2003. Asian Americans comprise 26 percent and African Americans, Mexican Americans, Native Americans, and Puerto Ricans 18 percent. The remaining 8 percent of the Class of 2003 is comprised of international students. One-third of the graduate students on campus in recent years have been international students. The Institute's faculty and staff reflect this cultural variety, as well as the ethnic multiplicity of the United States and MIT's role as an international leader in teaching and research.

The Institute's increasing success in attracting outstanding women students comes despite its concentration in traditionally male-dominated science and engineering fields. While MIT admitted its first woman student in 1871, numbers remained low well into the 1960s. The representation of women in the student population has increased dramatically during the last two

decades. Women represent 43 percent of the Class of 2003. In 1998–99, women comprised 26 percent of the Institute's graduate students. A number of resources and programs support women's full participation in the educational and community life of the Institute, while the Women's Studies Program provides opportunities for interdisciplinary inquiry into the significance of gender in American society and other social systems around world. Most Women's Studies subjects are cross-listed with other departments. Undergraduates may choose a concentration or minor in Women's Studies and, by petition, may major in Women's Studies. The curriculum includes a core subject, Introduction to Women's Studies, and a selection of subjects from many departments.

The Office of Minority Education (OME) provides programs to help attract and retain underrepresented minority students at MIT, provide career guidance, and encourage their pursuit of advanced degrees. OME programs include such academic support services as Project Interphase, a seven-week summer program for incoming freshmen; the Tutorial Services Program, staffed by advanced undergraduates and graduate students; and a series of monthly presentations reviewing strategies for academic success. Other programs help minority students form social and mentoring networks with each other and MIT faculty members. The office provides career advice and coordinates internship opportunities through its Mentor Program and the Second Summer Program, which helps students find paid engineering internships with design or research departments of major US corporations during the summer after their freshman year.

In 1998–99, there were 2,255 international students registered at MIT, of whom 341 were undergraduates. The International Students Office (ISO) provides services that meet the special needs of these students and programs that are designed to help them fulfill their personal and academic goals. In addition to processing all legal documents required for the admission of international students, the ISO works with government offices, consulates, and sponsoring international organizations. The office offers individual and group advising sessions on immigration regulations and organizes an orientation program for incoming students and their families. Among the many programs coordinated by the ISO is the Host to International Students Program, which gives approximately 800 students the opportunity to meet local families and learn more about the community and American society.

The Disability Services Office (DSO) coordinates Institute efforts to ensure equal access to educational opportunities at MIT to qualified students with disabilities, including compliance with the Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973. The DSO encourages students to be self-sufficient and strives to enhance the educational process and support the overall personal and professional development of students without compromising existing academic programs. Its services include obtaining and reviewing disability-related documentation, determining appropriate accommodations, and contacting faculty members to develop plans for accommodations. The office also provides or arranges for a variety of auxiliary services, such as sign language interpreters, document translation, readers, and other academic accommodations. Within ODSUE, the Office of Academic Services and Counseling and Support Services are also active in support of students with disabilities.

The Campus Activities Complex, MIT Medical and its social work division, Personnel, the Planning Office, and Telecommunications all designate staff members to coordinate accessibility services in their respective areas. Within Information Systems, the Adaptive Technology for Information and Computing Laboratory provides in-lab use of various adaptive technologies for members of the student community with disabilities. The lab also offers scanning and braille of printed text, screen-reading and voice recognition software, and alternative hardware configurations.

There is a growing network of support for lesbian, bisexual, gay, and transgender (LBGT) students on campus. The LBGT Issues Group consists of students, staff, and faculty from across the Institute who work to ensure that the educational mission of MIT is upheld for all students regardless of sexual orientation or identity. The group raises LBGT issues for discussion, achieves visibility, and provides informal social opportunities. Each fall, it publishes and distributes *The Lavender Guide*. Funded through the Office of the Dean of Students and Undergraduate Education, it also co-sponsors activities with other departments. Within ODSUE, Residential Life and Student Life Programs has begun to provide staff support to assist LBGT groups with events, programs, and projects and is initiating a comprehensive needs assessment for MIT's campus.

## Financial Aid

MIT is firmly committed to policies of need-blind admission and need-based financial aid for all undergraduates. The Institute's undergraduate financial aid program ensures that an MIT education is accessible to all qualified candidates, regardless of their financial resources.

In 1991, the United States Justice Department brought an antitrust suit against MIT and the Ivy League schools alleging collusion in financial aid awards to students. The Institute fought the suit, arguing that its practices sought to ensure that students would be awarded financial aid solely on the basis of their need. The suit ended in 1993 with a settlement that permitted colleges to agree to award financial aid exclusively on the basis of need, and permitted agreement on common principles and common financial aid forms for determining a student's financial need.

The Institute provides grants and loans based on the financial need of the individual student, as determined by analysis of a statement of family financial condition. Students are assigned work and/or loan eligibility to meet the first incremental portion of their need. Student loan funds allow students to pay part of the costs of their education on long-term credit under favorable financial terms. However, loan fund capital is limited, and MIT student loans are granted to meet systematically calculated financial need only. Undergraduate loans are provided from several sources, including the Federal Perkins Loan Program, the Federal Direct Stafford/Ford Loan Program, and the Institute's own Technology Loan Fund. Applicants are urged to explore all avenues of financial assistance, including government scholarships and loan programs.

The Student Employment Office maintains listings of positions to assist students seeking part-time jobs during the term or full-time jobs in the summer. Students are expected to arrange employment suited to their own talents and schedules rather than being assigned to specific jobs. Employment on campus is usually available in laboratories, libraries, residence halls, and offices. Listings for off-campus positions are also available. Students' earnings from part-time work depend upon experience and hours worked.

Early in the summer of 1998, the President appointed a Financial Aid Strategy Group to evaluate the Institute's undergraduate financial aid policies, examine the role that financial aid plays in student recruitment, and recommend courses of action in light of intensified competition and public attention to the cost of education. After an extensive survey and evaluation, the Strategy Group urged MIT to reiterate its commitment to need-blind admissions and need-based financial aid. At the same time, the Institute was encouraged to provide additional services to assist students and their families in making the financial decisions related to an MIT education.

The Financial Aid Strategy Group also recommended a number of need-analysis and aid-packaging changes to moderate the costs of attendance for needy students – that the Institute allow 100 percent of outside scholarships to replace self-help, moderate the MIT parental contribution in line with the new College Board methodology, ease the requirement that non-custodial parents provide support for educational expenses, and allow federal Hope Scholarship and Lifelong Learning to remain with families as part of their savings allowance. The implementation of these changes has increased MIT's commitment to undergraduate financial aid by \$1.2 million for Fiscal Year 2000. The Committee on Undergraduate Admissions and Financial Aid, a Standing Committee of the Faculty, approved the inclusion of ROTC awards in the new treatment of outside scholarships.

MIT makes financial support available to graduate students from a variety of sources and in several different forms including fellowships, scholarships, training programs, teaching and research assistantships, on-campus employment, federal loans, and the Technology Loan Fund. Many forms of support are granted solely on the basis of merit, while others are granted on the basis of financial need or a combination of merit and need. Initiatives in recent years to moderate the costs of graduate education have included the provision of \$6 million annually in new Presidential Graduate Fellowships.

Each year, about 600 graduate students are appointed as part-time instructors or teaching assistants. They assist the faculty in grading undergraduate quizzes, instructing in the classroom and laboratory, and conducting tutorials. Experience as a teaching assistant is widely recognized as excellent preparation for a university career. The Institute offers the Goodwin Medal annually in recognition of outstanding teaching by a graduate student.

About 2,200 graduate students at MIT hold appointments as research assistants each year. Most students welcome the opportunity to participate as junior colleagues of the faculty in ongoing research projects. Appointments to research assistantships are made by the department head to full-time graduate students. Teaching and research assistants receive stipends for the services that they provide. In addition they receive a non-taxable tuition scholarship.

The Institute is devoting substantial resources to lowering the cost of graduate education for students and research sponsors. During academic year 1998-99, MIT subsidized 30 percent of both tuition and stipend for all graduate research assistants. In the summer of 1999, the Institute subsidized two-thirds of summer tuition for qualified graduate students. During 1999-2000, this program will be modified to subsidize 65 percent of academic-year tuition, without subsidy of stipend. MIT expects to support the entire tuition charge for the summer of 2000. The cost of these changes to the Institute in Fiscal Year 2000 is estimated to be in the range of \$15 million.

## **Advising and Counseling**

### **Advising**

MIT undergraduates seek and receive academic advice from many sources. Academic advising focuses on helping students choose subjects and navigate degree requirements, responding to questions about academic matters, internships, graduate schools, and careers. All students have an official academic advisor.

The Office of Academic Services administers advising programs for entering students. Whether or not they choose to participate in a freshman advising seminar, first-year students and sophomores who have not declared a major work with a faculty or staff advisor and an upperclass student associate advisor, who together assist them in choosing subjects suitable to their interests and backgrounds, and help them get acquainted with MIT. Freshmen generally continue with the same advisor and associate advisor throughout the first year.

Once students select a major, they are assigned a departmental advisor who serves as a consultant and principal faculty link between the student and the department. The advisor introduces the student to subject offerings and educational opportunities available in the department and aids the student in formulating a program that meets both the GIRs and the departmental program.

Students may also turn to other sources of guidance, including departmental academic administrators, coaches, religious counselors, ODSUE deans, housemasters and graduate resident tutors, UROP supervisors and lab associates, and their peers.

