



EL CAMINO COLLEGE/COMPTON CENTER
Academic Affairs

CEC PROGRAM REVIEW 2010-2011
AIR CONDITIONING DEPARTMENT
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III Program Review Step-by-Step Content

1 Overview of your Program/Department

Include:

- a) A complete description of the program/department

The Air Conditioning and Refrigeration (ACR) program at Compton Community Education Center offers theory, training in repair of HVACR equipment, troubleshooting strategies, customer service, electrical and control applications and basic solar technology to students seeking an Associate of Science Degree or a Certificate of Achievement. The program prepares students for employment in the field and provides opportunities for currently employed personnel to achieve a certificate in the ACR program. Competencies will be assessed in accordance with the Environmental Protection Agency (EPA) certificate criteria and Air Conditioning and Refrigeration Institutes (ARI) recommendations. Students completing the program may expect to enter industry as an advanced apprentice or entry-level HVACR technician.

- b) Information on degrees/certificates offered (where applicable)

The ACR Program at ECC-CEC offers an Associate of Science Degree in Air Conditioning and Refrigeration, and a Certificate of Achievement in ACR. Three smaller Certificates will also be offered in Air Conditioning, Refrigeration, and Electrical. The smaller Certificates are comprised of courses from the main Certificate of Achievement in ACR. This offers the students to a chance to receive three more certificates to add to their achievements at CEC or ECC.

- c) Status of previous recommendations

The ACR Program at CEC is in its second year of operation. This is the first Program Review of the ACR Program at CEC. The biggest concern of the Program is to get students to fill the sections offered. This is being looked into by the CTE Division, the ACR Advisory Committee, and the Tech Prep Coordinator. The ACR Program wants to articulate with High School Districts which feed CEC. Concerns regarding upgrading of lab equipment and keeping the curriculum current are relevant and are addressed at other points in this review.

2 Analysis of Institutional Research Data Include:

a) Course grade distribution; success and retention rates

	A	B	C	D	F	DR	W	Total	Retention/Success Rate
Fall 2009									
ACR 21 /9728	10	2	1	0	0	0	2	15	
	66.7%	13.3%	6.7%	0%	0%	0%	13.3%		86.7% / 86.7%
ACR 27 /9729	11	0	0	0	0	0	3	14	
	78.6%	0%	0%	0%	0%	0%	21.4%		78.6% / 78.6%
Spring 2010									
ACR 21 /9741	14	2	0	0	2	1	8	27	
	51.9%	7.4%	0%	0%	7.4%	3.7%	29.6%		59.3% / 66.7%
ACR 22 /9742	12	3	0	0	0	0	2	9	
	46.2%	11.5%	0%	0%	0%	0%	7.7%	34.6%	57.7% / 57.7%
ACR 34 /9743	12	4	0	0	0	2	7	25	
	48%	16%	0%	0%	0%	8%	28%		64% / 64%
ACR 5 /9740	6	2	2	0	0	0	0	10	
	60%	20%	20%	0%	0%	0%	0%		100% / 100%

The HVACR trade is not an easy trade to learn. It encompasses at least five other trades. It takes a commitment from the students to come to class, take notes, read on their own, and to participate in all lab and classroom projects. Some of the students coming into the ACR Program think that the classes are going to be like a shop class at the high school level, which they are not. Every semester the Program gets a new group of students taking the entry level classes. Some groups have what it takes to be successful in the Program, and some new groups do not. Also, until our lab has all the equipment it needs to attract and keep students, we are going to lose students to ECC or some other Program at CEC that has the tools and equipment in their lab for the students.

b) Enrollment statistics with section and seat counts; fill rates

Fall 2009	Seat Counts	Fill Rates
ACR 21/9728	15/26	57%
ACR 27/9729	14/26	54%

Spring 2010

ACR 21/9741	27/26	104%
ACR22/9742	26/26	100%
ACR34/9743	25/26	96%
ACR5/9740	10/26	39%

As the word gets out about the ACR Program, hopefully the sections offered will fill with students. Fall 2009 was our first semester.

c) Improvement rates (where applicable)

d) Recommendations (where applicable)

Now that the ACR Program has the space for a functional lab, the next task will be to supply the equipment needed, so that each course offered has the proper lab equipment to work on. The ACR Program offers 12 different courses, and it only has the equipment for 3 of the courses. There is only basic equipment for ACR 21, 27, and 25. With hands on equipment for the lab, the ACR Program at CEC will be able to have better Retention/Success Rates and Fill Rates because the students will have lab equipment and tools to work on. In the HVACR trade, and all trades and vocations, hands on is equally important as lecture. Students need to see and work on the equipment and use the proper tools that are being used in the trade to make them more employable and successful in the trade. I know that CEC is losing students to ECC after the first semester because ECC has more equipment and tools than CEC has.

