intelitek

CASE STUDY

Purdue College of Technology Kokomo

Extra-curricular robotics challenge enhances cross-disciplinary curriculum at Purdue University

What happens when you take a little inspiration mixed with some competitive challenge, add some vendor support, then toss in some motivated students? It's a recipe for success in engineering programs as proven by Purdue College of Technology Kokomo. What started off as an extra-curricular robotics challenge has evolved into a full-blown multidisciplinary engineering course that will debut this fall.

A Challenge for Faculty and Students

The seeds of this initiative were planted when members of Purdue Kokomo attended an ASEE (American Society for Engineering Education) conference. A demo at the conference gave the faculty the idea to design a student activity based on a robotics football contest.

They discussed the idea with Paul Copioli, President of VEX. Realizing the potential of the idea, VEX contributed a variety of Vex parts to help initiate the project.

Thus the challenge was issued between Purdue College of Technology Kokomo and University of Notre Dame to design and build a team of football-playing robots and compete in an NFL style "combine".

The combine would test specific robotic "skills" by means of individual events, testing the robot speed, agility, strength and robustness. The skill events would be followed by the teams competing in a scrimmage designed after American football.

The challenge appealed to students on various degree pathways, including Computer and Information Technology, Electrical Engineering Technology, Engineering Technology, and Mechanical Engineering Technology.

The challenge would be achieved using the VEX robotics platform and EasyC programming software as tools. Students held weekly meetings to discuss designs. They were required to develop design specifications and justifications for the design they chose. After a couple of months of training and design meetings, the students completed a working prototype.

The challenge appealed to students in degree pathways including Computer and Information Technology, Electrical Engineering Technology, Engineering Technology, and Mechanical Engineering Technology.

Game Day

The big event was held at the University of Notre Dame's Joyce Center in April 2014. Five teams participated: Purdue-Kokomo, The U.S. Naval Academy, University of Notre Dame, Purdue-Calumet, and Purdue-South Bend.

Purdue-Kokomo won both the speed and the agility tests, while Navy won the strength test. The scrimmage featured Purdue-Kokomo and Navy teamed up against Notre Dame, with the Kokomo/Navy team defeating Notre Dame 14-0.

A Course is Born

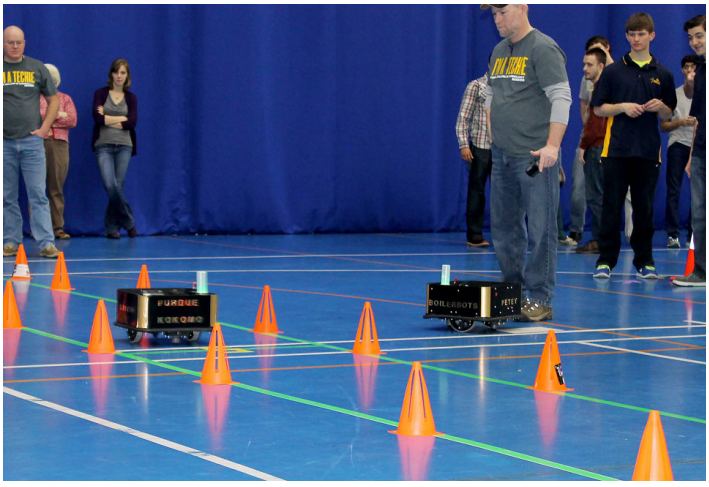
The real winners resulting from the event were the current and future students at Purdue. Since this extracurricular activity was so successful, it has given birth to an entirely new class: "Design of Robotic Systems". This class will help prepare students for the activity by covering the design principles involved.

Topics will include designing mobile robots to accomplish specified performance objectives, developing robotic subsystems, and robotic programming. Throughout the course, students learn the system development process, including planning, documentation, prototyping, testing, and analysis.

Purdue Kokomo and Notre Dame gear up to compete in an NFL combine-style robotics contest

The course will be taught by faculty from all four academic areas and will be offered in fall of 2014:

This is an excellent example of the value of extra-curricular activities in motivating students and enabling them to take ownership of their educational experience..



Competing in the speed skills test

Contact Us:

intelitek

Toll Free: 800-221-2763
Phone: 603-625-8600
Fax: 603-625-2137

Email: info@intelitek.com
www.intelitek.com