### **Career Services and Preprofessional Advising**

The Office of Career Services and Preprofessional Advising assists students in career exploration, choosing a major, and competency development. Career Services focuses on teaching the students to understand the relationship between what they are doing at MIT and life after graduation. Assistance takes many practical forms:

- Directing exploration of career options in relation to choice of major;
- Educating students about the combination of competencies and technical knowledge they will need in the workplace;
- Helping develop opportunities to gain experience in fields of interest through networking, informational interviewing, mentoring, internships, and summer jobs;
- Advising in the application process to medical, law or other graduate or professional school;
- Encouraging study abroad;
- Instructing the art of writing a resume and conducting interviews; and
- Counseling on finding employment after graduation.

In September 1998, the office underwent major organizational, staffing and programmatic changes intended to enhance the provision of career services. Most significantly, Career Services staff were reorganized into School-based teams.

The office has developed a range of career development and premedical advising workshops; these are offered in settings across campus and in the living groups and are also available online. The capacity of the office's website is also being expanded to incorporate interactive portions that encourage and support student learning.

MIT's premedical advising system was reviewed by a faculty committee in the spring of 1999. Many of its recommendations have already been implemented, including recruitment of more premedical advisors, formation of a faculty council to provide strategic leadership to the premedical advising system, development of a new online premedical advisor assignment system, chartering a chapter of the American Medical Student Association, and encouraging additional advising input from alumni/ae.

The Prelaw Advisory Council consists of professionals within the MIT community active in the practice of law, legal scholarship, teaching and/or counseling. Members mentor students considering a career in law and are available to discuss students' interests.

In 1998–99, over 560 employers participated in MIT's online, web-based employment recruiting program delivered in partnership with JobTrak. Through this new system students and employers were able to communicate with each other throughout the search process.

The office has worked to extend its collaboration with the academic departments as a way to achieve the goal of providing effective career services to students and has developed a comprehensive student plan for career development in collaboration with faculty, students, employers, and alumni/ae. An essential part of the plan is the integration of career management education into the students' academic experience.

## **Counseling**

The Institute offers a variety of counseling resources. By intention, they are not centralized in a counseling center. Students are able to choose the resources that are most helpful to them.

Counseling and Support Services offers both personal and academic counseling to all Institute students and has special responsibilities for supporting students who are women, minorities, or people with disabilities. The office provides personal counseling for undergraduate and graduate students on a broad spectrum of issues including those which may affect a student's academic performance:

- Consultation with Institute faculty, staff, families and friends of students regarding a range of personal difficulties;
- Advocacy for students at meetings of the Committee on Academic Performance (CAP), including semester-end grades meetings;
- Arranging leaves of absence, voluntary and medical withdrawals for students;
- Readmitting students from leaves and withdrawals, including those required by CAP;
- Supervision of two peer counseling hotlines; and
- Granting excused absences from final examinations.

The psychiatrists, psychologists, and social workers in the Medical Department provide a full range of mental-health services. In addition, the Health Education Service runs seminars ranging from stress management and smoking cessation to weight control and nutritional education, while the department's Social Work Service provides individual and group counseling for drug and alcohol abuse.

The Institute is committed to maintaining an atmosphere of religious freedom and to providing all members of the MIT community with the opportunity to exercise spiritual interests. There are currently about 30 active and long-standing student religious organizations on campus, many of whose programs take place in the Chapel and the adjacent Religious Activities Center. Ministers representing the major faiths devote all or a large part of their time to on-campus activities, counseling individual students and advising student religious organizations. In accordance with the Chapel's interdenominational status, the Institute has not appointed a chaplain or dean of the Chapel. The Religious Activities Center, established in 1994, unites formerly scattered religious services and programs in one modernized, handicapped-accessible space. The Center provides a number of facilities including a Muslim prayer room and rooms for kosher food preparation.

## Medical Care

MIT Medical is a multi-specialty group practice that employs 23 full-time and 50 part-time physicians as well as other professional support personnel. The department seeks to provide high quality, accessible medical care. Students are assigned a personal physician, and a patient advocate is available. The department's medical staff provides services in allergy, dermatology, endocrinology, gastroenterology, gynecology, internal medicine, neurology, nutrition, obstetrics, ophthalmology, optometry, orthopedics, pediatrics, podiatry, psychiatry, pulmonology, social work, surgery, and urology. The department provides a pharmacy as well as laboratory, x-ray, and other diagnostic testing facilities. A dental service provides treatment to students and their spouses on a fee-for-service basis.

An 18-bed hospital provides care for students and spouses with acute illness or contagious diseases. This service is for patients who cannot be cared for in their residences but who do not need to be admitted to a general hospital. Patients requiring major surgery or treatment for serious illness are sent to one of the Boston-area hospitals, where their care is usually supervised by one of the Medical Department physicians.

A student health office in the Student Center, known as MedSTOP, answers questions about nutrition, sexual health, substance abuse, mental health, and other issues. A student-run health education service known as MedLINKS is affiliated with MIT Medical. Members reside in living groups and serve as health educators and liaisons to MIT Medical and other health resources. They also organize campus-wide campaigns that emphasize keeping the MIT community healthy and help students explore personal health decisions through interactive workshops.

## Student Activities

MIT sponsors and hosts a wide array of activities and events for the student community. The vision articulated by the Task Force on Student Life and Learning, focusing on the integration of academics, research, and community, reaffirmed the importance of strengthening community life on campus. Reflecting the Institute's commitment to expanded and enhanced student programming for both undergraduate and graduate students, funding for student activities was tripled beginning with the Fiscal Year 1999.

The Campus Activities Complex (CAC) provides a comprehensive program of educational, cultural, and social activities designed to build a sense of community at the Institute. Through its programs, services, and facilities, CAC supports the community by offering educational, recreational, and social opportunities for both community interaction and the exchange of ideas, concerns, and interests. With the support of its advisory board and affiliated volunteer organizations, the CAC strives to foster individual growth and build community spirit.

Residential and Student Life Programs supports a variety of programs and activities. Working closely with the Association of Student Activities (ASA), the Undergraduate Association, the Graduate Student Council, and the CAC, the Student Activities staff advises and collaborates on large-scale campus-wide programming.

MIT is home to more than 300 student groups and organizations. Many are members of the ASA, the official body that recognizes, governs, and represents student groups. One of the primary responsibilities of the ASA is the allocation of resources such as office space and bulletin board space. In addition, the ASA works to coordinate member groups' outreach to incoming students each year and provides assistance to those wishes to establish a recognized student organization. ASA-member groups reflect the academic, artistic, athletic, cultural, ethnic, political, and religious diversity of the MIT community.

## Leadership Development

Historically, many MIT graduates have gone on to hold leadership positions in a wide range of fields. The Institute is committed to expanding opportunities for students to cultivate their capabilities both to work collaboratively and take leading roles in groups of their peers. While these co-curricular experiences provide a basis for achievement later in life, they also have a valuable impact on community at the Institute. Residential and Student Life Programs works to integrate opportunities for leadership development into the residence system and a variety of ongoing activities, while participation in student government

and membership on Institute committees continues to provide vital learning experiences for many students. In recent years, MIT has also established new programs designed specifically to develop students' leadership abilities.

Since its establishment in 1995, MIT LeaderShape has provided over 300 MIT undergraduates with an intensive six-day leadership development and community building experience. During the program, students develop skills in problem solving, professional ethics, decision-making, dealing with uncertainty, working within a diverse community, and interpersonal communication. The program includes a variety of topics and activities including leadership style assessment, goal setting, vision and action planning, team building, group decision-making, and conflict resolution. Sustained faculty-student interaction is central to the experience. Participants spend approximately half of their time in the program as members of small groups, often in exercises that simulate stressful and challenging situations requiring rapid collaborative responses.

Pre-orientation programs continue to expand and now reach almost one-quarter of entering freshmen. The oldest and largest of these programs is the Freshman Leadership Program (FLP), created in 1996. FLP allows nearly 100 freshman each year to meet and interact in a relaxed and cooperative environment. The program challenges students and helps them to understand the community in which they live. Students participate in workshops and other activities where they discuss leadership goals and explore social issues such as, diversity, gender, and multiculturalism. During the week, there are also a wide variety of community-building activities.

The first pre-orientation program to be offered by an academic department, Discover Ocean Engineering introduces new students to MIT's culture of hands-on engineering projects. CityView focuses on civic leadership and urban issues, combining participation in community service activities with discussion sessions, professional speakers, and team-building activities. The Freshman Arts Program aims to provide an introduction to the arts at MIT and in greater Boston and Cambridge, while building community among students with strong interests in the arts. The Freshman Outdoors Program, offered in conjunction with the Thompson Island Outward Bound school, is intended to teach cooperation, initiative, and endurance while developing a sense of community. These programs offer incoming students the opportunity to meet their classmates, develop important team-building skills, and interact with MIT faculty and staff before the academic year begins. In 1999, more than 250 students participated in the pre-orientation programs, along with about 50 upperclass student counselors.

## The Arts

MIT has long valued the arts as essential elements of education and community and maintains a strong commitment to architecture, literature and creative writing, and the media, performing, and visual arts. Academic programs in the arts are discussed in Standard Four, Programs and Instruction, above.

The Office of the Arts, which reports to the Associate Provost for the Arts coordinates and facilitates arts activities on campus. The office works to foster creative arts activity at the Institute; gives students unique opportunities to interact with acclaimed literary, performing, and visual artists through the Artist in Residence program; and provides information on arts activities on campus.

