

Dean, School of Engineering

The School of Engineering encompasses a community of some of the world's brightest minds and most inventive thinkers—about 38% of the Institute's faculty, over 45% of MIT graduate students, and over 55% of MIT's undergraduate majors. Third-party ratings routinely rank the School of Engineering first in the nation, both at the undergraduate and at the graduate levels.

During AY2005, the School continued efforts in several major initiatives that underscore its commitment to shaping engineering education and research. This report presents selected highlights of significant achievements. It also includes information on new and continuing undertakings, notable events and developments, organizational updates, personnel changes, significant awards, and School statistics. Please refer to the separate *Reports to the President* submitted by the School's departments, divisions, laboratories, centers, and programs for additional information about their activities over the past year.

Key Initiatives

The School continues to address the societal challenges of the 21st century through leadership anchored in technical excellence and innovation. Four years ago, the School identified seven programmatic themes for special emphasis, toward which continuing efforts have been directed:

- Biological engineering
- Information engineering (information, computation, and communication)
- Engineering systems
- Tiny technologies (miniaturization, microtechnologies, and nanotechnologies)
- Emerging technologies
- Innovations in education that include the use of new technologies
- Increasing diversity within the School, particularly among the faculty

As part of the Institute's 2005 strategic planning exercise, the Engineering Council organized itself into four subcommittees to explore critical issues facing the School of Engineering. Each subcommittee was charged with determining what the School's objectives should be, what strategies and tactics would help the School attain its objectives, and how the School could measure or assess the outcomes. The themes for the subcommittees were Globalization, Undergraduate Education, Life Sciences, and Human Health and Energy. The dean also plans to establish a fifth subcommittee to consider how the School can increase diversity in its graduate student population.

Educational Innovation and Diversity

The School of Engineering has distinguished itself as a leader in engineering education, continuing its investment in cross-cutting development and emerging technology educational initiatives on topics such as robot design, modeling and simulation, and biological engineering. It has further supported these areas through the creation

of laboratories such as the Microfluidics Project Lab and the interdepartmental Environmental Sensing Lab.

The following section summarizes several education-related programs and activities, starting with the dean's testimony before Congress on important issues of national math, science, and engineering education. It then highlights efforts undertaken in educational innovation and diversity through new degree offerings and a range of directed activities and programs: Engineering Special Programs, Office of Educational Innovation and Assessment, the Engineering Council for Undergraduate Education, the Office of Faculty Diversity Searches, and Professional Education Programs.

Congressional Testimony

On May 19, 2005, the dean attended a congressional hearing on "Challenges to American Competitiveness in Math and Science" to testify as one of four witnesses before the Subcommittee on 21st Century Competitiveness (Committee on Education and the Workforce), chaired by Rep. Howard P. "Buck" McKeon. In his testimony, he (1) reemphasized the significance of engineering to the nation and to the world; (2) outlined some of today's challenges and how engineering and science education are changing; (3) suggested some areas in which engineering and science education need to change; and (4) offered some recommendations for implementing change at a national level.

New Degree Programs and Professional Education Offerings

During AY2005, the School launched two new degree programs and received approval to develop four others that will begin in the coming fall.

PhD in Computational and Systems Biology

Approved in February 2004, the Institute launched a new graduate program in Computational and Systems Biology in the fall of that year. The program is offered by the [Department of Electrical Engineering and Computer Science](#), the [Department of Biology](#), and the [Biological Engineering Division \(BE\)](#), the program's administrative home. This interdisciplinary program at the interface of biology, engineering, and computer science is the first of its kind in the country.

SB in Chemical-Biological Engineering

Also in fall 2004, the Department of Chemical Engineering (ChemE) launched its new bachelor of science degree in chemical-biological engineering (Course 10-B), MIT's first undergraduate engineering degree with modern molecular biology as its core science. The new major includes broad foundations in both modern chemistry and in biology; the three core chemical engineering sciences of thermodynamics, transport phenomena, and kinetics; and the development of engineering problem-solving skills through analysis and synthesis of solutions to complex problems.

