**Bakersfield College**

**Program Review – Annual Update 2016-2017**

**I. Program Information:**

Program Name: Industrial Drawing

Program Type: [x]  Instructional [ ]  Student Affairs [ ]  Administrative Service

***Bakersfield College Mission****:* Bakersfield College provides opportunities for students from diverse economic, cultural, and educational backgrounds to attain Associate and Baccalaureate degrees and certificates, workplace skills, and preparation for transfer. Our rigorous and supportive learning environment fosters students’ abilities to think critically, communicate effectively, and demonstrate competencies and skills in order to engage productively in their communities and the world.

**Describe how the program supports the Bakersfield College Mission:**

Career Technical Education (CTE) is one of the stated missions of the California Community College system. All types of construction, manufacturing, production, and engineering use drawings to communicate ideas through graphic communication. This Drafting and CAD program introduces the student to common conventions in the field and develops indispensable skills in:

* basic sketching and drafting techniques used every day by all levels drafters, designers, and engineers
* creating graphic solutions appropriate for the type of work being performed
* employing principles of design with an understanding of manufacturing processes
* increasing productivity through effective use of computer aided drafting (CAD)

Some classes are industry specific and give advanced instruction in 3D modeling, geographic information systems (GIS), electrical design, and piping drafting. Industrial drawing classes benefit students pursuing careers in engineering, architecture, and industrial technology. Students who receive training in our classes are prepared to enter various fields of employment, including AutoCAD drafter/designer, engineering technician, GIS technician, civil drafter, piping drafter, electrical circuits drafter, and 3D modeling designer. 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 (though 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. 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.

**Program Mission Statement:**

The Engineering and Industrial Technology (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 full and part time 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.

**II. Progress on Program Goals:**

1. List the program’s current goals. For each goal (minimum of 2 goals), discuss progress and changes. If the program is addressing more than two (2) goals, please duplicate this section.

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| **Program Goal** | **Which institutional goals from the Bakersfield College Strategic Plan will be advanced upon completion of this goal? (select all that apply)** | **Progress on goal achievement****(choose one)** | **Comments** |
| 1. 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 advisory committee. Evaluation of the change will take place over the next several years] | [x]  1: Student Learning [x]  2: Student Progression and Completion [ ]  3: Facilities [x]  4: Oversight and Accountability [x]  5: Leadership and Engagement  | [ ]  Completed: \_\_\_\_\_\_\_\_\_\_ (Date) [ ]  Revised: \_\_\_\_\_\_\_\_\_\_ (Date)**[x]** Ongoing: Fall 2017 | At the previous advisory committee meeting, we discussed offering contract education classes and advanced classes in GIS, Piping, and parametric modeling. Some of the advisory committee said that they might be able to provide adjunct faculty for these positions.Our next advisory committee meeting is scheduled for this Fall. We will continue to communicate with all parties and work to improve instruction, adapt to the changing workplace, and prepare students for employment and university. |
| 2. Address gaps in core indicators [continued from previous years].The program falls short in four areas:\* Skill Attainment\* Employment\* NT Participation\* NT Completion | [x]  1: Student Learning [x]  2: Student Progression and Completion [ ]  3: Facilities [x]  4: Oversight and Accountability [ ]  5: Leadership and Engagement  | [ ]  Completed: \_\_\_\_\_\_\_\_\_\_ (Date) [ ]  Revised: \_\_\_\_\_\_\_\_\_\_ (Date)**[x]** Ongoing: Fall 2017 | Part of the issue our program has is the small number of students reflected in the VTEA data. 095300 Drafting Technology only captures 49 students. This is especially an issue in NT participation and NT completion. The program is addressing this issue in several ways. First, we are planning visits to the local high schools to encourage students to pursue degrees in this area. We have also worked with the STEM program on campus to generate interest in middle school and high school students through the STEM programs over the summer. We hope that these efforts will pay off in the coming years. Darren Willis is the faculty advisor for the Women in Science and Engineering club and Klint Rigby is the advisor of the Bakersfield College Engineers club, both on the Bakersfield College campus. Both clubs encourage non-traditional students to take classes in this area and become engaged in non-traditional fields of employment. We also work with the MESA program and HOPES club, each with similar goals to those stated above. **MESA enables educationally disadvantaged students to prepare for and graduate from a four-year college or university with a math-based degree in areas such as engineering, the sciences, computer science, and mathematics. HOPES is the Hispanic Organization Promoting Engineering and Science.** |
| 3. Implement a series of entry and exit assessments (including tests, interviews, or surveys) to help evaluate student preparedness in the following areas:\* Base knowledge for new students (introductory course only)\* Retention from prerequisite courses\* Identification of knowledge gaps or misunderstanding of concepts  | [x]  1: Student Learning [x]  2: Student Progression and Completion [ ]  3: Facilities [x]  4: Oversight and Accountability [x]  5: Leadership and Engagement  | [ ]  Completed: \_\_\_\_\_\_\_\_\_\_ (Date) [ ]  Revised: \_\_\_\_\_\_\_\_\_\_ (Date)[x]  Ongoing: Fall 2017 | Presently, there are assessment tools in place in part of the program. We will continue to develop and implement assessments to determine:\* Level of experience of incoming students\* Level of student achievement of the SLOs from prerequisite courses\* Student attainment of course learning objectives\* Student attainment level of program goals |