Each year, MIT's 35 performing groups and many visiting artists present over 500 events in music, theater, and dance. Productions range from chamber music to electronic "hyperinstruments," from Shakespeare to improvisational comedy, from ballroom to modern dance. MIT's world music program features Boston's only Balinese gamelan, an East African performing arts ensemble, and an acclaimed South Asian performance series.

The Student Art Association offers the opportunity for instruction and studio experience in the arts through a direct working involvement with a varied and extensive range of media.

The List Visual Arts Center, recognized internationally for its thought-provoking contemporary art exhibitions, maintains the Institute's permanent collection of nearly 2,000 paintings, sculptures, photographs, and contemporary prints sited campus-wide. The Student Loan Collection provides original contemporary graphics for loan by students for the academic year following an exhibition each September. There are a number of other galleries on campus, including the Wiesner Student Art Gallery and The Dean's Gallery at the Sloan School of Management.

The MIT Museum collects and interprets materials that document the intellectual, educational, and social history of the Institute, especially its innovations in science and technology. The Museum's extensive collections are especially strong in architectural drawings, scientific instruments, and historical photographs, and include the world's largest collection of holograms. The Museum seeks to reach a diverse audience and to promote both the spirit of community within the Institute and dialogue with the public.

## **Athletics**

The programs of the Department of Athletics, Physical Education, and Recreation strive to enhance students' academic, personal, and physical development. The Department seeks to provide adaptable, student-oriented programs that encourage participation, competition, confidence, and leadership while enhancing health and physical fitness for the entire MIT community.

The athletic program offers opportunities for sports instruction and participation at all levels. Physical education is required for all undergraduates. Approximately 20 percent of undergraduates compete in intercollegiate athletics, and more than 65 percent of all students, graduate and undergraduate, take part in intramural sports.

According to the National Collegiate Athletic Association, MIT sponsors one of the broadest intercollegiate athletic programs in the country, with 41 varsity teams (21 for men, 17 for women, 3 coeducational). MIT competes mostly against New England colleges and Ivy League schools and has competed both regionally and nationally in tournaments and championships.

There are over 20 intramural programs, with over 1,000 teams, and a 75-percent undergraduate participation rate. The 40 club sports programs are open to the entire Institute community. MIT's athletic facilities and plans for improvement and expansion are discussed under Standard Eight, Physical Resources, below.

## **Public Service and Community Involvement**

For the past 10 years, the Public Service Center (PSC) has provided thousands of students with opportunities for involvement in projects and programs that serve members of the surrounding community and strengthen the ties between the Institute and local neighborhoods. While most activities are on a volunteer basis, the PSC also offers paid community service fellowships.

Currently, the PSC coordinates more than a dozen programs created, organized, and run by MIT students. These range from one-day events to semester-long activities, most of which focus on public education in local communities. LINKS and ReachOut provide MIT students with opportunities for cultivating sustained and ongoing connections with Cambridge schoolchildren. LINKS program participants assist teachers in implementing hands-on, inquiry-based science activities to complement the curricula being taught in the schools. Similarly, ReachOut participants work with after-school programs to improve children's reading skills.

The office also supports community service organizations such as Alternative Spring Break and Project Health. Many students have conceived and started their own special interest volunteer efforts with the full support of the PSC. One such effort, Volunteer Solutions, was initiated by two students working in the PSC in 1997. This web-based non-profit organization works with local agencies to match area university students with public service opportunities.

## **Discipline**

MIT expects that all students come to the Institute for serious academic purpose and will act as responsible individuals, conducting themselves with high standards of honesty and personal conduct. Honesty and integrity in personal and academic matters are fundamental to independent learning and professional growth. A healthy living and learning environment requires that all members of the community exercise due respect for each other's basic rights and property. Accordingly, MIT expects that all events and activities associated with the Institute will be conducted in accordance with all applicable laws and regulations, including those regarding hazing and the sale, purchase, and service of alcoholic beverages.

Cheating, plagiarism, unauthorized collaboration, and other forms of academic dishonesty are considered serious offenses. The Faculty Term Regulations state that instructors should explain clearly their expectations regarding academic conduct early in the semester. Some academic offenses by students can be resolved directly by the faculty member and the student(s) involved. In other cases, it may be necessary for the department head to review and assist in resolution of the matter. When a dispute cannot be resolved satisfactorily within the department, or if it seems appropriate, a complaint against a student can be brought to the Committee on Discipline (COD), a Standing Committee of the Faculty; the Dean of Students and Undergraduate Education; or the Dean for Graduate Students.

The two formal mechanisms at the Institute for student conflict resolution and discipline are the COD and hearing panels within the ODSUE. Academic departments and housemasters in the residences also have responsibilities for conflict resolution and discipline. In addition, the Institute recognizes student-based judicial and complaint resolution mechanisms, including those under the aegis of the Undergraduate Association, Graduate Student Council, InterFraternity Council, Panhellenic Association, and Dormitory Council. In appropriate circumstances matters that begin in such other processes may be referred to the COD or to ODSUE at the request of one of the participants or at the suggestion of ODSUE.

The COD is comprised of six faculty members, three undergraduate students, two graduate students, and a representative of the Dean of Students and Undergraduate Education. The Committee normally hears charges of academic dishonesty, although the chair may accept other charges as the situation warrants. The formal Hearing Panels in ODSUE typically hear charges of violations of other Institute regulations and standards.

When a formal complaint against a student is submitted to either the COD or ODSUE, there are procedures to protect the rights of the student, including assistance in preparing for a hearing. Among the sanctions available to both hearing committees are reprimand, informal probation, formal probation, and recommendation to the President that the student be suspended or expelled or a student's degree withheld or revoked. Each spring, reports are made to the Faculty on the activities of both hearing groups for the previous three years.

MIT has traditionally granted student governance considerable responsibility for addressing problems in the student community. Many disputes between students – such as differences between roommates, harassment, disagreements between spouses or partners, disputes in the lab, and interracial and cross-cultural misunderstandings – can be mediated. The [mediation@mit](mailto:mediation@mit) program trains undergraduates, graduate students, and staff to serve as volunteers in non-adversarial, dispute resolution. These mediators work with students to clarify important issues and assist the individuals involved in crafting an agreement that addresses the needs of all concerned. The program has been very effective in resolving disputes between students.

Policies and procedures governing student disciplinary action, grievance handling, and dispute resolution are available to the community in several sources and are summarized in a guide to *Student Conflict Resolution and Discipline at MIT*.

## Student Information

MIT's policies with regard to student information, which meet the requirements of applicable federal and state law, are contained in *Policies and Procedures*. These policies explain both the student's rights and the responsibilities of faculty and staff for proper management of these records. The educational records of students, including information kept by advisors, instructors, and departments as well as ODSUE, may be disclosed only to those Institute personnel who need the information for a legitimate educational purpose. Information in the MIT Student Directory (but not necessarily in other internal directories), as well as information about dates of attendance and degrees received, may be disclosed to anyone inside or outside MIT in response to a query about an individual student. All other disclosures, whether inside or outside the Institute and including disclosure to parents, require the prior written consent of the student.

MIT shares the responsibility for data accuracy with its students. Students have the right to review and correct information maintained about them. The Institute has the obligation to facilitate this review process and ensure data accuracy. Furthermore, MIT recognizes its obligation to provide continuing education to students about their rights and to the faculty and staff about their responsibilities in the administration of student information. The goal of this educational effort is to sensitize the

community to the issues associated with students' privacy rights and the steps that must be taken to protect this information in a networked environment.

Recognizing that technology has transformed the means by which student information is collected, managed, and accessed, the Institute has been reviewing its student information policy since 1997. This review has focused on clarifying existing policy in light of this changed environment. The intent is to develop policies and procedures that fulfill the requirements of the Family Education Rights and Privacy Act, while reflecting MIT's institutional values and its more general policies about privacy. The revised policy, when approved, will replace the current Section 11.3 of *Policies and Procedures*

## Standard Seven: Library and Information Resources

### MIT Libraries

The MIT Libraries are creative partners in the research and learning process. They select, organize, present, and preserve information resources relevant to education and research at the Institute, sustaining these resources and providing quality services on behalf of the present and future research and scholarly community. The Libraries work to build intellectual connections among these resources and to educate the MIT community in the effective use of information.

#### Resources

With resources of more than 2.5 million volumes, the Libraries are designed to support all of the Institute's programs of study and research. The combination of networked databases and current journals, periodicals, and extensive backfiles provide comprehensive resources in all major fields. These are enriched by numerous special collections, including maps, microform, recordings, and slides as well as other electronic resources.

The MIT Libraries reflect the special characteristics of the Institute. In all fields where MIT has programs of research and instruction, the Libraries provide extensive holdings and services comparable to those of other leading research institutions. The needs of faculty and students are well served by the existing collections and current acquisition policies, while other resources in Boston and Cambridge allow access to a wide range of materials not owned by the Institute.

The library system includes five major (divisional) libraries:

- Barker Engineering Library,
- Dewey Library (management and social sciences),
- Humanities Library,
- Rotch Library of Architecture and Planning, and
- Science Library.

It also includes a number of smaller branch libraries:

- Aeronautics and Astronautics Library,
- Rosalind Denny Lewis Music Library,
- Lindgren Library (earth, atmospheric, and planetary sciences),
- Rotch Visual Collections, and
- Schering-Plough Library (neuroscience and biomedical imaging).

