

Engineering and Technology Industry Council
Campus Investment Proposal
Biennium from July 1, 2009 to June 30, 2011

Campus: Oregon Institute of Technology

Contact Name: Tom Chester

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Summary of Proposal: The Oregon Institute of Technology requests a total of \$3.8 million for an integrated, four-part plan that will increase Bachelor's and Master's degrees in ETIC mission-critical disciplines by 7 percent annually for a total increase of 67 percent by 2020. Seed funding from ETIC will allow OIT to attract students, increase graduates, and enhance private funding for its important work. The plan will

- Strengthen the pre-college pipeline of incoming freshman engineering students.
- Expand unique and relevant programs in Renewable Energy Systems, Biomedical Engineering, and Health Informatics.
- Increase funded research from \$1.2 Million (2007) to \$6.0 Million (2020).
- Maintain OIT's status as a top 10 western public baccalaureate college

Vision Statement: The Oregon Institute of Technology has the following vision and mission: As an outstanding university, create a pipeline of science and math-savvy pre-college students, prepare world-ready graduates who excel in the workplace, and be a leader in applied research, harnessing renewable energy for the economic development of Oregon.

Aspirational Peers: The aspirational peer for the institution as a whole is Cal Poly San Luis Obispo, which has twice as many students as OIT in the engineering, science and math disciplines, and was ranked 7th in the US News overall list of the West's best universities (with undergraduate and master's-level programs but few doctoral programs). Its students "do intensive and self-directed research," and Cal Poly's College of Engineering ranked as the No. 2 program at a public school in the US. While emphasizing a hands-on, learning-by-doing philosophy like that of OIT, in 2007 they received \$22 million in contracts and grants and had 91 research proposals funded. Aspirational peers for the OIT ETIC-related areas include Florida Solar Energy Research Center for Applied Research and Montana State University for Allied Health.

Long-term Goals

	1998-99 Base ¹	2006-07 Goal ²	2006-07 Actual	2012/13 Goal ⁴	2019/20 Goal ⁵
BS	154	235	198	297	446
MS	1	4 ³	3	15	30 ⁶
PhD	0	0	0	0	0
Total	155	239	201	312	476

1. Source: OIT 1999-2000 Fact Book, all ETM degrees, IT not reported as a separate major.
2. Source: ETIC 2005-2007 Biennium Core Investment Plan, ECS BS degrees.
3. Ibid. 180 graduate credit hours / 45 hours for MS in MFG = 4 degrees completed.
4. Source, OIT 1999-2006 Majors Reports, extrapolated from the surge in 2005-6 enrollment.
5. Source, OIT 2006-2007 Fact Book actual degrees granted projecting a 7% per annum increase.
6. Based on additional graduate degree programs being implemented.

Other Desired Outcomes in 2013/2020

	1998-99 Actual	2006-07 Goal ¹	2006-07 Actual	2012-13 Goal	2019-20 Goal
Externally funded Research (\$ mil) ²	\$0.77	\$1.3		\$2.4	\$6.0
Patent Disclosures ³				8	20
License Revenue (\$ thousand) ⁴				\$0.05	\$0.1
Spin offs (companies) ⁵				3	6

1. From campus plan for 2005-2007 Biennium.
2. Total dollars spent by ETIC-related departments toward research.
3. New patent applications, provisional or otherwise, during year.
4. Revenue from patent and other intellectual property licenses granted to commercial entities.
5. Number of spin-offs as reported to Association of University Technology Managers.

Executive Summary:

I. Plan elements

A. Pre-College Investment builds on long-time experience with elementary, middle, and high school students and teachers in a strategy that will increase opportunities for women and underserved minority populations to become engineering and applied science graduates. OIT requests \$300,000 to support this pipeline that will result in more engineers/technologists entering Oregon's workforce.

The ETIC funding of \$300,000 will be used primarily to support personnel, and some services and supplies – the program director and office specialist, existing positions; a half-time program coordinator for new initiatives, a quarter-time faculty FTE (various faculty members).

The goal for the Pre-College use of ETIC funding is to strengthen college readiness programs and improve recruitment numbers of underrepresented populations. The plan fits well into existing, strong pre-college efforts. New initiatives include advanced gaming courses for girls, augmented summer programs for high school teachers, two programs aimed at engaging the Hispanic

population, and a Green technologies emphasis, which will be integrated into as many Pre-college programs as possible.

