

Peralta Community College District

Annual Program Update Template 2010-2011

Each discipline will complete this form to update program reviews developed in 2009-2010. These will be reviewed at the college level and then forwarded to the district-wide planning and budgeting process. The information on this form is required for all resource requests – including faculty staffing requests – for the 2011-12 budget year.

Overview			
Date Submitted:	November 1, 2010	Dean:	Peter Crabtree
BI Download:	10/07/2010	Dept. Chair:	Nick Kyriakopedi
Discipline:	ECT		
Campus:	Laney		

<p>Mission</p>	<p>Environmental Control Technology is a technical program offering theoretical, technical and problem solving skills essential for employment in the heating, ventilation, air conditioning and refrigeration industry (HVAC/R). The Environmental Control Technology (formerly Air Conditioning and Refrigeration) department is one of the original technical programs at Laney College. The instruction methodology was and is lecture and laboratory. The department originally had three fulltime instructors and one classified staff for the tool-room and offered courses in three sessions. The department now has one fulltime and five part time instructors. In the past the department was one of the most extensive and comprehensive programs in Northern California. The ECT program has seen a significant expansion and rise in student enrollment in the past few years, due to intensive curriculum restructuring, industry advisory support, and instructional lab expansion funded in part by a National Science Foundation (NSF) grant and Industry Driven Regional Collaborative (IDRC) grants. In 2008 we received NSF renewal funding and began the project Educating Technicians for Building Automation and Sustainability. With both IDRC and NSF funding we developed a new certificate and AS degree in Building Automation. At the moment we are waiting for state approval.</p> <p>In addition, the ECT program (FILL IN FROM GRANTS)</p>		
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	<p>The Program also through the State Chancellor's office, as well as NSF renewal, will focus on further program expansion in Building Automation Controls and Energy Management and Energy Efficiency Strategies for HVAC technicians.</p>		
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Student Data			
A. Enrollment	Fall 2008	Fall 2009	Fall 2010
Census Enrollment (duplicated)	375.0	689.0	528.0
Sections (master sections)	17.0	30.0	25.0
Total FTES	36.04	65.98	49.36
Total FTEF	2.64	4.87	4.28
FTES/FTEF	13.63	13.55	11.53
B. Retention			
Enrolled	366.0	906.0	N/A
Retained	341.0	825.0	N/A
% Retained	93.0	91.0	N/A
C. Success			
Total Graded	366.0	906.0	N/A
Success	275.0	728.0	N/A
% Success	75.0	80.0	N/A
Withdraw	25.0	81.0	N/A
% Withdraw	6.0	8.0	N/A

III. Faculty Data (ZZ assignments excluded)	
	Fall 2010
Contract FTEF	0.85
Hourly FTEF	3.04
Extra Service FTEF	0.39
Total FTEF	4.28
% Contract/Total	19.85

Faculty Data Comparables F2010 (ZZ assignments excluded) (Z assignments excluded)				
	Alameda	Berkeley	Laney	Merritt
Contract FTEF	0.0	0.0	0.85	0.0
Hourly FTEF	0.0	0.0	3.04	0.0

Extra Service FTEF	0.0	0.0	0.39	0.0
Total FTEF	0.0	0.0	4.28	0.0
% Contract/Total	0.0	0.0	19.83	0.0

Qualitative Assessments	
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CTE and Vocational: Community and labor market relevance. Present evidence of community need based on Advisory Committee input, industry need data, McIntyre Environmental Scan, McKinsey Economic Report, licensure and job placement rates, etc.

HVAC technicians are in great demand. A study targeting the San Francisco Bay area by the California Chancellor's Office Centers of Excellence projected growth for eight energy efficiency related job categories that included HVAC Technician, Building Environmental Controls Technician, Energy Auditor, and related job titles. The 12-month job growth projections are between 13% and 39% and the 3-year projections are between 59% and 158% for the eight occupations studied. A survey of hiring firms resulted in a projection of 158% increase for building engineers, a 112% increase for energy auditors and a 59% increase for project managers. The percent of employers that were experiencing "some" or "great" difficulty in hiring in these job categories range from 56% to 73% (Center of Excellence, 2009). According to the Bureau of Labor Statistics, Occupational Outlook for 2010 – 2011, job prospects for HVAC technicians, the best available proxy for building performance technicians, are expected to be excellent, employment is projected to increase 28 percent during the 2008-18 decade, much faster than the average, and employers prefer to hire those who have completed technical school training or a formal apprenticeship. A growing number of retirements of highly skilled technicians are expected to generate many more job openings (Goldman et al, 2010, DOL, 2010). 38 to 44% of builders/remodelers and mechanical and electrical trades people are older than 50 (Goldman et al, 2010 b). Many contractors have reported problems finding enough workers to meet the demand for service and installation of HVACR systems. (DOL, 2010) Of special note, "In light of the complexity of new computer-controlled HVACR systems in modern high-rise buildings, prospects should be best for those who can acquire and demonstrate computer competency. Training in new techniques that improve energy efficiency will also make it much easier to enter the occupation." (DOL, 2010)

