

# Bakersfield College

## Program Review – Annual Update

Attachments (place a checkmark beside the forms listed below that are attached):

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> <a href="#">Faculty Request Form</a> | <input type="checkbox"/> <a href="#">Classified Request Form</a> | <input type="checkbox"/> <a href="#">Budget Change Request Form</a>                |
| <input type="checkbox"/> <a href="#">ISIT Form</a>            | <input type="checkbox"/> <a href="#">M &amp; O Form</a>          | <input checked="" type="checkbox"/> <a href="#">Best Practices Form (Required)</a> |
| <input type="checkbox"/> Other: _____                         |  |  |

### **I. Program Information:**

Program Name: **Electronics Technology (Engineering and Industrial Technology Department)**

Program Type:  Instructional  Non-Instructional

Program Mission Statement:

**The EIT faculty and staff strive to offer effective, up to date and student centered instruction, being sensitive to the diversity of our students, their educational needs, and their career goals. We provide relevant course and lab work geared toward day and night students seeking careers in EIT related fields, also meeting the needs of students seeking training for career advancement or skills updating. We use a multi-dimensional approach in preparing our students not only for their specific career goals, but also provide activities that assist them with meeting their personal, academic, and intellectual goals. Our faculty actively pursues professional development, program/facilities improvement, and college/community involvement, seeking partnerships and collective efforts.**

Program Description: Describe how the program supports the mission of Bakersfield College –

**The Electronics Technology program at Bakersfield College provides training for electronics technicians, automation technicians, instrumentation technicians, consumer electronics technicians, maintenance mechanics, radio and telecommunications technicians, installation technicians, electronic systems fabrication technicians, operators, and other related occupations. In the near future, we will also provide classes for a new Engineering Technician Associates of Science degree.**

**Bakersfield College, as part of the California Community College system, provides CTE, transfer, and basic skills coursework. Our program successfully serves the CTE statewide goal for our discipline. In addition, we have participated in several of the strategic goals and initiatives of the college, including student success (through our participation in the C6 consortium and its activities), and fiscal sustainability (through our participation in the STEM program and through sizeable grants from Chevron and the Central California Section of the International Society of Automation). Our facilities and equipment are exemplary among similar programs in the State, and as such, they have contributed both to student success and a positive example of Bakersfield College's commitment to relevant technology and high-wage, high-growth occupations within our service area.**

Degrees and Certificates: List the degrees and/or Certificates of Achievement awarded by the program, if applicable.

**We currently have a Certificate of Achievement in Electronics Technology and an Associate's Degree in Industrial Technology, Electronics Technology option. Several Job Skills Certificates are in process through Curricunet.**

## **II. Program Assessment:**

- a. How did your outcomes assessment results inform your program planning?

**We determined that we needed to create a more predictable course sequence, centered around various Job Skills Certificates, which we feel will help with entry-level employment, job advancement, and persistence through the program. In addition, we recognized the need to use the instructional technology we have in our labs and online (Moodle) to provide “hybrid” instruction. This will allow us to offer more cross-listed sections, which in turn will allow us to schedule advanced-level and potentially lower-enrolled classes more often. Completion times for our students are predicted to decrease, since courses can be offered more frequently. Also, students can take advanced-level coursework that is increasingly important to secure employment. Advisory Committee discussions have consistently confirmed that we are on the right track to keep up with the changing technical demands of our local employers.**

- b. How did your outcomes assessment results inform your resource requests this year?

**In the past, we have been trying to add a third full-time faculty member to our program. For at least the last five years, we have relied heavily on adjuncts to meet the growth of sections we experienced. Fortunately, our participation in the C6 grant offset the cost of the new faculty member (hired August 2013), and our supportive administration allowed the position to become tenure-track rather than remain a one-year temporary one.**

**Indirectly, the desire for an increase in our PLO’s made it easier to participate in the C6 grant. We were able to increase the stock of equipment for many of our courses through VTEA, STEM, and private grant funding. With these improvements, we are additionally challenged with a lack of storage and lab space. The future growth of the program and our course offerings will reach a limit rather soon if these needs cannot be addressed. By serving a limited number of students, we will not be able to improve all core and success indicators.**

- c. Note any significant changes in your program’s strengths since last year.

