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Union gives high school girls an "EDGE" toward careers in engineering

What happens when you cross wires on your circuit board, insert an LED backwards or add an audio amplifier to a speech synthesizer?

Those are just some of the challenging questions 21 young women faced while attending the seventh annual camp "Educating Girls for Engineering" (EDGE). The two-week residential program aims to inspire high school girls to consider careers in engineering.

The lack of women in the field is what motivates Alexis Petrosky, a senior from Patrona Heights, Pa.

"Being outnumbered just makes me strive harder to succeed," said Petrosky, a math enthusiast who has taken both honors and AP physics in addition to a college-level engineering course in conjunction with Robert Morris University. "We learned all about transistors and electrical stuff," said Petrosky. "We even had to design a bridge on the computer, then build it out of copper and see if it was structurally sound."

The EDGE program, supported by a grant from the Northrop Grumman Foundation, provides challenging opportunities to apply engineering principles to real-world applications.



Maria Dzialo '10, Molly Merz '10 and Bernadette Peace '10 present a special toy made for "Butch" at Northwoods at Hilltop as part of EDGE camp.



Raga Rajaravivarma, 15, of Farmington, Conn. and Rachael Molland, 15, of Burnt Hills work on a project during EDGE camp.

This includes a communication module, taught by Academic Counselor Gale H. Keraga, which focuses on effective public speaking and presentation skills; an engineering module which involves adapting toys for children with special needs; and the robotics module, which includes building a speech-assistive device for patients with difficulty speaking.

On the camp's final day, the toys and speech devices were presented to the children at Northwoods at Hilltop in Niskayuna, part of the Northwoods Health System network.

"They're essentially building diagnostic tools for the therapists to test their patients' cognitive abilities," said Linda G. Almstead, computer science lecturer who teaches the robotics and engineering modules along with James N. Hedrick, lecturer in electrical and computer engineering, and teachers from Burnt Hills and South Colonie High School. "The patient uses the device to associate the lit picture with the phrase to be spoken."

"Many of these kids have never soldered before, but they jumped right in handling college-level work from the first day," said Hedrick, whose students are building amplifiers for the devices.



Alexis Petrosky, 17, of Patrona Heights, Pa., and Luya Xu, 16, of Niskayuna



Bernadette Peace '10 shares a special toy made for

Two seniors traveled from Kenya to learn skills not available at their school. They heard about the program through an American missionary teacher in their village.

"We have computers in our schools, but not at home," said Kunhee Lee. "There are no technology programs in the schools. So, this was a great opportunity to learn how computers work and how to program them."

"We don't even have physics classes in Kijabe, so everything we've learned has been new," said Jihee Hyung, who added that that this was her first trip to the United States. "Most of our friends are American," she explained. "So, I'm planning to go to college in the Northeast."

For more information, contact Jenny L. Moon '03, design engineer at John M. McDonald Engineering at (518) 339-4835 or Cherrice A. Traver, dean of engineering, at (518) 388-6530 or visit

<http://engineering.union.edu/edge/>.