

ETIC 2005-2007 Pre-College Grant Award Summary

Institution/Agency Name	Beaverton School District / Aloha High School
Project Name	Science Technology Engineering and Mathematics (STEM) Academy Using TechWorld Curriculum/Equipment
Grant Award	\$70,157

Our project is a Science, Technology, Engineering, and Mathematics Academy that will employ industry-standard equipment thus creating an authentic, high-tech learning environment for our students. The goal of the project is to provide high-quality, relevant curriculum and industry-standard equipment that will increase the motivation and academic preparedness of students to pursue engineering or technology careers. Our project also includes extensive professional development for teachers, providing them with knowledge and skills to enhance their curriculum, to include engineering and technology projects. We will emphasize raising the performance of underrepresented populations within Aloha High School's diverse student population.

Institution/Agency Name	Oregon Institute of Technology
Project Name	Pre-Engineering Success through Project Lead The Way
Grant Award	\$99,765

In order to increase the number of high school graduates choosing college programs in engineering and engineering technology, the pre-engineering program entitled "Project Lead The Way" was introduced to Oregon high schools. Oregon Institute of Technology, in its role as the National Affiliate University for PLTW in Oregon, hosted Oregon's first-ever Summer Training Institute (STI) July 9-21, 2006. This summer training activity provided a professional development opportunity for 6 Oregon high school teachers. The ETIC grant funds provided registration, travel, lodging, and food for the two-week training and furnished all the required software and equipment to implement the PLTW course in the teacher's home school. The Goals of this project are to:

- 1) Increase the content knowledge and teaching skills of high school classroom teachers by providing immediate and on-going professional development opportunities,
- 2) Motivate high school students to become interested in technical careers and take the courses required to prepare them for these careers,
- 3) Prepare high school students for advanced work in engineering by providing high-quality courses and appropriate technology, and
- 4) Establish the capacity necessary to implement and sustain PLTWs integration in Oregon schools.

Institution/Agency Name	Oregon Museum of Science and Industry
Project Name	Co-Curricular STEM Collaboration
Grant Award	\$24,633

The goal of this project is to begin dialogue and coordination among statewide providers of STEM co-curricular activities (informal education programs that complement the work of formal classroom educators). Due to the diversity encountered in the field, communication and cooperation between these providers is somewhat limited, leaving expertise, experience, and potentially synergistic relationships untapped. OMSI will collect preliminary information (with a survey tool) about the needs and personal networking goals of statewide providers of co-curricular STEM activities, then plan and execute a one-day summit to bring together these organizations, representatives of formal education, and other STEM education stakeholders to facilitate their ability to improve communication and knowledge transfer. OMSI will also produce a white paper that documents the proceedings and defines recommendations for collaboration, partnering, marketing, and more effective outreach to youth throughout the state of Oregon.

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Institution/Agency Name	OSU College of Engineering
Project Name	Early Exposure of K12 Students to Science and Engineering
Grant Award	\$13,200
<i>Quarterly grant report not yet submitted.</i>	

Institution/Agency Name	OSU College of Engineering
Project Name	Engineering Ambassadors: Students Educating Students
Grant Award	\$36,450
<p>College of Engineering Ambassadors provide information about engineering careers and opportunities to high school students, teachers, career counselors, and community members throughout the state of Oregon. Using a “near-peer” model, college students, just few years out of high school themselves, visit K12 schools and give engaging interactive presentations introducing engineering to students who may never have considered this career before. Their presentation stresses concrete examples and personal stories of how engineering helps people and benefits society, aspects that appeal to female and minority students. At least 50% of the COE Ambassadors are women and over 10% are underrepresented minorities, reflecting the diversity goals of the College. Goals of this program are:</p> <ul style="list-style-type: none"> • To promote engineering/technology as a career choice for the diverse population of students throughout Oregon, and including rural, geographically isolated areas. • To strengthen participating teachers'/career advisors' knowledge of new ways of presenting engineering/technology career opportunities and the required academic preparation in ways which resonate with students. • To promote a better understanding of the social relevance of engineering/technology to Oregon students/teachers regardless of their career aspirations. • To increase the number of women and minority students applying to the College of Engineering for the 2007-8 academic year by 10%. • To promote increased collaborations between the College of Engineering, Community Colleges, and Oregon school districts. • To promote a better understanding of multiple entry points to a career in engineering/technology. 	

Institution/Agency Name	Oregon State University
Project Name	Enhancement of a Successful Model to Facilitate the Achievement by and STEM Career Aspirations of Minority, Low-Income, First- Generation, and Rural Students
Grant Award	\$93,115
<p>This project brings engineering learning and career activities to middle school youth, their families, and the classroom teachers who serve as advisors for afterschool science and math clubs. This project provides enrichment learning and college readiness programming for approximately 260 students and their families and offers sustained professional development for 26 middle school teachers. Through an on-campus challenge event, participating students engage in the engineering design process, apply science and math knowledge and skills, and explore STEM careers through learning activities in different departments across campus. Families of participating youth participate in engineering design through take-home family engineering kits and an engineering station at a Family Math and Science Night Events.</p>	

