UTAH SYSTEM OF
HIGHER EDUCATION
Building a Stronger State of Minds

January 11, 2017

MEMORANDUM

TO: State Board of Regents

FROM: David L. Buhler

SUBJECT: <u>Engineering and Computer Technology Initiative Annual Report from the Technology Initiative Advisory Board</u>

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, which 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 15 years, the Engineering and Computer Technology Initiative has been successful in increasing the number of graduates in targeted areas.

- During FY16, 1,626 engineering degrees were awarded compared to 862 in 2000, and in computer science 1,312 degrees were awarded compared to 513 in 2000.

- Since the initiative began, a total of 32,402 engineering and computer science degrees have been awarded.

- The TIAB requested that FY14 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 FY16 was 2,938 compared to 2,279 in FY14, representing an increase of over 29 percent over the base year.

Policy Issues

There are no policy issues associated with this report.

THE UNIVERSITY of UTAH   UtahStateUniversity   WEBER STATE UNIVERSITY   SUU SOUTHERN UTAH UNIVERSITY   SNOW COLLEGE   DSU DIXIE STATE UNIVERSITY   UVU UTAH VALLEY UNIVERSITY   Salt Lake Community College

<u>Commissioner's Recommendation</u>

<u>This report is an information item only; no action is required.</u>

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David L. Buhler
Commissioner of Higher Education

DLB/BKC
Attachment

Introduction

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 Science 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:

1. Established a goal to triple the number of graduates from USHE institutions in engineering, computer science, and related technology.
2. Directed the Regents to establish rules providing the criteria for those fields of study that qualify as "related technology."
3. Provided supplemental funds for equipment purchases to improve the quality of instructional programs in engineering, computer science, and related technologies.
4. Established a student scholarship to encourage enrollment in programs included in the initiative.
5. Assisted USHE institutions to hire and retain qualified faculty to teach in initiative programs.
6. Increased program capacity by funding new and renovated capital facilities, and funding for new engineering and computer science programs.
7. 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.
8. Funding matches for on-going appropriations have been maintained by the institutions.

To date, $15 million of on-going funding plus $10.45M of one-time funding have been appropriated to support the initiative.

Appropriated Funds

The following table gives a summary of the funding between FY2002 and FY2016.

	Engineering and Computer Science Initiative Funding History 2002-2016		
	Funds Appropriated		
Year	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
Total	15,000,000	10,450,000	550,000

Transfer of Credit between USHE Institutions

One measure of the initiative's success is the transfer of students from one institution to another as students complete degree requirements. Based on a study conducted of FY2013 computer science and engineering degrees awarded, approximately 36% were awarded to students who transferred credit from other USHE institutions. Each USHE institution contributed to this transfer impact. This data suggest that each USHE institution contributes to degree completion by enabling students to earn credits that are part of their overall educational pathway. This is evidence that transfer policies within the USHE impact students positively and serve to meet key state objectives in enabling students to complete their educational goals.

Degree Completion Results

Although the initiative has been underway since 2001, base year comparisons measure current graduation counts against FY2014, the last year that data was used to justify new legislative appropriations. The latest funding increase went into effect for FY2016. The chart below compares data from FY2014, FY2015, and FY2016. The TIAB will use this data to consider future funding requests.

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[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 on-going 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.

Comparison of Degree Completions for the Engineering and Computer Science Initiative										
	FY2014 (Base Year)			FY2015			FY2016			Change from FY2014 to FY2016	
	CS	Eng	Total	CS	Eng	Total	CS	Eng	Total	Change	Percent Change
Total	958	1,321	2,279	1181	1554	2735	1312	1626	2938	659	29

Over the life of the initiative, there has been a significant impact on degrees awarded in engineering and computer science. The 1,626 engineering degrees awarded in FY2016 compares to 862 awarded in FY2000 (89% increase), and the 1312 computer science degrees awarded in FY2016 compare to 513 awarded in FY2000 (156% increase). 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 32,402 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 of state dollars has made a significant difference for Utah.

Based on assessment by the TIAB, the Engineering and Computer Science Initiative has been one of the most successful legislative efforts of the past decade. With participation including industry, higher education, and the state, the initiative has proven to be a model program with strong accountability and demonstrable results.

Matching Funds

Utah Code 53B-6-105.9 requires institutions to match on-going funds appropriated to the initiative that are used for faculty positions. Beginning with funding appropriated for FY2013, institutions have provided an annual report that demonstrates compliance with the matching requirement. Based on information from this annual report, the on-going appropriations awarded in FY2013 and FY2016 were matched by the USHE institutions. The following table shows these matching funds.

Matching Funds Report		
Institution	FY2013 On-going Appropriations Matched by Institutions	FY 2016 On-going Appropriations Matched by Institutions
University of Utah	600,000	1,217,809
Utah State University	270,000	515,000
Weber State University	88,000	440,000
Snow College	Did not receive funding in FY2013	113,000
Dixie State University	Did not receive funding in FY2013	175,000
Utah Valley University	370,000	375,000
Salt Lake Community College	72,000	57,000

Note: Southern Utah University (SUU) received $25,000 in FY2016 but did not use that funding for faculty positions, thus SUU is not included in this report.

Technology Initiative Advisory Committee Members

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