

## **Career Technical Education (CTE) 2-Year Mini-Review**

**Deadline: April 13, 2015 (midnight)**

Send by e-mail to the Program Review Co-Chair, [slillard@valleycollege.edu](mailto:slillard@valleycollege.edu)

Our current efficacy cycle for full review is every four years. However, in order to comply with Title 5 regulations, CTE programs are required to review their programs every two years. To meet this requirement, but also not to over-burden these programs, we have instituted a mini-review between the full efficacy cycles (that is, 2 years following the most recent efficacy report). Your program will be assigned a review team, consisting of Program Review members, who will work with you and provide feedback on your documents as you work through the process. Feel free to call on them or the committee co-chairs at any time.

This review is not designed to be comprehensive, but rather, it is expected to be a 2-year **update** since the last full efficacy report. Specifically, this update should address the following five program components: 1. Purpose, 2. Demand, 3. Quality, 4. External Issues, 5. 2-Year Plan.

### **Instructions:**

For each of the five sections:

1. Mark the checkbox that best identifies where the program stands.
2. Provide a brief supporting narrative. Within each section there are examples related to that particular area, which could serve to help describe your program status. It is not necessary to address every item listed; these are included as possible examples. If you have other relevant information pertaining to a given area, then you are encouraged to include that as well.

The purpose of this report is a mid-term update in order to comply with Title 5, therefore, the page length should be in the range of 2 – 3 pages. The boxes for each section are expandable; take the space needed for each section. Keep in mind that this report is an **update** of the previous 2 years, rather than a comprehensive analysis.

# CAREER TECHNICAL EDUCATION PROGRAM TWO-YEAR REVIEW

**Date:** 03/30/2015

**College:** San Bernardino Valley College

**Program:** Electricity/Electronics

## 1. Purpose of this Program

No Changes in Purpose  
in the Last Two Years



Minor Changes in Purpose  
in the Last Two Years



Significantly Changed Purpose  
In the Last Two Years



(Provide update since last full efficacy review; examples include description, mission, target population, etc.)

The purpose of the electricity/electronics program is to provide a quality program of study to a diverse community of learners. The curriculum includes hands-on skills as well as current theoretical concepts that prepare students to be employed in an introductory level position in the fields of electricity and/or electronics, which can serve diverse areas of specializations such as industrial, biomedical, communications, computer, consumer, and construction fields. The department offers either a certificate or an A.S. degree in the field of Electronics Technology, Computer Engineering Technology, Communications Engineering Technology, Electrical Power Technology, and Avionics Technology. The department also offers a General Electrician Certification Program that is approved by the California Department of Industrial Relations as well as the Occupational Health and Safety Administration (OSHA), and our students are prepared to take the state electricians certification exam as well as obtaining journeyman status, which is required by the State of California to become a licensed electrician as reflected by the Electrical Certification Curriculum Committee (ECCC). The Communications Engineering Technology program is sanctioned and recognized by the International Association for Radio, Telecommunications and Electromagnetics (iNATRE), and our graduates are eligible for membership and can join with a junior technician certification. The Electronics Technology program is sanctioned and recognized by the Electronics Technicians Association (ETA) and the Avionics curriculum is recognized by the Aircraft Electronics Association (AEA) as well. Our Electrical Power Technology prepares students to enter the utilities and industrial electricity field.

The department also prepares students to transfer to a number of public and private universities for further study in the various fields of engineering, engineering technology, and industrial technology as many of our courses are transferrable to these universities and programs.

All the above reinforce our program mission, which is to provide a diverse community of learners with solid up-to-date theoretical and hands on learning skills in the Electrical and Electronic field and to prepare them to enter into an entry level position in their respective specialty and/or to be able to transfer to four-year universities to further their studies in their respective fields.

## 2. Demand for this Program

Low Demand



Adequate Demand  
for our Students



High Demand



(Provide update since last full efficacy review; examples include labor market data, advisory input, etc.)

According to the labor market data provided by the State of California Employment Development Department, the Electrical and Electronic field related jobs have a projected growth particularly for the Inland Empire for the decade beginning 2012 through 2022 as the following: Electricians and Electrical Technicians at 42.6%, for Electrical and Electronic Engineering Technicians at 9.3%, for Electronic Audio and Video Equipment Technicians the demand shoots up to 57.1 %, Telecommunications Equipment technicians at 13.4%, Security and Fire Alarm Technicians at 21.6%, and Medical Equipment Technicians at 53.3%.

