Engineering and Technology Industry Council
Core Investment Plan
Biennium from July 1, 2005 to June 30, 2007

Campus: Eastern Oregon University

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Summary of Proposal: Core Investments - $250,000 for faculty and lab support (plus 50% match)

Goals

- Maintain current course offerings in computer science and multimedia development.
- Increase enrollment of students pursuing traditional computer science degree and multimedia degrees.
- Where enrollments support the cost, increase frequency of offerings of computer science electives. (This should improve recruitment and retention of students seeking to complete a traditional computer science degree).
- Hire an additional faculty member to support CS/MM programs.
- Maintain and upgrade current teaching and laboratory facilities.
- Maximize the opportunities arising from EOU's new Science Center.
- Develop a curriculum in educational technology and computer education for K-12 educators, as funds become available.

Investment Description

40% for continuing faculty and support:

Reduced state support continues to place significant challenges on our ability to support high cost science and technology programs. However, with the recent opening of EOU's Science Center, we expect increased student interest in these areas. We intend to invest about forty percent of the allocation for continuing faculty and faculty support, so that we can stabilize and maintain programs. A portion of the allocation will be invested in support positions, so that faculty will not be responsible for maintenance and security of lab facilities. As EOU's programs continue to mature, we will add course sections and expand course offerings to meet student demand.

20% for existing lab maintenance:

About 20% of the allocation will be used to maintain existing laboratory facilities. At present the program has two labs, a programming lab that has 16 linux workstations in a small room, and a multimedia lab which is in space borrowed from and shared with the art department. The second facility is equipped with 16 Macintosh computers of various vintages. Neither lab has enough room to accommodate an entire class, and neither has facilities for conducting demonstrations. Although we partially upgraded some of these facilities last year, budget constraints prohibited us from bringing these labs up-to-date. These funds will replace aging equipment and provide support services to CS/MM students.

40% for new, expanded programs:
We intend to invest about 40% of the allocation in new initiatives. By 2004-05 we project a need to hire a third faculty member to cover additional course sections and expanded offerings. Upon securing funding, we plan to establish lab areas in EOU's new Science Center or another newer building that provides ample space for 20 to 25 students to work at one time. Such improvements will assist students in completing projects on time and improve retention of students for all demographics. If funding allows, the addition of a smart classroom for demonstrations will enhance communications of abstract topics.

Eastern Oregon at present has little investment in the use of high technology in K-12 education. Within available resources, development of a curriculum in computer education and educational technology will provide educators graduating from EOU with knowledge and skills to appropriately use technology in their classrooms.

Results

The Oregon Employment Department (Regional Profile – Occupational Employment – Region 13, issued in 2004) notes the following about the eastern Oregon employment outlook:

> Northeast Oregon's occupational employment statistics defy the rural-equals-blue-collar stereotype. This region had proportionately more professionals in its workforce than the state**.** This is especially true in forestry, biology, and other life sciences, where Region 13 has triple the relative share of workers as does Oregon. Northeast Oregon also has more educators in its professional workforce than most other parts of the state. On the other hand, the region has relatively fewer professionals than the state in such areas as engineering or computer-related work.

The above quote captures the two basic opportunities that exist for EOU:

- To capitalize on the existing infrastructure in forestry, biology and life sciences. To continue to supply highly qualified graduates to these employers and to expand opportunities through research and the creation of complimentary businesses
- To develop the engineering and computer science community in eastern Oregon. To make use of the existing "knowledge" supply in the area to develop engineering and computer science research and industry.

Eastern Oregon represents a great economic opportunity. Unlike the typical rural area of a state the area served by EOU actually includes an existing base of knowledge workers who exist side-by-side with the traditional agribusiness and natural resources industry in the area. As a result, EOU is not attempting to "start from scratch" in developing a science, engineering and technology research and learning hub.

In the five years the CS/MM degree program has been in place at EOU, the number of students enrolled has grown to about 65. Of these about one-third are pursuing studies in the traditional computer science track. With rapidly declining state support, program stabilization and maintenance of offerings is important. We expect increased interest in our programs as a result of the recently opened EOU Science Center. This should improve our

recruitment and retention prospects along with continued upgrades to existing labs and continued support to our CS/MM faculty. Hiring a new faculty member in 2004-05 recognizes the growing and maturing nature of our CS/MM offerings and will afford students additional course sections and expanded program choices.

