

# Engineering & Technology Industry Council

2007-2009 Biennium  
Pre-Engineering & Applied Science Grant

*For period ending June 30, 2008*

# ETIC 07-09 Grant Summary

FY08 as of 06/30/08

GRANT	Institution	Grant Award*	Actual Spent*
Pre-College RFP	•OIT - Project Lead The Way	\$273	\$100.1
	•OSU – Rural Middle Schools	116	64.4
	•OSU – 4H Tech Wizards	251	111.3
	•PSU – Oregon MESA	110	32.1
	Total Grant Awards	\$750	\$307.9
	*thousands		

# ETIC 07-09 Grant Summary

FY08 as of 06/30/08

GRANT	Institution	Grant Award*	Actual Spent*
OPAS RFP	•BSD – Health & Science HS	\$74.0	0
	•PCC – Mfg. Industry Tours	32.6	11.0
	•OSU – SMILE	73.5	35.5
	•Redmond SD – SPaCE	48.7	4.8
	•Keizer SD – Eng. & Appl. Sci.	95.0	10.5
	•UO – Rural Science Outreach	66.2	12.1
	Total Grant Awards	\$390.0	\$73.8
	*thousands		

# OIT – PLTW Teacher Training

## Successes:

- OIT program to train teachers in Project Lead The Way
- 2008 Summer Training Institute 63 teachers – 35 from Oregon
- Over past three years: 45 High S, 13 Middle School, 5 Comm. College teachers trained
- Teacher disciplines: 35% Math, 25% Science, 40% CTE
- PLTW now at PPS Harriet Tubman Academy, 2 teachers trained

## Issues, barriers, synergies:

- Oregon GEAR UP, college access and scholarships for low-income students. PLTW and GEAR UP goals for teacher professional development “align nicely.”
- Lack of formal PLTW State Leadership role in Oregon is continuing concern. OPAS and ODE informally address many PLTW state leader responsibilities.

# OIT – PLTW Teacher Training

As of 6/30/08

	Budget Total	Actual Spent
Salary Expenses	\$63,486	\$18,507
Services & Activities	\$79,140	\$20,448
Equipment & Supplies	\$130,086	\$61,100
<b>TOTALS</b>	<b>\$273,000</b>	<b>\$100,055</b>

# OSU – Career Linking in Rural Middle Schools

## Successes:

- OSU Science & Math Education and SMILE partnered to motivate students to develop stronger career awareness in STEM, in 12 rural Oregon middle schools
- Six weeks of curriculum and activities included: field trips to businesses, volunteer speakers, job shadowing, career closure
- Community volunteers and OSU science & engineering students visited and spoke in classrooms
- Six school districts participated in the study and all 13 districts participated in the training during 07-08 school year
- More than 80% ethnic minorities, all students from underrepresented populations

## Issues, barriers, synergies:

- None listed

# OSU – Career-Linking in Rural Middle Schools

As of 6/30/08

	Budget 07-08	Budget 08-09	Budget Total	Actual Spent
Salary Expenses	\$60,585	\$13,718	\$74,302	\$53,965
Services & Activities	\$4000	\$4000	\$8000	\$3,938
Equipment & Supplies		\$33,698	\$33,698	\$6,521
TOTALS	\$64,585	\$51,416	\$116,000	\$64,424

# OSU – 4-H Tech Wizards Program Replication

## Successes:

- Established ongoing 4-H Clubs which focus on science, engineering, and technology, for underserved youth through Intel 4-H Tech Wizards Program
- Funds support salaries for three OSU faculty members based in Medford, Bend, and Pendleton
- First year (07-08) reached 710 youth with 10.3k contact hours
- Resulted in 10 ORTOP teams in Warm Springs and several Latino communities
- Other Tech Wizards programs/students: Digital Media/92, Agriculture Technology/300, GIS/GPS/217
- Umatilla replication helping rural ranch youth understand science & tech. as it relates to food production and safety

## Issues, barriers, synergies:

- None listed

# OSU – 4-H Tech Wizards Program Replication

As of 6/30/08

	Budget 07-08	Budget 08-09	Budget Total	Actual 07-09
Salary Expenses	\$120,500	\$120,500	\$241,000	\$111,285
Services & Activities	\$5,000	\$5,000	\$10,000	\$0
Equipment & Supplies	\$0	\$0	\$0	\$0
<b>TOTALS</b>	<b>\$125,500</b>	<b>\$125,500</b>	<b>\$251,000</b>	<b>\$111,285</b>

