

# TALENT SEARCH: FINDING POTENTIAL TO FILL THE NEED FOR FUTURE ENGINEERS

Posted by [Joe Kullman](#) | Feb 3, 2017 | [Features](#), [Outreach](#)

Professor Tony Rodriguez talks to community college students visiting Arizona State University's Tempe campus to learn about studies in the university's Ira A. Fulton Schools of Engineering. A National Science Foundation grant is enabling Rodriguez to expand his efforts to encourage more young students to pursue engineering careers. Photographer: Peter Zrioka/ASU

As Armando Antonio “Tony” Rodriguez sees it, one of our most costly societal failures is that we too often let valuable talent go to waste.

“You can find the potential for talent almost anywhere, but we are losing out on benefiting from it when we don’t nurture it and don’t give people substantive opportunities to develop it,” says Rodriguez, a professor of electrical engineering in Arizona State University’s Ira A. Fulton Schools of Engineering.

For more than two decades Rodriguez — who in 1998 received a Presidential Award for Excellence from the Clinton administration for his service as a mentor to students — has worked to help remedy that problem by stepping beyond his role as a teacher and researcher to collaborate with ASU colleagues on improving student recruitment and retention.

Most significantly, he teamed with Mary Anderson-Rowland, a Fulton Schools associate professor of industrial engineering, now retired, to establish the Motivated Engineering Transfer Students program in 2003 to widen the path for students to progress from community college to university studies for bachelor’s degrees in engineering and related fields.

More than 90 percent of upper-division transfer students brought to ASU through the METS program have graduated and more than half have gone on to pursue graduate degrees in engineering.

Rodriguez says that track record of success, along with a focus on graduate school and the proposed focus on career-steering student projects in areas of national importance, was likely a big factor in his recent award of a National Science Foundation grant for a new project he believes will boost the METS program's performance while providing students enhanced professional development activities.

The grant will provide \$5 million over the next five years for the Fulton Schools to partner with nine Arizona community colleges with aim of putting more students into the community college-to-ASU pipeline toward careers in engineering and related science and technology fields.

The partner schools are Central Arizona College, Eastern Arizona College, Estrella Mountain Community College, Glendale Community College, Mesa Community College, Mohave Community College, Cochise College, Phoenix College, and Yavapai College.

## **CHALLENGING STUDENTS TO DISCOVER THEIR PASSION**

The new program's formal title is Academic Success and Professional Development Project-Based Engineering Excellence Transfer Academy Across Arizona — or ASAP for short.

The program will encourage selected transfer students to continue their college education by awarding a more than \$640,000 each year in various amounts through different types of scholarships and incentive grants. Over its five years, Rodriguez expects the program to directly aid almost 1,000 students, and many more indirectly.

“Professors Rodriguez and Anderson-Rowland have had a big impact on the academic success of our transfer students,” says Professor James Collofello, Vice Dean of Academic and Student Affairs for the Fulton Schools. “We will be working closely with the ASAP program partners to attract more students to engineering and provide them the experiences and support they need to be successful.”

ASAP will require students to complete challenging engineering projects designed to help them “discover, nurture and develop their technical passions and professional skills” within engineering, Rodriguez says.

Program scholars are required to take an Academic Success and Professional Development course “that we provide to lay the groundwork for academic success as well as career-propelling, mentor-driven research and training projects,” he says.

## **ENVISIONING A FULFILLING FUTURE IN ENGINEERING**

Rodriguez and his collaborators at the community colleges must first do the job of selling engineering as a career option to students who are often uncertain of their ability to succeed academically in the field, or who simply don't fully understand the rewarding opportunities that engineering careers offer.

In his own career, Rodriguez has applied his electrical engineering skills to making advances in aircraft and spacecraft, robots, missiles, drones, hypersonic vehicles, power systems, fisheries and renewable resources, among other things.

“My career has been amazing. I've been very fortunate. Engineering is outrageously cool and America's youth need to understand this,” he says. “Unfortunately, too many young people see it as nerdy, too hard, boring, or not particularly relevant.”

He and his ASAP program partners will be working to overcome such misconceptions — informing students of the many new technologies and improvements to modern life that engineers have made possible.

“We want them to be able to envision an exciting future for themselves, to understand that there is an ongoing technological revolution taking place, and that with proper planning they can participate and contribute,” he says.

The eventual payoff will be not only students' career achievements but their contributions to the country, economically and otherwise.

“With advances such as organ growth, precision DNA manipulation, exoplanet-finding telescopes, driverless vehicles and much more, we are in a time of unprecedented technological revolution,” Rodriguez says. “The nation simply needs more engineers if we are going to compete successfully on the world stage. We cannot afford to waste talent. Engineering schools must aggressively recruit and nurture such talent.”

He is already at work on new proposals for efforts to expand the reach of the Fulton Schools' recruitment, education and research missions by partnering with schools in neighboring Southwest states.

