Office of Engineering Outreach Programs

The Office of Engineering Outreach Programs (OEOP), in the School of Engineering, runs academic enrichment programs that reach over 500 middle and high school students locally and nationally. These programs are offered free of charge and focus on exposing students to engaging and challenging curricula in engineering and science. OEOP's goal is to provide traditionally underserved students with multiple entry points to academic and professional careers in the science, technology, engineering, and mathematics (STEM) disciplines.

OEOP's core programs support MIT's mission to sponsor K–12 programs that foster unique learning experiences for students and help build a pipeline of diverse and highly qualified scientists and engineers. The core programs include: Minority Introduction to Engineering and Science (MITES); Engineering Experience at MIT (E2@MIT); MIT Online Science, Technology, and Engineering Community (MOSTEC); Saturday Engineering Enrichment and Discovery (SEED) Academy; STEM; MIT Science of Baseball (MSBP); and Confronting Obstacles and Realizing Excellence (CORE).

Raising over 80–90 percent of its funding, OEOP makes significant efforts to maintain its financial resources and support. In close cooperation with the dean of engineering and MIT development officers, OEOP secures funding for its programs from a broad range of corporations, foundations, MIT alumni, OEOP alumni, and other individuals.

The following are some of OEOP's most notable achievements and highlights for AY2012:

- The new online national outreach program MOSTEC, for 64 talented high school seniors, was piloted.
- Seventy-nine percent of students who applied to MIT from the 2011 MITES program were accepted.
- All students who graduated from the 2012 SEED Academy were accepted to college.
- In fall 2011, the fourth SEED Academy student was admitted to MIT.
- Twenty high school students successfully completed the 2011 CORE program—a 54 percent increase in enrollment over the 2010 program.
- In 2011, over 120 middle school students participated in STEM and MSBP.
- Ten students from STEM and MSBP were accepted to the 2012 spring session of SEED Academy.
- Twenty-four STEM and MSBP alumni participated in the third year of the ninth grade cohort program, which helps students make a successful transition to high school.

High School Programs

Minority Introduction to Engineering and Science Program

MITES participants take courses in calculus, physics, and life science (chemistry, biology, or biochemistry); a writing-intensive humanities course; and a project-based course (genomics at the Broad Institute, digital design, engineering design, electronics, or architecture). In 2012, MITES selected 80 high school seniors, from a pool of over 1,700 applicants, to participate in its rigorous six-week summer session. The selected students come from 24 states and Puerto Rico. Of the 80 students who attended MITES in 2011, 71 applied to MIT, 43 (61 percent) were accepted, and 34 (79 percent of the 43) will attend as members of the class of 2016. MITES students who attend MIT are consistently strong academic performers within their cohorts, graduating at a rate 12 percentage points higher than that of other minority students at the Institute.

Engineering Experience at MIT Program

In order to serve more students from the growing MITES applicant pool, in 2011 OEOP provided 64 promising high school seniors with E2@MIT, a one-week, residential summer enrichment program. Students from the MITES applicant pool with high academic potential and a strong interest in science and engineering were selected to participate in the program the summer before their senior year in high school. During E2@MIT, students completed a short project course in an engineering field, while attending admissions and financial aid sessions; touring labs; meeting MIT faculty, students, and alumni; and participating in social events. In 2011, the engineering courses focused on aerospace engineering, mechanical engineering, electronic, genomics, and computer science.

MIT Online Science, Technology, and Engineering Collaboration

In order to serve more students from the growing MITES applicant pool, in 2011 OEOP provided another group of 64 promising high school seniors with an enriching online experience that extended from fall into spring as they submitted their college applications. Via this online community, students were exposed to MIT's faculty and staff, were provided with admissions and financial aid tips, and facilitated discussions about science and engineering research. By being part of MOSTEC, students also shared their own research and were offered mentorship opportunities.

Saturday Engineering Enrichment and Discovery Academy

The SEED Academy, an academic enrichment and technical career exploration program for Boston, Cambridge, and Lawrence public high school students, recently completed its tenth year. The seven-semester program is designed to strengthen participants' fundamental mathematics, science, and communication skills using an original, hands-on curriculum. In 2012, the SEED Academy graduating class of 20 students was accepted to a number of prestigious universities, including MIT, Harvard University, Boston University, Boston College, Worcester Institute of Technology, and University of Massachusetts–Lowell.

Confronting Obstacles and Realizing Excellence Program

CORE is a two-week summer program focused on increasing the quantitative reasoning skills of Boston area high school students. Its premise is that all students can excel in mathematics and scientific reasoning if they are provided with a fundamental core of mathematical knowledge. CORE consists of an intensive mathematics course covering the major topics of basic computation, conversion and transformation, estimation and approximation, ratios and proportions, unit analysis, and variable manipulation and equalities. In 2011, 20 high school students successfully completed CORE.

Middle School Programs

Science Technology Engineering and Mathematics Program

STEM is a non-residential, year-round academic enrichment and mentoring program for local public school students in grades six through nine. STEM consists of three components: a five-week summer academic phase on the MIT campus to prepare students for "gateway" high school mathematics and science courses, an academic-year mentoring program that pairs each STEM participant with an MIT student, and workshops to empower STEM parents to advocate for and equip their children for academic success. In 2011, 92 students from Boston, Cambridge, and Lawrence public schools completed the summer academic phase. All these students were invited to participate in the OEOP Middle School Mentoring Program along with students who participated in MSBP. The mentoring program supported 80 students from STEM and MSBP during AY2012.

MIT Science of Baseball Program

After five summers, MSBP has provided over 100 eighth-grade boys from Boston and Cambridge public schools with an innovative four-week summer enrichment program. The program is geared toward underserved youth who may not be achieving high marks in mathematics and science, but are interested in baseball and thus demonstrate potential to benefit from a program combining mathematics and science lessons with baseball skills. MSBP integrates an experiential curriculum with academic topics. Throughout the program, students work on their baseball skills as they develop an understanding of the mathematics, science, and culture behind the sport and synthesize all these elements into the strategy of the game through the study of statistics and probability. Last year, the 30 boys who completed the 2011 session of the program were also invited to participate in the OEOP Middle School Mentoring Program during the academic year.

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