MEng in Manufacturing

In November, the MIT faculty voted to create a new master of engineering degree in the Department of Mechanical Engineering (ME). The 12-month program will comprise

manufacturing physics, manufacturing systems, product design, and elements of business.

SM in Computation for Design and Optimization

In December, the MIT faculty voted to establish an SM program in Computation for Design and Optimization. Residing in the School of Engineering, the interdepartmental program will draw faculty from all departments in the School, as well as from the Department of Mathematics and the MIT Sloan School of Management.

SB in Mechanical and Ocean Engineering

Shortly after the departments of Mechanical Engineering and Ocean Engineering merged on January 1, the faculty of both disciplines unanimously approved the creation of a new SB program. Meeting important goals of the merged department, the new SB is intended to preserve the ocean engineering identity at MIT while attracting a greater number of students to a degree that is also in mechanical engineering.

SB in Biological Engineering

In February, the MIT faculty voted to create a program leading to an SB program in Biological Engineering, the first entirely new curriculum established at the Institute in 29 years. Planned to begin in the 2005–2006 academic year, the program will combine a science foundation in genetics, biochemistry, molecular biology, and cell biology with quantitative, integrative-systems design-oriented engineering principles and approaches.

Engineering Special Programs

The School of Engineering offers several programs: the Minority Introduction to Engineering, Entrepreneurship, and Science (MITE²S), the Saturday Engineering Enrichment and Discovery (SEED) Academy, the Science Technology Engineering and Math (STEM) Program, and the Undergraduate Practice Opportunities Program (UPOP).

Minority Introduction to Engineering, Entrepreneurship, and Science Program

This year the MITE²S program selected 69 high school seniors to participate in its rigorous six-week summer session. The selected students come from 24 states and Puerto Rico. MITE²S 2005 participants will take classes in calculus (1 or 2); physics (1, 2, or 3); chemistry, biology, or biochemistry; a writing-intensive humanities course; and a project-based course (either genomics at the Broad Institute, internet programming, or engineering design). The latter is an integrated, multidisciplinary course previously offered as mechanical engineering design and robotics. The program receives significant support from several sources: Corporations, foundations, MIT alumni, and parents of former participants have made major contributions to the 2005 session. The program endowment in pledges and gifts remains at \$4.97 million. Of the 74 high school students who attended MITE²S in 2004, 20 (27 percent) will attend MIT this year, the smallest returning cohort since the 2000 MITE²S class (19).

Saturday Engineering Enrichment and Discovery Academy

This year marked the beginning of the Saturday Engineering Enrichment and Discovery Academy's fourth year of programming, providing academic enrichment and technical career exploration opportunities to Boston, Cambridge, and Lawrence public high school students. The seven-semester program is designed to strengthen participants' fundamental mathematics, science, and communication skills using an original, hands-on curriculum. In spring 2005, the program graduated its first senior class with a 93 percent college admission rate. This fall, it will enroll 57 students in grades 10, 11, and 12, who will be joined by a new freshman class in spring 2006. The SEED Academy received over \$198,000 in grants from private and corporate foundations during AY2005.

Science Technology Engineering and Math Program

Now in its second year, the Science Technology Engineering and Math Program is a nonresidential, year-round academic enrichment and mentoring program for local public school students entering grades 6 through 9. The STEM Program currently serves 60 Boston and Cambridge middle school students. STEM consists of three components: (1) a five-week summer academic phase at MIT that aims to develop mathematical thinking and problem-solving abilities in preparation for high school "gateway" math and science courses; (2) an academic year mentoring program in which each STEM Program student is paired with an MIT student in a monthly series of structured and unstructured social and academic exchanges; and (3) parent workshops designed to empower parents to advocate for and equip their children for school success.

During AY2005, STEM students participated in a mentoring program with MIT students and participated in workshops on cryptography, game theory, designing environmentally safe automobile engines, and more. This summer, STEM students will take various challenging academic courses such as descriptive geometry, topology, chemistry, physics, vector mechanics and probability and statistics. The STEM Program is a collaboration with the Washington, DC-based Center for the Advancement of Hispanics in Science and Engineering Education and is funded by grants from the Lord Foundation and the Hayden Foundation.

