SUBJECT: Engineering recruitment programs at higher education institutions

COMMITTEE: Higher Education — favorable, without amendment

VOTE: 6 ayes — Morrison, F. Brown, Giddings, D. Howard, Patrick, Rose

0 nays

3 absent — McCall, Alonzo, Aycock

WITNESSES: For — Kenneth R. Dickerson, Association of Engineering Advisory Boards; (*Registered, but did not testify:* Barbara Dickerson; A. Dwain Mayfield, Texas A&M Engineering Advisory Board; Jennifer Shelley Rodriquez, Lockheed Martin Aeronautics

Against — None

On — (*Registered, but did not testify*: Reinold Cornelius, Texas Higher Education Coordinating Board)

DIGEST: HB 2978 would amend Education Code, ch. 61 to require the Texas Higher Education Coordinating Board (THECB) to establish a one-week summer camp program for middle and high school students at all higher education institutions that offered engineering programs, starting in the 2007-08 academic year. The summer program would expose students to math, science, and engineering concepts that a student in an engineering program might encounter.

The THECB would establish the requirements for admission to a summer program and would establish and administer scholarships for students pursuing degrees in engineering. These programs would be administered using available appropriations, gifts, grants, and donations made for this purpose.

To qualify for a scholarship, students would be required to:

- have graduated with a GPA in the top 20 percent of their high school graduating class;

- have an SAT score of at least 1,875 out of 2,400 or an equivalent on the ACT test; and
- maintain a GPA of at least 3.0 on a four-point scale in the engineering program in which they were enrolled.

The bill would take immediate effect if finally passed by a two-thirds record vote of the membership of each house. Otherwise, it would take effect September 1, 2007.

SUPPORTERS SAY:

HB 2978 would make Texas more competitive on a national and global level by encouraging more students to consider taking math and science courses. Increasing the number of engineering and computer science graduates would enhance both the productivity and the capacity of the workforce in Texas.

Texas lags behind its key competitor states in the number of computer science degrees awarded – it ranks ninth of the 10 most populous states in science and engineering degrees awarded per 1,000 college age residents. In fact, over the past decade, the rate of science and engineering degrees awarded in Texas has remained fairly constant, while other states have achieved noteworthy increases.

National data have confirmed that the decline in engineering graduates in the United States has been dramatic. Twenty years ago, the United States was second behind Japan in the number of engineering graduates. Today we are 13th.

Engineering is the engine that drives innovation for a wide range of new technologies, including nanotechnology and biomedical and bioengineering technology, all of which drive growth in the economy. Many young people today simply do not have any knowledge of what engineers do and how the work they do contributes to society. Many current engineering students say that they never would have chosen engineering as a course of study had they not been introduced to it during summer camps like the one being proposed by HB 2978.

Any investment the state made to increase the number of engineers would be returned many times over. According to M. Ray Perryman, president of the Perryman Group, adding 25 percent to the pool of engineering and computer science graduates would lead to job gains across the state of more than 29,000 in 10 years and more than 65,000 in 15 years. Further, if

Texas were to generate 1 percent of the U.S. market share of these industries, the aggregate gains to the state economy would total almost $17 billion in annual output and more than 174,000 permanent jobs.

The rigorous requirements for the scholarship proposed by the bill would be vital to the success of the program. Statistics have shown students who score relatively high on their college entrance exams are more likely to graduate from engineering programs. The chances for dropping out increase dramatically with lower SAT scores, so it is imperative to attract the brightest students, who will need the background in math and science to stay in the programs.

OPPONENTS SAY:

The bill would require all universities with engineering programs to comply with the summer camp requirement. A better approach would be a non-competitive grant application procedure where institutions could voluntarily offer the summer camp. The success of summer camps depends on the availability and enthusiasm of faculty and staff to devote their time to this specialized outreach effort.

The bill would not address what the scholarship would cover and how best to reach students across the entire state equally. Students with high SAT scores who are highly ranked in their classes typically are concentrated at large institutions, so students from smaller institutions could be left out. Also, students with financial aid often receive packaged aid with an upper limit of support. Any additional scholarship money could merely replace an existing scholarship or loan. Students and teachers involved with similar grants programs say they prefer on-campus work or work-study program instead of scholarships because work-study allows students to stay on campus and get more involved and familiar with the academic environment and the faculty. Work-study funds are "take-home money" and would not replace other financial aid.

OTHER OPPONENTS SAY:

Texas does need to increase the number of engineering students in the Texas higher education pipeline in order to keep other states from recruiting the best and the brightest because studies show that where students go to school often determines where they stay. However, another important part of the debate should be how to increase the diversity of the pool of students and how to ensure they were well prepared for the rigors of engineering and science. Basing the scholarship eligibility requirements on high SAT scores would leave out a lot of smart students, but especially

minority students who generally tend not to do as well on college entrance exams as other students.

NOTES:

According to the Legislative Budget Board, the bill would cost $10,000,000 in general revenue related funds through the biennium ending August 31, 2009.

The House engrossed version of HB 1 by Chisum, the general appropriations bill, contains a contingency rider for HB 2978 in Art. 11 that would appropriate $5 million in general revenue related funds in fiscal 2008 and $5 million in general revenue related funds in fiscal 2009.