# PSU – Oregon MESA

## Successes:

- MESA Project, creating the Pre-Engineering pipeline for diverse students through family involvement and mentoring
- Returning ambassadors in year 2 of the program, students are making a stronger connection with the ambassadors
- MESA Parents Night Outreach Program: focus on career awareness, cultural/economic barriers to college attainment – Middle school 7 teachers, 150 students; High school 12 teachers 320 students (actual numbers higher because some parents did not sign-in or complete evaluations)

## Issues, barriers, synergies:

- Difficulty recruiting engineering students as MESA mentors due to heavy engineering course load
- Synergy with PSU Center for Science Education – Masters program for STEM teaching providing MESA ambassadors
- Some family night parents felt intimidated by college/engineering, felt their student was not college or engineering material, however many parents stayed after engaging in dialogue with MESA staff on next steps for their students

# PSU – Oregon MESA

As of 6/30/08

	Budget Total	Actual Spent
Fall Student/Parent Planning Sessions	\$12,997	\$11,215
Ambassador Mentoring Prog.	\$13,072	\$14,086
New Schools Prog.	\$6,800	\$2,836
NWREL Eval.	\$6,500	\$2,836
<b>TOTALS</b>	<b>\$39,370</b>	<b>\$32,138</b>

# BSD – Health & Science High School

## Successes:

- Hired a full time teacher (Tom Baker) for PLTW Introduction to Engineering Design (IED), he attended PLTW training at OIT.
- Computer lab and 3D printer set up and running, the entire 10<sup>th</sup> grade class, 108 students all take the course
- PLTW Intro. To Engineering Teacher comments: “Eight weeks into the school year ... My success stories are the following: The student on an Individual Education Program that scores well on tests but who needs organizational help to succeed in class – he has a perfect score (in this course); the student who is a behavior problem in other classes who benefits from the tactile nature of IED, and is a model student my class; and the student who is struggling in other classes who is doing well in this class because she can repeat assignments, each time receiving corrective feedback from me, until she masters the concepts.”

## Issues, barriers, synergies:

- One component of the grant, Gateway to Technology (Middle School) implementation has been postponed, teacher hired late in summer and not able to attend OIT training

# BSD – Health & Science High School

As of 6/30/08

	Budget 07-08	Budget 08-09	Match from BSD	Budget Total	ETIC Actual	BSD Actual
Salary Expenses	\$7,000	\$7,000	-14000			
Services & Activities	3,000	4,000		\$7,000		
Equipment & Supplies	58,499	54,573	-49120	63951	0	0
Indirect Cost				3049		
TOTALS	\$68,499	\$65,573	-63,120	\$74,000	0	0

# PCC – Manufacturing Industry Tours

## Successes:

- PCC and Mt. Hood CC in partnership with Manufacturing 21 Coalition hosting “road trips” for high school students to members of the manufacturing cluster in Oregon. High Schools: Alliance HS, Benson, Franklin, Wilson
- Road trips to: Gunderson, ESCO, Precision Cast Parts, Streimer Sheet Metal, Columbia Wire & Iron, Oregon Cutting Systems, Benchmade Knives, Premier Gear, Cascade General, and Davis Tool
- Road trips also designed to educate teachers and counselors to support student success in STEM related career pathways
- Nine tours completed during winter 2007, remaining seven tours completed spring 2008 per plan
- PCC holding day-long “Machine Manufacturing & Civil /Mechanical Engineering Student Career Day” weekly for high school students. Students complete a project on CNC machines plus an engineering activity.

## Issues, barriers, synergies:

- Initial challenge coordinating instructor schedules with tour schedules
- Pat Kraft discovered “...a tour of Columbia Wire and Iron ...did not stress college because most of their employees went through union apprenticeships for their training

# PCC – Manufacturing Industry Tours

As of 6/30/08

	Budget Total	Actual Spent
Salary Expenses	\$16,651	\$6,201
Services & Activities	\$15,103	\$3,102
Equipment & Supplies	\$0	\$0
<b>TOTALS</b>	<b>\$32,640</b>	<b>\$10,951</b>

# OSU – SMILE

## Science & Math Investigative Experiences

### Successes:

- The SMILE program hosted the Summer Teachers Workshop in August 2008, at OSU.
- Focus during the workshop was a four-hour session for middle school teachers on mechanical engineering and energy – in preparation for the 2009 SMILE Middle School Engineering Challenge.
- 24 teachers and 260 students - each partner school district has signed a contract for operation of the SMILE Club with classroom teachers as club advisors.

### Issues, barriers, synergies:

- Synergies: The wonderful success of the 2007-2008 OSU ME capstone team prompted conversations about ways SMILE might support the junior year project in Mechanical Engineering.
- Challenge: OSU MAT (Master Arts Teaching) students participation in SMILE as part of their coursework, challenge matching MAT course work with SMILE challenge framework.

