



Ivy Tech Robot Workshop Inspires, Teaches Youth

Youth fascinated by and itching to learn about robots can participate in a creative, hands-on workshop at Ivy Tech Community College Bloomington, where they build and program robots in a supportive and fun environment.

Now in its fifth year, the free Robot Workshop is offered in spring and fall semesters for youth in grades 4 through 12. Students meet every other week for seven evening sessions, using Lego Mindstorms EV3 kits to create their small robots. They learn to program the robots to perform simple tasks and enjoy friendly competitions with classmates. Up to 20 students can enroll on a first come, first served basis. It's so popular that registration fills up almost immediately.

"The workshop spurs their interest in engineering, robotics, and programming," says Kirk Barnes, Ivy Tech's dean of Technology, Applied Science, and Engineering Technology. "The youth have a lot of fun and they're excited about it. That's the whole goal, and they see that programming can be easy and useful."

Barnes, on the board of the nonprofit Bloomington Robotics Club, created Robot Workshop in fall 2012 after realizing young people, especially those in elementary and middle school, didn't have many opportunities to learn about robots and how to program them. The club typically helps high school students, but he said parents kept asking about instruction for younger children.

"Working with high school students, I saw there was a real lack of programming ability," says Barnes. "They could build robots and drive them around, but they didn't know how to get

them to work autonomously. I felt we needed to start earlier with programming so they would be more comfortable doing that."

Knowing he needed help leading the sessions, he elicited assistance from Ivy Tech's service learning program, in which Ivy Tech students earn credit by helping develop and teach the lessons during the Robot Workshop sessions. Barnes also decided to use LEGO Mindstorms robotics kits, which have central processing units with microprocessors, motors, and sensors. The Bloomington Robotics Club bought 10 of the 20 kits for the class and Ivy Tech supplied the rest.

One of those Ivy Tech students, Jennifer Barker, 44, of Newberry, Indiana, says she has enjoyed working with the youth and seeing them so enthusiastic. As a mother of six between 10 and 25 years old, Barker says she can relate to the children well. "I'm not a teacher per se, but I feel like I fit well into this program," she says. "I understand, as a parent, how to work with them. It's something that really motivates me, too."

Barker, who has a degree in industrial drafting, is earning an Ivy Tech degree in cybersecurity and works part-time as a help desk technician in Ivy Tech's information technology department. For her service learning class, she maintains laptops used by students in the Robot Workshop, and decides how they should



(opposite page) Susan Coleman (right) is a past workshop assistant/volunteer and her son, Rowan Morse, is a current workshop assistant. (above) Workshop assistant Jennifer Barker and Kirk Barnes, workshop creator and dean of the Ivy Tech School of Technology. (above, right) Jennifer Barker working with workshop attendee Rebekah Mou.

Photos by James Kellar

be programmed so robots can perform tasks such as following a black line or touching a wall and turning around. "Each lesson involves a different aspect of science," she explains. "The format is just wonderful. They're learning commands to make robots move. But they're also getting lessons in different aspects of science, like light and color. There are engineering aspects as well. It's a lot of trial and error."

Those experiences were exactly what Rowan Morse loved when he attended the workshop three times, starting when he was a Project School sixth-grader in the fall of 2013. His mother, Susan Coleman, of Bloomington, says her son became interested in robots at a young age when she took him to the robotics open houses hosted by the Indiana University School of Informatics and Computing.

The workshop was the catalyst that created an academic focus to his

robotics interest and motivated him to apply to the Academy for Science and Entrepreneurship, where the 15-year-old is now a freshman. "Working with the Lego Mindstorms system allowed him to build on his existing interest in technology and introduced him to concepts of programming," she says. "The faculty at Ivy Tech did a wonderful job of providing Rowan with insight into other applications related to his interests, including automated systems and sensor technology, and inspired him to build his own computer from scratch."

Youth attend Robot Workshop classes at the Indiana Center for the Life Sciences, 501 N. Profile Parkway, near Ivy Tech's main building. Ivy Tech offers Robot Workshop in the fall and spring, and youth summer camp enrollment is open now. For camp options and workshop enrollment information, visit ivytech.edu/youth. •

ROBOT WORKSHOP

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For summer camp options and information on when enrollment will open for the fall Robot Workshop, visit ivytech.edu/youth.



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