

TECH & LEARNING



[Print this document](#)

A SMART Program for Teachers

Marlene McGarrity

Aug 22 2008 5:22PM

URL: <http://www.techlearning.com/article/2024>

I am a technology teacher in Brooklyn, New York and I wanted you to know about a fantastic and worthwhile program that I was involved in this summer. This program is funded by the National Science Foundation and will be available to twenty more teachers during the next two summers.

While the school was out and most teachers were relaxing, ten teachers in the New York/New Jersey area used four weeks of their summer studying mechatronics and robotics in the **SMART** Program at Polytechnic University in Brooklyn, New York. SMART stands for Science and Mechatronics Aided Research for Teachers. Mechatronics is the compilation of mechanics, electronics and technology. Dr. Vikram Kapilla of Polytechnic University chose to introduce teachers to mechatronics because he realizes the need for students to be introduced to robotics and pre-engineering terms. He also understands the excitement that building and programming robots will bring to classrooms.

Upon entering the program, teachers received two kits, a CD, and five exercise and resource manuals. Each day, Dr. Kapilla and his doctoral and graduate students Nathan, Yvonne and Hong helped us understand sensors, motors, LEDs and electrical wiring. In groups of two we completed five activities a day from the manuals. The program is very supportive and Dr. Kapilla and the graduate students were motivating throughout the twenty days of our adventure. After building and programming a robot, the real satisfaction came in watching it work. Just as my students have had moments of understanding in my classroom, we all enjoyed each other's sighs of enjoyment when something worked right.

As a teacher, I found the program to be exciting and very challenging. Where as many in-service programs don't have that challenging aspect, the SMART program allows teachers to really extend their knowledge of electronics. After two weeks of learning about electronics and programming, we developed our own projects. We worked in the machine shop in the basement of Polytechnic with Alex, the machinist. Each group created a science-focused project with the components in the robotics kits. Our group created a project that displayed the science concept of projectile motion. You can find more information about the SMART program and see all of our projects at the [SMART](#) Web site.

The goal of the program was to get teachers to bring mechatronics into their classrooms. During computer class this winter, I intend to introduce eighth-grade students to building and programming a robot. We learned to program and manipulate the robot in Pbasic, a simple programming language. I think that my students would be captivated by the contents of the kit, as well as the power to control a robot. Since our school has already started a robotics program, this will help extend the program to include more students, as well as learning another way to program a robot.

The program provided each teacher with a stipend of \$7,200.00, as well as the robotic kits and resource manuals to take back to their schools. The SMART program is funded for two more years and will train twenty more interested teachers in using Mechatronics in their classrooms. I highly recommend it to any teacher who is interested in a summer of learning about robotics. If you have any questions about the program, drop me a message.

Email: Marlene McGarrity



[Print this document](#)