From the above statistics, we can deduce that these fields command among the highest growth projection estimates of any CTE trade because they envelope a large variety of professions and careers as reflected in the program purpose above. We have noticed that we have had a gradual increase in the enrollment in our various programs as compelling evidence to support the increasing demand for the Program. Since every facet of life deals with electricity and electronic systems, continued demand is certainly present as also evidenced by the recent industry advisory board meeting that the department had in which a member, who as an example, works as a manager of the maintenance operations at Norco Unified School District stated that an increasing demand for electronic low voltage technicians exists as many of the districts employees are retiring. They have approached us to hire our students to work in their organization. In addition, another committee member, who is a senior engineer at Boeing, also re-iterated that there exists great demand for electronics and avionics engineering technicians as they will be hiring around 2500 new technicians for their new programs awarded by the government. Another member of the committee, who is an Engineer at Schneider Electric, also emphasized that there exists a steady demand for industrial automation and power technicians as evidenced by their industry. Therefore we can conclude that demand will remain strong and steady for the coming period.

### 3. Quality of this Program

Needs Significant  
Improvement

Meets Student Needs

Highest Quality

☐
☐
☐
☒
☐

(Provide update since last full efficacy review; examples include core indicators, student outcomes, partnerships, certificates, degrees, articulation, faculty qualifications, diversity, grants, equipment, etc.)

The General Electrician Certificate program is recognized and approved by the California Department of Industrial Relations and follows the guidelines of the Electrical Certification Curriculum Committee (ECCC), the Division of Apprenticeship standards (DAS), and the Occupational Health and Safety Administration. The Electronics Technology Certificate is recognized by the Electronics Technicians Association (ETA). The Communications Certificate is recognized by International Association of Radio, Telecommunications and electromagnetics (iNARTE). The Avionics Certificate is recognized by the Aircraft Electronics Association (AEA).

The latest core indicators clearly show that we have an above average technical skill attainment rate 8.7% above negotiated level which testifies to the validity and quality of the curriculum and of our faculty, the majority of which are adjuncts, that teach part time but also work in the industry, thus bringing real working environment and experiences to the classroom. One faculty has his own electrical installation company and has been a General Electrician for over 26 years. Another faculty owns an industrial automation consulting firm, yet another faculty works in the telecommunications field with the county of Riverside. All other faculty have industry-related experience that they bring to the classroom, which enhances the quality of the program. The only core indicator of concern is the completions of credential certificates and degrees, which is slightly below negotiated level and that is due to many students having taken classes that transfer into a four-year university and not completing the program at our college, among other reasons.

An examination of our per course student learning outcomes reveal that our students are achieving success rates ranging from a low of 79% up to 92% on average. This shows that the teaching methodologies as well as the curriculum are meeting expectation.

It is important to note that we have articulated at least 11 core courses with CSU campuses as well as UC system campuses. These courses can be used and are part of the Electrical Engineering Technology bachelor degree curriculum and are universal in this discipline.

As part of the continuing effort to improve the quality of the program, much of our laboratory equipment is going and has gone through updating so that our curriculum would align more with today's industry standards, and some of our curriculum is being revised to reflect these changes, which will certainly add to the program's potency and currency. Of course, the main obstacle remains funding for such equipment, which we are continually applying to get through grants.

Another aspect of the program is that we are currently seeking industry partnerships to help get our students into internship programs with large industry establishments such as California Steel Industries and Target Distribution, with whom we will sign a Memorandum Of Understanding shortly, as well as local electrical contractors and electronics manufacturing outfits who continue to frequently hire our students directly by contacting me to post the job opening and having the

students apply directly to the employer.

#### 4. External Issues

Not Consistent with  
External Issues

Complies with External Issues

Benefits From and Contributes  
to External Issues

☐☐☐☒☐

(Provide update since last full efficacy review; examples include legislation, CCCC mandates, Perkins, CTE transition, CalWORKs, WIOA, Career Ladders, etc.)