Collaboration with Oregon organizations: Local schools and school districts – OIT offers dual credit classes in 27 high schools in 12 Oregon counties, and has collaborations with Tribal education offices. Engineering and other associations – Society of Women Engineers, Software Engineering Association, American Association of University Women, which sponsors activities. Corporations and foundations (that support sponsored programs like math immersion), and ASPIRE (Access to Student Assistance Programs in Reach of Everyone), a state-wide organization that provides mentoring, advising, and resources for applying for college.

Clusters: Green Industries, High Tech and Display Technology, Software and Silicon.

Private Funding: The Pre-College program has an active grant-seeking program and anticipates making a 1:1 match for ETIC funds received. Corporations like Microsoft, International Gaming Technology, PacifiCorp, and TransCanada have been regular donors, and a proposal is in preparation for a National Science Foundation grant.

Pre-College Investment Results and Benefits:

By increasing college-ready pre-engineering/technology students, the program will provide substantive help for OIT to increase the number of engineering graduates. In 2007 461 students took Advance Credit Program/High School Transition classes. Dual credit students will increase from 263 in 2002 to 416 in 2010, 500+ in 2014. A pre-college Science Technology, Engineering, and Math Center will be created.

B. Education programs will broaden OIT offerings into areas important to the Oregon economy and that have potential for attracting students to engineering and information technology:

- **Renewable Energy Systems** – a successful program with promise for expansion and near-term self-sufficiency. The RES program is the first undergraduate engineering program in the nation in renewable energy, and the only one working toward accreditation. OIT is requesting ETIC support to continue the growth of the RES program with funds for critical laboratory equipment in Portland and for one new faculty there. Funding is critical at this time to support the program until it reaches the optimum enrollment to cover costs.
- **Embedded Systems Engineering Technology:** The growth of embedded processors is outpacing that of PC processors. The average vehicle is projected to have no fewer than 32 embedded processors required for standard operation. The healthcare industry is projected to become highly reliant on small scale embedded processors. ETIC funding will support one existing position through half-time funding in the first year of the biennium, and help to grow the Embedded Systems program.
- **Health Informatics:** The investment will support one additional faculty member, and develop a Simulation lab for virtual Community Hospital Clinical Systems
- **Geographical Information Systems:** The use of computerized geographic and demographic data bases to solve problems in engineering, economic, or legal/governmental situations, the GIS specialization has strong ties to other strategic components of the ETIC proposal. ETIC funding will support basic start-up funds for a new pedagogical program that will offer a full spectrum of courses within 2 years.

- **OIT Online Graduate Program in Manufacturing Engineering** – designed to meet a specific demand for supervisors with administrative as well as technical skills. ETIC funds will be used for curriculum development, software, and basic development work to adapt a successful model. Working professionals will be able to complete the degree online in less than two years.
- **Manufacturing Engineering Technology Robotics Laboratory:** ETIC funds will provide a “seed grant” to establish an applied industrial robotics laboratory at OIT. That will give students the opportunity to simulate and run actual robotics experiment, and experience computer based factory automation.
- **Biomedical Engineering,** a new program to take advantage of the synergies between OIT’s Portland Electrical Engineering Technology program, the biomedical research of an OIT engineering faculty member, and the Oregon Graduate Institute Biomedical Engineering graduate program. ETIC funds will hire a 1.0 FTE faculty to expand capabilities in the area of Biomedical Engineering & Medical Devices to create the first career pathway for Oregonians in the prominent field of biomedical engineering and medical devices.

OIT believes that in developing and carrying out these educational programs there are important opportunities for collaboration with other Oregon institutions of higher learning. OIT has articulation agreements with community colleges throughout Oregon, and OIT administrators have been exploring strategies with other OUS schools, in particular Eastern Oregon University.

Education Investment:

1. Renewable Energy Systems: create a laboratory and expand RES Degree, 1 new faculty	\$432,000
2. Information Technology,	
2.1. Systems Engineering Technology, Embedded Systems, 1.5 FTE new faculty	\$238,000
2.2. IT/ Health Informatics – 1 new faculty, 3 existing positions, create laboratory	\$996,000
2.3. Geographic Information Systems emphasis	\$145,000
3. Graduate Program, Manufacturing Technology, create materials for online degree	\$146,000
4. Special Opportunities	
4.1. Manufacturing Technology, create Robotics Laboratory	\$149,000
4.2. Biomedical: initiate 1st Oregon BS (OIT- OHSU/OGI collaboration), 1 new faculty	\$195,000
	Total Education Investment \$2,301,000

Clusters: The OIT education programs target Manufacturing, Environmental Technology & Services, Green Development, High Tech, Healthcare, Bioscience, Renewable Energy, Agriculture, Software, Energy Efficiency Clusters.

