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# STEM sell

Nonprofits grow programs to get students excited about careers in science, technology

By BERNADETTE STARZEE

Next weekend, teams from 51 high schools will square off against each other in the Long Island Regional FIRST Robotics Competition. The teams will commandeer robots – which each team worked together to design and build over a six-week period – to defend their castle while attacking opponents' castles.

Now in its 17th year, the FIRST (For Inspiration and Recognition of Science and Technology) Robotics Competition is one of the oldest and largest initiatives to get Long Island students excited about careers in STEM (science, technology, engineering and mathematics) fields.

However, though the FIRST Robotics Competition has grown steadily since it was first held on Long Island, and interest in programs promoting STEM careers is on the rise, the organizers of the local FIRST Robotics Competition have increasingly struggled to secure funding.

"We have to raise \$225,000 every year to make it work," said Joseph Sicinski, vice chairman of the regional event and vice president of program development for School-Business Partnerships of Long Island, an all-volunteer organization based in Kings Park that produces the event. "We used to get \$100,000 in funding from New York

State, but that disappeared about five years ago. We have to rely on Long Island companies to donate funds, and since a lot of industry has left the Island, it's gotten harder, because this minimizes the resources we have to work with."

About 1,300 students participate in the local FIRST Robotics Competition, held each year at Hofstra University in Hempstead. Each team receives a kit of parts, and the students work with mentors from local companies to design and build a 130-pound robot to perform a set

**'STUDENTS DEVELOP TECHNOLOGICAL LITERACY BY GOING THROUGH THE DESIGN CYCLE AND GAINING KNOWLEDGE TO SOLVE REAL-LIFE PROBLEMS.'**

of tasks related to a given theme each year. In the 2016 competition, scheduled for April 1-2, the theme is "First Stronghold," which is based on a medieval castle-conquering and battle-strategy game. Robots gain points for their team by incapacitating defenses and catapulting boulders through goals in the



Photo by Bob Gigliano

**FRANK LANGRO: Festo Corp. donates funds and robot kit parts to the FIRST Robotics Competition.**

opposition's tower.

Sicinski has been involved with the competition since it came to Long Island 17 years ago.

"Students develop technological literacy by going through the design cycle and gaining knowledge to solve real-life problems, communicating their ideas and managing their time and resources while developing leadership skills," said Sicinski, who retired as president of Transglobal Services, a Long Island-based engineering services firm supporting the aerospace industry that had 1,200 employees before it was absorbed by a Texas company. "We see it as a valuable program to develop the future workforce not only of Long Island but of America."

Winners from the Long Island competition advance to regional and nation-

al contests.

The local event has many long-standing sponsors, including Hofstra University, which makes its David Mack Sports & Exhibition Complex available for the event and involves its upper-class engineering students, who help out as judges and advisers.

"This is a wonderful opportunity to give back to the community and to develop partnerships with local high schools," said Sina Rabbany, acting dean of Hofstra's School of Engineering & Applied Sciences. "We have to start getting students excited to study engineering while they are still in middle school and high school."

Hofstra also provides shuttle service for competition participants and their parents to tour its recently upgraded

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## STEM initiatives grow but funding is a challenge

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engineering facilities and labs.

Festo Corp., a Hauppauge-based maker of industrial automation equipment and systems, has also sponsored the Long Island competition since its inception.

"We became involved because we saw the output of this program is basically creating engineers, technicians and others who will go into industries such as manufacturing and automation," said Frank Langro, director of marketing and product management for Festo. "We wanted to have a part in developing some of these people."

In addition to contributing more than \$250,000 to the local competition over the years, Festo donates parts to the robot kits for the national program.

"We also encourage our employees to help support the program," Langro said. "We have people who work with the individual teams as mentors, who volunteer their time to guide students in building robots. Others work as judges

and referees."

Festo also brings its portable mechatronics lab, featuring displays of automation, to the event to show students and their parents how robotics is applied to industry.

Besides Festo and Hofstra, major sponsors include BAE Systems, Bethpage Federal Credit Union, Cablevision Systems Corp., Estee Lauder Cos., Farmingdale State College and Stony Brook University.

Other nonprofits are developing or enhancing STEM programs, such as the Girl Scouts, which launched a national STEM initiative in 2009.

This includes developing robotics teams, who compete in various competitions, and STEM apprenticeships, in which girls complete projects and go on field trips to labs and other applicable sites. In 2014, the Girl Scouts of Suffolk County opened its Discovery World STEM Center in Yaphank, where more than 2,000 Girl Scouts of various ages have attended hands-on workshops



At a past event, robots competed to see who could make the most baskets.

and presentations.

"Traditionally, STEM fields have been male-dominated, and we're trying to open new doors for girls to explore," said Christine Terzella, director of public relations for Girl Scouts of Suffolk County.

Initially, it was challenging for GSSC to recruit and train adults to mentor the girls in STEM-related activities, and to get funding for STEM programs.

"Because STEM initiatives have grown in popularity, it has gotten a little

easier, but we're always looking for new ways to fund these programs to keep them moving along," Terzella said.

School-Business Partnerships of Long Island has done well with an annual golf outing it launched to try to recoup the lost revenue when state funds were discontinued for the FIRST Robotics Competition.

"We have had to get creative in looking at fundraising," Sicinski said.

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