

# Bakersfield College

## Program Review – Annual Update

Program Name: Industrial Drawing

Program Type:  Instructional  Student Affairs  Administrative Service  Other

**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. The Industrial Drawing program at Bakersfield College 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 (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. 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.

***Instructional Programs only:***

- A. List the degrees and Certificates of Achievement the program offers
- B. If your program offers both an A.A. and an A.S. degree in the same subject, please explain the rationale for offering both and the difference between the two.
- C. If your program offers a local degree in addition to the ADT degree, please explain the rationale for offering both.

**Degrees and Certificates of Achievement**

The Industrial Drawing program at Bakersfield College currently offers an AS degree, an AA degree, and a Job Skills certificate. The AA degree has been slated for deletion because the faculty, in consultation with our advisory committee, has determined that the AA is not necessary. The AA should be deleted from the catalog in the next academic year.

There is a Job Skills Certificate offered that is composed of INDR 12, INDR 20a, and INDR 20b. This certificate is recognized by our local community and is one of the goals of most of our students.

A Certificate of Achievement has been proposed that will be comprised of the technical courses necessary for completion of the AS, giving students who desire another level of certification beyond the job skills certificate, but do not desire the AS degree. The Certificate of Completion should be available in the next academic year.

The Industrial Drawing program does not offer an ADT.

**Progress on Program Goals:**

A. 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. Please provide an action plan for each goal that gives the steps to completing the goal and the timeline.

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)	Status Update – Action Plan
<p>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]</p>	<p><input checked="" type="checkbox"/> 1: Student Learning  <input checked="" type="checkbox"/> 2: Student Progression and Completion  <input type="checkbox"/> 3: Facilities  <input checked="" type="checkbox"/> 4: Oversight and Accountability  <input checked="" type="checkbox"/> 5: Leadership and Engagement</p>	<p><input type="checkbox"/> Completed: _____ (Date)  <input type="checkbox"/> Revised: _____ (Date)  <input checked="" type="checkbox"/> Ongoing: Fall 2018</p>	<p>Our advisory committee is interested in more contract education. Short-term and industry-specific training opportunities are of interest to local industry. Specific areas of interest include GIS, Civil, and MEP. 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.</p>
<p>2. Address gaps in core indicators [continued from previous years]. The program falls short in at least one aspect of all six Core indicators. Most of the deficiencies lie in Core 1 (Skill Attainment) and Core 5a (NT Participation)</p>	<p><input checked="" type="checkbox"/> 1: Student Learning  <input checked="" type="checkbox"/> 2: Student Progression and Completion  <input type="checkbox"/> 3: Facilities  <input checked="" type="checkbox"/> 4: Oversight and Accountability  <input type="checkbox"/> 5: Leadership and Engagement</p>	<p><input type="checkbox"/> Completed: _____ (Date)  <input type="checkbox"/> Revised: _____ (Date)  <input checked="" type="checkbox"/> Ongoing: Fall 2018</p>	<p>Many of the performance rate deficiencies seem to stem from the low numbers counted. For example, in Core 4 Employment, the INDR program does not meet the goal in three areas: Economically disadvantaged, LEP, and Single Parent. The economically disadvantaged misses the mark by less than two percent, but only has a total of 15 students. The LEP and single parent categories have 2 and 3 students respectively. In order to address the gaps, our faculty</p>

			will continue to pursue pedagogical and technological tools (such as Canvas) to help students succeed. INDR is also committed to outreach activities in the local high schools, targeting the NT populations.
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	<input checked="" type="checkbox"/> 1: Student Learning <input checked="" type="checkbox"/> 2: Student Progression and Completion <input type="checkbox"/> 3: Facilities <input checked="" type="checkbox"/> 4: Oversight and Accountability <input checked="" type="checkbox"/> 5: Leadership and Engagement	<input type="checkbox"/> Completed: _____ (Date) <input type="checkbox"/> Revised: _____ (Date) <input checked="" type="checkbox"/> Ongoing: Fall 2018	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

B. List new or revised goals (if applicable)

New/Replacement Program Goal	Which institutional goals will be advanced upon completion of this goal? (select all that apply)	Status Update – Action Plan
N/A	<input type="checkbox"/> 1: Student Learning <input type="checkbox"/> 2: Student Progression and Completion <input type="checkbox"/> 3: Facilities <input type="checkbox"/> 4: Oversight and Accountability	



### **Best Practices:**

Faculty at Bakersfield College are beginning to use Canvas to enhance accessibility and provide additional learning opportunities for our students. Canvas will allow faculty and students to communicate and collaborate. Canvas will also allow faculty to share assignments and activities, creating the opportunity for students from several sections to have common learning experiences and form learning communities that may increase collaborative efforts.

The Industrial Drawing program has continued the use of SI personnel to provide additional assistance for our students, which has been appreciated by all students in the open labs.

