

Dean, School of Engineering

The mission of the [MIT School of Engineering](#) is to educate the next generation of engineering leaders, to create new engineering and scientific knowledge, and to serve society. By providing innovative ideas and practical technologies and educating the students who will help create solutions to the greatest technological and social problems of the 21st century, the MIT School of Engineering fulfills its obligation as a world-leading institution.

The School of Engineering's many academic departments, institutes, programs, centers, and laboratories, as well as its wide array of graduate programs, encompass a community of some of the world's most innovative thinkers. Approximately 37% of the Institute's faculty, 48% of graduate students, and 74% of the declared undergraduate majors collaborate in the School's 17 undergraduate degree programs and 88 graduate programs (30 of which lead to master's degrees). The School's sponsored research expenditures were approximately \$394 million in FY2016, accounting for 57% of the on-campus total. The achievements of the faculty, staff, and students in the School's departments, laboratories, centers, and programs are extensive and impressive. Separate reports highlight the activities and accomplishments of people in each of these units during the past year.

The Dean's Office and the School of Engineering experienced some transitions in leadership and several new appointments in 2015–2016.

- In July 2015, Paula T. Hammond was named head of the Department of Chemical Engineering.
- In September 2015, Dennis Whyte was named head of the Department of Nuclear Science and Engineering. He remains the director of the Plasma Science and Fusion Center.
- In May 2016, Mary Markel Murphy was named an assistant dean in the School of Engineering; her responsibilities include finance, administration, and human resource issues within the School.

The School of Engineering continues to work diligently to maintain the excellence of its faculty. This year, 13 members of the School's faculty were granted tenure, with appointments in seven of the School's eight academic departments. As a result of this year's faculty searches, 13 candidates, including five women, accepted faculty appointments.

Awards and Honors

Every year, members of the MIT engineering community receive numerous honors in recognition of their research, scholarship, service, and excellence. The following is a small sample of the honors and awards garnered by the School of Engineering in AY2016.

- Charles E. Leiserson of the Department of Electrical Engineering and Computer Science (EECS), Emanuel M. Sachs of the Department of Mechanical Engineering,

and Grant H. Stokes from Lincoln Laboratory were elected to the National Academy of Engineering.

- Arup K. Chakraborty of the Institute for Medical Engineering and Sciences (IMES) was elected to the National Academy of Sciences.
- Sidney Yip, professor emeritus in Nuclear Science and Engineering, was one of seven “Innovators over 70,” as announced in MIT Technology Review.
- Sangeeta N. Bhatia of IMES and EECS, and Angela M. Belcher of the Department of Materials Science and Engineering and the Department of Biological Engineering, were both named fellows of the National Academy of Inventors.
- Tonio Buonassisi and Cullen Buie, both of the Mechanical Engineering, and William Tisdale of the Department of Chemical Engineering, were honored with the 2016 Presidential Early Career Awards for Scientists and Engineers, the highest honor bestowed by the US government on science and engineering professionals in the early stages of their independent research careers.
- James Swan of Chemical Engineering and Konstantin Turitsyn of Mechanical Engineering were winners of the 2016 National Science Foundation Faculty Early Career Development (CAREER) Awards.
- Feng Zhang of Biological Engineering and the Department of Brain and Cognitive Sciences (BCS) received the 2016 Canada Gairdner International Award—Canada’s most prestigious scientific prize—for his role in developing the CRISPR-Cas9 gene-editing system.
- James J. Collins of IMES and Biological Engineering was appointed a 2016 Allen Distinguished Investigator for his work on synthetic biology approaches to antimicrobial resistance.
- Dara Entekhabi of the Department of Civil and Environmental Engineering (CEE) was selected to receive the 2015 Hydrologic Sciences Award by the American Geophysical Union.
- Kwanghun Chung of IMES, Chemical Engineering, and BCS received a 2016 McKnight Technological Innovations in Neuroscience Award.
- Richard de Neufville of the Institute for Data, Systems, and Society was honored at a White House reception celebrating the 50th anniversary of the White House Fellows program.
- Jeffrey Grossman of Materials Science and Engineering and Srinivas Devadas of EECS were named MacVicar Faculty Fellows.
- Edward S. Boyden of Biological Engineering, the Program in Media Arts and Sciences, and BCS, won a BBVA Foundation Frontiers of Knowledge Award in biomedicine.
- G. David Forney of EECS and the Laboratory for Information and Decision Systems received the 2016 Institute of Electrical and Electronics Engineers (IEEE) Medal of Honor—the highest award bestowed by the IEEE.

- Areg Danagoulian of Nuclear Science and Engineering was selected for the IEEE Nuclear and Plasma Sciences Society Radiation Instrumentation Early Career Award.
- Markus Buehler of CEE was awarded the 2015 Foresight Institute Feynman Prize in theoretical molecular nanotechnology.
- Sow-Hsin Chen of Nuclear Science and Engineering was awarded the 2015 Guiner Prize, a lifetime achievement award for major breakthroughs in the field of small-angle scattering.
- Maria Yang of Mechanical Engineering received the Bose Award for Excellence in Teaching, given to a faculty member whose contributions have been characterized by dedication, care, and creativity.
- Polina Anikeeva of Materials Science and Engineering received the Junior Bose Award for being an outstanding contributor to education from among the junior faculty of the School of Engineering.
- Luca Daniel and Vinod Vaikuntanathan, both of EECS, Kenneth Kamrin of Mechanical Engineering, and Michael Short of Nuclear Science and Engineering received Ruth and Joel Spira Awards for Excellence in Teaching from the School of Engineering.
- Duane Boning of EECS received the Capers and Marion McDonald Award for Excellence in Mentoring and Advising from the School of Engineering. The award is given for demonstrating a lasting commitment to personal and professional development.