Advisory committee members (comprised of large employers, manufacturers, vendors, installers, utilities, municipalities, colleges, and state agencies) confirm that the lack of qualified HVAC technicians is one of the greatest "lynchpins" in improving occupancy comfort and energy efficiency in commercial buildings. The ECT department chair regularly receives employment notices and urgent requests from the industry. Even with the The demand is so great that many ECT students get placed in jobs before even finishing the ECT

	<p>program.</p> <p>According to a recent study by the CCC Center of Excellence, San Francisco Bay Area, we can expect significant growth for the following professions, all of which the ECT program prepares for:</p> <ul style="list-style-type: none"> • Building performance and retrofitting specialist: 58% growth rate • HVAC mechanics, technicians, or installers: 31% growth rate • Energy auditors and home energy raters: 49% • Building controls systems technicians: 42% • Building operators or engineers: 22% <p>Notwithstanding the downturn in the economy, the ECT program continues to successfully place students in the field each semester. In addition, many of our students advance to higher-paid positions after finishing the program or taking additional coursework for upskilling.</p> <p>The ECT program has just recently been designated a Center of Excellence with the US DOE and EPA supported Labs for the 21st Century program.</p> <p>References:</p> <p>Bureau of Labor Statistics. (2010) "Occupational Outlook Handbook", 2010-11 edition; http://www.bls.gov/oco/ocos192.htm</p> <p>Center of Excellence. (2009). "Energy Efficiency Occupations: Bay Region". Economic and Workforce Development Division. California Community Colleges Chancellor's Office. Greater Silicon Valley and San Francisco Bay Area. Retrieved from: http://www.coecc.net/energy.</p> <p>Goldman, C.A., J.A. Peters, J. Albers, E. Stuart, and M. Fuller. (2010). "Energy Efficiency Services Sector: Workforce Education and Training Needs." Lawrence Berkeley National Laboratories. Environmental Energy Technology Division. Prepared for and funded by the Office of Energy Efficiency and Renewable Energy, Weatherization and Intergovernmental Program and Office of Electricity Delivery and Energy Reliability- Permitting, Siting and Analysis Division of the U.S. Department of Energy under Contract No. DEAC02-05CH11231</p> <p>Goldman C., M. Fuller, E. Stuart, J. Peters, M. McRae, N. Albers, S. Lutzenhiser and M. Spahic. LBNL-3987E. September 2010 "Energy Efficiency Services Sector: Workforce Size and Expectations for Growth" Lawrence</p>
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	Berkeley National Laboratories. Environmental Energy Technology Division. Prepared for and funded by the Office of Energy Efficiency and Renewable Energy, Weatherization and Intergovernmental Program and Office of Electricity Delivery and Energy Reliability-Permitting, Siting and Analysis Division of the U.S. Department of Energy under Contract No DE-AC02-05CH11231
<p>Transfer and Basic Skills: Describe how your course offerings address transfer, basic skills, and program completion.</p>	<p>The program is exceptional amongst CTE programs in that most courses are at a transfer level, and several 4-year institutions are committed to full articulation with Laney's program. The program is also an excellent platform for transfer for mechanical engineering. All new students are required to take the Fundamentals of Refrigeration, Fundamentals of Electricity, and an integrated Math courses. The program uses a cohort model which creates a learning community and enhances student completion rates.</p>

Strategic Planning Goals	
<p>Check all that apply.</p> <p>Advance Student Access, Success & Equity Engage our Communities & Partners Build Programs of Distinction Create a Culture of Innovation & Collaboration Develop Resources to Advance & Sustain Mission</p>	<p>Describe how goal applies to your program.</p> <p>Creates a range of opportunities for students of various levels of preparation to succeed. Program provides foundational academic skill development as well as highly advanced courses.</p> <p>The program has extensive regional advisory board and leads a coalition of community colleges nationally.</p> <p>Laney's building automation program is nationally recognized as the top of the field.</p> <p>Laney's ECT faculty is composed of approximately equal proportions of engineers and technicians providing students with programs of highest distinction.</p> <p>The program continues to obtain grants and provide contract instruction for community partners.</p>

College Strategic Plan Relevance

Check all that apply

New program under development

Program that is integral to your college's overall strategy

Program that is essential for transfer

Program that serves a community niche

Programs where student enrollment or success has been demonstrably affected by extraordinary external factors, such as barriers due to housing, employment, childcare etc.

Other

Action Plan

Please describe your plan for responding to the above data. Consider curriculum, pedagogy/instructional, scheduling, and marketing strategies. Also, please reference any cross district collaboration with the same discipline at other Peralta colleges.

Include overall plans/goals and specific action steps.

x A) HVAC Curriculum Refinement (completion of current NSF grant)

- x • Create lesson plans for each new advanced HVAC course
- x • Update and document work projects for each course.
- x • Re-write some of the existing courses with more efficiency-related content.
- x • Continue development of problem-based learning modules and models.