One final practice that continues to impact our area positively is the continued offering of classes on Fridays, which has increased our flexibility in scheduling and opened up opportunities for additional students.

### **Program Analysis:**

Take a look at your trend data (all programs should have some form of data that is used to look at changes over time).

1. Please report on any unexpected changes or challenges that your program encountered this cycle:

There have been no significant changes in industry trends in our program area.

INDR12, the introductory course in Industrial Drawing, is now a required prerequisite for the bachelor's degree program. This will affect our program because of the expected increase of students in that pilot program over the foreseeable future.

2. How does your trend data impact your decision making process for your program?

The Industrial Drawing program looks at all trend data and attempts to make changes that provide the most benefits to students. We consult with our advisory committee and ask for input / changes to our program on a regular basis.

3. Were there any changes to student success and retention for face-to-face, as well as online/distance courses?

The Industrial drawing program had 13 associates degrees conferred in the last cycle, which is far above the number of degrees in the previous cycle. We attribute this change to the fact that some of the classes that once were offered only every-other year (such as INDR 50 &52) are now offered every year.

4. Were there any changes to student demographics (age, gender, or ethnicity) for the past cycle?

The overall student demographics have remained relatively constant this cycle.

**Resource Request and Analysis:**

Resource Request		If Fulfilled, Discuss How Previous Year's Requests Impact Program Effectiveness?
<p><b>Positions:</b>  <i>Discuss the impact new and/or replacement faculty and/or staff had on your program's effectiveness.</i></p>	<input type="checkbox"/> 1: Classified Staff <input type="checkbox"/> 2: Faculty	<p>N/A</p>
<p><b>Professional Development:</b>  <i>Describe briefly, the effectiveness of the professional development your program has been engaged in (either providing or attending) during the last cycle</i></p>	<input type="checkbox"/> 1: Provided Professional Development <input checked="" type="checkbox"/> 2: Attended Professional Development	<p>Each year we send at least one faculty to Autodesk University, the leading industry training and networking convention. Presenters and attendees converge for three days of intense training and certification opportunities. Autodesk University helps keep our faculty aware of the latest trends and activity in the industry. Our advisory committee is aware of this commitment and appreciates our attention to maintaining our skills.</p>
<p><b>Facilities:</b>  <i>If your program received a building remodel or renovation, additional furniture or beyond routine maintenance, please explain how this request or requests impacts your program and helps contribute to student success.</i></p>	<input type="checkbox"/> 1: Space Allocation <input checked="" type="checkbox"/> 2: Renovation <input type="checkbox"/> 3: Furniture <input checked="" type="checkbox"/> 4: Other <input type="checkbox"/> 5: Beyond Routine Maintenance	<p>Our request will be 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.</p>
<p><b>Technology:</b>  <i>If your program received technology (audio/visual – projectors, TV's, document cameras) and computers, how does the technology impact your program and help contribute to student success?</i></p>	<input checked="" type="checkbox"/> 1: Replacement Technology <input type="checkbox"/> 2: New Technology <input type="checkbox"/> 3: Software <input type="checkbox"/> 4: Other _____	<p>Our program received new scanners in MS9 and MS10, which gives the students the opportunity to digitize original and rasterized documents for use in assignments and design tasks.</p>

Resource Request	Discuss How Effective Request is for Student Success?	
<p><b>Other Equipment:</b>  <i>If your program received equipment that is not considered audio/visual or computer equipment technology, please explain how these resources impact your program and help contribute to student success.</i></p>	<input type="checkbox"/> 1: Replacement <input type="checkbox"/> 2: New <input type="checkbox"/> 3: Other _____	<p>N/A</p>
<p><b>Budget:</b>  <i>Explain how your budget justifications will contribute to increased student success for your program. (Fiscal requests will be submitted by the faculty chair and/or area administrator.)</i></p>	<p>New computer lab or computers in MS12</p>	<p>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.</p>

### **Conclusions & Snapshot:**

Present any conclusions and findings about the program. This is an opportunity to provide a brief abstract or synopsis of your program's current circumstances and needs. Consider this a snapshot of your program, if someone were to only read this portion of your annual program review.

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. The addition of additional Piping and GIS in the spring semester has increased our number of completions – specifically the number of associate's degrees.
2. Increasing the number of classes we offer will lead to increased numbers of Job Skills Certificates and degrees awarded to our students.
3. The Creative Design Center has increased our visibility on campus and in the community. We have been able to leverage grant funding to pay for student assistants to monitor and maintain the center. 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.
4. Introducing Friday 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.
5. When considering the Core 2, Core 3, and Core 4 indicators, our rates are greater than the district and state averages in almost every area. We will continue to look for ways to increase our numbers in both of these areas. We see our Core 1 Skill Attainment indicators as the greatest area for improvement.