Undergraduate Practice Opportunities Program

The School created the Undergraduate Practice Opportunities Program in 2001 to help better prepare MIT's engineering sophomores for the multifaceted nature of engineering practice. The program consists of two major phases: the IAP Engineering Practice Workshop and the Summer Practice Experience. With assistance from engineering professionals, faculty from the School of Engineering and the Sloan School of Management deliver instruction for the IAP Engineering Practice Workshop on topics including robust engineering design, system dynamics, leadership, and communication. Throughout the spring term, UPOP also sponsors several career development workshops that involve the participation of many MIT alumni.

UPOP initiated its fourth year by increasing its size to 225 students drawn from all eight engineering departments. Even with the program's rapid growth, the 2005 recruiting effort resulted in 91% of UPOP students receiving one or more internship offers, and 88% will engage in internships as part of the Summer Practice Experience. In a survey conducted at the conclusion of the third year of UPOP's five-year, \$2.5 million pilot

funded by the Deshpande Center for Technological Innovation, 97% of UPOP summer employers said they would like to rehire their UPOP intern.

Office of Education Innovation and Assessment and Engineering Council for Undergraduate Education

Through its Office of Education, Innovation and Assessment (EIA) and Engineering Council for Undergraduate Education (E-CUE), which has faculty representation from across all of its departments, the School continued its significant efforts in the general arena of educational innovation. E-CUE's mission is to identify, develop, implement, and disseminate key school-wide concerns and best practices in curriculum, pedagogy, and assessment in engineering education. E-CUE worked closely with the MIT Presidential Task Force for the Undergraduate Educational Commons in studying ways to improve students' undergraduate general education. E-CUE focused on how fundamental concepts and knowledge of engineering methods could become part of MIT's core education for all undergraduates. Based on this work, E-CUE gave a formal, brief introduction to engineering thinking and thoughts on a curriculum and pedagogy to impart this material to all freshmen. The Presidential Task Force has favorably reviewed E-CUE's arguments for an engineering curriculum to become part of undergraduate general education.

Along with its continuing work in supporting evaluation and assessment of undergraduate programs in the School, the EIA works with individual faculty in assessment of individual education innovation grants provided by the School. The EIA is in the process of preparing Accreditation Board for Engineering and Technology (ABET) training materials and sessions for faculty who will be involved in the next ABET accreditation review in 2007. The EIA provides web tools for curriculum and subject assessment, as well as a longitudinal database of senior and alumni survey data, to support departments' continuous education improvement processes. Additionally, the office has worked with departments in writing several grant proposals to the National Science Foundation Curriculum Innovation program.

Office of Faculty Diversity Searches

The Office of Faculty Diversity Searches (OFDS) completed its third year in AY2005. The dean of engineering established OFDS in 2002 as a three-year experiment to determine whether departments would utilize a centralized resource that would provide proactive assistance in identifying and contacting potential candidates outside the usual faculty networks. Although OFDS was established to provide departments with specialized assistance, requests to OFDS from departmental search committees ranged from research and hands-on involvement in the search process to simple reviews of search documents for accuracy and compliance. This utilization pattern seemed to indicate that faculty prefer to conduct searches in the traditional mode. Consequently, as an alternative to OFDS, the School made a decision to develop alternative means to promote and support its diversity initiatives. For example, the School will be examining the diversity pipeline, including recruitment of graduate students.

During AY2005, OFDS partnered with other units across the Institute to strengthen relationships with minority engineering organizations, including Black Alumni/ae of

MIT, which held its 25th anniversary celebration this year, and the National Society of Black Engineers, which held its annual convention in Boston in March. OFDS worked with the Provost's Office and others to develop outreach activities such as the first offering of CONVERGE. This recruitment effort provided an invitational graduate preview weekend in October for college juniors and seniors from underrepresented and underserved groups who have excellent academic records and serious interest in research from 20 colleges in 13 states and Puerto Rico; four students are enrolling at MIT this fall. These efforts in outreach and relationship building succeeded in increasing the involvement of faculty in such activities, tripling the number who participated or presented at these events.

Professional Education Programs

Please refer to the separate report submitted by the Professional Education Programs office for information regarding its activities in support of educational innovation during AY2005.

