



2018-19 Program Review – Career Education

Program Overview

Please verify the mission statement for your program. If there is no mission statement listed, please add it here.

The Mission of the Laney Machine Technology Department is to position our students at a level of technical literacy that enables them to advance to the highest level of the trade as a machinist or industrial maintenance mechanic. For Machine technology and Industrial Maintenance technical literacy means competency in use of manual or CNC machines, digital software, Mathematics, technical research, and communicating (speaking, reading, and writing) in the language of the trade and the repair of industrial equipment.

List your Faculty and/or Staff

Full Time Faculty
Louis Quindlen
Adam Balogh

Part Time Faculty
Ed Lloyd
Elise Moss
Peder Aune
Markus

We currently have six part time temporary instructional assistants.

The Program Goals below are from your most recent Program Review or APU. If none are listed, please add your most recent program goals. Then, indicate the status of this goal, and which College and District goal your program goal aligns to. If your goal has been completed, please answer the follow up question regarding how you measured the achievement of this goal.

Machine Technology Program Goals

- 1. Develop and maintain curriculum, facilities, and technology that engages local industry, meets their needs, and provides our students with opportunities for high wage employment in those industries.**

Goal is in progress. Machine Technology is working on several new certificates and continuously upgrading classes. Over the past three years we have purchased \$200K in new equipment and software that has upgraded our capacity to support industry and expand student opportunities. We are still purchasing equipment and software to expand our ability to train students.

Laney Goals 3.1, 3.4, 3.5, 3.6, 3.7

2. **Continue to work with the state and local industry to develop and implement apprenticeship and internships. We are committed to the “earn and learn” partnership between education and industry. The department is also committed to improving access to apprenticeships and high paying jobs for underserved communities.**

Goal is in progress. The department has worked with industry over the past three years to increase our number of apprentices from five apprentices in Spring 2017 to thirty one apprentices in Spring 2019. The department and Deputy Sector Navigator have worked with industry and the Department of Apprenticeship Standards to develop new machinist/maintenance machinist/tool and die apprenticeships at East Bay Municipal Utility District, San Francisco Public Utilities Commission and TESLA. We plan to continue to grow the number and types of apprenticeships in Advanced Manufacturing. Machine Technology has developed non-credit courses and degree of competency focused on informing underserved populations about apprenticeships and civil service skilled trades job and preparing them to be successful on apprenticeship testing and interviews.

Laney Goals 3.1, 3.4, 3.5, 3.6, 5.1, 5.2,5.3

3. **Continue and expand student support through scholarships and book purchasing strategies.**

Goal is in progress. Including this year Machine Technology will have awarded over \$100K in scholarships for students to pay tuition, buy books, safety equipment, computers, and tools to go to work. This money is donated from industry partners. The department has also distributed books to all students in many classes on the first day of class and allowed students to pay the wholesale costs of books through the semester. We hope to expand this initiative.

Laney Goals 3.1, 3.4, 3.5, 3.6, 4.4, 4.5 5.1, 5.2, 5.3

4. **Develop planning and training for a smooth transition from our just retired and soon to be retired faculty to our incoming faculty that ensures continued development of our program’s strong relationship with industry, continued creation of opportunity for our students, and active participation of the department in shared governance and leadership at the college.**

Goal is in progress. A full time faculty retired last year and has been replaced with a full time tenure track candidate who was a former student, instructional assistant, part time faculty and now full time faculty. Currently there are several more former student, instructional assistant, part time or possible part time faculty in our pipeline.

Laney Goals 2.1, 2.2, 3.1, 3.3, 3.4, 3.5, 3.6, 4.4, 4.5, 5.1, 5.2, 5.3

Describe your current utilization of facilities, including labs and other space

The Machine Technology Lab in G100/G120/G101b is currently used for classes from 8:00 AM to 10:00PM Monday through Thursday. When class is not meeting, the classrooms and computer labs are open to students for studying, use of computers for homework or job applications or communications. Classes are also held from 9:00 AM to 2:00 PM on Saturdays in G100. G-130 is currently used Monday through Thursday from 2:00 PM to 5:00 PM for Welding classes and Monday evenings from 5:00 PM to 9:00 PM. The use of G130 will expand as our Advanced Industrial Maintenance program is rolled out.