1. List new or revised goals (if applicable)

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| **New/Replacement Program Goal** | **Which institutional goals will be advanced upon completion of this goal? (select all that apply)** | **Anticipated Results** |
| **N/A** | [ ]  1: Student Learning [ ]  2: Student Progression and Completion [ ]  3: Facilities [ ]  4: Oversight and Accountability [ ]  5: Leadership and Engagement  |  |

**III. Trend Data Analysis:**

Highlight ***any significant changes*** in the following metrics and discuss what such changes mean to your program.

1. Changes in student demographics (gender, age and ethnicity).
The Industrial Drawing program has not experienced significant changes in demographics.
2. Changes in enrollment (headcount, sections, course enrollment and productivity).
There have been no significant changes in headcount, sections, or productivity in the past year.
Because students have been experiencing difficulty completing all of the classes needed to earn the degree, we are going to change the course offerings starting in the Spring Semester to now offer INDR 50 and INDR 52 every year (they have been only offered every other year until now).
3. Success and retention for face-to-face, as well as online/distance courses.
Success rates have not experienced significant changes for this program.
4. Other program-specific data that reflects significant changes *(please specify or attach).* All Student Affairs and Administrative Services should respond.
None.

**IV. Program Assessment (focus on most recent year):**

Use attached **Assessment Report Form AU Tab**

1. Describe *any significant changes* in your program’s strengths since last year.
We have increased usage of the creative design center in most of the CAD classes which has resulted in increased student motivation and productivity.
The CAD and drafting program has been using SI personnel to provide additional assistance for our students, which has been appreciated by all students in the open labs.
Our program has been offering classes on Fridays and Saturdays, which has increased our flexibility in scheduling and opened up opportunities for additional students.
2. Describe *any significant changes* in your program’s weaknesses since last year.
Because of new classes (including INDA classes) the drafting and CAD labs are highly utilized, leading to fewer hours available for open labs or new class sections or offerings.
The student who worked in our Creative Design Center transferred to Cal Poly Pomona and her job was not replaced. This has placed a higher burden on the faculty to meet the students’ needs in this area.
3. If applicable, describe any unplanned events that affected your program.
The approval of the new Bachelor’s degree last year has created problems that we could not have foreseen. The largest problems have been discussed above, but include:
* Lack of sufficient lab space
* Lack of faculty to teach the existing and proposed courses
* Lack of training in new software

**V. Assess Your Program’s Resource Needs:** To request resources (staff, faculty, technology, equipment, budget, and facilities), please fill out the appropriate form. <https://committees.kccd.edu/bc/committee/programreview>