New and Continuing Undertakings

Energy

In May 2005, President Susan Hockfield announced the establishment of MIT's energy initiative. The School will be a major participant in this multidisciplinary initiative. Professor Robert Armstrong, department head of Chemical Engineering, and Professor Ernest Moniz of Physics and Engineering Systems were appointed cochairs of the Energy Research Council established by President Hockfield and Provost Robert Brown. The council will develop an outline for an Institute-wide response to the global energy crisis by spring 2006. Council members come from all five of MIT's schools, with the following School of Engineering participants: Professor Angela Belcher of BE and the Department of Materials Science and Engineering (DMSE); Professor Vladimir Bulovic of Electrical Engineering and Computer Science (EECS); Professor Gerbrand Ceder of DMSE; associate professor William Green of ChemE; Professor John Heywood of ME; Professor Mujid Kazimi of NSE; Professor Steven Leeb of EECS; and assistant professor Yang Shao-Horn of ME.

Continuing Outreach to Alumni

The School continues its outreach to about 40,000 of the School's alumni and friends through its electronic newsletter, entitled *Engineering Our World*, begun in January 2004. (See <http://mit.edu/engineering/enews/>). The free newsletter describes some of the School's work at the leading edge of technological change and provides news and articles on the School's major initiatives. The 4th through 11th issues published during AY2005 focused on Tiny Technologies, Diversity, Emerging Technologies, an interview with Dr. Susan Hockfield on MIT and Engineering, the benefits of the MIT Campaign to the School, and Information Engineering.

In November 2004, some of our readers completed a short survey, providing their input and opinions about the e-newsletter. Among our findings, most respondents indicated general satisfaction with the informativeness and format of the e-newsletter

and expressed a strong interest in coverage of a variety of areas, with energy and environment of interest to a majority (67% and over 50%, respectively), followed by health issues, robotics, space exploration, ethical issues in engineering, and defense/security (each nearing 50%). Answers to open-ended questions on the survey also provided a wide range of opinions on the e-newsletter, the School of Engineering, MIT as a whole, and even on individuals' relationships with MIT as alumni.

Notable Events and Developments

Among the School's notable events are two competitions: the \$50K Entrepreneurship Competition and the Institute for Soldier Nanotechnologies Design Competition. The continuation of both the Dupont–MIT Alliance and the Singapore–MIT Alliance are to be noted, as well as the receipt of a major grant for marine microbiology research and the expansion of the Deshpande Center's grant program to the entire Institute this year. (Please refer to the separate reports of these organizations for more information regarding their activities in AY2005.)

\$50K Entrepreneurship Competition

In its 16th year, the MIT \$50K Entrepreneurship Competition this year chose as its winner a team called Balico. The company developed a business plan for a wearable vibrotactile balance aid that accurately senses and displays body tilt in order to help prevent falls.

Deshpande Center for Technological Innovation Grant Program

Every fall and spring, the Deshpande Center for Technological Innovation awards \$50,000 Ignition Grants, which fund proof-of-concept explorations, and Innovation Grants ranging from \$50,000 to \$250,000 to help recipients assess and reduce the technical and market risks associated with their innovations. In October, the center announced that its spring 2005 call for proposals to faculty members would be broadened beyond the School of Engineering alone to include those from any area of the Institute. In March, it awarded grants totaling \$600,000 to seven faculty research teams to help them find ways to commercialize their innovations, including a revolutionary new way to weave fabric, a technology that will enable the next generation of flat-panel displays, a new way to mass-produce nanotechnology devices, medical implant coatings for "smart" sequential drug delivery, a way to dramatically accelerate discovery of new drugs, a breakthrough in production of fine chemicals, and a new liquid compound with extraordinary medical properties.

Dupont–MIT Alliance

In May, DuPont and MIT announced the continuation of funding for the DuPont–MIT Alliance (DMA), a research program focused on creating innovative, next-generation materials. Originally funded in 2000 as a five-year, \$35 million investment, the DMA will receive an additional \$25 million from DuPont to continue through 2010. The first five years focused on inventing new materials using biology-based science; in the successive five-year stage, the alliance is expanding to work with nanocomposites, nanoelectronic materials, alternative energy technologies, and next-generation safety and protection

materials. Now a 10-year, \$60 million commitment, DMA is the largest corporate research investment at MIT.