Career Education

Using the [LaunchBoard](#) what are the job placement rates for your program for the past three years? (What % of your graduates have secured employment in the field within 3 months of leaving the program?). Note: you will need to establish a username and password for the LaunchBoard if you don't already have one.

| 2014-15 Job Placement % | % Employed in the field within 3 months | 2015-16 Job Placement % | % Employed in the field within 3 months | 2016-17 Job Placement % | % Employed in the field within 3 months |
|--------------------------------|--|--------------------------------|--|--------------------------------|--|
| 85% | 79% | 72% | 72% | No data | No data |

Using the [LaunchBoard](#), what are the projected job openings in your discipline for the next three years?

Bay Area

| SOC Code | Description | Annual Openings | 2019-2022 openings |
|-----------------|--------------------------------|------------------------|---------------------------|
| 49-9041 | Industrial Machinery Mechanic | 569 | 1680 |
| 49-9043 | Maintenance workers machinery | 207 | 621 |
| 49-9044 | millwrights | 95 | 285 |
| 51-4011 | CNC Machine Tool Operators | 259 | 777 |
| 51-4012 | CNC Machine Tool Programmers | 84 | 252 |
| 51-4034 | Lathe and turning Operators | 70 | 210 |
| 51-4035 | Milling and Planning Operators | 40 | 120 |
| 51-4041 | Machinists | 826 | 2478 |
| 51-4111 | Tool & Die Makers | 327 | 981 |

How is your discipline or program responding with regard to changes in labor market demand?

We are in the process of developing two new certificates for Advanced Manufacturing. The first is in Inspection/Quality Control area. We have written one new class (Mach 211 Dimensional Metrology run in Fall 2018) are writing a second new class (Mach 212 Quality Assurance). We have also spent about \$100K in equipment (Zeiss CMM) and tooling for the Inspection Certificate. We are also in the process of writing a new CNC machining class that will cover surfacing and 4th and 5th axis machining. We have upgraded the capacity of our Haas VF2 to do multi-axis machining, purchased a 5th axis trunnion and full simulation software. We are working with De Anza College Advanced Manufacturing program for help on curriculum, tooling, fixturing and training to develop this curriculum. This will also contribute to an Advanced Manufacturing Certificate that includes other classes.

We are also developing an Advanced Industrial Maintenance Certificate to meet the needs of Bay Area water, wastewater, refineries and other companies. Machine 208 (Pumps) is written and offered. Machine 207 (Mechanical Drives) has been submitted and approved by the state and will be offered in Fall 2019. Machine 230 has been updated for a maintenance machining class and awaiting approval by the curriculum committee. Machine 209 (Fluid Control Systems) is in the process of being written. Collaboration with E/ET and Welding will also be included in these efforts.

The Laney Machine Technology Program is also working with industry and the Department of Apprenticeships standards to develop Apprenticeship and pre-apprenticeship. See Goal 3.

Do you have an industry advisory board in place?

The Machine Technology Department has Advisory Boards in Advanced Manufacturing (Machine Technology Certificate), and in process certificates (Inspection and Advanced CNC) and Industrial Maintenance (Industrial Maintenance Certificate and in process Advanced Industrial Maintenance).

The Advisory Boards will review the new certificates and approve or recommend changes before submittal to Laney Curriculum Committee and the state.

Has your industry advisory board met regularly (at least once per quarter or semester)?

While we have been engaged with a broad swath of industry in both manufacturing and maintenance area especially around apprenticeship, the committees have not met formally. Meetings are in the process of being scheduled to review the new certificates and classes.

Please list of your industry advisory board members.

Industrial Maintenance

Robert Payn Shell Senior Maintenance Supervisor
Jason Cox POSCO Steel manager of Training and Technical Recruiting
Neal Brown EBMUD Supervisor Operations and Maintenance
Ike Bell Director Wastewater Operations EBMUD
John Fowkes Director AMTAC Apprenticeship
Dick Herman Director CTMAA Apprenticeship
Ben Pierce Senior Manager Conhagen Inc

Advanced Manufacturing

Rick Kraft Lawrence Berkeley Manufacturing Coordinator National Laboratory
Pete Schoenberg Apprentice Coordinator Lawrence Livermore National Laboratory
Dick Herman Director CTMAA Apprenticeship
Don Castillo Manufacturing Manager FM Industries
Peder Aune Engineer Natel Industries
Pat Hayes Senior Sales Manager Selway Tool
Edward Lloyd Manufacturing Manager BART Industries
Ken Lee Inspector
Mike Appio Department Chair Advanced Manufacturing De Anza College

Please describe the number of activities and recommendations resulting from advisory committee meetings that have occurred in the past three years. What information was presented that required changes to be made to your program?

