Engineering and Technology Industry Council
New Initiative Proposal
Biennium from July 1, 2005 to June 30, 2007

Campus: University of Oregon
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Summary of Proposal

MSI requests ETIC support for the UO component of a multi-campus graduate program in materials science between the UO, OSU and PSU. This summary details the UO funding request, parallel requests are included with both the PSU and OSU new initiative proposals. Funding will be used for a new faculty hire to be used to offset additional teaching load created by the joint program. Research areas will be targeted to complement strengths on the companion campuses. Federal funding will be sought to additionally leverage ETIC support.

Goals

National competitiveness demands that programs constantly innovate and evolve. This is extremely difficult in academia during times of contraction and belt tightening. One opportunity, however, is for institutions to collaborate to offer programs, synergistically combining strengths to compete for federal funding and spreading increased teaching loads across a broader faculty base. The goal of this proposal is to seed a multi-campus graduate program in materials science and to increase the odds of winning targeted NSF funding. OSU will submit an NSF IGERT pre-proposal focused on this multicampus program on April 29th, 2004 (OSU is the lead institution in part because MSI at the UO already has NSF IGERT support). The proposed IGERT program will have 16 funded Ph.D. graduate student positions and will hopefully provide students the opportunity to obtain complementary degrees from multiple campuses in related disciplines. To illustrate the intercampus nature of the program and the transparency we hope to achieve, the proposed program will permit students to earn an MS degree in Chemistry at the UO, for example, while earning the Ph.D. in Engineering at OSU. As an alternative, students may elect to earn an MS in Engineering at OSU while on their way to earning a Ph.D. in Chemistry or Physics at the UO. An additional goal is to engage students in research much earlier in the PhD. Program. In terms of metrics, we anticipate having an initial class of 5 students taking the classes on partnering campuses with this number growing to a steady state between 10 and 15 students annually.

Investment Description

The proposed program will involve creating a suite of summer classes at the participating campuses to enable students to obtain complementary training, being exposed to the strengths of each campus's programs. The proposed graduate program would involve, for example, a student spending a summer on the UO campus taking an intensive sequence of classes in nanoscience. The following summer the student could spend the summer on the OSU campus taking an

intensive sequence of classes in microfluidics and microreactors. The student might end up picking a UO faculty member to be his advisor and get a MS degree from OSU and a Ph.D. from the UO. To offset the increased teaching, each campus is requesting funding for a faculty position to support the program. An additional small amount of fellowship funding is requested to help encourage top students to be the initial pioneers for this joint campus program. The new MSI faculty member's research area will be targeted to complement and provide synergistic relationships with researchers on our partner campuses. The requested ETIC support will be used to offset part of the start-up costs ($500,000), provide bridging salary support ($100,000) and provide a student stipend to offset living costs of attending the intensive summer classes on the partnering campus ($25,000).

Results

We believe this program, initiated by the faculty on each campus, has an opportunity to bridge between campuses and create a program that can not be created on any one campus given the constraints imposed by the State budget for higher education. The program provides potential recruiting advantages for the campuses, providing a broader range of faculty from which students can select advisors. We anticipate the increased interaction between faculty will result in more and stronger joint research proposals, increasing federal research support. We believe the interdisciplinary training obtained by the participating students will make them very attractive to industry, having unusual breadth as well as the required depth to obtain a Ph.D. in their chosen discipline.

Proposed Investment and Private Support Forecast ($M)

	7/1/03-6/30/04	7/1/04-6/30/05	Total
Proposed OUS Investment ($M)			
Support of existing faculty			
Funds tied to existing programs			
New program	200,000	425,000	625,000
Total OUS investment	200,000	425,000	625,000
Expected private support (1)	300,000	637,500	937,500
Total ($M)			1,562,500
Faculty Supported (FTE)			1
Notes:			
(1) Consistent with ETIC Private Support Policy dated 1-23-02.			

MSI - Metrics Forecast:

	Baseline	Projected			
	AY 99	AY04	AY05	AY06	AY09
Total research expenditures per year	2,880,000	6,000,000	6,500,000	7,000,000	8,000,000
Average GPA of incoming freshmen	3.4	3.6	3.7	3.7	3.7
Average SAT/ACT percentile of incoming freshmen (1)	66%	80%	80%	80%	80%
Average GRE percentile of incoming grad. students (2)	70%	75%	80%	80%	80%
Pass rate of Fundamental of Engineering (3)	NA	NA	NA	NA	NA
Women entering ECS programs (4)	28%	35%	35%	40%	40%
Women graduating from ECS programs (5)	25%	30%	30%	30%	35%
Minorities entering ECS programs (4)(6)	2%	5%	8%	10%	10%
Minorities graduating from ECS programs (5)(6)	2%	5%	8%	10%	10%
ECS undergraduate student credit hours	NA	NA	NA	NA	NA
ECS bachelors degrees granted	NA	NA	NA	NA	NA
ECS graduate student credit hours	190	1000	1200	1400	1600
ECS internship masters degrees granted	2	15	18	21	25
National ranking of <program or department> (7)(10)	See note	below			
Ranking of total federal expenditures as if all chemistry .	91	top 50	top 50	top 50	top 40
Ranking of total federal expenditures as if all physics .	83	top 50	top 50	top 50	top 40
Ranking of total federal expenditures as if materials dept.	31	top 25	top 25	top 25	top 20
National ranking of <college>	NA	NA	NA	NA	NA
Pre-college contact hours (8)	NA	NA	NA	NA	NA
Licenses sold (9)	0	1	1	1	1

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

(10)Since the MSI is an institute, not a department, we are invisible to most national rankings. MSI's status as an institute, however, makes it much more able to respond to opportunities. There would be definite losses in MSI becoming a department.

To address the issue of National rankings, we have examined the basis for the ratings given by various sources (US News and World Report, Chemical and Engineering News, etc.). While several are based on opinion polls, we believe the most impartial rankings are based on federal research dollars obtained. This data is collected nationally by NSF and is published yearly with breakouts based on disciplines – chemistry, physics and materials. We will determine the federal research expenditures generated by the institute (using the numbers reported to the federal government) and then compare the total dollars with those from other institutions across the country. The figures for academic year 1999 are detailed below.

Total federal research expenditures from MSI faculty	$2,257,000
Average federal research expenditures/MSI faculty	$205,000

MSI's funding level would place it 92 with respect to chemistry funding, 84 with respect to physics funding and 31st as a metallurgical/materials department. Given the small number of MSI faculty in 1999 (eleven), these rankings are actually quite good. For example, the chemistry related funds at University of Texas at Austin were generated by more than 60 faculty in both their chemistry and biochemistry departments. If the ranking were done on the basis of average federal research expenditures per faculty to compensate for the different faculty sizes at each institution, MSI would rank approximately 40th, above the University of Texas at Austin.