

Bakersfield College

Program Review – Annual Update

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

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

I. Program Information:

Program Name: **Manufacturing 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 Manufacturing Technology program at Bakersfield College provides training in the use of machine tools for production. Students learn the proper and safe use of lathes, milling machines, drilling machines, band saws, grinders, and measurement tools in cutting operations to produce precision parts from metal stock. Training is provided in the use of manually controlled machine tools as well as computer numerical control, or CNC, machine tools. The courses are designed to meet the training needs of local industry. Students enrolling in the Manufacturing Technology courses include aspiring machinists, welding students, electronics students, engineers and engineering students, industrial maintenance technicians,**

Degrees and Certificates: List the degrees and/or Certificates of Achievement awarded by the program, if applicable. **The Manufacturing Technology program offers an Associate of Science degree in Industrial Technology, Manufacturing option and a Certificate of Achievement in Manufacturing Technology. Job Skills Certificates are also offered in basic machine tool operation and in the programming of CNC (computer numerical control) lathes and milling machines.**

II. Program Assessment:

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

The use of instructional technology would bring improved student retention and student success. A new course teaching the use of SolidWorks mechanical design software was approved by the curriculum committee last year and will become a required course for the manufacturing technology program. The CAD labs are used more than ever and additional room is needed. There is a continuous emphasis on safety throughout all MFGT courses, however, students' knowledge of safe work practices needs to be assessed.

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

There are several pieces of aging equipment that need to be replaced to maintain technological currency with industry or for safety. A 1950's era vertical bandsaw and a manual milling machine both require repairs for which there is a scarcity of repair parts. These machines should be replaced with new machines utilizing newer technologies and improved safety features. One of the CNC lathes in our inventory was purchased in by Bakersfield College 1981. After over three decades of classroom use it would be beneficial to students to replace this machine with a state-of-the-art CNC lathe. Likewise it would be prudent to replace the Tree Journeyman CNC mill that has been in use for nearly 25 years with a state-of-the-art CNC mill.

Maintaining the level of staffing is critical to maintaining the course sequence we have. We are a one-faculty program. Currently, the faculty member will be teaching an additional Industrial Drawing course, and may be needed to fill in for courses in WELD, ELET, and ENGR. Additional faculty will be required to grow the program.

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

Scheduling for the CNC courses (MFGT B2 & MFGT B3) has changed, now meeting twice per week because of required hours for the course, whereas the CNC courses previously met once per week. This extra class time has allowed for opportunities to teach course topics in greater depth and has allowed students greater hands-on time with the CNC machines. This presents a staffing challenge for evening classes as the beginning machining class also meets twice per week.

- d. Note any significant changes in your program's weaknesses since last year.

This program falls below the target performance goals in the Core Indicators as summarized in the Perkins IV data. Efforts will be made to improve nontraditional participation and completion (Perkins Core 5a and 5b)

- e. If applicable, describe any unplanned events that impacted your program.

None.

III. Technology and Facilities Analysis

- a. Has your program received new or repurposed technology in this cycle?

i. If yes, how have you assessed the outcome of the use of that technology and its effectiveness as it relates to student outcomes?

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?

New computers in the IT 205 computer lab would allow for the teaching of SolidWorks. The current computers, however, are at least four years old and utilize the Windows XP operating system. The latest version of SolidWorks will function only on Windows Vista and newer.

iii. How might other areas use this technology?

The IT 205 lab is also utilized by the construction, automotive, and electronics programs.

(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?

None.

(NOTE: Facilities and M&O requests can be submitted by completing the [M&O request form](#))

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 increased from 4% in 2008-09 to 8% in 2011-12. Last year that percentage fell to 4%.
2. The age-related makeup of our students has largely remained steady since 2008-09.
3. The number of Hispanic/Latino students has risen from 42% of our student population to 54% last year.
4. The number of African-American students has risen from 4% of our student population to 11% last year.
5. FTES increased from 18.1 in '08-'09 to 29.1 last year.
6. Since 2008-09 retention rates have averaged 80.0%, with last year's retention rate of 82.3% slightly lower than the college-wide retention rate of 85.9% for face-to-face classes. Since 2008-09 success rates have averaged 76.6%, with last year's success rate of 76.9% higher than the college-wide retention rate of 69.1% for face-to-face classes.
7. Certificate awards were slightly up from '08 – '09, though years '10 – '11, and '11 – '12 were well above average.

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: _____ (Date)

Revised: _____ (Date)

Continuing working on goal

Comments on Goal 1:

INDR B42 “Introduction to Solidworks” was developed in response to feedback from the manufacturing technology and welding technology advisory boards as well as recommendations from university engineering transfer programs.

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:

As a result of outreach efforts by the Bakersfield College office of career and technical education we are seeing increasing numbers of nontraditional students in the manufacturing technology program.

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>MFGT B1A (deleted)</u>						
<u>w</u>						
<u>MFGTB1AB 3/2011</u>	X		X		X	
<u>MFGT B2 3/2011</u>	X		X		X	
<u>MFGT B3 3/2011</u>	X		X		X	
<u>MFGT B50 (deleted)</u>						
<u>MFGT B61 (deleted)</u>						

b. List courses that are proposed for addition.

None

c. List courses that are proposed for deletion.

None

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

No changes at this time – program does not use online/hybrid/distance education.

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.

- **Courses in the manufacturing technology program serve not only students listed as manufacturing majors but also students in the welding, industrial drawing, and electronics programs.**
- **Courses in the manufacturing program are also taken by engineering students desiring to expand their problem solving skills used in industrial design and product development.**
- **Being a single-faculty program limits the scheduling of classes for this program.**
- **Old machines should be retired and replaced with state-of-the-art machines to improve and enhance the hands-on learning experience for students.**