

January 16, 2019

MEMORANDUM

TO: State Board of Regents

FROM: David L. Buhler

SUBJECT: Engineering and Computer Technology Initiative Annual Report from the Technology Initiative Advisory Board

Issue

The 2001 Legislature approved SB61: Enhancements to the State Systems of Public and Higher Education. This legislation established the Engineering and Computer Technology Initiative within the Utah System of Higher Education (USHE), with the goal to increase the number of students graduating from engineering, computer science, and related technology programs. The legislation created the Technology Initiative Advisory Board (TIAB), appointed by the Governor, that makes an annual report to the Board of Regents. The attached document provides this year's report from the TIAB.

Background

Key highlights noted in the report include:

- During the last 17 years, the Engineering and Computer Technology Initiative has been successful in increasing the number of graduates in targeted areas.
- During FY18 1,730 engineering degrees were awarded compared to 862 in 2000, and in computer science 1,553 degrees were awarded compared to 513 in 2000.
- Since the initiative began, a total of 38,911 engineering and computer science degrees have been awarded.
- The TIAB requested that FY16 be used as the base year for comparison since that was the last year data was used to justify new legislative appropriations.
- Total engineering and computer science degrees awarded in FY18 was 3,283 compared to 2,938 in FY16, representing an increase of 11.74 percent over the base year.

Policy Issues

There are no policy issues associated with this report.

Commissioner's Recommendation

This is an information item only; no action is required.

David L. Buhler
Commissioner of Higher Education

DLB/BKC
Attachment

Engineering and Computer Technology Initiative Report

The 2001 Legislature approved SB61 *Enhancements to the State Systems of Public and Higher Education*, sponsored by Senator Lyle Hillyard. This legislation established the Engineering and Computer Technology Initiative within the Utah System of Higher Education (USHE) with the intent to increase the number of students graduating from engineering, computer science, and related technology programs.

Specifically, key provisions of SB61 have been addressed and include:

- Established a goal to triple the number of graduates from USHE institutions in engineering, computer science, and related technology.
- Directed the Regents to establish rules providing the criteria for those fields of study that qualify as “related technology.”
- Provided supplemental funds for equipment purchases to improve the quality of instructional programs in engineering, computer science, and related technologies.
- Established a student scholarship to encourage enrollment in programs included in the initiative.
- Assisted USHE institutions to hire and retain qualified faculty to teach in initiative programs.
- Increased program capacity by funding new and renovated capital facilities, and funding for new engineering and computer science programs.
- Created the Technology Initiative Advisory Board (TIAB) to make recommendations to the Regents in its administration of the initiative. The advisory board includes individuals appointed by the Governor from business and industry who have expertise in the areas of engineering, computer science, and related technologies.
- Provided requirement to report funding matches for faculty positions funded through initiative resources.

To date, \$19 million of ongoing funding plus \$10.45 million of one-time funding have been appropriated to support the initiative.

Intent language provided by the 2017 legislature requested that “recommendations for appropriation and follow up reporting on program success are to be reviewed by the Business, Economic Development, and Labor Appropriations Subcommittee and the Higher Education Appropriations Subcommittee.” Additionally, an annual report to the Utah State Board of Regents is required by statute. This document is intended to satisfy these reporting requirements.

Appropriated Funds

The following table summarizes funding appropriated to the initiative between FY2002 and FY2019.

Engineering and Computer Science Initiative Funding History 2002-2016			
Year	Funds Appropriated		
	Ongoing	One time	Scholarship ¹
2001-02	\$1,000,000	\$2,500,000	\$500,000
2002-03	\$2,000,000	\$1,000,000	\$0
2003-04	\$500,000	\$0	\$50,000
2004-05	\$500,000	\$500,000	\$0
2005-06	\$1,500,000	\$500,000	\$0
2006-07	\$500,000	\$700,000	\$0
2007-08	\$3,000,000	\$2,000,000	\$0
2008-09	\$0	\$250,000	\$0
2009-10	\$0	\$2,000,000	\$0
2010-11	\$0	\$0	\$0
2011-12	\$0	\$0	\$0
2012-13	\$2,500,000	\$0	\$0
2013-14	\$0	\$0	\$0
2014-15	\$0	\$0	\$0
2015-16	\$3,500,000	\$1,000,000	\$0
2016-17	\$0	\$0	\$0
2017-18	\$4,000,000	\$0	\$0
2018-19	\$0	\$0	\$0
Total	\$19,000,000	\$10,450,000	\$550,000

Degree Completion Results

Although the initiative has been underway since 2001, base year comparisons measured graduation counts since FY2016, the last year data were used to determine the most recent appropriation as provided by the 2017 Legislature.

Comparison of Degree Completions for the Engineering and Computer Science Initiative								
	FY2016 (Base Year)			FY2018			Change from FY2016 to FY2018	
	CS	Eng	Total	CS	Eng	Total	Change	Percent Change
Total	1,312	1,626	2,938	1,553	1,730	3,283	345	11.74

¹ In 2001, SB61 established a loan forgiveness fund to assist students in obtaining degrees in engineering and computer science. In 2009, SB105 changed the loan forgiveness program to a scholarship program for the purpose of recruiting, retaining, and training engineering and computer science and related technology students. At that time scholarship funding was \$39,200 annually. In FY13 an additional \$300,000 of ongoing scholarship funding was allocated to institutions by the Board of Regents from the FY13 \$2,500,000 appropriation. This \$300,000 of scholarship funding did not roll into the previously legislated scholarship funding program but went directly to institutions.