The Institute Archives and Special Collections (MIT's academic and administrative archives, official publications, rare books and manuscripts, and theses) and the Document Services Group (cost-recovered sales and services) round out the library system.

The Burndy Library of the Dibner Institute for the History of Science and Technology, located on the MIT campus, houses one of the world's leading collections of primary sources in the history of science and technology.

The Boston area is rich in specialized library resources. Through MIT's membership in the Boston Library Consortium, students, faculty, and staff have access to extensive research collections outside the Institute. MIT faculty may obtain on-site access and/or borrowing privileges at over 160 research libraries participating in the OCLC Reciprocal Faculty Borrowing Program. In addition, MIT faculty, research staff, and graduate students also have privileges at many of the Harvard University libraries.

### **Print and Digital Media**

The educational experience of MIT's students and the research and teaching activities of its faculty depend on the Libraries' ability to reconcile the competing demands of the digital and print environments. Electronic resources remain too limited, too expensive, and too unstable to support fully a teaching and research mission such as the Institute's. Therefore, the MIT Libraries continue to focus significant resources on print publications. At the same time, by the end of the academic year 1998–99, the Libraries were providing access to over 500 individual electronic journals and over 100 databases, many including full text. The Libraries continue to improve license agreements, expand communication with readers, strengthen consortial purchasing relationships, and enhance access and control with regard to these new formats.

During the academic year 1998–99, management responsibility for The MIT Press was merged with that of the Libraries. The resulting closer working relationship is already paying dividends in computing decisions and digital projects, and in the sharing of expertise. In May 1999, the Libraries made a commitment to archive all electronic MIT Press journals.

The individual academic disciplines represented at MIT are approaching digital solutions from the perspective of various research traditions and with differing scholarly objectives. These differences, and the absence of norms and standards equal to those in the print environment, have led to a variety of discipline-specific solutions to which the Libraries must adapt for the short run at least.

In 1997, the Libraries redesigned their approach to providing computing support for the emerging digital environment. Computer expertise is now distributed across the library system, with planning coordinated through the Computer Coordinating Committee, chaired by the Libraries' Assistant Director for Technical Planning and Administration. The Libraries participate in Institute-wide initiatives such as the Council on Educational Technology, as well as informal planning meetings and seminars organized by Information Systems.

### **Plans for the Future**

During the last two years, the Libraries have redefined their provision of public services. This process has drawn on the recent studies of student library usage and consultation with the Committee on the Library System, a Standing Committee of the Faculty. The resulting adjustments to structure and services are intended to enable staff to be more responsive to the needs of the MIT community in a rapidly changing environment. In recent years, each divisional library head has been responsible for two units. The reassignment of staff positions will allow for separate heads for each of the five divisional libraries and the Archives. New system-wide committees have been established to coordinate services for each of the major library constituencies – undergraduates, graduate students, faculty, researchers, staff, alumni/ae, and outside users.

Planning for the future of the Libraries is based on careful assessment of user needs and detailed appraisal of existing resources. The student survey undertaken in 1997–98 revealed that despite the ubiquity of web access and the vast array of sites on the web, students continue to look to library resources for their research and educational needs. In particular, graduate and undergraduate students still rely heavily on the Libraries' book collections, research tools, databases, and study spaces. Students identified a number of high-priority changes the Libraries should make to better meet their needs. In response to these suggestions, the Libraries have extended hours and implemented a web-based online catalog. Work is proceeding on the provision of electronic reserve materials, which was also strongly recommended.

The Libraries have recently launched new programs to make their oldest and most unique holdings more accessible to the research community. Approximately 200,000 commercial, society, and government publications dating from 1780 to 1963 and not incorporated in the Libraries' on-campus holdings have been identified for a five-year reclassification project that will produce records for inclusion in the online catalog. A separate task force is reviewing the status of the collections' 50,000 rare books.

The redesign of the Aeronautics and Astronautics Library provides an outstanding current example of the ways the Libraries seek to collaborate with academic departments to enhance the educational experience. Following a major strategic planning process in the Department of Aeronautics and Astronautics, the library was invited to participate in the development of a new educational vision. The Libraries accepted the Department's offer to relocate to a central location within a redesigned and renovated Building 33. Designed for service and convenience and capable of supporting a variety of media, the new Aeronautics and Astronautics Library is intended to model branch library practice.

The MIT Libraries face a serious space shortage. Currently total space, seating, and linear feet of shelving are all below both accepted standards and those of other academic research libraries with student populations and collections of similar size. Additional space needs are not obvious from numerical comparisons, such as the needs for group study, consultation and teaching spaces, and accommodation for growing numbers of computer workstations.

The Libraries have begun a long-range planning process intended to build consensus on space issues and the place of the Libraries within the Institute's campus planning. While the major divisional libraries were originally developed to serve the Institute's five Schools, today most patrons use at least three of the five divisional libraries. Students and faculty from a wide range of programs come together in each of the major libraries, and the planning process seeks to ensure that physical spaces capitalize on this proximity to help build community.

For the present, the Libraries have had to increase their reliance on offsite storage, adopting a schedule for moving volumes from the Barker, Humanities, and Science libraries on a three-year cycle, with large moves equal to three years of acquisitions every third year. Materials are stored offsite in professionally managed facilities – the Institute's own RetroSpective Collection and the Harvard Depository of the Harvard University Libraries. The RetroSpective Collection provides for access within 24 hours, the Harvard Depository within 48. At the end of 1998, 24 percent of the collections were in storage.

## **Information Resources**

Members of the MIT community have access to a rich array of computing technologies and information resources. Information Systems (IS) is responsible for creating and fostering a technological environment that provides central computing products, support, and services for MIT's academic, research, and administrative activities.

IS focuses on "commons" services for everyone, such as telephones and network connections, as well as on services for specific constituencies, such as academic computing and administrative computing. IS also provides a variety of support services, including help lines, consulting, training, and publications, to help members of the MIT community make effective use of information technology products and services.

MITnet connects some 30,000 computers across the campus, and its high-bandwidth connections to the commodity Internet, to government research networks, and to the University Corporation for Advanced Internet Development's Abilene network give MIT access to computers and other facilities around the world. With MITnet connections in all rooms in the campus residence halls and available at all fraternities, sororities, and independent living groups and with Tether – the MITnet dial-up service – providing off-campus service, MITnet users can gain access to network resources through their personal computers. The Institute is one of the charter university participants in the current Internet2 project to build high-speed networks and create advanced applications to meet emerging needs in research, teaching, and learning.

MIT is committed to ensuring no Year 2000-driven material failures or disruptions at the Institute. The Year 2000 Team in IS serves as an advisory body, monitoring Institute-wide progress towards Year 2000 compliance and working with individual departments, laboratories, and centers as they proceed from inventory and assessment of potential Year 2000 issues to

remediation and testing. The Year 2000 Team has also overseen a comprehensive assessment of embedded processors. A separate team is developing operational and contingency plans for the rollover weekend.

### **Project Athena and the Athena Computing Environment**

MIT has a long tradition of innovation in the use of computation in teaching and research. In 1983, the Institute established Project Athena to integrate new computational technology into the undergraduate educational experience. Initially planned to last five years, Project Athena was extended for an additional three years in 1988. At that time, Athena was believed to be the world's largest and perhaps most exhaustive experiment at the university level on the application of computers and computer networks to learning and teaching.

From the beginning, Project Athena was concerned with new ways to learn – with the creation of university environments that went beyond mere calculation to enhance exploration, experimentation, and learning – and supported a large number of curriculum projects. Along with renewal of the undergraduate curriculum, Project Athena was one of the two aspects of Institute education chosen for intensive self-study and review during the Institute's evaluation for reaccreditation by the New England Association of Schools and Colleges in 1989.

Project Athena came to an end in 1991, but the Athena Computing Environment it developed became MIT's academic computing infrastructure. Since then, Athena has been regularly upgraded to take advantage of new hardware and software opportunities. Today, Athena is a campus-wide, networked system available to all MIT students, faculty, and staff.

Athena workstations are located in public clusters (open 24 hours a day, 7 days a week), academic facilities, laboratories, libraries, and offices across campus. Athena users have access to courseware, electronic mail, symbolic-mathematics and statistics packages, word processing and graphics programs, utilities, programming tools, printers, and a host of network services, including web access. This robust and easily accessible system is at the core of most students' use of information technology.

In addition, many students and faculty routinely use their network-connected personal computers for work with personal productivity applications, to read and send electronic mail, and for access to the web. All students, faculty, and staff have full access to the computing and network resources on campus.

### **Council on Educational Technology**

In early 1999, the Provost announced plans for a new Institute-wide Council on Educational Technology, which will take up the issues identified in the 1997 report of a previous Council on Educational Technology. The new Council will think strategically about new directions, evaluate programmatic opportunities, and allow for discussion of continuing programs. It will not oversee programs directly but instead is charged with articulating an overarching view and fostering innovative programs. Plans for the Council are also discussed under Standard Four, Programs and Instruction, above.

### **Educational Media Creation Center**

The Institute is moving to expand services that support wider faculty use of technology in teaching. The establishment of a new educational media creation center – an Institute-wide initiative spearheaded by the Provost, in cooperation with the Center for Advanced Educational Services (CAES) and the Academic Computing practice of IS – is expected to be announced in the fall of 1999.