Private Funding: The programs that will be strengthened by ETIC support are engaged in aggressive grant seeking, as well as continuing to seek industry donations and funding for undergraduate laboratory supplies and equipment. (Details are listed in the full OIT proposal.)

Education Investment Results and Benefits:

- ETIC funding for Renewable Energy Systems will consolidate gains that this relatively new program has made. Enrollment gains will support the program by the end of the biennium.
- The Embedded Systems program will provide Oregon’s High Tech Industries with engineers trained in the intricate nature of embedded systems development to meet the growing needs.
- The Health Informatics program is on both the Klamath Falls and the Portland campuses. The anticipated growth of the program is 120 graduates by 2020.

- GIS laboratory upgrade will be completed, and the program will be ready to enroll students.
- The robotics laboratory will offer one robotics class per term within one year of funding, generating 180 credit hours of enrollment.
- Creation of the first BS degree in Biomedical Engineering & Medical Devices in the State of Oregon will increase the number of engineering graduates in the field from 0 to 30 per year.

C. Applied Research is the driving force for OIT's mission of producing skilled engineers and technologists. The proposed ETIC investment for the next biennium will expand the role of applied research to increase private support and leverage state funds. ETIC funding of \$959,000 will be used to build on OIT's reputation in renewable energy, by drawing additional students to the university, engaging those students and faculty in relevant projects, and producing world-ready engineering graduates.

The OIT leadership believes renewable energy – and the larger idea, sustainability – to be of paramount importance to the nation and is positioning the university to be a leader in the state. OIT's presence in renewable energy has three facets, the first two of which are supported by ETIC funds – (1) applied research through Oregon Renewable Energy Center (OREC), (2) the only undergraduate program in Renewable Energy Engineering in the Northwest, and (3) a plan to make the OIT campus in Klamath Falls the first campus in the world to generate all of the electricity it uses from renewable sources, while turning the campus itself into a demonstration and renewable energy technologies research park.

ETIC funds for Applied Research will be used to support

- **Salaries and support** for OREC management, research, and development staff (OREC director, a research engineer, and half of the salary of a development specialist, as well as travel/supplies). This investment brings in revenue to OIT through grants and research contracts, and the development specialist will provide long-term sustainability.
- **Faculty productivity grants** for proposal development and mini-research projects in renewable energy and bio-medical engineering, to encourage faculty development and encourage the solicitation of external funding to leverage ETIC's funding
- **Stipends to support student research** will be used to encourage OIT students to pursue undergraduate research in the areas of renewable energy and bio-medical engineering. Ten quarter-time academic year appointments at \$10 per hour are planned.
- **Support of student projects** by providing funds for materials, supplies, tools, etc.: Three \$5,000 awards will be offered each year as an investment for student projects.
- **Equipment for the OREC laboratory** to be used for student and faculty projects: This is a “chicken and egg” conundrum – without laboratory resources it is difficult to build pedagogical programs, and without the programs it is not possible to buy equipment.

Clusters: Green Energy and High Tech are the primary industry clusters for Applied Research, but OREC is cross-disciplinary in nature and its opportunities for interactions are broad.

Private Support: OREC has had success in attracting support from companies that donate equipment, support that can serve as matching funds. Currently OIT is establishing working relationships with private partners such as Idatech, Cascade Solar and, PV Powered in Bend,

King Solar in Portland, Energy Outfitters in Grants Pass, and Eco-Solar in Klamath Falls. Additionally, the campaigns for the Green Technology Center and to make OIT Klamath Falls the first “net-zero energy” campus in the world will attract private support to match ETIC funds. (The Energy bill recently passed by Congress includes \$1 million to establish a deep-well geothermal power plant at OIT that will generate all of the power used on campus.)

In the realm of economic development, there are excellent opportunities for energy extension service work that will help businesses and farmers use renewable energy sources.

The importance of private support as a way to leverage state funding was a motivation for adding the half-time development specialist. The responsibilities for this position include identifying potential partners, establishing relationships, ascertaining needs and opportunities that can be met by OIT, and preparing proposals and related documentation.