Courses	Equipment and Tools	Costs
1. ACR 21	Tools, controls, and parts	\$25,000
2. ACR 22	Residential Refrigerators	\$50,000
3. ACR 23	Tools, controls, and parts	\$25,000
	Commercial Walk-in Refrigerator and Freezer	\$150,000
	Tools, controls, and parts	\$50,000
4. ACR 25	Commercial Reach-in Refrigerators and Freezers	\$250,000
	Split, 2 ton 13 SEER A/C units	\$100,000
	Heat Pump units	\$100,000
5. ACR 5,6,30	Tools, controls, and parts	\$50,000
	Electrical Boards, tools, controls, and parts	\$100,000
6. ACR 32	Pneumatic simulator tools, controls, and parts	\$100,000
7. ACR 20	Solar Lab kits for individual students	
	Tools, controls, and parts	\$25,000
8. ACR 27	Hot water boiler, coils, controls, tools,	

and parts.

\$150,000
Total \$1,175,000

3 Curriculum--Course, Content, and Articulation

List:

- a) Courses not reviewed in the last 5 years
None
- b) Specific timeline for submission of out-of-compliance courses to the College Curriculum Committee for updating and review
N/A
- c) Course additions to current course offerings with explanations
ACR 20 Solar Basics, to keep up with Green Technology Instruction. We are going the offer this course for the first time in the Summer of 2011.
- d) Course deletions from current course offerings with explanations
ACR 31 (Electronics) will be taught in other courses. This course was deleted from the curriculum of both CEC and ECC, so that ACR 20 could be added to the ACR Program. The information offered in ACR 31 will be added to other electrical courses.
- e) Concerns and explanations regarding department/program's courses and their articulation
As the industry changes so should curriculum. With the advice of the advisory committee the ACR Program curriculum will change in the future. On December 17, 2010 the ACR Dept. at CEC held its first advisory committee meeting regarding articulation with high schools in the communities which feed CEC. The committee will meet once a month. The high school districts to be targeted first are Compton and Paramount.
- f) Degrees and certificates
The ACR Program at ECC-CEC offers an Associate of Science Degree in Air Conditioning and Refrigeration, and a Certificate of Achievement in ACR. Three smaller Certificates will also be offered in Air Conditioning, Refrigeration, and Electrical. The Certificates have been approved by the State, so our students now have the opportunity to apply for and receive 4 Certificates in the ACR Program. Most of our students in the ACR Program do not earn degrees. They are going after the certificates, so that they might get employed in the trade or get accepted into the Apprenticeship Program through the Local 250 Union. This is why the certificates are important to our students.
- g) Recommendations (where applicable)
Curriculum is an important facet of the ACR Program at ECC-CEC and is always changing due to government regulations and environmental issues. The advisory board makes recommendations for new classes as the industry's needs are constantly changing. ECC-CEC and the instructors must be aware of these needs and be willing to support the recommendations for the ACR Program.

4 Student Learning Outcomes (SLOs)

List:

- a) SLOs for each course in the discipline

- All courses in the ACR Program have SLO's**
- b) Courses with assessments
 - CEC has assessments for ACR 21, 30, and 32. The assessments were done in the Fall 2010.**
 - ECC has assessments for all courses.**
 - c) Description of changes resulting from assessment of the courses

Inside the classroom students learn by installation, troubleshooting and repairing HVACR equipment supplied through the college when proper funding is available to purchase the equipment. To properly promote student success the college must help the program with enough of a budget to ensure that students will be able to work with equipment in the lab. After reviewing the assessments and observing the other instructors in the classroom, I am finding that not all instructors are even using the SLO assessments in the way they were intended or even using them at all. This is our fault and will be corrected soon.

