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More engineers, techies in pipeline

Deal between universities, high schools may alleviate workforce woes

Austin Business Journal - by [Sandra Zaragoza](#) ABJ Staff

Many Central Texas high school students will make robots and design bridges for college credit this year, which bodes well for engineering and technology companies looking for the next generation of workers.

For the first time in Texas, high school students taking engineering courses are able to earn college credit thanks to a new articulation program developed by the **E3 Alliance**, a regional education collaborative.

So far, **Texas Tech University**, **Texas State University** in San Marcos and Austin Community College have agreed to offer high school students credit for completing standardized engineering courses offered at more than 100 middle schools and high schools in the state, including 12 high schools in the region.

The engineering courses are designed and accredited by Project Lead the Way, a national nonprofit that develops curriculum and teacher training for engineering education for middle and high schools.

The articulation program is part of the organization's strategic plan called "The Blueprint for Educational Change," E3 Executive Director Susan Dawson says. The plan aims to put more students on a post-secondary education path that aligns with the region's workforce needs.

Engineering and computer science jobs are ranked the second highest in-demand professions in Central Texas, just behind nursing, according to E3.

"We are not meeting the demand with our current supply," Dawson says. "We are trying to create a seamless pathway to get students into college, so we do not have to import engineers from other parts of the nation or the country."

When it comes to training engineers, the economic stakes are high.

Increasing the number of engineering degrees granted by Texas universities by 25 percent would add \$6 billion to the Texas economy within 15 years, according to a study by economist Ray Perryman.

But getting more students interested in math and science and prepared for engineering programs has been a major challenge. For instance, 15 percent fewer students in Central Texas pass the eighth-grade math Texas Assessment of Knowledge and Skills test than the reading TAKS test, according to E3.

Project Lead the Way courses are designed to grab and hold students' interest, Dawson says. The curriculum includes project-based math and science learning and hands-on learning, such as building robots. And teachers must undergo an accreditation process before leading the course.

About 1,300 Central Texas students are enrolled in Project Lead the Way courses this year.

Articulation programs overall are recognized to be successful in getting students on the college track.

Students who earn college credit in high school are more than twice as likely to go on to college, according to a recent study by the Ray Marshall Center.

In addition to regional college credit, students who successfully complete Project Lead the Way courses can also get college credit at leading universities like **Duke University**, **Purdue University** and **Rochester Institute of Technology**.

Sandy Dochen, **IBM's** manager of corporate citizenship and corporate affairs, believes the articulation program is a much-needed step toward getting students to look more seriously at engineering careers.



Nick Simonite

McNeil High 10th graders Zach Chanplin (left) and Mosaddek Chowdhury at their first engineering class.

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“The high school element and the college element does not exist in a vacuum,” Dochen says. “We need collaboration between high schools, colleges and industry. We need this whole food chain to operate in close collaboration because that’s good for the student and terrific for the competitiveness of the region and the state.”

Looking ahead, E3 hopes to promote the expansion of Project Lead the Way courses in the region and to get more universities and colleges involved.

E3 has applied for several grants to support expanding the program. Project Lead the Way courses cost more than traditional classes because they require advanced hardware and other materials, Dawson says.

Meanwhile, E3’s immediate goal is to market the program to students and teachers to double the number of students in Project Lead the Way classes, Dawson says.

Long term, the program has the potential to “strengthen the Central Texas economy by training students for more critical, high-paying jobs,” Dawson says.

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