

COMMUNITY COLLEGE TIMES



Mary Anderson-Rowland (center), an associate engineering professor at Arizona State University, meets with students in the Motivated Engineering Transfer Students program.

Ariz. university opens path to engineering for community college students

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Victor Robles, who recently graduated with a degree in electrical engineering from [Arizona State University \(ASU\)](#), hopes to continue to graduate school to research communications technology for radar systems. He'd also like to earn a

doctorate and go on to a career in technology engineering.

Robles has those goals thanks to ASU's [Motivated Engineering Transfer Students \(METS\)](#) program, which helps Arizona community college students interested in careers in engineering and computer science. And he feels its his obligation to return to his hometown of Douglas, Ariz., to speak to local high school and community college students about how they might follow the same path.

The program has "completely changed my life," Robles says.

In 2002, ASU began to expand support for community college students transferring to the university's engineering program. Until that time, there was only one orientation event to help these students. Today, through the growth of the METS program, there are opportunities for scholarships, a campus meeting place, seminars, mentoring and networking opportunities designed specifically for transfer students.

The program has proven to be successful, according to ASU. In fall 2009, about 230 students from community colleges and other schools had transferred to ASU engineering programs. In 2010, another 350 students transferred. In addition, more than 95 percent of junior-year and senior-year students who earn

METS program scholarships graduate—a rate higher than that of students entering ASU engineering programs as freshmen.

More than half of METS transfer students who earned scholarships go on to graduate school full time for master's or doctorate degrees, compared to just 20 percent of engineering transfer students nationwide.

Targeting a talent pool

Success with upper-division transfer students who come mostly from the **Maricopa County Community College District** helped ASU in 2009 secure a five-year, \$2.5 million grant from the **National Science Foundation (NSF)** to expand the METS program. The funding is through the NSF's **STEM (Science, Technology, Engineering and Math) Talent Expansion Program (STEP)**, which aims to increase the number of young engineers and computer scientists.

The grant has allowed the program's coordinators—engineering faculty members Mary Anderson-Rowland and Armando Rodriguez—to reach beyond community colleges in the greater Phoenix area and team with five rural two-year colleges—**Central Arizona College, Western Arizona College, Eastern Arizona College, Cochise Community College** and **Mohave Community College**.

The program is targeting “a significant pool of untapped engineering talent” among community college students, Anderson-Rowland says.

The METS-STEP project goal is to develop a cadre of high-quality engineering students through helping community colleges in their outreach to local high schools and by providing classroom materials, tutoring, speakers and tuition scholarships to cover costs of community college engineering courses.

The project also includes events on community college campuses for students and their parents, providing student mentors and hosting ASU orientation programs for transfer students. Once at ASU, transfer students are supported by the METS Center, where they can study together and get mentoring and training in academic and career planning.

“Our mentors are faculty members and METS Center staff members who are supportive and empathetic,” Anderson-Rowland says. “New transfer students will find other students to network with who understand the challenges that new students are facing.”

Student stories

Diana Sarmiento struggled when she first enrolled in community college several years ago. Her grades were so low that she dropped out.

She later tried again at **Estrella Mountain Community College**, earning an associate degree in science and then transferring to ASU, with help from the METS program. Through the program, she learned about time management, which helped her cope with the challenges of university engineering studies—even while working in addition to attending school full-time.

METS workshops also taught her how to effectively compose a resume and develop a portfolio displaying her skills.

“I got some really good advice that helped me get through,” she says.

Mara Ramos has a similar story. She went to ASU right after high school but found she wasn’t ready for the university environment, so she dropped out.

After becoming a single mother and a few false starts at other schools, Ramos began earning good grades at **Mesa Community College** (MCC) that would make her eligible for support to return to ASU through the METS program.

Through the program, she learned study techniques, was put under the wing of a supportive faculty mentor and participated in an undergraduate research program and research projects led by a faculty member. Today, Ramos is pursuing a doctorate in environmental engineering and hopes to solve sanitation and water-quality problems.

Steve Blodgett went back to college in his mid-30s after a career as a photographer. He earned an associate degree in general studies at MCC, then came to ASU through the METS program after deciding to study chemical engineering.

He had earning only a bachelor’s degree in mind, but with Anderson-Rowland’s prodding, he set his sights higher.

“I used the METS Center a lot. I learned study skills. I got advice and encouragement to seek support to go to grad school,” he says. “It had a big impact.”

Blodgett is now in a graduate program at the University of Michigan where he will research sustainable hydrogen production and other renewable energy resources.

“It’s gratifying to be reaching young students who don’t have a lot of resources in their small communities to learn about science and engineering career opportunities,” says Rodriguez. “When you show them you care, when you show them how to navigate their way in a big university, and give them tutoring and mentoring, it’s amazing to see them turn into dedicated students who are taking their career goals seriously.”

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