- d) Program certificate and degree SLOs and manner of assessment
 - A) **Courses-All courses in the ACR Program are rated highest in Content Knowledge and Critical, Creative and Analytical Thinking. All students need the knowledge and troubleshooting skills in the trade to solve problems and make good judgments while working on equipment in the field.**
 - B) **Program-The program is also validated in terms of student outcomes based on the ability of students to successfully complete the degree or certificate program. Another way we can validate student outcomes is by placement in the HVACR industry.**
- e) Results of the assessment
 - The results of the assessments show that the students through gaining knowledge of the trade in the classroom can apply that knowledge in troubleshooting and fixing equipment in the lab. The lab develops students critical and analytical thinking skills so that they can use their knowledge of the trade in order to troubleshoot equipment.**
- f) Program's level of SLO/assessment implementation: Awareness; Development; Proficiency; or Sustainable Continuous Quality Improvement—Based on the Accrediting Commission for Community and Junior Colleges' (ACCJC) Rubric for Student Learning Outcomes (copy will be provided at annual PR orientation meeting)
 - The ACR Program is at the Sustainable Continuous Quality Improvement stage. The Program needs to link the learning outcomes to the program reviews.**
- g) Recommendations (where applicable)
 - Continue to further refine how we do program assessment through SLO's.**

5 Facilities, Equipment, and Technology

List:

- a) Facilities, equipment, and technology used by the program/department

The CEC facilities department, Dean Murray and ACR instructors have worked hard to get a functional lab ready for the students. The lab will eventually be divided into six separate sections, which include

commercial and domestic refrigeration equipment, an air conditioning department, a heating department, a pneumatic controls department and an electrical applications section. This will take time and supervision of the ACR Program by a full time instructor, but can be accomplished. We'll want to make sure the lab is set up according to the way they will be used for instruction for all courses. On page 4 there is a break down an estimate of equipment, tools, controls, and parts.

- b) Adequacy and currency of these facilities, equipment, and technology

The facilities are adequate; however, the equipment and supplies are not adequate to support a successful program. The program needs to acquire equipment, tools, and supplies in order to be successful.

- c) Immediate needs of facilities, equipment, and technology

Immediate need is for equipment for every class offered in the ACR Program. The Program does not have adequate equipment for every class. All of the SLO assessments are done in the lab. See page 4 Section 2d.

- d) Long-range needs in these areas

Along with the equipment, space will be needed to accommodate the equipment. A dedicated space so that the equipment will be somewhat safe. An ACR office will help the Program handle and conduct ACR business at CEC rather than at ECC or at home.

- e) Recommendations (where applicable)

In order for the ACR program to be a success for the students and the college, a sufficient amount of funding must be directed toward the program. An adequate supply budget will ensure that a good program will become a great success toward building the ACR program into one of the best in the state. Facility support needs to properly maintain the lab.

6 Staffing

Examine:

- a) Current staffing

3 adjunct instructors

- b) Program/department's current needs

1 full time instructor

CEC has approved the position, and the position showed be filled by Fall 2011.

- c) Program/department's future needs

The data indicates that the program is growing because we are adding more classes. As long as the FTES numbers support the classes that are added, the ACR program can continue to grow. A full time instructor and 3 adjunct instructors will be needed to have a full program during the day and night. We will also offer courses on Saturday. When a full time instructor is hired the matrix of courses offered will have to be changed as well as hire another adjunct instructor, bringing the total to 1full time and 3 adjunct instructors.

d) **Recommendations (where applicable)**

Since the ACR program has no full time instructor for the daytime, the program can never fully take off. One of the feeder classes has to be offered almost every semester. If there is no full time instructor the number of classes offered will be limited. Students will leave the program, take classes at ECC, or take classes in the (day, night, and Saturday) at CEC to receive their Certificate in ACR.

