

Engineering and Technology Industry Council Capacity Investment Plan Biennium from July 1, 2003 to June 30, 2005

Campus: Southern Oregon University
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Summary of Proposal:

SOU will invest \$320,000 to retain improvements to our Computer Science programs.

Goals

SOU seeks to increase the number of undergraduate and graduate majors and degrees in the Computer Science Department, exceeding 2X by AY09, and to increase the number of pre-engineering students and the number of transfers to OUS Engineering Colleges. The establishment of a Computer Security and Information Assurance (CSIA) degree option will help the Computer Science Department and achieve greater recognition and attract worldwide talent to enlarge its education and research activities, as indicated in many of the metrics shown below. In addition to capacity building, our goal is to recruit a diverse population of ECS students to SOU and to help them to succeed in ECS programs. We aspire for our Computer Science, Physics and Engineering, and Chemistry Departments to be among the top programs at comparable institutions. Further, our goal is to be known throughout the State of Oregon and nationwide for our Computer Security and Information Assurance (CSIA) program and to be known throughout the State of Oregon as the top provider of high quality transfers to engineering programs.

In order to provide a national context for our programs, we propose to rank our Computer Science Department, our Department of Physics and Engineering, and the entire School of Sciences at SOU relative to our peer institutions as specified by OUS and to institutions in the Council of Public Liberal Arts Colleges (COPLAC). OUS peers include California State University, Stanislaus; Fort Hays State University (Kansas); University of Michigan, Flint; Southeast Missouri State University; Plymouth State College (New Hampshire); SUNY College of Fredonia; Southern Utah University; Mary Washington College (Virginia); Eastern Washington University; University of Wisconsin, Parkside. COPLAC institutions have similar size and mission to SOU and include, in addition to SOU, The College of Charleston, The Evergreen State College, Fort Lewis College, Georgia College & State University, Henderson State University, Keene State College, Mary Washington College, Massachusetts College of Liberal Arts, New College of Florida, Ramapo College of New Jersey, Sonoma State University, St. Mary's College of Maryland, SUNY College at Geneseo, Truman State University, University of Maine at Farmington, University of Minnesota at Morris, University of Montevallo, University of North Carolina at Asheville, and University of Wisconsin-Superior. Data already available show that SOU ranks number one among our peers in the number of Computer Science Bachelor's Degrees, number two in engineering enrollment, and number one in physical science enrollment. In addition to enrollment and degree data, we propose to gather data on program budgets, faculty size and qualifications, and external funding. Our goal is to rank in the top third in all categories and in the top two in several (see SOU metrics in the Materials Science proposal).

Investment Rationale

In order to preserve the growth in Computer Science that began in the 1999-01 biennium and continued in the 2001-03 biennia, we proposed to invest \$320,000 during the 2003-05 biennium. Past funding has provided a critical mass of faculty so that the department has been able to develop new degree options in Computer Science and Multimedia (CMM) and Computer Security and Information Assurance (CSIA) and to develop more stand-alone graduate courses. The new Computer Security and Information Assurance (CSIA) option, an integrated computer (“cyber”) security curriculum, will be a valuable asset for students in today’s job market and a much sought after goal for many IT students and professionals, and will offer unique opportunities for collaboration among OUS institutions.

Specific use of this funding will include support for faculty positions, including visiting positions practicing professionals and the Instructor/Computer Lab Administrator position, and additional support for graduate assistantships. With funding at the \$320,000 level we will be able to retain most of the capacity that has been built over the past two biennia. Because we propose to spend most of the funding on classroom instructors, the funding will go directly toward instructional capacity and additional upgrades to classrooms and teaching labs will be delayed. Fortunately, investments made in 2001-03 have resulted in a new programming lab twice as large as before and a new network security lab managed by students.

With funding at the \$320,000 level we will not be able to invest much capacity funding in our pre-engineering program during the 2003-05 biennium. We do plan to take advantage of the overlap of pre-engineering with materials science and to use materials science funding to support some engineering classes and recruit students to both materials science and pre-engineering.