This facility will support the production of sustainable, qualified media- and web-based educational materials for the Institute. This center will serve as a production and service unit for the Institute's broad, distributed, academically based initiatives via the web, television, and other distribution systems. The center will have key accountabilities for the development, production, and support of enterprise-wide Institute projects. The existing Hypermedia Teaching Facility of CAES will be absorbed into and remain at the nucleus of this organization.

The center will work with initiatives for on-campus use of educational technology supported by the Office of the Provost, most likely involving undergraduate subjects, as well as major MIT distance-learning programs and initiatives at the graduate level such as the System Design and Management program and the Singapore-MIT Alliance. It will also be available to work with clients outside MIT. It is expected that the Provost's Office will provide three years of seed funding for the center.

## **Standard Eight: Physical Resources**

### **The Context of Campus Development**

First located in Boston's Back Bay, MIT moved to the Cambridge side of the Charles River Basin in 1916. The Institute is fortunate to occupy a vital urban campus in close proximity to other educational and cultural institutions and a vibrant business community.

The campus is located on 154 acres that extend for more than a mile along the river. The central group of interconnecting buildings, dedicated in 1916, was designed by architect Welles Bosworth '89 to permit easy communication among departments and Schools. Many other buildings by some of the century's leading architects – among them, Alvar Aalto, Eduardo Catalano, I. M. Pei '40, and Eero Saarinen – have been added since. Public sculptures, murals, and paintings, including works by Alexander Calder, Henry Moore, Louise Nevelson, and Frank Stella, are found across campus.

The gross square footage of the Institute's physical plant has tripled over the last four decades. Much of this development reflects the increasingly residential nature of the campus community. Expansion to meet future needs is now constrained by a limited land area and the need to collaborate effectively with the City of Cambridge in development decisions. The Institute must balance the desire for new facilities with the advantages of adapting existing facilities to new needs and uses.

In addition to the property used for academic purposes, the Institute also owns real estate in Cambridge that is designated for either future academic expansion or investment. (In both cases, the property remains on the city tax rolls.) Property in the area has become increasingly attractive to science- and technology-based businesses that wish to establish operations in the vicinity of MIT.

Major facilities outside Cambridge include the Bates Linear Accelerator Center in Middleton, the Haystack Observatory in Tyngsboro, and the MIT Lincoln Laboratory in Lexington.

### **Planning and Operations**

Development of the campus is guided by the decisions of the Building Committee and the Committee for the Review of Space Planning (CRSP), whose work is described in detail under Standard Two, Planning and Evaluation, above.

The Planning Office and the Department of Facilities provide support and implementation services for the development of the campus. The work of the Planning Office is described in detail under Standard Two, Planning and Evaluation, above. The Department of Facilities provides construction coordination for new construction, space change, and renovation projects, as well as architectural, interior and engineering design, and estimating services. These services may be contracted out or provided by in-house personnel. On major projects, Facilities usually manages the design, engineering, estimating, and construction services of outside professionals to meet the Institute's requirements.

In 1998, MIT completed a comprehensive facility audit of the campus. The results of that audit have allowed the Institute to prioritize projects for the renewal of existing facilities. While the need for campus renewal is not as great here as on some older campuses, it is substantial. The gross square footage on campus doubled between 1957 and 1977, and the buildings built then are now reaching maturity. At the beginning of 1998, approximately 68 percent of the gross square footage of the campus was more than 30 years old.

The increasing volume and pace of construction activity on campus have made updated and comprehensive guidelines for the future development of the campus essential. The first stage in the development of a new campus plan was an intensive planning

charrette held in March of 1999, organized under the auspices of the Dean of the School of Architecture and Planning, who serves as Architectural Advisor to the President, and the Planning Office. The goal of the charrette was to generate ideas that would create a campus environment that was more supportive of the community, more visually rewarding, and better integrated with its urban surroundings. Participants included the architects designing major projects on campus, who worked with MIT design students and Planning Office staff. The charrette offered opportunities for discussion with a range of members of the senior administration including the full Academic Council.

In the summer of 1999, the Institute initiated a comprehensive campus planning effort, overseen by a steering committee reporting to the Building Committee. Distinguished landscape architect and urban planner Laurie Olin, who facilitated the earlier campus design charrette, has been retained to develop the campus plan.

## Campus Development in the 1990s

The MIT campus has seen substantial development during the past decade, including a number of major new teaching and research facilities:

- MIT's teaching and research in biochemistry, genetics, immunology, microbiology, molecular biology, and neurobiology are now concentrated in the Biology Building (1994), a 250,000-square-foot structure widely regarded as the best facility for biological research and education in the world.
- The Jack C. Tang Center for Management Education (1996) added 40,000 square feet of new space and 8,000 square feet of renovated space for the programs of the Sloan School.
- A new wing (1996) added approximately 76,000 square feet to the affiliated Whitehead Institute for Biomedical Research.

Although less visible than new construction, renovations have had a profound impact on all parts of the campus:

- The Dorrance and Whitaker Buildings, with a combined area of 225,000 square feet, were entirely renovated to house classroom and laboratory facilities for a number of science fields, as well as academic and administrative offices. Many of the programs now in these buildings were previously housed in Building 20, which was demolished in 1998–99.
- The historic home of the School of Architecture and Planning on the second, third, and fourth floors of Buildings 5, 7, and 9 has been renovated, reuniting previously dispersed design studios, faculty offices, and administrative operations.
- Heavily used general-purpose classrooms in the main group have been renovated and provided with upgraded video projection systems and enhanced network capability.
- The Center for Advanced Educational Services and the Teaching and Learning Laboratory jointly developed a facility to provide sophisticated educational technology to support distance education and training in teaching techniques and pedagogy.
- Kresge Auditorium, the Institute's largest performance and lecture hall, was comprehensively upgraded to meet access requirements and enhance both performance and rehearsal spaces.
- The Rosalind Denny Lewis Music Library was renovated and expanded.
- A new Student Services Center was created in the heart of the main group – providing one-stop service for a wide range of student financial, registration, and other transactions. Its operations are supported by newly expanded and renovated offices on the upper floors of Building 11.
- The Institute's ROTC programs, also formerly in Building 20, are now housed in newly renovated facilities in close proximity to undergraduate residences.

In recent years the Institute has devoted substantial resources to the modernization and enhancement of its residences:

- The oldest residence on campus, Senior House, has undergone extensive interior and exterior renovations.
- The dedication in 1949 of Baker House, an undergraduate residence designed by Alvar Aalto, marked the beginning of the Institute's transition from a largely commuter school to a residential university. Baker House has been comprehensively restored on the occasion its fiftieth anniversary.

- In the summer of 1999, the Institute began a phased series of renovations designed to bring the life-safety systems in all residence halls to the highest possible levels.

## Directions for the Future

While MIT has undertaken substantial new construction and renovation during the 1990s, the years ahead promise to bring even greater changes to the campus environment. Much of this investment will support new modes of teaching and research and the strengthening of the residential community. Increasing expenditures for construction and space changes reflect this intensification of activity.

Much of this activity will involve the replacement or renovation of existing facilities that are either outmoded or leased from others. Much recent work, including the renovations of the Dorrance and Whitaker Buildings earlier in the decade, has been designed to provide new accommodation for the former tenants of Building 20, a 125,000-square-foot facility that was erected as temporary research space in 1943 and demolished in 1998–99. The construction of the Ray and Maria Stata Center for the Computer, Information, and Intelligence Sciences on the site of Building 20 will allow the Institute to house on campus a number of units currently occupying leased space elsewhere.

Substantial investments in the infrastructure of campus operations in recent years have been highlighted by the construction of the William R. Dickson Cogeneration Plant and the expansion of the Chilled Water Plant. The Central Utility Plant will be expanded to provide support to the Stata Center and other new facilities on campus.

For Fiscal Year 2000, CRSP was allocated a budget of \$4.5 million and responsibility for an additional \$20 million for pressing space needs. By the end of Fiscal Year 1999, CRSP had committed to approximately \$20 million in funding for Fiscal Year 2000 projects, with the remaining funds set aside for allocation at decision points in other priority projects during the year.

Additionally, as part of its phased response to renewal needs, in Fiscal Year 2000 the Institute expects to expend approximately \$15 million for priority infrastructure projects, funded by external borrowing. Infrastructure investments of approximately \$15 million per year are also expected in Fiscal Years 2001 and 2002.

The Institute's capital plan forecasts the expected construction activity, related fundraising or debt activity, and annual operating impact of major construction projects approved or under review by the senior administration. As Fiscal Year 1999 came to a close, the estimated costs for projects in the capital plan for the next five fiscal years was \$592 million.

A number of major current and upcoming projects will provide state-of-the-art facilities for teaching and research:

- The Department of Aeronautics and Astronautics is currently renovating its facilities to create a new 38,000-square-foot Learning Laboratory for Complex Systems, which will bring faculty and students together around the synthetic product development process.
- Laboratory facilities and infrastructure in the Department of Chemistry are currently being renovated and modernized, and plans have been developed for the renovation of all of the department's core spaces in order to enhance functionality and enhance life-safety systems.
- The 350,000-square-foot Ray and Maria Stata Center for Computer, Information, and Intelligence Sciences will house the Departments of Electrical Engineering and Computer Science and of Linguistics and Philosophy as well as the Artificial Intelligence Laboratory, the Laboratory for Computer Science, and the Laboratory for Information Decision Systems. Most of these units are currently located in leased space in a commercial office development off campus. Bringing these departments and laboratories back to campus will strengthen their engagement with each other and with other MIT programs. The design, by Frank Gehry, aims to promote interaction among the center's occupants while providing a model for technology-supported education and the flexibility to support multiple uses.
- The Media Laboratory will expand on a site adjacent to its existing facilities in the Wiesner Building. The new structure, to be designed by Fumihiko Maki, will house the Okawa Center for Future Children, devoted to improving the education and experiences of children through digital technology.
- The Department of Chemical Engineering plans to renovate and expand its undergraduate teaching laboratory to support new educational initiatives.

