

Robots, money, whatever it takes, UNLV goes recruiting

Science, engineering students in demand

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Engineers usually don't have fans screaming their name.

But whole cheering squads turned up at the Thomas & Mack Center recently for the final rounds of a regional high school robotics competition.

Student-built robots went head to head in what best can be described as a life-size, gladiator version of Connect Four. Students maneuvered their robots to stack plastic inner tubes onto a metal structure while fighting off other robots.

One of the 12 Las Vegas teams that participated in the regional competition, Cimarron-Memorial High School, went on to Atlanta last week, where it was part of the team that won the national championship.

With the energy of a high school football game, the competition was, at its core, an effort to interest high school students in engineering careers, said Eric Sandgren, dean of UNLV's Howard Hughes College of Engineering. And it's one of many programs at UNLV designed to draw the best and brightest into the university's programs in science, technology, engineering and math - programs deemed critical to UNLV's growth as a research institution and the state's economic diversity.

At stake, College of Sciences Dean Ronald Yasbin says, is nothing less than homeland security. "If we don't have a new crop of scientists and mathematicians and engineers each year," he said, "America is going to lose its edge.

"And we are struggling to get people in these fields."

Engineering, science and technology-related jobs are growing about twice as fast as those students graduate, according to National Science Foundation indicators. Because of the heavy demands of the field, only about half of all engineering students nationwide complete their degrees in the major, Sandgren said.

At UNLV, about 1,300 undergraduates and 400 graduate students are in the College of Engineering, representing about 5 percent of the student body. Sandgren would like to see that double.

The College of Science has about 1,500 undergraduates and 240 graduate students.

Recruiting efforts would improve if students understood the career possibilities better, Sandgren and Yasbin said.

And if they could just do something about the nerdy image of a science or engineering student.

Just as television shows such as "CSI: Crime Scene Investigation" draw people into forensic science, Sandgren said, he sees the robotics competition as one way to make engineering cool in the popular culture.

"Anything we can do to encourage kids into these areas is important," Sandgren said. "Kids these days ... don't want to help develop the technology, they just want to be users of the technology. Somehow we need to change that."

The robotics competition has a track record in doing just that. One of the university's mechanical engineering graduate students, 22-year-old Stacy Raagas, was planning to go out of state to study political science at a liberal arts college when she participated in Cimarron-Memorial's first robotics competition in 2002. A senior at the time, Raagas got involved in the competition through her calculus and physics classes, and was hooked.

"Up to that point I didn't know what mechanical engineering was," Raagas said. "It wasn't a very publicized field."

She now volunteers as a mentor for the program, which included 12 local high schools this year.

Other UNLV programs similarly help undergraduates whet their appetite for scientific research as a recruitment tool. With grant money from the National Science Foundation, UNLV offers extensive research experience for undergraduates, including a nationally competitive summer research fellowship that attracts students from across the country.

The summer program is designed recruit students to UNLV for graduate school, physics professor John Farley said. Recently, the program even convinced one undergraduate student, Jenny Welch, to transfer to UNLV from California.

Most universities restrict laboratory work to graduate students, but one of the best ways to encourage students to pursue a career in science is to involve them in research early on, Farley said.

"Most undergraduate students spend most of their time learning what is already known and don't spend a lot of time at the frontier," Farley said. "You get a taste of it, and once you get a taste of it you realize this is really fun."

Farley is also helping UNLV overcome another hurdle in recruiting science students: capturing students' attention while they are young, and getting them to take the classes in high school that they'll need to prepare for those fields.

An engineering-minded high school student, for example, should prepare for calculus as a college freshman.

As co-director for the Center for Math and Science Education at UNLV, Farley helps coordinate the Colleges of Sciences and Education and the Clark County School District's efforts to produce more math and science teachers and enhance their teaching skills.

The best way to attract star students into the science and engineering programs, however, is to show them the money, professors said. The Nevada System of Higher Education has asked the Legislature this session for more money for scholarships for graduate students and undergraduates specializing in science, math, technology and engineering fields.

A pilot program is already proving its worth: It recently recruited a top-notch doctoral student into UNLV's geoscience program.

Called Nevada Stars, the program offers enhanced stipends, worth about \$24,000 a year including tuition and fees, to nine star students.

For the geoscience department, such assistance helped it recruit Kelly Robertson, a Massachusetts Institute of Technology lab technician planning a doctorate in volcanology. Robertson was being recruited by Columbia University; Boston University; University of California, Santa Barbara; and University of Rhode Island.

"We were thrilled when she chose UNLV over those," geoscience professor and graduate coordinator Andrew Hanson said. "That's some pretty high quality competition."