Results

The funding for Computer Science will be less than that for 2001-03. However, the earlier funding resulted in several significant accomplishments. The Computer Security and Information Assurance (CSIA) curriculum has been developed and approved. Our newest hires, both with industrial experience have enhanced expectations, quality, and culture in the department. Computer Science majors have started two new CS-related clubs and are working to start a chapter of Upsilon Pi Epsilon, a CS honors society. We have a new programming lab twice as big, and with triple the hours, and a new network security lab, managed by students. The department is initiating a computer science contest and has many other plans for recruitment to recover the enrollments we lost to the drop in IT and the increase in our standards. Last, and perhaps most importantly, the University administration remains committed to supporting ETIC activities at SOU.

The proposed new investments will maintain the momentum that was begun in 1999-01 and 2001-03. Enrollments in Computer Science have declined as a result of the economic downturn and increased rigor of the programs, but we expect the CSIA degree option to be a significant factor in recouping the losses and increasing student quality. Therefore, enrollments are expected to rebound somewhat in 2003-04. Already, we are seeing an increase in students at the graduate level for 2003-04. We expect to attain at least 2.3X for total degrees (combining BS and MS in Computer Science and Materials Science degrees) by AY09 if funded at the \$320,000 level. Because of targeted recruiting for both materials science and pre-engineering to be carried out this year, we expect to do a better job of recruiting women and minorities to the program. Our ability to offer high quality science and mathematics programs in a small school setting will ensure the successful preparation of our students for ECS degrees and careers.

Proposed Investment and Private Support Forecast \$320,000 (\$M)

	7/1/03- 6/30/04	7/1/04- 6/30/05	Total
Proposed OUS Investment (\$M)			
Support of existing faculty (1)	0.118	0.109	0.227
Funds tied to existing programs (2)	0.014	0.0025	0.0165
New programs (3)	0.041	0.0355	0.0765
Subtotal	0.173	0.147	0.32
Expected private support (\$M) (4)	0.052	0.044	0.096
Total (\$M)	0.225	0.191	0.416
Faculty Supported (FTE)			
Existing (1)	2.53	2.32	2.32
New (5)	0.74	0.63	0.63
Total	3.27	2.95	2.95
Notes:			
(1) Hired with ETIC funds through June 2003.			
(2) Programs started with ETIC funds through June 2003.			
(3) Use as many lines as you need to give the proposed new investment(s)			
(4) Consistent with ETIC Private Support Policy dated 1-23-02.			
(5) To be hired with ETIC funds during 2003-2005 biennium.			

Metrics Forecast (\$320,000):

	Baseline	Projected			
	AY 99	AY04	AY05	AY06	AY09
Average SAT/ACT percentile of incoming freshmen (1)	61	64	64	72	72
Average GRE percentile of incoming grad. students (2)	59	80	85	85	85
Women graduating from ECS programs (5)	21%	25%	25%	30%	30%
Minorities graduating from ECS programs (5)(6)	15.40%	10%	12%	13%	13%
ECS undergraduate student credit hours	6406	7200	7600	8000	8500
ECS bachelors degrees granted	33	45	55	60	62
ECS graduate student credit hours	128	350	400	450	550
ECS graduate degrees granted	5	5	10	10	12
Pre-college contact hours (8)	N/A	N/A	N/A	N/A	N/A
Notes:					
(1) If your applicants are required to submit SAT scores, use the percentile corresponding to the average composite SAT score of those submitting them. If they have the choice of SAT and ACT, use the average composite SAT score and the average composite ACT score, convert them to percentiles, and compute a weighted average of the two.					
(2) Percentile based on the average quantitative score over those submitting such scores; ignore verbal and analytic scores.					
(3) As a percent of those taking it for the first time					
(4) As a percent of all those entering					
(5) As a percent of all those graduating					
(6) Racial and ethnic minorities who are US citizens or permanent residents					
(7) Forecasts for multiple programs and departments are encouraged. Each ranking should be footnoted with the ranking body or ranking methodology.					
(8) Pre-college students participating in pre-college engineering, technology, computer science, math, and science programs					