The Institute has also embarked on major efforts to enhance the residential experience and student services for both undergraduates and graduate students:

- Following substantial recent renovations to existing residence halls, the Institute will expand housing options for both undergraduates and graduate students. A new undergraduate residence, designed by Steven Holl and expected to open in the fall of 2001, will house approximately 350 undergraduates. Like all MIT undergraduate residences, it will house students in all four years of the undergraduate program. Plans are also in development to address the increasingly severe strain on graduate housing. The Institute is exploring options that may include the conversion of existing facilities to housing as well as new construction.
- A sports and fitness center to be built between the existing Johnson Athletics Center and the Stratton Student Center will include a 50-meter pool, seating for approximately 450 spectators, recreation and team locker rooms, a health fitness center, a sports medicine training facility, an equipment desk, and a laundry. This center, designed by Kevin Roche, will provide much needed expansion of heavily used facilities for students and other members of the MIT community. Future phases of the project will add further facilities.

## Standard Nine: Financial Resources

### Trends in MIT Finances

Approximately 85 percent of MIT's activities are concentrated in engineering and science disciplines, requiring highly compensated faculty and staff and necessitating a continually changing physical and information technology infrastructure. Unlike most of its peer institutions, MIT's finances are dominated by large academic programs with very high intrinsic and infrastructure costs.

MIT has depended on sponsored research support to a larger extent than most other American universities. In 1980, sponsored research revenues paid for 60 percent of the campus operating budget. Despite the erosion of federal support for universities in the early 1990s, the MIT faculty has maintained strong research support. However, a series of changes in federal cost reimbursement policy, including the reduction of financial support of graduate students, and other mechanisms for shifting the costs of research from the federal government to universities, seriously reduced our operating revenues. By 1998, other sources of MIT revenue were paying for approximately \$56 million per year in costs previously funded through the facilities and administrative cost (F&A) rate and the employee benefits rate paid by research sponsors.

The Institute has worked to reduce its dependence on research revenues. Sponsored research now accounts for less than half of campus revenue, and current projections are that its contribution will be approximately 35 percent by 2009. At the same time, MIT has moved to broaden the base of its research support, notably through a series of innovative partnerships with leading industrial firms, each of which typically involves faculty in two or more of the five Schools. In 1999, industrial sponsors accounted for nearly 20 percent of campus sponsored research volume.

In order to stabilize MIT's finances and direct most research funds to the support of students, infrastructure, and supplies, the Institute has moved to pay academic-year faculty salaries from MIT resources rather than sponsored research funds. At the beginning of the 1990s, "soft" funds paid for 14 percent of academic year faculty salaries Institute-wide; that figure has been reduced to less than 4 percent. In previous decades this figure was as high as 50 percent in the School of Engineering.

During the mid-1990s, MIT faced a growing gap between budgets and ordinarily available operating revenues. The Institute responded decisively to reduce operating costs and enhance productivity:

- A campus-wide reengineering effort promoted administrative efficiencies through business consolidations, outsourcing, and process redesign.
- A retirement incentive implemented in Fiscal Year 1996 allowed for faculty renewal while providing for replacement at 50-percent levels in administrative areas.
- A modern financial and management information system was installed, increasing the potential for efficiency and avoiding the costs of solving the Year 2000 problem in primary systems.

The financial structure of the Institute is evolving rapidly to meet the new realities of changing research support, increased competition from MIT's peers, and the need to maintain and enhance our physical facilities. The Institute is becoming more dependent on private resources and must increase its expenditures from earnings on its endowment and other invested assets, as well as from newly raised funds for both non-recurring and recurring purposes.

## Endowment and Other Invested Assets

The market value of the Institute's endowment was \$4.3 billion at June 30, 1999, representing an increase of 16 percent over the almost \$3.7 billion at June 30, 1998. The increase reflects investment return and gifts to the endowment over the past year, less the amount distributed for spending through the distribution rate and the draw on unrestricted fund balances for other purposes and to close the operating gap.

Total investments, which include the endowment, current invested funds, and separately invested funds (including life income funds), were \$5.1 billion on June 30, 1999, an increase of 16 percent over the almost \$4.4 billion at June 30, 1998. This increase reflects investment return, gifts for endowment and gifts for current purposes retained, and distributions from the endowment not expended.

For Fiscal Year 1999, the total investment return for Pool A, the primary long-term investment pool, was 18.7 percent. The determination of total investment return reflects only investment activities; neither gifts nor distributions and other transfers affect the total investment return.

Each fund invested in Pool A receives a distribution each year based on the distribution rate voted by the Executive Committee of the Corporation with consideration of a recommendation of the Investment Committee of the Corporation. In Fiscal Years 1998 and 1999, these distribution rates were respectively 4.0 percent and 3.8 percent of the trailing three-fiscal-years market value. Each of these distribution rates was substantially less than had been planned as a result of investment returns that were substantially higher than anticipated.

The effective distribution rate from Pool A is the total distributed through the declared distribution rate and the amount drawn from unrestricted funds for other purposes and to close the operating gap at the end of the fiscal year, without adjusting for unspent but retained distributions, which are held as restricted funds in Pool C, the current invested funds pool. In Fiscal Years 1999 and 1998 the effective distribution rates from Pool A were 4.7 percent and 4.8 percent, respectively, of the trailing three-fiscal-years market value.

MIT's endowment and other invested assets have been managed extremely well and have benefited from the extraordinary performance of the stock market in recent years. Investment policies are set by the Investment Committee, which makes recommendations to the Executive Committee regarding distributions from the endowment and other invested funds for operating purposes.

As of June 30, 1998, the Institute's endowment was the eighth-largest of any American institution of higher education. While MIT's endowment is large in absolute numbers, figures on endowment per student give a more realistic view of this aspect of MIT's financial resources. In 1998, the most recent year for which comparative figures were available, the Institute's endowment per student ranked 18th nationally. This ranking still does not reflect the inherently high costs of MIT's fields of concentration.

The Investment Committee meets three times a year to review investment policy and results, and recommends to the Executive Committee a distribution rate from earnings on invested funds. The endowment and other investments are overseen by the Treasurer of the Corporation, who is a member *ex officio* of the Investment Committee. The professional staff of the Treasurer's Office supervise investments made for the Institute by a range of outside managers.

The Wellington Management Company of Boston has been the Institute's primary investment manager and advisor for publicly traded securities, both domestic and international, for more than 20 years. The Institute invests in smaller capitalization companies through a program managed by four other investment management firms. During Fiscal Year 1999, MIT diversified the management of its international equity securities by hiring two additional investment management firms. The Institute's

alternative investments – including venture capital, private capital, real estate, event arbitrage, and distressed debt – are typically managed by several investment firms through pooled investment funds.

The book value of the Institute's land, buildings, and educational equipment net of depreciation was \$607.3 million as of June 30, 1999, up from \$572.3 million as of June 30, 1998. This change includes \$20.6 million of net additions to the educational plant offset by \$21.4 million of net depreciation and an increase of \$35.8 million of construction in progress. These assets are more fully described under Standard Eight, Physical Resources, above.

Total indebtedness for educational plant was \$277.7 million at June 30, 1999, of which \$137.7 million is tax-exempt debt financed through the Massachusetts Health and Educational Facilities Authority. Such indebtedness decreased by \$4.3 million during Fiscal Year 1999.

## Financial Operations

### The Budget Process

The annual budget process seeks to ensure that financial resources are allocated in ways that support the overall objectives of the Institute and the specific programmatic needs and goals of the individual academic and administrative areas overseen by the Provost and the Executive Vice President. As discussed in more detail under Standard Two, Planning and Evaluation, above, the Institute has moved recently to uncouple the long-range planning process from the budget process, to allow for more strategic planning efforts. Annual budgets will be assessed against long-range plans in order to ensure that their aims are congruent.

The Office of Budget and Financial Planning (Budget Office) is responsible for developing and managing the Institute's operating and capital budgets and financial planning tools, monitoring MIT's financial position and the likely impact of anticipated internal and external changes, managing financial information as a critical component of the Institute's strategic planning process, executing operating and capital programs, and providing the administration with the financial knowledge necessary to support strategic planning. Submissions for the Fiscal Year 2000 budget relied successfully on a new budget system – "Nimbus" – that is integrated with the Institute's new financial management system.

A financial model of the MIT operating budget first introduced in 1997 to project resources and expenses over a ten-year period has evolved into a dynamic long-range plan in response to its application to support the financial deliberations of the senior administration and the Executive Committee of the Corporation. In Fiscal Year 1998, the Budget Office began annual publication of a new, definitive *MIT Budget Book* that reviews research, tuition, the individual Schools, and capital planning and operations in addition to the Institute's operating budget.

### Budget for Fiscal Year 2000

The operating budget for Fiscal Year 2000 provides funding for a number of major strategic initiatives:

- Enhancements to undergraduate financial aid recommended by the Financial Aid Strategy Committee in 1998 will cost \$1.2 million.
- Support for graduate education and student recruitment is being strengthened through the expenditure of \$15 million for tuition support. In addition, the provision of new Presidential Graduate Fellowships will cost \$6 million.
- Renewal of the physical plant and new construction will both accelerate. These projects are discussed in detail under Standard Eight, Physical Resources, above.