Applied Research Investment Results and Benefits: The OIT administration supported the founding of OREC as a focus for the university’s work in renewable energy and the fulcrum to increase the institution’s general involvement in applied research. OIT intends to expand the role of OREC, adding staff and equipment as opportunities arise. The planned Green Technology Center on the Klamath Falls campus will be in development during this period, the result of a major campaign now being planned that is similar to the current, successful one for the Center for Health Professions at OIT Klamath Falls.

D. Engineering & IT Recruitment Investment: Student Recruiting is essential to graduating more engineers and applied scientists from Oregon’s universities. OIT seeks \$240,000 for a recruiting specialist within the School of Engineering, Technology, and Management to focus on the particular issues relating to these students, bringing OIT to a new level of capacity, and helping to meet ETIC’s goals of doubling engineering graduates.

OIT has a new comprehensive Strategic Enrollment Management (SEM) Plan, published in April 2007, which was developed through the two-year strategic planning process that has resulted also in a new institutional Strategic Plan. The SEM plan contains university-wide goals, prioritized action items, indicators, and responsibility centers as a means to achieving OIT’s institutional performance indicators focused on enrollment, retention and graduate numbers.

The ETIC funds will cover salary and benefits, as well as travel expenses, which are vital to accomplishing the job, and some production of materials. The new position will coordinate all activities in detail with Admissions so that there is no duplication of effort, but will report to the Chair of the School of Engineering, Technology, and Management.

Retention Activities: Among these goals of the new Enrollment Management Plan are Recruitment of New Students and Student Success (Retention & Graduation). As well as working closely with Admissions, the ETIC-funded Engineering & IT Recruitment Specialist will coordinate some activities with the staff person who is chiefly in charge of student retention activities, the Director of the Center for Learning and Teaching (CFLAT). ETIC funds are not requested for OIT’s retention activities at this point, since one new position was recently added

specifically for that purpose (the First Year Experience Coordinator), and other new programs have just begun, such as the new CFLAT Early Warning System.

Aspirational Peer in Recruitment: The University mentioned as an institutional aspirational peer for its success in research, Cal Poly San Luis Obispo, has also had an outstanding improvement in recruiting that can model effective tools for OIT. Their plan is based on a commitment to interactive communication throughout the recruitment cycle, and the results have been students who were more likely to enroll because of personal interest and help extended to them. Cal Poly SLO employs technology to accomplish and to evaluate their efforts, and they communicate directly with prospective students and applicants in a highly personalized fashion. Interactive tools include web pages for prospective students, and active e-mail communications

Clusters: The engineering recruiter will work with most of the Oregon Clusters, in particular: Bioscience, High Tech, Green Industries, Software and Silicon, and Healthcare Clusters.

Private Funding: There are currently programs at private foundations for scholarship funding that will aid in recruiting, and for international student recruitment. The Office of Student Affairs will work with the OIT Director of Grants Development to identify and submit proposals for these opportunities on a regular, consistent, and continuing basis.

Engineering & IT Recruitment Investment Benefits and Results: There is an opportunity for significant success, since this position will represent a substantial increase in staff members dedicating their energies to student recruiting (currently numbered at five admissions personnel and four office support personnel). The Portland campus of OIT is home of the Renewable Energy Systems degree and the Biomedical programs. The Portland programs have created their own marketing strategies.

OIT administration believes that it will take more than two years to consolidate the engineering recruitment efforts, and anticipates a partial funding request from ETIC for the 2011-2013 biennium. Depending on the success of the special recruitment efforts, by the end of that biennium, the position would be moved to institutional funds.

II. Results and Benefits of OIT ETIC Investment

The OIT strategy is designed to produce significant results during the 2009-11 biennium. The elements of the plan are interrelated and contribute specifically to attracting, engaging, retaining, and graduating engineers. The idea is straightforward:

- place resources in academic areas that combine high potential student interest and societal relevance with OIT's technical strength
- support the academic effort with applied research, which will attract outside funding and offer practical experience to students
- supplement the OIT Strategic Enrollment Management Plan with a recruiting specialist who will focus exclusively on attracting engineering students

The focus on attractive programs like renewable energy, health informatics, and manufacturing engineering will allow OIT to meet and perhaps exceed its goal of significantly increasing the number of engineering graduates. Although OIT is a small university, its emphasis on relevant

attractive programs, seeded by ETIC funding in critical areas, will play a significant role in producing engineers and applied scientists for Oregon.