Retention of faculty members, which is critical to the health of any academic program, should improve if faculty can be relieved of the tasks of maintaining the integrity and security of facilities. The Report on Computing Curricula 2001, released by the Joint Task Force on Computing Curricula of the IEEE Computer Society and the Association for Computing Machinery, states that in addition to adopting aggressive plans for faculty recruitment and providing for tenure-track teaching positions that do not require terminal degrees, one of the most important factors in faculty retention has to do with "concerns about the academic work environment," such as "heavy teaching loads," and other "academic disincentives." (P85–86) We expect any measures made to improve faculty retention will increase student recruitment and retention.

Expansion of course offerings to include educational technology for K-12 teachers and one or more computer education classes will increase the numbers of undergraduate students served by the program and also increase exposure to the use of high technology by K-12 educators. Here's what one educator said after participating in a summer program, Palm Education Pioneers, to better integrate technology into the learning environment:

> As educators, we have a vision of what we want to accomplish, the standards and objectives we want to reach and how we want projects to be completed in our classrooms. Through failures and successes in addressing our assignment I learned new ways to incorporate technology to assist my students in achieving our state learning standards and ways that are much longer lasting and more meaningful for them than before.
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> My confidence in using these newly acquired skills has helped me to share them among my colleagues within my building, district and region. The insights I developed into using technology to increase the level of teaching and learning within my classroom will have lifelong positive affects for my students.

Metrics include credit hours in Computer and Information Science, Biological and Life Sciences, Physical Sciences and Mathematics. We can report the results of the actual results to compare to our goals on an annual basis. These credit hour results don't exactly match to the discipline or degree path for students. For example, if a Theatre major enrolled in a Computer Science course, the credit hours would show up here. However, these results represent a good indicator of the growth of these programs. Mathematics is included even though ETIC does not directly this curriculum because the Computer Science, Engineering and technology fields require a strong math background.

Proposed Investment and Private Support Forecast ($M)

	7/1/05-6/30/06	7/1/06-6/30/07	Total
Proposed OUS Investment ($M)			
Support of existing faculty (1)	0.10	0.1	0.20
Funds tied to existing programs (2)	0.02	0.03	0.05
Programs (3)			0.00
Subtotal	0.12	0.13	0.25
Expected private support ($M) (4)	0.06	0.06	0.13
Total ($M)	0.18	0.19	0.38
Faculty Supported (FTE)			
Existing (1)	1.5	1.5	1.5
New (5)	0.0	1.0	0.5
Total	1.5	2.5	2.0
Notes:			
(1) Hired with ETIC funds through June 2005.			
(2) Programs started with ETIC funds through June 2005.			
(3) Use as many lines as you need to describe your programs			
(4) Consistent with ETIC Private Support Policy dated 1-23-02.			
(5) To be hired with ETIC funds during 2005-2007 biennium.			

Metrics Forecast:

	Baseline	Projected			
	AY 99	AY06	AY07	AY08	AY09
Average SAT/ACT percentile of incoming freshmen (1)	52	55	55	55	55
Average GRE percentile of incoming grad. students (2)	n/a	n/a	n/a	n/a	n/a
Women graduating from ECS programs (3)	n/a	5%	5%	5%	5%
Minorities graduating from ECS programs (3)(4)	n/a	20%	20%	20%	20%
ECS undergraduate student credit hours	1,417	2,625	2,798	3,034	3,150
ECS bachelors degrees granted	0	16	18	19	21
ECS graduate student credit hours	n/a	n/a	n/a	n/a	n/a
ECS graduate degrees granted	n/a	n/a	n/a	n/a	n/a
Pre-college contact hours (5)	100	100	100	100	100
Total research expenditures per year (6)	n/a	n/a	n/a	n/a	n/a
National ranking of <program or department> (7)	n/a	n/a	n/a	n/a	n/a
National ranking of <college>	n/a	n/a	n/a	n/a	n/a
Licenses sold (8)	n/a	n/a	n/a	n/a	n/a
CIP 11 - Computer & Information Science (9)	1,414	2,010	2,111	2,216	2,327
CIP 14 - Engineering (9)	50	192	202	212	222
CIP 26 & 40 - Biological, Life & Physical Sciences (9)	10,771	14,146	14,853	15,596	16,376
CIP 27 Mathematics (9)	6,676	9,390	9,860	10,352	10,870
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 all those graduating					
(4) Racial and ethnic minorities who are US citizens or permanent residents					
(5) Pre-college students participating in pre-college engineering, technology, computer science, math, and science programs					
(6) Total dollars spent by ETIC-related departments towards research during academic year.					
(7) Forecasts for multiple programs and departments are encouraged. Each ranking should be footnoted with the ranking body or ranking methodology.					
(8) Patent licenses or other royalty-generating intellectual property licenses granted to commercial entities					
(9) Add additional metrics as appropriate. Credit hours generated in specific disciplines.					