**As previously mentioned, we have experienced the following changes in our program’s strengths:**

- **Our equipment stock, particularly in our Computer Integrated Manufacturing lab, has increased by an estimated \$200,000 from governmental grant sources.**
- **A \$125,000 grant from Chevron allowed us to purchase additional equipment, provide a pathway and connection to high school “Project Lead the Way” programs**
- **We participated in MESA Week Zero, and are more connected to the STEM initiative than ever before.**
- **The addition of a third full-time faculty member is allowing us to accommodate the additional workload that comes from new technology and instructional strategies, as well as meeting the demands of participation in the C6 grant.**
- **Faculty members have spent significant time this summer improving labs and implementing the new equipment and technology into our program.**

- d. Note any significant changes in your program's weaknesses since last year.
- **Storage space continues to be deficient. Although we were given an additional storage location, we need a more efficient method of rotating equipment through the labs when needed and storing it when it is not.**
  - **We have outgrown our CIM lab (INDT 7a), and cannot have classroom seating as well as workspaces for lab activities. Our two other labs (INDT 5 and 6) are utilized more than ever. Growth of evening sections is not possible without an additional classroom/lab space.**
- e. If applicable, describe any unplanned events that impacted your program.
- **The C6 grant has increased the number of daytime sections that need to be offered. These sections cannot be staffed by regular adjunct instructors. In addition, one of our program faculty members became Department Chair (with 60% release time) last spring. While we hope that daytime enrollment will continue to grow, this in turn will increase the need for adjunct faculty members teaching evening sections.**

### **III. Technology and Facilities Analysis**

- a. Has your program received new or repurposed technology in this cycle? **Yes, though not ISIT-related technology**
- i. If yes, how have you assessed the outcome of the use of that technology and its effectiveness as it relates to student outcomes?
- We have not had significant updating of computer technology, although private grant funding will allow for the purchase of laptops for one of our Electronics labs. We have added computer-based instruction for several more of our classes recently. We also continue to develop "hybrid" classes (in limited use at this time), which will require access to Internet-connected computers in those classes. We have course grade data from past sections, and we wish to compare it to the grade data for the sections using the new technology. The challenge, however, is that the amount of content covered is expected to increase due to efficiency of instruction, so there will be multiple causes of any change that may occur as reflected by the data.**
- ii. If no, what technology could play a contributing factor in future student success and outcomes for your program? How would you evaluate the use of this technology?
- iii. How might other areas use this technology?
- As previously mentioned, we have obtained significant equipment that may be beneficial to STEM classes, Industrial Drawing (Process Piping and Electrical Design courses), Automotive Technology, and Construction Technology.**

(NOTE: Technology requests can be made by filling out the [ISIT Request form](#).)

- b. Has your area received any facilities maintenance, repair or updating in this cycle? If yes, how has the outcome contributed to student success?
- Other than the maintenance of items through work orders, we have not received significant improvements in this area.**

#### **IV. Trend Data Analysis:**

Discuss any significant changes in data trends over the last year using data provided by Institutional Research. Metrics may include the following:

- a. Changes in student demographics (gender, age and ethnicity)
- b. Changes in enrollment (headcount, sections, course enrollment and productivity)
- c. Success and retention for face-to-face, as well as online/distance courses
- d. Degrees and certificates awarded (five-year trend data for each degree and/or certificate awarded)
- e. Other program-specific data (*please specify or attach*)

Since this is the first year where we are program-specific, we looked at the data for the past five years, as provided by IR. The highlights are:

1. The percentage of female students in our program has increased from 7 (3% of our population) to 12 (4%) last year. We feel this is due in part to the focus of VTEA funding in that area.
2. The number of younger students has increased slightly, while the number of students 40 and older has decreased by close to one-half. This approximately mirrors the College.
3. The number of Hispanic/Latino students has risen from 51% of our student population to 61% last year. Approximately the same percentage decrease is seen in our White student population.
4. The number of sections in '08-'09 was 16, reaching a high of 21 in '10-'11, and then ending at 19 last year. Not a significant change in sections.
5. FTES increased from 72.0 in '08-'09 to 78.6 last year.
6. Success and retention rates dropped slightly last year (though less than 3%), and were 4% to 5% below College-wide averages.
7. Certificate (CA) awards were slightly up from '08 – '09, though years '10 – '11, and '11 – '12 were well above average. The number of AS degrees was at least double the number in '08 – '09.

**V. Progress on Program Goals:**

List the program’s goals from the previous Program Review. For each goal, please discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section.

**Previously Established Goal 1: *(state goal)***

**Continue to coordinate with local industry through the work of advisory boards and other collaborative efforts. [Continued goal from last year. Changes in curriculum were either made or proposed in response to feedback by advisors. Evaluation of the change will take place over the next several years]**

Progress on Goal:

Completed: August 2013 (Date)                       Revised: \_\_\_\_\_ (Date)

Comments on Goal 1:

**Prior to the start of the fall semester, we convened an advisory board meeting, that included additional industry representatives. The purpose of the meeting was to obtain feedback on new (proposed) and existing courses, course content, lab activities, and other program features. We also sought to determine strengths of the program and areas that could be improved. Minutes/survey results can be obtained by contacting Manny Fernandez, manferna@bakersfieldcollege.edu**

