Fifty high school seniors from across the country got a hands-on introduction to engineering last month through a camp offered by the Program for Mastery in Engineering Studies (PROMES) in the University of Houston Cullen College of Engineering.

The college's MESET camp (Mentoring & Enrichment Seminar in Engineering Training) was held at UH from June 3 through June 15. The program targets high school students from groups traditionally underrepresented in the field of engineering who have demonstrated an interest and aptitude for math and science.

Gaining acceptance to the camp is itself a challenge: about 550 applicants vied for the program's 50 spots this year. Of those who were accepted, 43 were either African-American or Hispanic, and 24 were female.

According to Dr. Kathy Zerda, the program's director and an instructional assistant professor at the college, the camp teaches students about basic engineering principles and the different disciplines within engineering. It is designed to be as interactive and engaging as possible. While students spend some time in a traditional classroom setting, most of their energy is spent applying what they learn in class to hands-on projects.
They learn about the physics of roller coasters in class, and then they’re turned loose to design and build their own roller coaster using popsicle sticks and glue guns with a marble as the car, said Zerda. They’re given design criteria to meet and they have to keep this marble in suspension on the roller coaster for 10 seconds exactly, so it is a very stringent project.

In addition to the roller coaster project, students conducted a robotics experiment project and competed in a quiz game that tests their knowledge of engineering principles, the different fields of engineering and effective study habits.

During the program, the camp’s participants also took several field trips to see science and engineering being put to use. Field trip destinations this year included United Space Alliance, NASA’s Johnson Space Center, the ExxonMobil refinery in Baytown, Chevron’s technology labs and the Hewlett-Packard facility in northwest Houston.

Exposing these students to the various facets of engineering, Zerda said, helps them get a better idea of what they would like to study after high school, while the program’s college-like environment—students sleep in dorms, eat in the cafeteria and stay up late to complete their projects—gives them a feel for college life.

As an added bonus, said Zerda, MESET introduces many of these high-achieving students to the University of Houston for the first time.

“It’s a good recruiting opportunity for us,” she said. “There were students there who didn’t have UH on their radar, but do now because of the experience they had at this camp.”

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