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Institution/Agency Name	Portland Community College
Project Name	The Portland Community College Engineering and Technology Outreach Program (ETOP)
Grant Award	\$26,531
<p>ETOP is comprised of four components: 1) High School Outreach Lessons, 2) ETOP Exposition, 3) PCC Math Visits, and 4) Regional Dissemination.</p> <p>High School Outreach Lessons will be delivered by PCC faculty from the Engineering and Machine Manufacturing Technology departments to high school students at eight high schools in the greater Portland Metro area. Delivery of the curricula takes place once a week for an average of 100 minutes for four consecutive weeks at each of the eight schools</p> <p>The ETOP Exposition will be a three-hour event to inspire interest in and support for Engineering and Technology related careers and to reach out to a broad audience, including parents. The expo will be held in the evening to maximize attendance, which we target to be around 180 people. Five demonstrations; Rapid Prototyping, GPS surveying, circuit analysis, tensile testing and water quality testing will be given.</p> <p>PCC Math visits reach out to a diverse audience of students that are already in an area of study pertinent to the Engineering and Technology fields. Each quarter, presentations are delivered to all students, on all PCC campuses, from Introductory Algebra (MTH 60) to College Algebra (MTH 111).</p> <p>In disseminating the results of our project, we will involve all the participating schools, PCC's PAVTEC (Portland Area Vocational Technical Education Consortium) and parties involved in several PAVTEC's annual meetings.</p>	

Institution/Agency Name	Oregon MESA/ Portland State University
Project Name	Increasing Engineering & Computer Science Graduates
Grant Award	\$61,000
<p>Oregon MESA proposes to increase the number of engineering graduates through a combination of targeted marketing and outreach efforts. We plan to do this by holding college planning meetings with students and parents, organizing a pre-engineering conference at Portland State University, and training science and engineering students to market engineering education and mentor pre-college students.</p>	

Institution/Agency Name	Software Association of Oregon Foundation
Project Name	Increase & Diversify Pre-Engineering Education through LEGO Robotics Curriculum
Grant Award	\$47,000
<p>Increase and diversify pre-engineering/technology education opportunities in Oregon k-12 schools by supporting teachers in starting or expanding LEGO Robotics in their classrooms. Project uses a three-pronged approach:</p> <ol style="list-style-type: none"> 1) LEGO Education Conference for teachers (held June 2006) 2) LEGO curriculum materials on CD with both an English and Spanish version 3) Scholarships to teachers to enable them to purchase NXT kits for their classrooms. 	

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Institution/Agency Name	South Lane School District
Project Name	South Lane School District Pre-Engineering and Applied Science
Grant Award	\$57,015
<p>South Lane School District's project has three main components: 1) Development of a middle school pre-engineering program to feed into Cottage Grove High School's program, 2) Enhance the high school engineering program by purchasing culminating projects for current Amatrol curriculum, and 3) Provide incentives at the high school level to encourage students to continue in the program at the advanced levels when the academic rigor picks up.</p>	

Institution/Agency Name	Tigard-Tualatin School District/Tualatin High School
Project Name	TUHS Engineering
Grant Award	\$55,250
<p>The vision is to create a top quality engineering program at Tualatin HS that serves as the hub for feeder schools and for post high school education. We have opened professional technical programs in the new TECH (Tualatin Engineering Computers and Health) wing completed last spring. The challenge is to develop and expand the pre-engineering program in a time of continued fiscal restraints. A special effort will be made to recruit and to reach out to underrepresented student groups, particularly young women and students of color, for enrolling in engineering courses. A second effort will be made to articulate curriculum with the feeder middle school(s) and post high school education colleges. This will likely result in both new courses and in revised standards written into current courses.</p>	

Institution/Agency Name	University of Oregon Education Policy Improvement Center
Project Name	Develop a Statewide Roadmap to Student Readiness & Success by Connecting Secondary and Postsecondary Learning
Grant Award	\$99,900
<p>The Oregon Pre-Engineering & Applied Sciences Study was launched in April 2006. Research and development of the Oregon Pre-engineering Learning Outcomes was completed during the second quarter of the study. We are currently completing institutional recruitment and have begun collecting course and instructor data. We reviewed over 100 websites of national organizations, state education departments, and other engineering-related educational organizations for engineering standards in three sections—content knowledge, habits of mind, and instructional practices. This research culminated in a draft list of Learning Outcomes, including 14 topical areas and 88 performance expectations across the 3 sections.</p>	

Institution/Agency Name	Yamhill Carlton School District
Project Name	Integrated Manufacturing Technology Lab
Grant Award	\$70,000
<p>The Integrated Manufacturing Technology (IMT) Lab at Yamhill Carlton HS opens a whole new world to students. With assistance from various industry and higher education partners, YCHS administrators, superintendent, and the School Board of Directors are refining objectives to meet 4 major project goals: 1) Offer a multi-level "Workplace Ready" certification program for students entering various technical and manufacturing careers with partners from college-level institutions; 2) Offer a multi-level certification and continuing education program to adults in partnership with college-level institutions; 3) Raise participation and performance on under-represented groups with apparent barriers to engineering, other related fields, or higher education; and 4) Network with industry partners to ensure Integrated Manufacturing Lab Certifications evolve to meet industry needs.</p>	