Over the life of the initiative, there has been a significant impact on degrees awarded in engineering and computer science. The 1,730 engineering degrees awarded in FY2018 is double the 862 engineering degrees awarded in FY2000, and the 1,553 computer science degrees awarded in FY2018 is triple the 513 computer science degrees awarded in FY2000. Over time there has been a consistent increase in total number of degrees awarded in the targeted areas. Since the initiative began, a total of 38,911 computer science and engineering degrees have been awarded. The initiative has resulted in a positive cumulative impact for the state. It is believed that this targeted investment has made a significant difference for Utah.

The TIAB will use information provided in this report to determine possible future requests for legislative funding and to recommend allocation of any additional funding received in accordance with legislative intent that specifies funds should be allocated based on graduation increases in targeted areas and in high demand occupations.

Matching Funds

Utah Code 53B-6-105.9 requires institutions to match ongoing funds appropriated to the initiative that are used for faculty positions. Beginning with funding appropriated for FY2013, institutions have submitted reports that demonstrate compliance with the matching requirement. Based on information from these reports, the ongoing appropriations awarded in FY2013, FY2016, and FY2018 were matched by the USHE institutions. The following tables provide matching funds information by institution.

Matching Funds Report- Summary			
Institution	FY2013 Ongoing Appropriations Matched by Institutions	FY 2016 Ongoing Appropriations Matched by Institutions	FY 2018 Ongoing Appropriations Matched by Institutions
University of Utah	\$600,000	\$1,217,809	\$1,540,000
Utah State University	\$270,000	\$515,000	\$900,000
Weber State University	\$88,000	\$440,000	\$840,000
Southern Utah University*	Did not receive funding in FY2013	Did not receive funding for faculty positions in FY2016	\$60,000
Snow College	Did not receive funding in FY2013	\$113,000	\$60,000
Dixie State University	Did not receive funding in FY2013	\$175,000	\$60,000
Utah Valley University	\$370,000	\$375,000	\$480,000
Salt Lake Community College	\$72,000	\$57,000	\$60,000

Matching Funds Detail for FY2018					
Institution	Faculty Type	Department	Appropriated	Match	Total
University of Utah	2 Faculty	Bioengineering	\$121,500	\$121,500	\$243,000
	1 Faculty	Chemical Engineering	\$62,500	\$62,500	\$125,000
	2 Faculty	Civil Engineering	\$119,875	\$119,875	\$239,750
	3 Faculty	Electrical Engineering	\$195,225	\$195,225	\$390,450

	5 Faculty	Mechanical Engineering	\$311,500	\$311,500	\$623,000
	11 Faculty	School of Computing	\$717,500	\$717,500	\$1,435,000
	Support	College of Engineering	\$11,900	\$11,900	\$23,800
Total			\$1,540,000	\$1,540,000	\$3,080,000
Utah State University	2 Assistant Professors	Civil Engineering	\$121,910	\$121,910	\$243,820
	3 Professors of Practice	Computer Science	\$158,264	\$158,264	\$316,528
	2 Assistant Professors	Computer Science	\$127,020	\$127,020	\$254,040
	4 Assistant Professors	Electrical Engineering	\$247,161	\$247,161	\$494,322
	3 Assistant Professors	Mechanical Engineering	\$190,895	\$190,895	\$381,790
	Assistant Professor of Practice	Mechanical Engineering	\$54,750	\$54,750	\$109,500
Total			\$900,000	\$900,000	\$1,800,000
Weber State University	Assistant Professor	School of Computing	\$54,340	\$54,340	\$108,680
	3 Instructors	School of Computing	\$140,855	\$140,855	\$281,710
	To be hired	Searches for new faculty to start FY2019	\$644,805	\$644,805	\$1,289,610
Total			\$840,000	\$840,000	\$1,680,000
Southern Utah University	Assistant Professor	Engineering & Technology	\$60,000	\$60,000	\$120,000
Total			\$60,000	\$60,000	\$120,000
Snow College	Instructor	Software Engineering	\$60,000	\$60,000	\$120,000
Total			\$60,000	\$60,000	\$120,000
Dixie State University	Assistant Professor	Mechanical Engineering	\$60,000	\$60,000	\$120,000
Total			\$60,000	\$60,000	\$120,000
Utah Valley University	Assistant Professor	Electrical Engineering	\$120,000		\$120,000
	Assistant Professor	Mechanical Engineering	\$120,000		\$120,000
	2 Assistant Professors	Civil Engineering	\$240,000		\$240,000
	Assistant Professor	Master Computer Science		\$127,000	\$127,000
	Assistant Professor	Master Cybersecurity		\$153,000	\$153,000
	2 Lecturers	Computer Science		\$200,000	\$200,000
Total			\$480,000	\$480,000	\$960,000

Salt Lake Community College	Assistant Professor	Computer Science	\$60,000	\$60,000	\$120,000
Total			\$60,000	\$60,000	\$120,000
USHE Total			\$4,000,000	\$4,000,000	\$8,000,000

TIAB Membership

- John Sutherland (Chair) Brigham Young University
- Susan Johnson (Co-Chair) Futura Industries (Retired)
- Reed Brown Mathnasium
- Vance Checketts Dsco.io
- Roland Christensen Applied Composite Technology
- Ed Ekstrom Tallcastle Capital
- Ed Esper Utah Capital Investment Corporation
- Mark Ripke Boeing
- Chuck Taylor SyberJet Aircraft
- J. Howard VanBoerum VanBoerum & Frank