Institute for Soldier Nanotechnologies Design Competition

In February, MIT's Institute for Soldier Nanotechnologies (ISN) held its second annual Soldier Design Competition, awarding \$16,000 in prizes to six winning teams for their designs of new devices, clothing, or other technologies to aid the American soldier. This year's first-place winner featured a battery scavenger system for recovering the power remaining in partially depleted batteries. ISN's research focuses largely on materials and devices that will better protect the soldier of the future from ballistic, chemical, biological, and nuclear threats.

Moore Foundation Gift

The School's commitments to environmental sciences and engineering and to research and education that cross conventional disciplinary boundaries to address complex problems have received substantial support through a gift made by the Gordon and Betty Moore Foundation. In September, the foundation announced the award of over \$10 million in funding over five years through its new marine microbiology initiative to two engineering professors: (1) Lee and Geraldine Martin professor of environmental studies Penny Chisholm of the Department of Civil and Environmental Engineering (CEE) and (2) Professor Ed DeLong, who holds positions in both that department and BE. Professors Chisholm and DeLong were among four Moore Foundation investigators in marine science chosen nationally.

Singapore–MIT Alliance

A second phase of the Singapore–MIT Alliance (SMA)—an alliance among MIT, the National University of Singapore (NUS), and Nanyang Technological University (NTU) established in 1998—was formally announced at the 5th SMA Symposium held in Singapore in January. SMA-2, which will begin July 1, will introduce four new graduate programs: Advanced Materials for Micro- and Nano-Systems, Computational Engineering, Computation and Systems Biology, and Manufacturing Systems and Technology. In three of the SMA-2 programs, students will be able to earn a dual degree: a master's degree from MIT and a master's from either NUS or NTU, or a master's degree from MIT and a PhD degree from either NUS or NTU.

Organizational Reviews and Changes

Nuclear Science and Engineering

At the MIT Faculty meeting held in October, the Department of Nuclear Engineering presented a proposal to change its name to the Department of Nuclear Science and Engineering (NSE) to more accurately reflect its mission. Endorsed by the Engineering Council and the Academic Council, the proposal was approved by the Executive Committee of the Corporation.

Ocean Engineering/Mechanical Engineering

This year, the School concluded the process of merging the Department of Ocean Engineering with another department as a means to preserve the Institute's long-standing position of leadership in teaching and research in ocean engineering. Following a lengthy process that involved extensive deliberations with members of the MIT Ocean Engineering and Mechanical Engineering communities, the Visiting Committees of both departments and other external communities, committees, and individuals, the Executive Committee of the Corporation approved in December the merger of the two departments. The merger became effective on January 1, 2005.

Personnel

As of September 2004, Professor Duane S. Boning became associate department head (Electrical Engineering) of the Department of Electrical Engineering and Computer Science.

Mechanical Engineering professor Jung-Hoon Chun was appointed director of the Laboratory for Manufacturing and Productivity, effective January 1.

Having served as chair-elect of the Faculty in AY2005, Professor Lorna Gibson, the Matoula Stavros Salapatas professor of materials science and engineering, has become chair of the Faculty as of June 15.

Effective September 2004, Professor W. Eric L. Grimson became associate department head (Computer Science) of EECS.

Professor John Guttag stepped down at the end of July as department head of EECS to take a sabbatical leave before returning to full-time teaching and research. He had served in the leadership of the department for more than a decade as associate department head and then department head.

The holder of dual appointments in the Department of Aeronautics and Astronautics (AA) and in the Engineering Systems Division (ESD), Professor Daniel Hastings, professor of engineering systems, became the director of ESD as of July 1, 2004.

Professor Barbara Liskov, Ford professor of engineering, stepped down as associate department head of EECS effective August 31, 2004.

With the merger of the departments of Mechanical Engineering and Ocean Engineering, Professor Nicholas M. Patrikalakis, Kawasaki professor of engineering, formerly of Ocean Engineering, was named as associate department head of Mechanical Engineering, effective January 1, 2005.