# OSU – SMILE

As of 6/30/08

	Budget 07-08	Budget 08-09	Budget Total	Actual Spent
Salary Expenses			\$0	\$0
Services & Activities	\$28,080	\$29,480	\$57,560	\$26,785
Equipment & Supplies	\$6,254	\$6,254	\$12,508	\$8,727
<b>TOTALS</b>	<b>\$34,334</b>	<b>\$35,734</b>	<b>\$70,068</b>	<b>\$35,512</b>

# Redmond SD - SPaCE

## Students Pursuing a Career in Engineering

### Successes:

- Through collaboration with OIT and PLTW, Redmond HS now established as a PLTW certified school
- This accomplishment makes Redmond HS eligible to articulate college credit to its PLTW students starting fall 2008
- Intro to Engineering classes over 130 students
- PLTW courses in architecture, civil engineering, and aerospace
- The OSU Engineering faculty brought eight female students from Redmond High School to the OSU Women in Engineering conference, resulting in increased community support and involvement leading to the creation of a local cadre of Engineering Professionals to serve as advisory board for the SPaCE Project.

### Issues, barriers, synergies:

- Issue with overpopulation of Redmond HS causes lack of space for PLTW labs
- Synergy with Gateway to Technology middle school feeder program

# Redmond SD - SPaCE

Students Pursuing a Career in Engineering

As of 6/30/08

	Budget 07-08	Budget 08-09	Budget Total	Actual Spent
Salary Expenses				\$0
Services & Activities	\$9,250	\$3,050	\$12,300	\$3,865
Equipment & Supplies	\$12,035	\$24,347	\$36,382	\$942
TOTALS	\$21,285	\$27,397	\$48,683	\$4807

# Keizer School District

## Engineering & Applied Science Pathway

### Successes:

- Effort in spring of 2008 purchasing equipment for Digital Electronics and Computer-Integrated Manufacturing PLTW (HS) and Gateway to Technology (MS) courses for 2008-09 year.
- Preparation for STEPS summer camp for 7<sup>th</sup> grade students in Keizer, providing flyers to Whiteaker and Claggett Creek Middle Schools. Anticipated 60 students, received 22 applications from one of two Keizer middle schools. Some pushback from the other middle school and no students from that school signed up for STEPS summer camp.
- Three middle school teachers completed the PLTW Gateway to Technology engineering pathways courses for middle school
- McNary HS also has a rocket program as part of engineering courses. Students attended the Oregon Rocketry Association spring launch in Brothers, Oregon and launched two rockets. One hit 1,200 feet, and the other 2,474 feet according to the onboard altimeter.

### Issues, barriers, synergies:

- Issue: Some pushback from middle school administration in implementing the middle school Gateway to Technology courses

**Keizer SD**  
**Engineering & Applied Science**  
 As of 6/30/08

	Budget 07-08	Budget 08-09	Budget Total	Actual Spent
Salary Expenses	\$14,039	\$12,150	\$26,189	
Services & Activities	\$1,074	\$1,350	\$2,424	
Equipment & Supplies	\$29,415	\$36,973	\$66,388	
<b>TOTALS</b>	<b>\$44,528</b>	<b>\$50,472</b>	<b>\$95,000</b>	<b>\$10,461</b>

# UO – Rural Science Outreach

## Successes:

- 15 graduates students to receive fellowships supporting science outreach in Umatilla/Morrow and North Central ESD regions.
- In May, met with partners from Umatilla/Morrow ESD for tour ESD112 in Vancouver, WA for tour and discussion of ESD112 Science Materials Center. Umatilla is planning their own Science materials Center.
- In June, held training for graduate students who received instruction in science teaching to children, classroom management, diversity issues in the classroom and meeting Oregon state science standards for elementary schools.
- Purchased suite of FOSS science kits. Graduate fellows going through science kits to train themselves and add demonstration extensions. FOSS is a research-based science curriculum for grades K–8 developed at the Lawrence Hall of Science, University of California at Berkeley.

## Issues, barriers, synergies:

- Synergies: the North Central Oregon ESD has shown interest in joining this project, and approaching the Umatilla ESD to partner with them on science kit support. We plan to support the NCESD in AY08/09 with 1 graduate student, who will provide outreach in 3 elementary schools.

# UO – Rural Science Outreach

As of 6/30/08

	Budget Total*	Actual Spent*
Salary Expenses	\$46,000	
Services & Activities	\$20,177	\$12,078
Equipment & Supplies		
TOTALS	\$66,177	\$12,078

\* Excludes federal funds