Educational Activities

MIT Sandbox Innovation Fund Program

In January, the Dean's Office in the School of Engineering launched the MIT Sandbox Innovation Fund Program, an Institute-wide educational program to support student-initiated ideas. The purpose of Sandbox is to provide undergraduate and graduate students with tailored educational experiences, mentoring, and up to \$25,000 in funding.

MIT Sandbox collaborates with existing campus organizations such as the Martin Trust Center for MIT Entrepreneurship, the Venture Mentoring Service, the Gordon-MIT Engineering Leadership Program, StartMIT (see below), and others. The program is designed to be flexible and synergistic, and it supports students throughout their time on campus. Accepted proposals are accompanied by milestones and/or co-curricular requirements tailored to the needs of the individual student or team. All participants are matched with mentors, leveraging the alumni and non-alumni networks in the area.

The initiative has been well received by students, with 52 teams participating in the pilot fall cohort and 112 teams in the spring/summer cohort. MIT Sandbox provided more than \$400,000 in funding to teams and drew participants from across the Institute.

Sandbox's executive director is Jinane Abounadi, an MIT alumna who served as housemaster of MIT's MacGregor House for 20 years. Abounadi previously worked at two Boston-based startups and conducted systems research as a PhD student and lecturer at MIT in the 1990s.

SuperUROP

In 2012, the Advanced Undergraduate Research Opportunities Program (or SuperUROP) was launched in the Department of Electrical Engineering and Computer Science. SuperUROP is a specialized version of the Undergraduate Research Opportunities Program that involves a yearlong opportunity for students to tackle challenging problems and conduct publication-worthy research. Students are paired with a faculty member or MIT researcher and take a two-semester course on research methodology and best practices. At the end of the year, student projects evolve into graduate theses, startup plans, or industry positions.

After four years of steady growth in EECS and broadening participation by other academic departments, SuperUROP was formally adopted as a School-wide program in AY2016.

StartMIT

During the 2014 Independent Activities Period, EECS initiated Start6, a three-week entrepreneurship training program for MIT students. Start6, renamed StartMIT in AY2016, offers practical workshops to help students with the nuts and bolts of starting a company and interacting with the world of commerce. Areas of training include how to perfect a product pitch, how to fund a company—from bootstrapping (relying on support from yourself, family, and friends) to venture capital—and how to split equity among company founders. Participants also receive advice from seasoned entrepreneurs, angel investors, and high-level corporate executives. During the final two days of the program, student groups are required to deliver brief pitches for commercial ideas formed during the course.

Since its inception, more than 100 projects have been developed through StartMIT. In AY2016, StartMIT was also formally adopted as a School-wide program.

Communications and Development

Academic Year 2016 saw significant changes in the communications efforts of the School. The Dean's Office created and filled two new staff positions to support communications efforts: a director of media relations was hired in November and a staff writer started in April. Both positions have made an immediate and marked impact on the School's ability to communicate its vision and priorities.

Over the course of the year, the director of media relations and director of communications—in close consultation with the dean—engaged in general strategic planning around messaging and communications within the School. The emphasis was on improving coordination among departments, labs, and centers, and on streamlining that coordination through MIT's central communications operations. Since AY2016 saw a number of transitions in the Institute's central communications offices (specifically

the creation of a new Vice President for Communications role with subsequent reorganizations), these efforts were well timed.

School-based resource development activities had an especially productive year in AY2016 with a fundraising total of more than \$100 million—the highest in the School’s history. Led by the assistant dean for development, the development officers based in academic departments within the School of Engineering led and supported a range of new programs, activities, and engagement opportunities for School alumni and friends. These efforts were fundamental not only to the unprecedented fundraising totals, but to the successful launch of the MIT Campaign for a Better World.

Staff from both communications and development remained in close collaboration during AY2016:

- In collaboration with the National Academy of Engineering, the School of Engineering hosted the annual meeting of the academy on campus in April. School staff created programming for, promoted, and managed all aspects of the event.
- Working with staff, faculty, and students from across the Institute, the School supported the MIT Open House in April, which drew approximately 40,000 visitors from around the region.
- School staff played a significant role in supporting and preparing for the launch of the MIT Campaign for a Better World in May.

Statistics for 2015–2016

Undergraduate Enrollment

- 2,447 declared majors
- 1,137 women
- 215 international students
- 21% underrepresented minorities

Graduate Enrollment

- 3,283 students
- 942 women
- 1,428 international students
- 7% underrepresented minorities

Degrees Awarded

- 786 bachelor's degrees
- 760 master's degrees
- 334 doctoral degrees

Faculty

- 262 full professors
- 37 tenured associate professors
- 24 untenured associate professors
- 55 assistant professors

Ian A. Waitz

Dean

Jerome C. Hunsaker Professor of Aeronautics and Astronautics