Engineering Students Place Second in Stryker Challenge

Andrews and Hope College team up for MCA

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Michigan Colleges Alliance Team, leftÃ¢Â€ Â“ right: Michael Hess II, Jonathan Penrod, Rochelle Miller, Justin Hanselman (Photo by Gunnar Lovhoiden, associate professor of engineering)

Two Andrews University engineering students, Jonathan Penrod and Michael Hess II, were part of the Michigan Colleges Alliance team that placed second at the 2015 Stryker Engineering Challenge, held March 26–27, 2015, at Stryker Medical in Portage, Michigan.

Teams of four students, preferably sophomores, competed for $1,000 scholarships and interviews for Stryker internships. This year there were six teams competing from the following institutions: Purdue University, University of Notre Dame, Michigan Tech University, Western Michigan University, University of Michigan, and the Michigan Colleges Alliance. The Michigan Colleges Alliance team consisted of Penrod and Hess from Andrews University, and Rochelle Miller and Justin Hanselman from Hope College.

Before the challenge began students were given a product demonstration and tour of Stryker's facilities. At 7 p.m. on Thursday, March 26, teams were provided with the rules and sent to their assigned workspace with their Stryker mentor. The workspace contained tools and supplies to build a remotely controlled vehicle with different custom attachments. They worked until 2 a.m. before retiring for the night.

Gunnar Lovhoiden, associate professor of engineering and faculty sponsor, says, “The best part for me was observing how well the Andrews and Hope students worked together as a team. I think they maximized their potential.”

The challenge continued later Friday morning from 6 a.m. to 1:45 p.m., followed by the competition at 2:30 p.m. Each team was assigned a pit area to work on their vehicles if they needed service or repair during the competition. Challenge One consisted of rescuing Lego “victims” in “downtown” Kalamazoo. Stryker had constructed several models of downtown Kalamazoo buildings. All the victims had small magnets attached so they could be rescued using a pick-up magnet controlled remotely from the vehicle.

All teams competed against each other and points were awarded according to how difficult the victims were to access. Some were behind doors that had to be opened by activating different sensors while others were on roofs as high as three feet. In order to get points, the vehicle had to pick up victims and carry them out of the playing field, which was marked with tape. The Michigan Colleges Alliance vehicle broke down four times due to drive chain issues, but each time the team was able to fix the vehicle and put it back into play. Challenge One lasted 20 minutes. The Michigan Colleges Alliance team collected enough points for second place.

The Final Challenge was to traverse an obstacle course with one horizontal section followed by a ramped section. If you made it up the ramp you had to raise/lower a bridge to cross to the finish line. The raising and lowering was accomplished by flashing an LED at a light sensor at two different predetermined rates. The final challenge had a 10-minute time limit.

Michigan Colleges Alliance competed against University of Michigan for first place. The Michigan Colleges Alliance team’s vehicle made it across the horizontal obstacle and up the ramp without any issues, but could not get further because their LED flasher didn’t work. The University of Michigan was able to complete both tasks and therefore won the competition.

Stryker provided meals and hotel accommodations for all team members. Lovhoiden commented, “I was impressed with the effort Stryker had put into the event and the number of Stryker staff involved. The whole challenge had a professional feel to it. It was good to see that there are companies willing to give students opportunities such as this. It reaffirms that although we [Hope College and Andrews University] are smaller engineering programs with limited resources, our students have good engineering skills and perform as well as or better than students from much larger programs.”

Reflecting on the experience, Michael Hess said, “What stood out to me most about our team’s performance was how effectively we were able to collaborate in spite of our setbacks. We were the only team from two different schools, none of us had ever worked together previously, and unlike the other teams most of us didn’t even know we were competing until the day before. Even so, we were able to figure out each other’s strengths, delegate tasks accordingly, and maintain effective communication throughout the build. Coming from less-than-ideal circumstances to take second place showed that being from a smaller school like Andrews is not a disadvantage; we’re on par with some of the best engineering schools in the country.”

Robert Bartlett, president of the Michigan Colleges Alliance, was also very pleased with the results. “Most prospective students, counselors and employers in the state don’t even realize MCA member schools offer engineering, this is a great ‘myth buster.’”

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