Long-term Results/Desired Outcomes in 2013/2020:

- **National ranking** at college level vs. 1999 and 2007
- In 2007 No. 10 Baccalaureate College (No. 4 Public) in the West (no national ranking in 1999).
- Desired ranking in 2013/2020: continue to be in top ten.

Other desired long-term outcomes

- **Pre-College:** A stronger engineering and allied health pipeline – expanded pre-college science, math, technology, and engineering education with a pre-college STEM center.
- **Education:** Stronger/expanded Information Technology, Health Informatics, and Computer Science programs. Double enrollment in Renewable Energy Systems program. Meet goal of 461 engineering graduates by 2020.
- **Applied Research:** OIT Klamath Falls, the first net zero energy campus in the world, will create an OREC Green Technology Center of Excellence to expand the Geo-Heat Center model to other renewable energy technologies.
- **Recruiting and Retention:** Numbers of new students up and retention markedly improved through special engineering recruitment and implementation of retention activities in OIT Student Services.

Results of Other Private OIT Support – Advancement Strategy:

The OIT Office of Advancement has recently doubled in personnel and activities are well in hand to increase fundraising on many levels. Its mission is to promote Oregon Institute of Technology and increase its fiscal viability, and the department “sustains OIT over time by developing and stewarding relationships with alumni, friends and other strategic partners.” Areas of resource development that have been enhanced with additional personnel in the past year are grants, the annual giving campaign, major giving, and endowed scholarships expansion, and a new Director of Alumni Relations has just joined the staff to systematically engage graduates in the life of OIT. The donor and partner database capabilities are very good, maintained vigilantly, and being improved constantly. Advancement works closely with the Oregon Tech Foundation, and with OIT administration, in particular the President’s office and the Office of Public Affairs.

The ambitious private funding goals in this proposal will be facilitated and assisted by the Advancement staff, particularly the Director of Grants Development, who has been given the particular goal of supporting the renewable energy efforts at OIT. She also works closely with the Director of Faculty Support to encourage faculty sponsored research endeavors, and with the Associate Vice President of Strategic Partnerships in continuing efforts to find new collaborations that can benefit OIT and engineering programs.

III. Investment Allocation

Proposed Investment and Private Support Forecast (\$M) from OIT

		Level 0 Base Budget	Level 1 Policy Option	Level 2 Policy Option
1	Sources of funds			
2	Base budget for ETIC-related programs* – all sources except ETIC allocation & private support	9.33	9.33	9.33
3	Proposed ETIC allocation (\$M) (3)	1.48	3.48	3.80
4	Expected private (4)	1.48	3.48	3.80
5	Total (\$M)	10.29	16.29	16.93
6	Personnel (FTE) (5)			
7	Existing faculty (1)	3.00	3.25	3.25
8	New Faculty (2)	2.00	5.00	5.25
9	Existing Staff (1)	2.00	3.50	3.50
10	New Staff (2)	0.50	2.00	2.00
11	Total	7.50	13.75	14.00
12	New positions created (6)			
13	Faculty (2)	2.00	5.00	5.25
14	Staff (2)	0.50	2.00	2.00
15	Total	2.50	7.00	7.25
16	ETIC funds in line 3			
17	New facilities	0.300	0.265	0.460
18	Improve facilities (7)		0.160	0.160
19	Laboratory equipment (7)		0.299	0.299
20	Other equipment (7)			0
21	Other one-time expenses	0.090	0.315	0.381
22	Existing faculty (1)	0.400	0.703	0.703
23	New faculty (2)	0.160	0.802	0.861
24	Existing staff (1)	0.410	0.527	0.527
25	New staff (2)	0.080	0.278	0.278
26	Services & supplies	0.020	0.059	0.059
27	Other	0.020	0.072	0.072
28	Total	1.480	3.480	3.800
	* Most OIT requested education funds are for new programs that do not have a base budget.			
	(1) Hired through 6/09 and supported by ETIC funds 2009-11			
	(2) Hired with ETIC funds during 2009-11 biennium			
	(3) Certificates of Participation			
	(4) Consistent with Private Support Policy			
	(5) FTE as percent of full time over 2 years			
	(6) FTE on an ongoing basis			
	(7) Improvements and equipment to be purchased with ETIC funds			

OIT Proposed Investment and Private Support Forecast (\$M)