Fiscal Year 2000 will also mark the beginning of a comprehensive internal review and external benchmarking of administrative costs. The reengineering efforts of recent years and the implementation of the SAP financial management system can now support the streamlining of business processes and the more efficient access to information that were the early promises of process redesign and contemporary software applications. These transitions, however, require difficult cultural and process change.

For Fiscal Year 2000, the Institute projects total expenses of \$1,362.9 million, slightly less than one-quarter of which are attributable to the operations of Lincoln Laboratory. Research revenues are expected to provide 39 percent of the revenues used to support campus operations in Fiscal Year 2000; private support, 37 percent; and tuition revenues, 24 percent.

## **Reporting and Control**

The simplification of financial structures and procedures has been a key goal for the Institute. The slow growth in campus revenues has made it imperative to reduce administrative costs, including the significant expenses related to managing financial transactions both centrally and within the departments. The implementation of a new integrated financial and management information system has allowed the Institute to begin reducing paper flow and eliminate shadow systems in individual units. The SAP system was used successfully for Fiscal Year 1998 closing entries and was implemented across the Institute during Fiscal Year 1999, following extensive training programs.

During Fiscal Year 1999, the Institute established a new Financial Systems Services (FSS) organization to coordinate the development, delivery, and maintenance of effective financial systems, succeeding the Management Reporting Project that had been charged with introducing the SAP financial system. FSS will continue to support the implementation of SAP, working to ensure that the software increasingly meets the needs of departments, laboratories, and centers. The organization will also be responsible for installing appropriate new versions of SAP and related software and will continue to integrate MIT's business processes.

Internal auditing is an integral part of MIT's internal control structure. The mission of the Audit Division is to provide reasonable assurance to management and trustees that Institute policies are being adhered to as intended, adequate internal controls are being maintained, and assets are properly safeguarded. The Audit Division reviews MIT operations both on campus and at Lincoln Laboratory and addresses potential audit areas identified by management as well as through assessment of Institute risk. The Division has been actively involved in assessing Institute exposure related to information technology, notably Year 2000 issues.

The Audit Division is also working closely with the Department of Facilities to protect MIT's interests and help ensure full financial accountability by contractors in advance of the anticipated rise in construction activity over the next several years.

Audit coverage is coordinated with the Institute's Certified Public Accounting firm, PricewaterhouseCoopers, and cognizant Federal audit agency, the Defense Contract Audit Agency. Internal audits are conducted consistent with the Standards for the Professional Practice of Internal Auditing. MIT's financial statements and operations are audited annually by PricewaterhouseCoopers using generally accepted auditing standards.

The Auditing Committee of the MIT Corporation meets twice each year to plan for and review audits and reports on audits to the full Corporation.

## **Future Directions**

Meeting the Institute's goals – including essential capital investment through both new construction and campus renewal – will require new revenues, new approaches to the use of our resources, and revised processes and procedures in our operations. Increased dependence on private fund raising and investment requires a dynamic adjustment to economic conditions and greater control over some aspects of budgeting and expenditures.

During the last year, the senior administration and the Executive Committee of the Corporation have worked on the development of a dynamic long-range financial plan to guide the deployment of MIT's resources. The goal is to plan for the Institute's financial future on the basis of clearly stated assumptions and to assess financial results against a set of standard metrics, notably return on net assets.

The plan recognizes the need to continue to hold tuition growth to modest levels, allow compensation to rise at reasonable real rates, maintain need-blind admission and need-based financial aid for undergraduates, and restrain the growth of the F&A rate through prudent management and increased private support for facilities and infrastructure. The plan seeks to ensure that MIT's

return on net assets is maintained well above expected inflation on annual operations. During the summer of 1999, work proceeded on analysis of the plan's sensitivities to various external factors.

Projects and expenditures will be prioritized and paced through the coming decade. Spending plans will at all times be keyed in part to investment performance during the preceding three years and to the growth of other resources. Contingency plans have been developed that will allow the Institute to suspend some of these expenditures in a preplanned manner if financial performance requires it.

The Institute plans to maintain its typical levels of distribution to fund owners from earnings on endowed funds. A portion of earnings above that, together with some earnings on unrestricted funds, will be allocated to key Institute-wide priorities – primarily increased support of graduate students, facilities renewal, and new construction.

Since 1996, MIT has been one of a very small number of American universities with a AAA bond rating. New construction will require the Institute to expand its reliance on the capital markets. The Institute currently anticipates that debt as a percentage of total net assets will peak in Fiscal Year 2003 and decline substantially over the following three years. MIT is committed to maintaining the highest possible level of creditworthiness in order to minimize the costs of capital and meet its fiduciary obligations.

## **Private Support and the Campaign for MIT**

MIT has been successful in advancing the levels of private support in recent years. Cash receipts have more than doubled over the last five fiscal years. Cash receipts for Fiscal Year 1999 were \$202.1 million, an increase of 46 percent from the previous year, while new gifts and new pledges increased 66 percent, to \$277.5 million.

An essential part of the Institute's long-range financial plan is a seven-year capital campaign whose public launch is scheduled for November of 1999. The campaign planning process is discussed under Standard Two, Planning and Evaluation, above.

The Corporation has approved a goal of \$1.5 billion for the campaign. As of June 30, 1999, the campaign nucleus fund, raised over a period of two years, was well over one-third of the total goal. Campaign plans target approximately two-fifths of the funds raised for endowment, approximately two-fifths for current use in programs, and approximately one-fifth for new construction.

The campaign will provide important additions to the available support for scholarships and other undergraduate aid, while allowing for the establishment of new fellowship programs to reduce the cost to students of graduate education. The campaign will also provide support for educational initiatives in critical areas including entrepreneurship, the environment, international programs, and neuroscience.

## **Conclusion**

The growth in federal funding for research that supported MIT's development in the decades following World War II is unlikely to recur in anything like the same form. Instead, the Institute's finances are coming to resemble more closely those of other leading private research universities that have long depended on private support for a substantial portion of their operating expenses. The Institute is intensifying efforts to develop new forms of industrial and international collaboration while strengthening the support of its individual alumni/ae and supporters. At the same time, it is working to make the most productive use possible of its assets and maximize operational efficiency.

## **Standard Ten: Public Disclosure**

### **Institute Publications**

MIT strives to present complete, accurate, and clear information to students and members of the interested public. All of the Institute's publications are examined regularly to see that they provide accurate and current information about academic programs and requirements, faculty, fees, tuition, refund policies, and resources available for students. Revised and updated editions of the Institute's publications are produced and distributed regularly.

The Institute's admissions materials summarize the academic and non-academic opportunities for undergraduates, including curriculum, facilities, and extracurricular opportunities, and present detailed information about admission procedures and financial aid policies.

The annual Courses and Degree Programs issue of *The MIT Bulletin* provides comprehensive information about degree programs and their requirements, faculty, and subject offerings. The Communications Office, in collaboration with the Registrar, produces this volume based on information provided by the departments and degree and curricular committees. The *Bulletin* also provides detailed information about standards of academic progress; standards of conduct; disciplinary and grievance procedures; residential and financial policies, including fees, refund policies, and financial aid policies; academic and support resources; and extracurricular activities. The Office of the Registrar maintains updated subject listings on the web.

The Committee on Academic Performance, a Standing Committee of the Faculty, and the Office of Academic Services publish the *Academic Guide for MIT Undergraduates and Their Advisors*, which is available in print and on the web. This guide brings together detailed information on policies and procedures from a variety of Institute sources to provide a convenient guide to the undergraduate program and its requirements. Individual offices within the Office of the Dean of Students and Undergraduate Education produce a wide range of publications that inform students about specific policies and available services. The Office of Academic Services, for example, has recently developed a comprehensive introduction to the freshman year.

The Institute's administrative policies and procedures are available in *Policies and Procedures* and the *Personnel Policy Manual*. *Policies and Procedures* is available on the web and is updated on a continuing basis. *MIT Tech Talk*, published weekly by the News Office during the academic year and occasionally during the summer, regularly reports on changes to Institute policy.

The Faculty regularly reviews and revises its *Rules and Regulations*, which are available on the web. At the beginning of each term, teaching staff are reminded of Institute regulations governing the beginning and end of term and the administration of quizzes and examinations. The Chair of the Faculty responds to alleged violations of these regulations.

Information on the overall administrative structure of the Institute, activities during the past academic year, and a variety of faculty and staff demographic issues is available in the annual *Reports to the President*. The annual *Report of the Treasurer* provides detailed information about MIT's finances.

## Public Information

The Institute is committed to responding appropriately to public inquiries about its organization and operations. The News Office publishes *MIT Tech Talk* to keep the community informed about news and policies; responds to inquiries from the media; and works to disseminate news about educational, research, and other activities at MIT.

In compliance with the policies and procedures of the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges, the Institute is arranging for publication of the following notice in *MIT Tech Talk* and *The Boston Globe* at least one month in advance of the evaluation visit.

The Massachusetts Institute of Technology will undergo a comprehensive evaluation visit November 7–10, 1999, by a team representing the Commission on Institutions of Higher Education of the New England Association of Schools and Colleges (NEASC).

MIT has been accredited by the Commission since December 1929 and was last reviewed in 1989. Its accreditation by NEASC encompasses the entire institution.

