**APR Report for 2017-2018
*2018-2019 Cycle***

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| **Section I: Program Description** |

**IA1. Program (Select your program from the drop down list)**

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| MATH SCIENCE DIVISION - Engineering Program - AS Degree |

**IA2. Other Program (If your program is not on the above list, write it in here)**

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**IB. Program Lead (Your first and last name)**

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| Paul Blake |

**IC. Program Mission Statement**

Provide the Program’s Mission Statement.

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| The engineering program is focused, organized and devoted to “keep local talent local.” Meaning, finding, encouraging, educating and preparing students who live in the Southern San Joaquin Valley to seamlessly transfer into CSUB and seek careers as engineers in the local area. The program is founded on the values of industry guidance, hands-on student experiences and ABET engineering standards. |

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**ID. Program Summary**

Provide a brief summary on the current status of the program being reviewed.

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| There are three areas that constitute “the program” including:1. Program Infrastructure
2. Student Success
3. Program Curriculum

**Program Infrastructure:** remains strong and stable. This will be the last year to comment on the infrastructure as the program has transitioned from Federal - DOE grant funding to district funding. One full time tenure track and two adjunct faculty are on staff. Facilities are wonderful. Equipment is plentiful. Supplies remain adequate for this and the next yes as the grant purchased enough to sustain the program for three years. **Student Success: student enrollment is stable through 2018*** Strong enrollment continues in the ENGR 1500 course. 85 students enrolled, 12 dropped and 73 completed at an 86% completion rate. This is a pipeline of approximately 40 new students for the 2018 year.
* Enrollment in the other 1st year engineering level courses is also stable with 67 enrollees in three classes, 22 dropped at 87% completion rate.
* The introduction to computer programming course had a very high drop rate of 44% vs. 21% drop in the previous three years. I will be monitoring the 2019 course and assess is this a trend or a blip. Not really sure.
* Enrollment in the upper level, 2000 level classes is stable with an average of 5 students in each class. None of these students dropped the class and ~2/3rds completed the courses.
* Looking forward, the enrollment numbers will be down for 2019 spring. (one section of 1500 was pulled up into 2018) and the upper division classes are at ~4 students per class.
* ~12 student transferred to CSU, or out of state, engineering schools being admitted into the schools engineering programs. Approximately a total of 7 students transferred to CSUB.
* Overall, the program has transferred approximately 40-45 students into engineering schools.

**Program Curriculum*** This will also be the last year this is reported on as the curriculum is no longer under development, has all been approved by the state and taught two times by faculty at the school.
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| **Section II: Looking Back—2017-2018** |

**IIA. Present the Results** (Rubric Criterion 3)

Provide a descriptive summary of the outcomes from the 2017-2018 cycle of program review.

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| Three goals were set at the end of the previous review cycle that are being reported on. This is not comprehensive as a spirit of continuous improvement is a critical theme for the overall program. * **Goal:** Implement course improvement goals of ENGR 1500, ENGR 1540/ENGR 1550 and ENGR 2300 course. Measurements will include satisfaction rates in student surveys and completion rates.

**Result:** Completed Successfully. Specific course improvements were made in 2018 including the inclusion of micro-controller use in ENGR 1500 and 1550; 1550 was also enhanced with three new data gathering and analysis labs using manual and automated methods. The 1510 course was updated for better tolerance and fit learnings. The 1500 course was also updated with one additional hands on experiment (machine characterization) and streamlining the engineering discipline investigations. * **Goal:** Improvement of the ENGR 1500 completion rate from ~80% to 85%.

**Result:** 86% was achieved! Yea* **Goal:** Time permitting, work with Oleg to understand the number of engineering declared majors why students do not come back the for the second year. Develop quantitative measures and surveys to assess why.