1. Human Resources and Professional Development:
2. If you are requesting any additional positions, explain briefly how the additional positions will contribute to increased student success. Include upcoming retirements or open positions that need to be filled.
We are not requesting any additional positions.
3. Professional Development:
4. Describe briefly the effectiveness of the professional development your program has been engaged in (either providing or attending) during the last year, focusing on how it contributed to student success.
Professors in our area attended several professional development seminars in the past year, including Autodesk University (AU). AU is a four-day, intensive training and networking seminar where attendees may get professional certification and training from industry-leading presenters. AU is an important part of the professional development of our staff and students.
Our department also hosted 3D printing professional development opportunities for the entire campus.
5. What professional development opportunities and contributions can your program make to the college in the future?
As the program continues to grow, we will be able to leverage the professional development center and the design skills of our students to help students and professors from all disciplines to communicate more effectively.
6. Facilities:
7. How have facilities’ maintenance, repair or updating affected your program in the past year as it relates to student success?
There have been no maintenance issues in the past year.
* How will your Facilities Request for next year contribute to student success?
Our facilities request is for either new classroom space or additional computers in MS12. Either one of these requests will lead to increased flexibility in course offerings and accessibility by students.
Our program could really use a new space for our Creative Design Center that will increase its visibility and access for more students.
Tom Mohenke, our mechanic and craftsman for the Engineering and Industrial Technology department, is going to retire at the end of the school year. It is important to fill his position with another who can complete maintenance and remodeling projects for our area.

C. Technology and Equipment:

1. Understanding that some programs teach in multiple classrooms, how has new, repurposed or existing technology or equipment affected your program in the past year as it relates to student success?
The short throw projector and doc cam in MS12 does not perform adequately and does not meet our needs. A ceiling-mounted projector (similar to the equipment in MS9 or MS10 will provide a better image with more contrast and a larger image, which is crucial to the graphic nature of classes held in MS12.
2. How will your new or repurposed classroom, office technology and/or equipment request contribute to student success?
Students who sit in the back or on the sides of the classroom often complain that they cannot adequately see the presentations. The installation of a new projector with a larger image will help alleviate this situation.
3. Discuss the effectiveness of technology used in your area to meet college strategic goals.
Technology in our area is essential to the success of our students and community. Local employers look to BC for students who are effectively trained and have hands-on skills to meet their employment needs.

D. Budget: Explain how your budget justifications will contribute to increased student success for your program.

 Our classes continue to be tightly scheduled and it is becoming increasingly difficult to schedule all of the classes needed for CAD, Drafting, and Architecture in our shared space. A one-time increase in the budget to cover the cost of adding computers to MS12 or allocating an additional computer lab will greatly increase our ability to schedule classes and provide supervised open lab times with qualified SI providers or professors in class.

**VI. Conclusions and Findings:**

Present any conclusions and findings about the program. This is an opportunity to provide a brief abstract/synopsis of your program’s current circumstances and needs.

The Drafting and CAD program at Bakersfield College is strong, but struggling to meet the demands of our students because of a lack of lab space and faculty. If some changes are not made to the availability of lab space, the addition of the new degree will negatively affect the program as a whole. Overall, we can make the following conclusions:

1. Increasing the number of classes we offer will lead to increased numbers of Job Skills Certificates and degrees awarded to our students. We will be adding additional sections of Piping and GIS in the Spring Semester.

2. The Creative Design Center has increased our visibility on campus and in the community. We hope to expand our space and tools to better reach the community. The introduction of 3D printing and the laser technology into our classes has increased excitement in our program and gives students hands-on experience with this technology that was not previously available. We believe that it will lead to equipping our students to enter the workforce and be productive at a sooner rate. Students are using this technology in many classes, including Industrial Drawing, Architecture, and Engineering classes.

3. Introducing Friday and Saturday courses in the area has had some positive effects on scheduling and availability. We will continue to explore these areas and make changes for future sections.

4. Our success and retention rates are greater than the College average. We will continue to look for ways to increase our numbers in both of these areas.