Professor Rafael Reif, Fairborz Maseeh professor of emerging technology, was named department head of EECS, effective September 1, 2004.

With the merger of the departments of Mechanical Engineering and Ocean Engineering in January, Professor Henrik Schmidt has stepped down from the position of acting head of ocean engineering, having served since September 2002.

Professor Charles Vest stepped down from his service as the 15th president of MIT effective December 6, 2004, and began a sabbatical leave from his position as a member of the Department of Mechanical Engineering.

Awards

Each year, faculty members in the School of Engineering receive numerous honors in recognition of their research and service, many offered by professional societies and the faculties' professional communities. This year was no exception. The reports of the School's departments, divisions, laboratories, centers, and programs make note of many of these awards. Several especially notable awards and School-based awards deserve additional mention here.

The National Academy of Engineering elected to membership Shafrira Goldwasser, the RSA professor of computer science and engineering, "for contributions to cryptography, number theory and complexity theory, and their applications to privacy and security."

Two MIT engineers won 2004 MacArthur Fellowships, commonly known as "genius grants." Angela Belcher, associate professor of materials science and engineering and biological engineering, was honored for her work in coaxing viruses to manufacture microelectronic devices. Edgerton Center instructor and mechanical engineer Amy Smith won for inventing inexpensive technologies to solve problems in developing countries.

One of the three MIT professors elected to the National Academy of Sciences is in the School of Engineering: Butler W. Lampson, adjunct professor of electrical engineering and computer science. Along with 72 other new members, Professor Lampson was cited for his distinguished and continuing achievements in original research.

Robert Langer, Germeshausen professor of chemical and biomedical engineering, was named Institute Professor. He also shared the \$1 million 2005 Dan David Prize for his pioneering work in tissue engineering and biomaterials and won the \$500,000 Albany Medical Center Prize in Medicine and Biomedical Research, America's top prize in medicine.

Subra Suresh, the Ford professor of engineering and head of the Department of Materials Science and Engineering, was elected an associate fellow of the Third World Academy of Sciences for "broad, innovative and pioneering contributions to the understanding of the mechanical behavior of materials."

Edward DeLong, professor of CEE, and John Guttag, professor of EECS, were two of the five MIT faculty to be awarded the distinction of fellow by the American Academy of Arts and Sciences this year.

James G. Fox, DVM, professor of biological engineering and director of the Division of Comparative Medicine, was one of two MIT faculty elected to the Institute of Medicine. Members are selected for their major contributions to health and medicine or related fields.

Four of the six MIT professors named fellows of the American Association for the Advancement of Science (AAAS) hold appointments in the School of Engineering: Elias Gyftopoulos, professor emeritus of NSE; Bora Mikic, professor of ME; James Fujimoto, professor of EECS; and Gerald Jay Sussman, the Matsushita professor of electrical engineering. AAAS fellows are recognized for helping to advance science applications that are deemed scientifically or socially distinguished.

Michael Stonebraker, adjunct professor of EECS, received the 2005 IEEE John von Neumann Medal “for contributions to the design, implementation and commercialization of relational and object-relational database systems.”

Tim Berners-Lee, a senior research scientist at the Computer Science and Artificial Intelligence Laboratory who is credited with inventing the World Wide Web, was honored for lifetime achievement in receiving the 2005 Commonwealth Award for Mass Communications.

Professor Vladimir Bulovic of EECS and Professor Martin Culpepper of ME were named to this year’s [TR100](#), a list of top young innovators in technology published annually by *Technology Review*.

Three engineering faculty were among the TR35, *Technology Review’s* compilation of the 35 best innovators worldwide under age 35: Regina Barzilay and Samuel Madden, both assistant professors in EECS, and Francesco Stellacci, assistant professor in DMSE.

David J. Perreault, the Emanuel E. Landsman career development associate professor of electrical engineering and computer science, received the 2005 Ralph R. Teetor Educational Award at the Society of Automotive Engineers International’s 2005 World Congress. The Teetor award annually recognizes outstanding engineering educators and gives them an opportunity to become acquainted with the automotive and aerospace industries.

