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# WHS's new robotics program offers real-world experience

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Westlake High School is offering students a chance to prepare for a future in the technology-oriented world ahead. Administrators added a new robotics course this year that gives students more than just book knowledge.

The course provides a hands-on approach to building robots that complete specific tasks and competition-based evaluations of success. Already, 36 students have signed up for the course, mostly seniors coming from advanced placement courses in physics and math. More than a third of the robotics students are girls.

Norman Morgan is teaching the new course in two morning class periods. He, along with principal Linda Rawlins, is part of a progressive WHS vision team determined to find new ways to prepare students for the future. Morgan was on a team that visited California high schools last year to see what programs the schools had developed to foster creative thinking in technology.

"We saw schools that had great programs in place using innovative, applied engineering," he said. "The students were thinking on levels and in ways beyond understanding given ideas. They were starting with those ideas, developing their own and trying them out — learning what works and what doesn't work."

Morgan said that kind of interactive learning opens minds and encourages thinking outside the box. He said



Westlake High School robotics program students, from left, Anna Percy, Joshua and Hamzah Barlas work on a remote-controlled robot that the team is building for a competition Saturday.

that, while it has been difficult arranging common class time for the students who signed up for the program, those who can work the class into their schedule have been excited about the course.

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# Robotics program creates excitement, new horizons

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Chris Chang said he signed up for robotics because he wanted to build things. The course has been pretty much what he expected — he's learning how to make robots that can move objects.

"It's a lot more time consuming than I expected though," he said, shaking his head while concentrating on tightening the screws of a mechanical component.

Chang and classmate Scott Stoller said each spends more than 10 hours a week working on the robot.

"I think this class and the projects we complete will look good on my college resume," said Kevin Fojtasek, grinning. "In here, you learn pretty quickly to determine how feasible something is before you try and build it. If you go off on all these wild ideas, you won't have time to build what you need."

Ben Becker agreed, saying he was surprised by the amount of teamwork involved in the course.

"You have to be able to work with other people in a real situation," he said. "We have to all agree on the one thing we are going to do when there are 32 ideas floating around."

This Saturday, a team from the WHS robotics program will take their radio-controlled robot to Akins High School in Austin for its first competition. Students will be up against other Austin-area secondary schools in a contest sponsored by BEST Robotics Inc., a nonprofit organization created to inspire students to pursue careers in engineering, science and technology. Each fall, BEST competitions attract more than 700 middle and high schools and more than 10,000 students. Winners of the local competition will advance to a regional one in Lubbock on Nov. 7.

"Teams from all over the region come (to Austin) to compete in several rounds of a three-minute competition based on a fake Mars mission," said Susan Vanden Dries, student project manager of the WHS team. "The objective is to drive up onto the Martian surface and gather as many supplies as possible in the form of boxes and bottles and take them back to their scoring area."

Five students in the robotics program passed up the school pep rally Friday to use the time to work on their project. Even though robot pieces lay on several different tables in the classroom, team members were confident they would finish in plenty of time for the competition.

"We know what we are doing; we just haven't finished yet," said Becker.

Morgan said competitions are extensions of classes. In January, he will take students to a larger international FIRST Robotics competition in Katy, Texas.

"To participate in these competitions, students have to develop and carry out a number of different real-world processes," Morgan said. "First, they put together an engineering team. The team is presented with a problem and given a limited number of supplies. Students have to come up with an answer. Then they have to produce it, market it and sell it."

To design and build their robot, the students have to create graphic designs, CAD animation and three-dimensional designs. Then they build the electrical and mechanical components. After those are working, they have to build the robot. They also have to develop a Web site, create a marketing campaign, set up a public relations program, carry out a financial campaign to raise money to cover costs,

develop software programs and implement an educational outreach program. Only six weeks into the school year, the robotics students had already visited district elementary schools including Cedar Creek, Barton Creek and Bridge Point to promote interest in younger students in science and robotics.

While the costs for the BEST contest were minimal, the robotics team will have to raise more than \$40,000 to cover the FIRST competition expenses. The entry fee alone for the event is \$6,000. The school district funds the instructional costs of the program and will cover the costs of building new space for its growing number of students. But, Morgan and his students are on their own to find money to pay for the considerable contest expenses.

Morgan took over the new robotics program just 10 days before school started after physics teacher Dan Harper left the district abruptly. He hopes members of the private and business community will step up to cover contest costs with donations. He also hopes community members will step forward as mentors to help students with all areas of course and content activity.

"I am lucky to be developing this program in the district and community I am in," he said. "There is a desire for the program here. Parents want it. Kids want to be involved. Support comes from the top of the administration, from the superintendent, Dr. Wellman, to the curriculum director, Bill Bechtol. Our principal Linda Rawlings is the biggest backer we have. We want to keep moving forward and expand to middle schools and elementary schools, developing interest and opportunities in the field."