Regional Center for Next Generation Manufacturing

Background

The Regional Center for Next Generation Manufacturing (RCNGM) is a National Science Foundation-funded Advanced Technological Education (NSF ATE) Center of Excellence developed by the Connecticut College of Technology (COT) in 2004 to develop a response to workforce needs for all 12 community colleges in Connecticut. The goals of the RCNGM are the creation of articulation pathways, student recruitment and retention, curriculum development, and professional development. Through open meetings of the Site Coordinator Council, input is received from community college and university faculty, government representatives, business and industry partners, and educational program partners.

Articulation agreements with four-year colleges and universities are essential to support community college students' transition to four-year institutions. Partnerships with both public and private four-year institutions have led to the creation and implementation of two College of Technology AS degree choices: Engineering Science or Technology Studies. After completion of either of these degrees, all credits will seamlessly transfer to one of the four-year partner universities for the student to complete a bachelor's degree.

The RCNGM is continuously designing and implementing student recruitment and retention programs. These programs strengthen and help expand articulation agreement and instructional collaboration among four-year colleges, community colleges, and secondary schools. Student recruitment activities include regional career expos that allow students to talk to local manufacturers about their workforce needs, tour a community college campus, and attend presentations on advanced manufacturing technologies. Marketing activities include the RCNGM website, social media, and DVDs with accompanying teacher guides. The *Manufacture Your Future 2.0* and *You Belong: Women in Manufacturing* DVDs include "day-in-the-life" scenarios of employees who represent different roles in a variety of manufacturing jobs. The teacher guides include activities that can be done in the classroom to teach students about manufacturing career possibilities. Over 8,000 copies of the *Manufacture Your Future 2.0* DVD have been distributed nationally.

Curriculum development and implementation is an integral aspect of the RCNGM. With the assistance of industry input and education/industry collaborations, the RCNGM is able to ensure that students who enroll in the community colleges' College of Technology pathway programs can transition from high school to higher education without loss of credit, and obtain employment in cutting-edge technologies in the region.

Professional development activities for faculty are just as important as the student activities. The RCNGM continuously provides opportunities for community college and high school faculty to upgrade their knowledge base of emerging technologies needed for next generation manufacturing. Faculty externships with local industries, workshops, seminars, and conferences all provide faculty with the tools and ideas needed to create curricula that will meet current

workforce needs. High school counselor workshops are also a key activity that exposes counselors and faculty to career possibilities that they can bring back to students and parents.

Documented Results

The RCNGM has developed numerous programs and activities to prepare the future workforce for employment in advanced manufacturing fields. Since the center's creation in 2004, more than 65,000 students and 3,000 teachers have attended its career expos. As a result, STEM program enrollments have seen impressive growth, with a 15 percent increase from 3,913 students in 2009 to 4,482 students in 2012. There was also an associated 38 percent gain in enrollment of underrepresented populations, which went from 1,096 to 1,514 students. Student persistence rates received a tremendous boost from 270 industry-sponsored scholarships, 600 student internships, and 24 student design competitions.

Potential Applications

RCNGM programs are developed with the intention of dissemination and replication on a national level. Participants are able to use activities and modules to develop and implement their own curricula based on current industry needs. The third round of NSF funding for the RCNGM includes training regional partners in New England to implement these successful programs.

For More Information

RCNGM website: http://www.nextgenmfg.org
Facebook: COT RCNGM
Twitter: @RCNGM