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x B) Building Automation and Controls Curriculum

x The program anticipates full state approval for new AS degree and Certificate in Building Automation and Sustainability

• C) Recruitment

- x • Schedule the courses during times when incumbent workers can attend classes. This may include day, night, and weekend courses.
- x • Market the program to incumbent workers through industry connections, media, internet, and brochures.
- x • Directly involve industry advisory group in program marketing
- x • Host industry open houses

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• D) Career Paths

- x • Secure internships with industry partners
- x • Secure direct hiring channels with industry
- x • Create employer database

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x E) Collaboration and Outreach

x Collaborate with other regional community colleges in the expansion of HVAC programs statewide.

- x • Host instructor and administrator dialogues
- x • Share curriculum
- x • Expand advisory group
- x • PG&E Power Pathway partner
- x • Facilitate network of HVAC instructors, continue collaborating with community colleges to support curriculum sharing and networking

x Strengthen the basic skills components of the ECT program, supported by recent additional grant funding

Needs

Please describe and prioritize any **faculty, classified, and student assistant** needs.

Faculty:

Due to the expansion of the program, the ECT department urgently needs another full-time instructor to better serve the department, design, teach, and assess courses, maintain and improve teaching laboratories and materials, and represent Laney statewide and nationwide as our visibility has increased and we are considered a national model in advanced technology education, including a newly designated Center of Excellence with the US DOE and EPA supported Labs for the 21st Century program..

In addition, we need at least one full-time instructional assistant and an student assistant to assist students during lab time. This will ensure adequate safety and better quality of teaching.

Staff:

The technical programs, especially the ECT and electrical department, need a full-time IT person to support and maintain the computer labs.

Please describe and prioritize any **equipment, material, and supply** needs.

Equipment:

The department needs new air conditioning equipment with R-410a refrigerant, which is the latest replacement for R-22 and meets current industry standards. All of our air conditioning lab equipment supports only R-22 which is going to be incrementally phased out as of 2010. Due to this shift in policy and standards, we will need new manifold gauges, leak detectors, recovery machines, and more.

The department needs geothermal heat pumps to teach more energy efficient heat pump systems, including water source heat pumps.

In addition, the department needs commercial refrigeration equipment, such as freezers, supermarket refrigeration, and ice machines.

For simulating high-tech facilities and clean-rooms, the department needs to acquire a fume hood and other equipment.

Please describe and prioritize any **facilities** needs.

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- 1 Sustainable educational demonstration building in energy efficiency and renewable energy
- 1 Accessible by community as a demonstration site
- 1 Showcase of energy efficient technology
- 1 Living laboratory for hands-on learning
- 2 Teaching site for community-based classes (PEC?)
- 1 Building has to be in close proximity to the ECT and E/ET departments
- 1 3000 – 4000 sqft, preferably two-story
- 1 Used to simulate residential/light commercial house
 - Significant industry donations can be expected
 - Carpentry department can do construction
 - Architectural department can do design
 - Welding department could
 - All of the above departments have expressed a great interest in collaborating on this important project
 - Architectural department did a design contest for this type of building. Several viable design scenarios are available.
 - B-150: Original breaker panels and electrical outlets need to be updated and all the wiring in the lab should be rewired above ground for safety reasons. A combustion exhaust fan needs to be installed in a common vent pipe for the residential furnaces. Flex gas pipes or rubber hoses on rollers need to be installed for the rooftop and residential furnaces. Two or three exhaust fans need to be installed in the lab area for properly exhausting the lab.
 - DDC lab (B123A): CO2 levels are very high (CO2 concentration, 900 ppm, air flow is 450 cfm (design flow was for 900 cfm)) and present a safety and health hazards for students. The DDC lab needs more exhaust and supply air in the room.
 - Students are complaining about the stuffy air, getting sleepy and not feeling good.
 - The ECT program is currently not able to adequately teach boiler systems in the lab because the gas pressure does not allow us to install and utilize properly sized boilers. Currently, we have a large boiler that is not being used due to the lack of proper gas pressure. The existing gas line is sized for smaller gas pressure. We need the district to bring in a new gas line with more pressure, utilizing bond money.

Course SLOs and Assessment	
	Fall 2010
Number of active courses in your discipline	29
Number with SLOs	29
% SLOs/Active Courses	100
Number of courses with SLOs that have been assessed	6
% Assessed/SLOs	20
Describe types of assessment methods you are using	
Tests and hands-on lab work and Presentation.	

Describe results of your SLO assessment progress	
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Program Learning Outcomes and Assessment	
	Fall 2010
Number of degrees and certificates in your discipline	7
Number with Program Learning Outcomes	7
Number assessed	
% Assessed	
Describe assessment methods you are using Tests and hands-on lab work, written reports and Presentation.	
Describe results of assessment	