Level 2 Policy Option Package		Pre-college	Education*	Applied Research	Recruiter	totalled
1	Sources of funds					
2	Base budget for ETIC-related programs* – all sources except ETIC allocation & private support	0.5	4.415	4.415	0	9.33
3	Proposed ETIC allocation (\$M) (3)	0.3	2.301	0.959	0.24	3.8
4	Expected private (4)	0.3	2.301	0.959	0.24	3.8
5	Total (\$M)	1.1	9.017	6.333	0.48	16.93
6	Personnel (FTE) (5)					
7	Existing faculty (1)	0.25 FTE	3.00 FTE			3.25 FTE
8	New Faculty (2)		4.50 FTE	0.75 FTE		5.25 FTE
9	Existing Staff (1)	2.00 FTE		1.50 FTE		3.50 FTE
10	New Staff (2)	0.50 FTE		0.50 FTE	1.00 FTE	2.00 FTE
11	Total	2.75 FTE	7.50 FTE	2.75 FTE	1.00 FTE	14.00 FTE
12	New positions created (6)					
13	Faculty (2)		4.50 FTE	0.75 FTE		5.25 FTE
14	Staff (2)	0.50 FTE		0.50 FTE	1.00 FTE	2.00 FTE
15	Total	0.50 FTE	4.50 FTE	1.25 FTE	1.00 FTE	7.25 FTE
16	ETIC funds in line 3					
17	New facilities		0.460			0.460
18	Improve facilities (7)		0.160			0.160
19	Laboratory equipment (7)		0.090	0.209		0.299
20	Other equipment (7)					0
21	Other one-time expenses		0.156	0.225		0.381
22	Existing faculty (1)		0.703			0.703
23	New faculty (2)		0.732	0.129		0.861
24	Existing staff (1)	0.217		0.310		0.527
25	New staff (2)	0.052		0.086	0.140	0.278
26	Services & supplies	0.031			0.028	0.059
27	Other				0.072	0.072
28	Total	0.300	2.301	0.959	0.240	3.800
* Most OIT requested education funds are for new programs that do not have a base budget.						
(1) Hired through 6/09 and supported by ETIC funds 2009-11						
(2) Hired with ETIC funds during 2009-11 biennium						
(3) Certificates of Participation						
(4) Consistent with Private Support Policy						
(5) FTE as percent of full time over 2 years						
(6) FTE on an ongoing basis						
(7) Improvements and equipment to be purchased with ETIC funds						
(8) Totals on line 3 and line 28 should match						

Level 2: Funding - \$3.8 million Plan elements from original proposal
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Pre-College Program builds on long-time experience with elementary, middle, and high school students and teachers in a two-part strategy that will increase opportunities for women and underserved minority populations to become engineering and applied science graduates. OIT requests \$300,000 to support this first step in a pipeline that will result in engineers and technologists entering Oregon's workforce.

Education comprises four parts that broaden OIT programs into areas important to the Oregon economy and that have potential for attracting students to engineering and information technology:

- Renewable Energy Systems – a successful program with promise for expansion and near-term self-sufficiency. OIT requests \$432,000 for the RES program.
- Information Technology – three areas for strategic growth: Embedded Systems Engineering Technology (\$212,000 request), Information Technology/Health Informatics (\$996,000 request), Geographical Information Systems (\$150,000 request).
- OIT Online Graduate Program in Manufacturing Engineering – designed to meet specific demand by adapting a successful model (\$156,000 request).
- Special Opportunities – two small but important thrusts that have potential to bring new students into engineering: Biomedical Engineering (\$195,000 request), and Manufacturing Engineering Technology Robotics Laboratory (\$160,000 request).

Applied Research is the driving engine for OIT's mission of producing skilled engineers and technologists. The ETIC investment of \$959,000 for the next biennium will build on its experience in this area, particularly in renewable energy, with a strategy to (1) integrate applied research across the curricula of OIT with a special focus on engineering and applied science, and (2) increase private support for applied research as a way to leverage state funds.

Student Recruiting is essential to graduating more engineers and applied scientists from Oregon's universities. OIT seeks \$240,000 for a recruiting specialist within the School of Engineering, Technology, and Management to focus on the particular issues relating to these students, bringing OIT to a new level of capacity, and helping to meet ETIC's goals of doubling engineering graduates.

Level 1: Funding - \$3.4 million
Changes in plan elements from original proposal

Pre-College Program – No changes from the original proposal. The Pre-College Program is a key element in OIT’s plan because it builds an interest and sense of possibility in K-12 students about engineering and technology and the educational experience offered by OIT. The small investment in this area offers a huge potential return.