**Result:** No time with Oleg was spent due to other priorities and his leaving. Considering this, the ENGR 1500 student profile surveys have been updated to electronic with automated tabulation. |

**IIB. Probe the Results: I Wonder . . .** (Rubric Criteria 1, 3)

In this section, judge whether the activities you implemented in 2017-2018 to reach your goals were effective. Did the activities have an effect on the outcome? Please describe WHY you believe your outcomes came out the way they did. Did you reach your goals? If yes, explain why. If you did not reach your goals, explain why.

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| Overall, 2018 was a very good year for the engineering program. Student enrollments are steady along with an increase in number of students transferring.Why were the goals reached? it took specific focus and a lot of extra effort. Student workers also have picked up some administrative responsibilities allowing me to spend more time on lab/hands-on learning exercises. Having an understood hiring process and personal experience has helped enormously. The improvements in all three classes were very well received by students and is very gratifying to see the work pay off. Unfortunately, there were no student surveys taken in fall of 2018 to judge improvement or changes from the student’s perspective. ☹   |

**IIC. Ideate Innovations: What if . . .** (Rubric Criteria 1, 5)

In this section, describe activities you believe would have an effect on your 2018-2019 outcome measures.

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| Items to complete/observe/manage/test in 2019 include: Improvements in the following classes: ENGR 1540 – be less verbose, more hands on learning. Distill down – what is critical, what is important and what is nice to know in programming vs. (as has been followed in the text book) all of the permutations of what may be needed. Also strengthen student exercises in objects and classes. ENGR 2300 – go through the lab manual and update to a rev 2 edition. Add one new lab for state diagrams (liquid vs. solid vs slush phases) and attempt to add another on corrosion. ENGR 1500 – add architecture and architecture engineering as part of the engineering discipline investigations.I also want to begin asking – what about a computer science pathway for students. Taft College currently offers all the necessary GE, mathematics, physics and chemistry classes as well as one of the four necessary programming classes needed for transfer. The remaining three classes are taught at CSUB. Perhaps a joint agreement can be made to enroll students in the CSUB classes while attending TC. Another approach to consider– can Taft College develop Linear algebra and Computer Programming II? I strongly recommend that administration provide the resources to develop the program with either options. I am very confident there would be “strong” participation in the program, enrollment in the classes and it would be a great offering for the local community.  |

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| **Section III: Looking Forward—2018-2019** |

**III. List Your 2018-2019 Goals—Be Quantitative!**

List your 2018-2019 APR goals in terms of their expected changes on the outcome measures as indicated earlier. Each goal that requires resources, impacts other areas, or otherwise is substantive requires the submission of an APR Goal form. Keep in mind the scoring rubric criteria:

1. The relationship between program review narrative and the APR Goal is evident and strongly supported by evidence.
2. The APR Goal directly implements institutional planning document goals.
3. The outcome directly implements institutional planning outcomes, and is transferrable and/or scalable institutionally.
4. APR Outcome indicators, methods and/or timelines use institutional measures, transferrable/scalable institutionally
5. Before/after benchmarks and timelines are completely specified, identical methods, transferrable/scalable.

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| 1. Increase retention rate of the ENGR 1540 – from 44% to 25% as was typical in the three years prior. Follow up with dropped students to find out why they leave the class.
2. Support the Engineering Promise program; develop a pipeline of from 40 to 50 students from the ENGR 1500 courses. Attempt to use this opportunity to develop conversations with counseling and the math/science department about who is struggling/performing by student as a person vs as a number.
3. Complete the additions/updates to the ENGR 2300 labs and ENGR 1540 course curriculum.
4. If provided time, develop and make happen a computer science for transfer degree.
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| **Section IV (Optional): Evaluation of Program Review and Planning Process** |

**IVA. Evaluation of Program Review and Program Planning Process**

In this cycle of program review, what aspects of the program review and program planning process worked best and why?

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| Sure is nice to have a consistent form!! |

**IVB. Evaluation of Program Review and Program Planning Process**

In this cycle of program review, what aspects of the program review and program planning process would you change and why?

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| Still murky on what needs to get funding with what activity. For example, course and program development resource allocation? I have supply and capital expenses figured out, but do not understand the process to develop new programs/courses for students.  |