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**Previously Established Goal 2: *(state goal)***

**Continue to address gaps in core indicators. [This is continued from last year – especially in terms of non-traditional student (female) enrollment.]**

Progress on Goal:

Completed: \_\_\_\_\_ (Date)                       Revised: \_\_\_\_\_ (Date)

**Continuing work on this goal**

Comments on Goal 2:

**Since the last APR, we have begun cohorts in the C6 program. Of the “guiding principles” of the C6 grant, several are focused on improved instruction, embedded remediation, block scheduling, and online curriculum access. We strongly believe that we will see an improvement in core indicators as a result. However, VTEA core indicator data is three years behind, so the results of this year’s efforts will be reflected on the VTEA core indicator data reported during the 2016-17 academic year.**

**As previously noted, we have improved the number of non-traditional students in our program in the past five years.**

**Previously Established Goal 3: (state goal)**

**Develop a mechatronics program within the Electronics Technology program to meet needs requested by industry.**

Progress on Goal:

Completed: May 2014 (Date)

Revised: \_\_\_\_\_ (Date)

Comments on Goal 3:

**As previously mentioned, we have purchased significant equipment for Mechatronics (Manufacturing Automation) that is housed in our Computer Integrated Manufacturing (CIM) lab. By the end of this academic year, we will have several new Job Skills Certificates available, including one in Manufacturing Automation.**

**The additional steps in the process to be addressed this year include:**

- 1) Ensuring that courses are offered, and in the correct sequence so that a student can take the necessary classes for the Manufacturing Automation Job Skills Certificate in two semesters (assuming they start in the fall of that year).**
- 2) Creating promotional materials and performing recruiting efforts at local high schools and at the locations of significant employers (e.g. Nestle/Dreyers, Bolthouse Farms, et. al.)**
- 3) Developing internship and entry-level employment opportunities for student placement.**

**Much of this work will be facilitated through the C6 grant.**

**VI. Curricular Review (Instructional Programs only):**

- a. List each of the courses offered within the discipline's academic program in the first column, using one row per course. Place an **X** in the appropriate column to indicate when the course is scheduled for review.

Course	2013-2014 (2019-2020)	2014-2015 (2020-2021)	2015-2016 (2021-2022)	2016-2017 (2022-2023)	2017-2018 (2023-2024)	2018-2019 (2024-2025)
<u>ELET B1 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B4 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B5 1/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B6 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B55A</u>	<u>X</u>		<u>X</u>		<u>X</u>	
<u>ELET B56 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B58 5/2011</u>	<u>X</u>		<u>X</u>		<u>X</u>	
<u>ELET B61 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B62 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B63 1/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>
<u>ELET B70 9/2012</u>		<u>X</u>		<u>X</u>		<u>X</u>

- b. List courses that are proposed for addition.

**ELET B55B – an advanced course in Motors and Controls (to address Advisory Committee recommendations)  
ELET B56B – an advanced course in Instrumentation and Process Control (also to address Advisory Committee recommendations)**

- c. List courses that are proposed for deletion.

**None**

- d. List any changes the program has made to online/hybrid/distance education courses.

**We are in the development and limited implementation stage. Changes in Curricunet will be necessary before full implementation. We anticipate hybrid classes in ELET B1, ELET B4, ELET B5, ELET B55A, ELET B56, ELET B58, and ELET B70. The remaining courses will be phased in within the next several years as time allows.**

- e. Provide an update on the program's transition to adopting a [Transfer Model Curriculum](#) (AA-T or AS-T), if applicable.

**Not Applicable – Program does not have a TMC.**

## **VII. Conclusions and Findings:**

Present any conclusions and findings about the program.

- 1. Increasing the number of Job Skills Certificates available to our students will likely increase persistence and completion rates, particularly in the number of students earning 12 units or more per year in their major.**
- 2. Students continue to come to our classes under-prepared academically and challenged by our rigorous coursework in this program. We need to adapt our teaching strategies, particularly in embedded remediation and the “Habits of the Mind” strategies that are being promoted College-wide.**
- 3. Although growth of sections has been limited in the recent past due to budget cuts, we anticipate growth in sections and FTES from this year on. Course sections have typically been full and waitlisted in our program.**
- 4. We wish to examine strategies to increase success and retention rates to at least equal to the College average. Although we are less than 6% below this average, any increase in success and retention will benefit students.**
- 5. It will continue to be a challenge to meet the expectations of industry (greater breadth of knowledge required for the average technical employee) while meeting the expectations of our College program (productivity, number of sections allowed, and scheduling issues) and the limitations of our facilities for expansion.**
- 6. Employers are more willing now to offer internships, donations of equipment and money, expertise, and entry-level employment. This is a direct result of the efforts we have made in connecting our industry sectors with our College.**