The public is invited to submit comments regarding the institution to: Public Comment on MIT, Commission on Institutions of Higher Education, NEASC, 209 Burlington Road, Bedford, MA 01730-1433, e-mail: [cihe@neasc.org](mailto:cihe@neasc.org).

Written, signed comments must be received by November 10, 1999. The Commission cannot guarantee that comments received after that due date will be considered. Comments should include the name, address, and telephone number of the person providing the comments.

The Commission cannot settle disputes between individuals and institutions, whether those involve faculty, students, administrators, or members of other groups. Individuals considering submitting complaints against an affiliated institution should request the separate Policy and Procedures for the Consideration of Complaints Made Against Affiliated Institutions from the Commission office.

MIT also recognizes an institutional obligation to enhance public understanding of higher education. The News Office, the Office of Government and Community Relations, and the MIT Washington Office work to educate the media, the local community, and government about the importance of higher education and research to the economy and society. The Institute has played an important role in major public outreach efforts, including the establishment of The Science Coalition.

## The World Wide Web

MIT has been a leader in institutional use of the World Wide Web as well as its technological development. Most of the information described above, and a great deal more, is available on MIT web sites. Campus Wide Information Systems is committed to making information easily accessible through the ongoing development of the Institute's own gateway pages and the provision of consulting services to web publishers on campus.

The Institute is committed to providing equal access to web-based information in accordance with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. All web pages associated with administration and services, courses of instruction, departmental programs, and Institute-sponsored activities, must conform to accessibility principles that ensure that they are readable by users with disabilities.

## Standard Eleven: Integrity

### Introduction

MIT strives to maintain the highest ethical standards in its teaching, research, and administration, conveying its expectations for trustees, faculty, students, and staff through clearly articulated policies and procedures. The Institute's policies and procedures ensure the fair and open administration of academic and financial requirements for progress toward degrees.

All members of the MIT community are expected to conduct themselves with proper respect for one another and for each other's property. The Institute fosters the attitude that every person brings unique qualities, talents, and dignity to the community and that every individual deserves to be treated, judged, and accorded both common decencies and all the benefits of society in an evenhanded and respectful manner. These principles form the basis for clearly articulated Institute policies with respect to harassment, racist behavior, the safety of the Institute environment, and access and accommodations for those with disabilities.

These principles also provide the foundation for complaint and grievance procedures. These procedures are outlined in summary form in *Policies and Procedures*. More detailed information on specific topics is available in such Institute publications as *Dealing with Harassment at MIT*. Student discipline is discussed under Standard Six, Student Services, above.

The Institute has policies in place to ensure compliance with all applicable federal and state legislation and regulations regarding campus safety and the maintenance of a drug-free workplace.

As noted under Standard Three, Organization and Governance, above, the Institute is governed under the terms of a charter granted by the Commonwealth of Massachusetts. The members of the Corporation are responsible for ensuring that the Institute is managed in conformity with the terms of its charter.

As noted under Standard Ten, Public Disclosure, above, academic programs and support services are described accurately in the annual Courses and Degree Programs issue of *The MIT Bulletin*, and additional information is available to students in other publications and on the web.

## **Nondiscrimination Policy**

MIT is committed to the principle of equal opportunity in education and employment. The Institute does not discriminate against individuals on the basis of race, color, sex, sexual orientation, religion, disability, age, veteran status, ancestry, or national or ethnic origin in the administration of its educational policies, admissions policies, employment policies, scholarship and loan programs, and other Institute-administered programs and activities, but may favor US citizens or residents in admissions and financial aid.

A full statement of the Institute's nondiscrimination policy is required in all publications that describe MIT programs and are intended for prospective students or employees, whether or not that is the primary purpose of the publication.

The ROTC programs located on the MIT campus are operated under Department of Defense policies and regulations, and do not comply with fully with the Institute's policy of nondiscrimination with regard to sexual orientation. MIT has a long-standing commitment to national service and believes that engagement with ROTC programs "at home" will be the most effective way for the Institute to serve as an agent for change in the national arena.

In response to the report of a Presidential Task Force on ROTC, the Faculty voted in April of 1996 to recommend that the Institute work with the Department of Defense to develop a pilot ROTC program open to all students, reinsure the ROTC scholarship for any MIT students who lose their scholarship because of their sexual orientation, and work to remove the discrimination against homosexuals in the military embodied in federal law and Department of Defense regulations.

The Institute has adopted the recommended "reinsurance" policy and is currently working to design a modified on-campus ROTC program open to all MIT students. The Institute was one of a number of academic institutions and organizations that submitted a brief as friends of the court in the *Able* case that unsuccessfully challenged the constitutionality of the current "Don't ask, don't tell, don't pursue" policy.

## **Conflicts of Interest**

It is the policy of the Institute that its officers, faculty, staff, and others acting on its behalf have the obligation to avoid ethical, legal, financial, or other conflicts of interest and to ensure that their activities and interests do not conflict with their obligations to the Institute or its welfare. Essential to effective administration and adherence to this policy are disclosure of outside activities and interests to designated Institute officers, including financial interests that might give rise to conflicts, and readily available advice and counsel to individuals and to department heads on any situation.

All members of the Corporation make an annual conflict-of-interest report to the Chairman of the Corporation, while the officers of the Corporation make an equivalent report to the Chairman of the Salary Subcommittee of the Executive Committee, who is not a compensated employee of the Institute.

Members of the faculty and of the sponsored research and administrative staffs are required to report annually on their outside professional activities, in accordance with procedures outlined in *Policies and Procedures*.

The Committee on Outside Professional Activities, a Standing Committee of the Faculty, addresses potential conflicts of interest, counsels the interested parties, and reports periodically to the Faculty. It may also recommend appropriate modifications of policies and procedures.

## **Conduct of Research**

The importance of the free interchange of information and ideas in education and research underlies MIT's general policy that the Institute not undertake, on the campus, classified research or research whose results may not be published without prior permission. Openness also requires that, once they are at MIT, foreign faculty, students, and scholars not be singled out for restriction in their access to MIT's educational and research activities.

In a very few cases, the pursuit of knowledge may involve critically important but sensitive areas of technology where the immediate distribution of research results would not be in the best interests of society. In such cases, exceptions to these policies regarding publication, classification, and access by foreign students and scholars may be made, but only in those very rare instances where the area of work is crucially important to MIT's educational mission and the exception is demonstrably necessary for the national good. Every research project within the academic structure of MIT (excluding Lincoln Laboratory) that requires such an exception must receive the prior approval of the Provost, who is to seek the advice of the Faculty Policy Committee and inform the committee of all approvals.

In 1962, MIT became one of the first educational and research institutions to recognize and act upon the need for a committee of an investigator's peers to review the use of humans as subjects in research projects. The Committee on the Use of Humans as Experimental Subjects, appointed by the President, is charged with the review of every project using humans as research subjects. If diagnosis or treatment of a diseased individual is experimental, approval must be obtained from the Committee even if such diagnosis or treatment is for the benefit of the subject.

## **Intellectual Property**

The aim of the Institute's policy on patents, copyrights, and other intellectual property is to make research results available to industry and others for the public benefit, while providing recognition to individual inventors and encouraging the prompt and open dissemination of research results.

The Committee on Copyrights and Patents, appointed by the President, is empowered to develop intellectual property policies for the Institute. The Vice President and Dean for Research chairs this committee and is responsible for the implementation and administration of these policies.

The Office of Sponsored Programs negotiates the patent and copyright terms for each research agreement with each sponsor, subject to approval of any non-standard license terms by the Technology Licensing Office, which is responsible for the licensing of intellectual property.

## **Affirmative Action and Support for Diversity**

MIT seeks to foster an atmosphere of civility, collegiality, and mutual respect – one that stimulates and supports all members of the community. It is also committed to ensuring equality of opportunity in education and employment at the Institute. For many years, MIT has sought to expand its efforts to guarantee equality of opportunity in employment and in education and to reduce under-representation of women and minorities in the faculty, staff, and student body.

With regard to employment, the Institute's objective is to achieve a representation of women and minorities that is at least in proportion to their current availability in each category of employment. In accordance with this objective, numerical goals and timetables for increasing representation have been set by each organizational unit and are contained in the Institute's annual Affirmative Action Plan.

The Equal Opportunity/Affirmative Action Office has the fundamental responsibility of working with departments and offices throughout the Institute to expand the effectiveness of equal opportunity. It also monitors affirmative action policies and procedures to assure fair practices and compliance with federal, state, and Institute policies. The office is also responsible for articulating, advocating, and implementing effective plans and practices that supportive MIT' affirmative action and equal opportunity policies and goals. The office is responsible for the development and design of workforce and job group analyses

and mechanisms to evaluate progress toward attaining affirmative action goals. It also serves as a resource for members of the MIT community where equal opportunity or fair employment practices are in dispute.

The Institute works to support the diversity of its community through a number of programs and activities, some already discussed under Standard Six, Student Services, above. Among these is the Committee on Campus Race Relations (CCRR), which was established in 1994 and charged with fostering better race relations on campus. Since its founding, CCRR has worked in a variety of ways to help the community realize the benefits of its cultural and racial diversity. The committee publishes an annual resource guide, which has grown to include essays by students, faculty, and staff and descriptions of relevant resources and academic opportunities at the Institute. In addition, CCRR supports an active grants program, performs educational outreach by offering diversity seminars, and organizes a wide range of public programs. Membership on the committee includes students, faculty, and staff.