Institute and School Awards

Professor Dennis Freeman of EECS received the Amar Bose Award for Excellence in Teaching. The award, established in 1989 by the School to recognize outstanding contributions to undergraduate education, is given annually to an Engineering faculty member whose teaching contributions over an extended period are characterized by dedication, care, creativity, and inspiration to students and colleagues.

Assistant professor Karen Willcox of AA received the Junior Bose Award. The award, established in AY1996, recognizes teaching excellence by junior Engineering faculty.

Associate professor Erik Demaine of EECS was one of two MIT faculty to receive the Harold E. Edgerton Faculty Achievement Award. The award recognizes exceptional distinction in teaching and research or scholarship among junior members of the MIT faculty.

Two of the Graduate Student Council Graduate Teaching Awards for excellence in teaching a graduate-level course, given each year to one professor and/or teaching assistant from each school, were awarded this year to assistant professor Jacopo Buongiorno and graduate student Paola Cappellaro, both of NSE. Professor Jerome J. Connor of CEE received the Institute's Frank E. Perkins Award for excellent advising of graduate students.

Associate professor Rahul Sarpeshkar of EECS, assistant professor Kimberly Hamad-Schifferli of ME, assistant professor Anette Hosoi of ME, and Professor George Apostolakis of NSE were awarded Ruth and Joel Spira Awards for Distinguished Teaching. These awards are made possible by a gift from Ruth and Joel S. Spira to acknowledge "the tradition of high-quality engineering education at MIT." Awards are made each year to one faculty member in each of the three departments.

James L. Sherley, an associate professor in BE, was among the winners of the 2005 Dr. Martin Luther King Leadership Awards, given for academic, research, religious, and/or secular service to the community.

Awards Received by Engineering Students

EECS graduate student Erich Caulfield was among the winners of the 2005 Dr. Martin Luther King Leadership Awards, given for academic, research, religious, and/or secular service to the community.

Emily Schwartz, a senior in AA, was one of only 12 Americans to be awarded the Winston Churchill Scholarship this year. Churchill awards pay for the winners to live abroad for a year to participate in educational or research programs and to help them gain a better understanding of people from other nations and cultures. Schwartz also received the Association of MIT Alumnae (AMITA) Senior Academic Award for senior women who have demonstrated academic excellence through coursework and related activities at MIT.

Two of the four MIT students to be awarded Fulbright Fellowships this year are in the School of Engineering: Janine Waliszewski, a graduate student in CEE, and Daniel Stein, a senior with a double major in music and EECS. Fulbright fellowships were established in 1946 to increase mutual understanding between people of the United States and other countries.

Eight juniors and three sophomores from the School of Engineering were selected as Burchard Scholars in the School of Humanities, Arts, and Social Sciences (SHASS). The awards, named after the first SHASS dean, John Ely Burchard, are given to students who demonstrate unusual abilities and academic excellence in SHASS areas. The eight juniors are Anna Bershteyn (DMSE); Neera Jain, Brian Keegan, Jessica Rhee, and Frances

Roberts (ME); Ingrid Lawhorn (ChemE); and Adjoa Poku and Christopher Suarez (EECS). The three sophomores are Louis Fouché (ChemE), Charles Jernigan (EECS), and Cynthia Lin (ME).

Edmond Lau of EECS received the Henry Ford II Scholar Award, given to a senior in the School of Engineering who has attained the highest academic record at the end of the third year and who exhibits exceptional potential for leadership in the profession of engineering and in society.

Two Engineering students received Karl Taylor Compton Prizes for achievements in citizenship and devotion to the welfare of MIT: Eric Chemi, a senior in EECS, and Sriram Krishnan, a graduate student in ME.

The Frederick Gardiner Fassett Jr. Award is given to InterFraternity Council members who have demonstrated the qualities of spirit, dedication, and service in furthering the ideals of MIT fraternity brotherhood and sisterhood. This year, Robin Davis, a senior in DMSE, and Joshua Grochow, a senior in EECS, received the awards.