Education – One program (Geographical Information Systems) is deleted and another (Health Informatics) has its equipment budget scaled back. Although Geographical Information Systems addresses an area with opportunities for attracting students and placing graduates in Oregon’s workforce, it is overshadowed by the importance of the other areas – health informatics, renewable energy, and manufacturing. Funding for the Health Informatics Simulation Laboratory will be reduced by \$195,000, and additional effort will be made to secure its replacement through grants and private donations.

Applied Research – The research engineering position is reduced to half time. The research engineering position was included in the original proposal as a way to increase collaboration and funding by having a technical professional serving as a link between industry and OIT faculty and students on applied research projects particularly in renewable energy. Reducing this position will detract from this opportunity but will leave the remainder of the applied research program still able to support the broader campus effort.

Student Recruiting – No changes from the original proposal. As with the Pre-College program, getting students into the pipeline is the sine qua non of graduating engineers and technologists. Having a recruiting specialist within the School of Engineering, Technology, and Management School is an cost-effective strategy that will produce results quickly

Level 0: Funding - \$1.48 million
Changes in plan elements from Level 1

Pre-College Program – Funding requested for existing staff is reduced from 2.0 to 0.5

Education – Three additional areas are deleted: On-line Graduate Program in Manufacturing, equipment for the Robotics Laboratory, and Biomedical Engineering. Three other programs are reduced in budget: Renewable Energy Systems, Embedded Systems, and IT/Health Informatics. Because all three are critical to OIT’s mission, the budget reductions are in equipment and supplies; the request for new faculty remains unchanged from the Level 1 and Level 2 proposals.

Applied Research – New faculty and staff positions are eliminated, as is funding for laboratory equipment. Support for faculty productivity grants and for student research and projects remains but is reduced by 60 percent.

Student Recruiting – The Student Recruiting Specialist for the School of Engineering, Technology, and Management is reduced from full to half time. This position is maintained at half time because of its critical role in OIT’s ETIC strategy.

IV. Metrics Forecast

OIT Education and Applied Research Programs – Level 0 Base Level Funding

	Actual	Forecast (2)	Forecast (2)	Forecast (2)
	AY 06/07	AY 10/11	AY 12/13	AY 19/20
Undergraduate student credit hours (1)	22,089	24,939	26,499	32,768
Graduate student credit hours (1)	276	312	331	409
Graduation rate, 6-year (1, 3) %	37	39	43	47
Bachelor's degrees granted (1)	198	224	238	294
Master's degrees granted (1)	3	5	8	12
PhD degrees granted – not applicable	0	0	0	0
Women graduating as % (1)	9.3	9.8	10	11
Minorities graduating as % (1, 5)	10.7%	11.3	11.6	12.7
Externally-funded research expenditures in millions of \$	1.2	1.3	1.6	2.0
Invention disclosures (7)	4	5	6	10
License/options (8)	0	1	2	3
License income received (9)	0	\$12,000	\$30,000	\$50,000
Spin-off Companies (10)	0	1	2	3
National ranking of program/department (11)	N/A	N/A	N/A	N/A
National ranking of university (12)	4/10	top 10	top 10	top 10

- (1) Graduation/participation numbers for students in ETIC-related programs: CE/GEO, MMET, CSET, EERE, IT
- (2) (3) Forecasts prorated from original proposal based on funding level.
- (4) Only in CE/GEO, MMET, CSET, EERE, IT.
- (5) Only in CE/GEO, MMET, CSET, EERE, IT.
- (6) Total external dollars spent by ETIC-related departments toward research during academic year
- (7) According to Assoc. of Univ. Technology Managers (AUTM) survey definitions
- (8) Number of license or option agreements executed during the year (AUTM definitions)
- (9) Fees, payments, royalties, equity cashed in – not research funding (AUTM definitions)
- (10) New companies that were dependent on the licensing of program's technology for their initiation (AUTM survey definitions)
- (11) Engineering technology departments are not ranked nationally.
- (12) US News & World Report #4 Baccalaureate College in West, # 10 Nationally.