External issues that have a direct effect on the Electrical Program is the National Electrical Code (NEC) that frequently changes and is continuously updated as well in our curriculum. We stay up to date and incorporate the latest code in our program. In addition, there is also new building standards that are part of the new Title 24 section of the building code that require that the electrical, lighting, and environmental control systems follow stringent energy efficiency limits and promote the use of green technologies to be integrated within all electrical and electronic systems; thus we are continuously seeking to include these technologies in our curriculum to promote its currency and effectiveness by incorporating them in our curriculum and also purchasing the equipment to be used in the laboratory part of our program so that students are exposed to these systems, which will make them more marketable from the employment aspect. Sometimes, though, the challenge is the added expense and cost of the equipment needed for the upgrade, which puts a strain on the budget.

As for the Work Force Innovation and Opportunity ACT (WIOA) recently passed, which is pushing for more student enrollments for career pathways, we can see that all our Electrical/Electronics certificated programs, which fall under Career Technical Education, are prime vehicles to achieving the goals of that Act in that we are producing a viable and effective skilled labor force for our economy. Furthermore, the field in itself serves as a vehicle for career ladders since our students are prepared for entry level positions in their respective specialties and can ultimately move up from a journeyman or technician position into a supervisor or designer position and ultimately into a management position. In addition, for the CTE transition goals, our program has worked and continues to work closely with industry employers to place our students in apprenticeships which may ultimately lead to full employment.

#### 5. Cost of this Program

Expenditures  
Exceed Income

Income Covers  
Expenditures

Income Exceeds  
Expenditures

☐☒☐☐☐

(Provide update since last full efficacy review; examples include enrollment/FTEs generated & in-kind contributions of time/resources minus salaries/equipment/supplies, etc.)

The latest EMP report shows that the department has had sustained an FTES of above 100 for the last five years only to dip slightly below that level for the 11-12 year and then rebound to the above 100 level again, which overall indicates high enrollments. In fact our FTEF has increased and is reaching levels attained in 2009-2010 which was before the mandated class reduction as a result of budgetary limits, while having two full time faculty during these years. But as one retired, his position was eliminated, and we are currently functioning with only one full time faculty though our FTEF numbers actually require 3 full time faculty. That remains a challenge as the schedule of the full-time faculty becomes strained to keep the program functioning while working to progress and improve the program.

It is also important to note that since we have upgraded and continue to upgrade our lab testing equipment to meet today's industry standards, funding has been a challenge and our general fund allocation even with Perkins funds subordination has not entirely been enough to do the upgrade, so we have done the upgrade in phases just as funding was received. We have also applied for grants in order to supplement the budget to fulfill our upgrade goals. There continues to be the need to purchase new mechatronics automation trainers, including the energy efficient systems described in the previous section, that are quite expensive, but we are in the process of obtaining the necessary funding through grants.

## 6. Two-Year Plan

Need Significant Changes  
And/or Increased Resources  
to Continue

☐

On Track for  
Next Two Years

☐☒

Significant Growth  
Anticipated

☐☐

(Provide update since last full efficacy review; examples include recommendations, project future trends, personnel and equipment needs, etc.)

1. Develop more and deeper relationships with industry. California Steel Industries has visited our facilities and toured our laboratories and wanted to establish a relationship to have our students become part of their pool of candidates to work in their internship program for Industrial Electrical Maintenance Technician, which may lead to an apprenticeship position. Similarly, Target warehousing and distribution has done the same and has interviewed and hired our students to work as line support technicians. Other small electrical installation and repair companies have continuously been hiring from our pool of students in the fields, providing them with needed hours for their apprenticeship programs.
2. Develop new or increase funding sources such as grants and donations for additional technology development that mirrors industry.
3. Continue to voice the need for additional staffing as evidenced by program enrollment and growth sustainability numbers.
4. Increase community outreach to K-12 to expose prospective student to the career field and to articulate with high schools that provide classes related to our field so that we can smooth the path for those high school students who wish to continue with this career. Currently, a representative from the Technology division or the department chair visit local high school campuses to showcase the program and to provide potential students with vital information to help them make a life-changing career decision to pursue their education in one of our department's program offerings.

### Signatures:

\_\_\_\_\_  
Administrator

\_\_\_\_\_  
Date

\_\_\_\_\_  
Faculty

\_\_\_\_\_  
Date

\_\_\_\_\_  
Advisory Committee Member

\_\_\_\_\_  
Date