Kevin K. Miu of ME received one of three Barry Goldwater Scholarships given to MIT students this year. The award honors students who exhibit outstanding potential and intend to pursue careers in mathematics, the natural sciences, or those engineering disciplines that contribute significantly to the technological advances of the United States.

Benjamin Vandiver, a graduate student in EECS, was awarded the Goodwin Medal, a prize given to a graduate student whose teaching is “conspicuously effective over and above ordinary excellence.”

The Albert G. Hill Prize is awarded to minority juniors or seniors who have maintained high academic standards and made continued contributions to the improvement of the quality of life for minorities at MIT. Alia Burton, a senior in CEE, and Cecilia Henriquez, a senior in EECS, received awards. A former vice president for research, Dr. Hill was an early champion of equal opportunity at MIT.

The Howard W. Johnson Award for the male senior athlete of the year went to Ben Schmeckpeper of EECS.

The John S.W. Kellett '47 Award for a commitment to creating a more welcoming environment at MIT, including but not limited to improving the experience of lesbian, bisexual, gay, transgendered, and questioning individuals, went to Ajit Dash, a doctoral candidate in BE.

One of the Malcolm G. Kispert Awards for the male and female senior scholar-athletes of the year went to Regina Sullivan, a senior in AA.

The Ronald E. McNair Scholarship Award recognizes black undergraduates who have demonstrated strong academic performance and who have made considerable

contributions to the minority community. The award was created by the Black Alumnae of MIT in honor of Dr. Ronald McNair (PhD 1977), who died in the explosion of the space shuttle *Challenger*. Six of the awards this year went to Engineering students, all seniors: Jordan McRae and Richard-Duane Chambers of AA, Veronica Andrews and Shauntel Poulson of ChemE, Nduka Enemchukwu of DMSE, and Saundra Quinlan of ME.

This year, two graduate students in the Engineering Systems Division's Leaders for Manufacturing Program were named Siebel Scholars: Vik Sahney and Aaron Raphael. The Siebel Scholars program provides scholarships in recognition of students who have demonstrated academic and leadership excellence in the first year of their graduate studies at the world's leading graduate schools of business and computer science.

Two Engineering students received William L. Stewart Jr. Awards, which recognize contributions by an individual student or student organization to extracurricular activities and events during the preceding year: William Fowler, a senior in CEE, and Harel Williams, a junior in EECS. The awards are given in memory of William L. Stewart Jr., an alumnus and member of the Corporation who showed deep interest in student life at MIT.

John Pope, a senior in EECS, won this year's Priscilla King Gray Award for Public Service. The award is given to an undergraduate exceptionally committed to public service at MIT and its surrounding communities.

Awards to Engineering Staff

Assistant dean of engineering Sheila Kanode received the Gordon Y. Billard Award for special service of outstanding merit performed for the Institute.

This year, the School continued the Rewards and Recognition program it launched in 2001 to recognize the achievements of the School's dedicated staff. In April, the School presented 13 Infinite Mile Awards at its fifth annual School-wide celebration of excellence. Rachel N. Cohen of the Laboratory for Information and Decision Systems, Peter B. Houk of the MIT Glass Lab (DMSE), Melanie L. Miller of ChemE, Darlene K. Ray of BE, and Kathleen M. Sullivan of EECS received awards for excellence. Rita M. Demeo of BE received an award for diversity and community. Lisa A. Bella and Peggy Carney of EECS, Carolyn Collins of the Microsystems Technology Laboratory, Esther Greaves Estwick of the Administrative Services Organization, Jennifer K. Leith of AA, Stephen W. Rudolph of CEE, and Peter W. Stahle of NSE received awards for sustained excellence.

Statistics for AY2005

Undergraduate Enrollment

1,679 students

40% women

21% underrepresented minorities

Graduate enrollment

2,825 students
668 women
179 underrepresented minorities

Degrees awarded

593 bachelor's degrees
798 master's and MEng degrees
286 PhD, ScD, and professional engineering degrees

Faculty

241 professors
63 associate professors
69 assistant professors

Thomas L. Magnanti
Dean, School of Engineering
Institute Professor

More information about the School of Engineering can be found online at <http://mit.edu/engineering/>.