7 Planning

List:

- a) Internal and external changes or trends impacting program in the next five years
Internally the Program needs a full time instructor to lead the Program. Externally the effects of global warming around the world and the Environmental Protection Agency laws and regulations will dictate the needs of the ACR Program in the next five years.
- b) Direction of program in five years
The ACR Program needs students to be successful in finding employment. Once we get the students into the Program, the Program needs to keep them. CEC needs to be responsive to the needs of the Program. The instructors need to use SLO assessments, PR, and the Plan Builder to keep CEC aware of our students needs. To do this the Program needs a lab that is equipped with the proper equipment, tools, controls, and parts to be inviting to new and returning students. The classroom needs to be a smart room so we can make use of the video material that the Program is acquiring through the CTEA Grant. Once the classroom and lab are equipped properly the Program will grow, because we will be able to properly train the students so that they will successful in acquiring jobs in the HVACR trade. We have learned at ECC, that once we start placing our students into jobs in the trade, that by word of mouth from the students to their friends, enrollment goes up.
- c) Goals and objectives of program related to the college mission and strategic initiatives
Information is found at the following site:
http://www.elcamino.edu/administration/ir/docs/planning/ECC_strategicplan.pdf

The ACR Program at CEC needs to succeed. The community surrounding the campus has shown a need for a vocational trade that pays well and is rewarding. The HVACR trade provides this. To comply with the colleges Mission Statement of offering quality education and student success the ACR Program at CEC needs to do all it can to accomplish this. Five students from our first semester obtained jobs in the HVACR trade. Our enrollment doubled after the first semester. This showed that there are quality students in community that feeds CEC.

To comply with the colleges Strategic Initiative the ACR Program needs a lab equipped with the proper tools and equipment, a smart classroom to support video media. This will give the student a variety of instructional delivery methods. A functional lab and smart classroom will help to strengthen the Program and make the Program more inviting to students to enhance student success in learning the HVACR Trade.

Articulation with high schools and occupational schools will help with the growth of the ACR Program and also help with the economic development of the community.

It will take 5 years to fully get the ACR Program at CEC where it needs to be, to meet the needs of students and the community. In the meantime the Program will continue to change and develop until these needs are met.

8 Conclusion and Summary

List:

- a) Prioritized recommendations and needs of your program/department.
1. Hire full time instructor
 2. Acquire lab equipment for each class offered
 3. Acquire proper lab tools

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ACR 21	Tools, controls, and parts	\$25,000
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	Total	\$1,175,000

- b) Provide *estimates* of any probable expenditures or purchasing needs.

CTE Program Review

Use labor market data, advisory board input, and institutional data to respond to the following questions:

1. How strong is the occupational demand for the program? How has the demand changed in the past 5 years and what is the outlook for the next 5 years?
With a high growth rate in 2008 and a low in 2010, the growth rate in the region, state, and national, will start to rise starting in 2011. In the last 5 years the trade has a minimal change in employment. The state has a 1% decrease in employment, the region has 0% change, and the nation 5% increase. By 2012 there will be more jobs available in the HVAC trade than techs to fill the openings.
2. What is the district's need for the program?

The FTES numbers at CEC are on the rise. The day program at CEC had a 100% increase in students and the night program had a 37% increase in students.

3. What is the state's need for the program?

As the economy improves, and as the baby boomers start to retire there will be huge need for qualified HVACR techs. We need to start training techs now, to prepare for the jobs that will be opening. There was already a need for techs, before drop in the economy.

4. How does the program address needs that are not met by other similar programs in the area?

Our instructors are attending conferences and instructor seminars to keep up with the ever changing trends in the HVACR trade, and to network with other institutions in the State that teach the HVACR trade. Our courses are going Green and Energy Efficient. At both the CEC and ECC campuses, we prepare the students to become service techs. This is done through lecture and labs which are directed to teach the students how to acquire jobs in the field or prepare them for an apprenticeship position in the HVACR trade. By keeping up with the new trends in the Trade, our curriculum is always changing to meet these changes. This is very appealing to the students.

5. Are the students satisfied with their preparation for employment? Are the employers in the field satisfied with the level of preparation of our graduates?

- If a student is able to do well with the assessments that each class requires, they will be prepared to get a job in the HVACR trade. Even if the student does not participate or achieve at a high level, they will still be able to work on small residential equipment with good success.

-The employers in the field are satisfied with the level of preparation of our students. We have had students apply for jobs that other students from other institutions also applied for, and only our students got the jobs.

-Some contractors only call on our program, to fill their employment needs.

6. What are the completion success and employment rates for the students?

-The ACR program has a 75% retention rate. Success rate 82.8% in Fall 2009 and 64.8% rate in Spring 2010.