OIT Education and Applied Research Programs – Level 1 POP Funding

	Actual (2)	Forecast (2)	Forecast (2)	Forecast (2)
	AY 06/07	AY 10/11	AY 12/13	AY 19/20
Undergraduate student credit hours (1)	22,089	28,204	31,870	48,877
Graduate student credit hours (1)	276	352	398	611
Graduation rate, 6-year (1, 3) %	37	41	43	52
Bachelor's degrees granted (1)	198	253	286	438
Master's degrees granted (1)	3	7	13	27
PhD degrees granted – not applicable	0	0	0	0
Women graduating as % (1)	9.3	10.4	10.9	13.2
Minorities graduating as % (1, 5)	10.7	11.9	12.6	15.1
Externally-funded research expenditures in millions of \$	1.2	2	2	5
Invention disclosures (7)	4	5	6	17
License/options (8)	0	1	2	3
License income received (9)	0	\$20,000	\$40,000	\$80,000
Spin-off Companies (10)	0	2	3	5
National ranking of program/department (11)	N/A	N/A	N/A	N/A
National ranking of university (12)	4/10	top 10	top 10	top 10

- (1) Graduation/participation numbers for students in ETIC-related programs: CE/GEO, MMET, CSET, EERE, IT
- (2) (3) Forecasts prorated from original proposal based on funding level
- (4) Only in CE/GEO, MMET, CSET, EERE, IT.
- (5) Only in CE/GEO, MMET, CSET, EERE, IT.
- (6) Total external dollars spent by ETIC-related departments toward research during academic year
- (7) According to Assoc. of Univ. Technology Managers (AUTM) survey definitions
- (8) Number of license or option agreements executed during the year (AUTM definitions)
- (9) Fees, payments, royalties, equity cashed in – not research funding (AUTM definitions)
- (10) New companies that were dependent on the licensing of program's technology for their initiation (AUTM survey definitions)
- (11) Engineering technology departments are not ranked nationally.
- (12) US News & World Report #4 Baccalaureate College in West, # 10 Nationally.

OIT Education and Applied Research Programs -- Level 2 POP Funding

	Actual (2)	Actual (2)	Forecast (2)	Forecast (2)	Forecast (2)
	AY 98/99	AY 06/07	AY 10/11	AY 12/13	AY 19/20
Undergraduate student credit hours (1)	25,066	22,089	28,937	33,134	55,664
Graduate student credit hours (1)	135	276	362	414	696
Graduation rate, 6-year (1, 3)	23.2%	37%	41.44%	44.03%	52.54%
Bachelor's degrees granted (1)	154	198	260	297	496
Master's degrees granted (1)	1	3	8	15	30
PhD degrees granted – not applicable	0	0	0	0	0
Women graduating as % (1)	10.3%%	9.3%	10.42%	11.07%	13.21%
Minorities graduating as % (1, 5)	7.27%	10.7%	11.98%	12.73%	15.19%
Externally-funded research expenditures	\$0.77 M	\$1.2 M	\$1.8 M	\$2.4 M	\$6.0
Invention disclosures (7)	0	4	6	8	20
License/options (8)	0	0	1	2	3
License income received (9)	0	0	\$25,000	\$50,000	\$100,000
Spin-off Companies (10)	0	0	3	4	6
National ranking of program/department (11)	N/A	N/A	N/A	N/A	N/A
National ranking of university (12)	none	4/10	top 10	top 10	top 10

- (1) Graduation/participation numbers for students in ETIC-related programs: CE/GEO, MMET, CSET, EERE, IT
- (2) Assumes 7% per annum rate of increase.
- (3) Assumes 3% improvement per year.
- (4) Only in CE/GEO, MMET, CSET, EERE, IT.
- (5) Only in CE/GEO, MMET, CSET, EERE, IT.
- (6) Total external dollars spent by ETIC-related departments toward research during academic year
- (7) According to Assoc. of Univ. Technology Managers (AUTM) survey definitions
- (8) Number of license or option agreements executed during the year (AUTM definitions)
- (9) Fees, payments, royalties, equity cashed in – not research funding (AUTM definitions)
- (10) New companies that were dependent on the licensing of program's technology for their initiation (AUTM survey definitions)
- (11) Engineering technology departments are not ranked nationally.
- (12) US News & World Report #4 Baccalaureate College in West, # 10 Nationally.

Proposed Investment and Private Support Forecast (\$M)

Inputs required during 2009-2011 Biennium

	2005-2007 Plan ¹	2005-2007 Actual	2007-2009 Plan ²	2009-2011 Needed
State investment (\$ million)	\$1.080	\$1.41	\$1.4	\$3.8
Private Support (\$ million)	\$0.540	\$1.694	\$1.4	\$3.8
Other Support (\$ million)		\$0.563	\$0.7	\$1.0

1. From campus plan for 2005-2007 Biennium. 2. From campus plan for 2007-2009 Biennium.