The Advanced Manufacturing Advisory Committee played a key role in the build out and curriculum pattern for the development of our proposed Inspection Certificate. They will advise and vote on final approval of the proposal before it goes to the Curriculum Committee and State for approval. The Industrial Maintenance Advisory Committee has been advising us on the courses for the Advanced Industrial Maintenance Certificate.

Does your program require state or national licensing? If yes, please specify. What is your college's set standard passing rate for this exam or license? If yes, what is the name of the exam or License? State the set standard pass rate.

No

Do your students participate in other third party certifications? If so, please provide their success rates (include the % of completing students successfully getting certified). If yes, what is the third party certification? State the set standard pass rate

The Laney Machine Technology Program is accredited by the National Institute of Metalworking Skills (NIMS) organization. Certification is in eleven different areas of machining at Level One. Our program is currently eligible to offer certificates in seven areas. Certification is based on 100% correct completion of a project verified by a third party inspection and then passing an online test in the subject matter. Currently many of the apprenticeships we work with require successful completion of varying numbers of certifications as part of the apprenticeship. According to NIMS in the state of California the pass rate on the online subject matter testing is 85%. Laney Machine Technology Program has a pass rate of 97% on the online portion of the test.

Is your program working with a Deputy Sector Navigator?

Yes, we work closely with the Mark Martin, Deputy Sector Navigator of Advanced Manufacturing in the Bay Area.

If yes, briefly describe your program's work with the Deputy Sector Navigator.

1. Joint Development of Inspection Certificate regionally with Santa Rosa Junior College and De Anza Community College.
2. Development of multi-axis machining classes with De Anza College.
3. Coordination with Diablo Valley College on development of their Industrial Maintenance Technology Certificate.
4. Development of Tool & Die Apprenticeship at TESLA.
5. Coordination of efforts to collect FTES funding from Chancellor's Office of Community Colleges for enrolled apprentices and documentation of apprenticeship progress.
6. Coordination of development and support for high school machining programs at San Leandro High School, Granada High School, Livermore High School, Berkeley High School, Petaluma High School and other North Bay High Schools.
7. Donations of equipment, materials, and tooling to Laney from industry.

8. Help in recruiting instructors for new classes such as Mach 211 (Dimensional Metrology).
9. Coordination of regional and statewide professional development efforts such as California Industrial Teachers Education Association Conference and California Haas Technical Education Conference.
10. Placement of students in manufacturing jobs through his website BayAreaManufacturingJobs.com/newsletter.
11. Training and development of Google Tools for tracking employment of our students.
12. Participation of Laney Machine Technology in various Bay Area Manufacturing forums and organizations.

What programs similar to yours exist in the surrounding area or at nearby East bay colleges? (Micro region in [LaunchBoard](#))

Diablo Valley College Industrial Maintenance program
 Chabot College Machining Program
 San Jose City College Machining Program
 De Anza College Machining Program
 Santa Rosa Junior College
 Napa Community College

In which ways is your program collaborating with other community colleges in the region?

Development of curriculum, coordinated purchasing of tooling and equipment, apprenticeship coordination, coordination of training resources, coordination of hiring and recruiting faculty, support of high schools and training of high school faculty.

Please list and briefly describe the grant name, granting agency, and the goals of each grant as it relates to you discipline/department/program

Strong Workforce Program: Chancellor’s Office California Community Colleges The stated goals of the Strong Workforce Program is “more and better CTE”. The approval is driven by a funding model that awards performance through incentivizing 17% of a districts funding based on success in metrics such as increase in degrees and certificates, job placement, increase in income, attaining a living wage, and job placement in area of study. These incentives have multipliers based on success of students that are members of underserved populations. This year Peralta CTE received an additional \$780K in incentive funding for meeting these metrics.

Proposition 39 Funds: Chancellor’s Office California Community Colleges These funds have been used to pay for equipment that supports energy conservation in key industries.

Carl Perkins Funds: Purchase of equipment, building new curriculum and supporting the success of underserved populations.

California Community College Chancellor Office Apprenticeship Initiative Grant: Support the development and success of new and innovative apprenticeships in community colleges.

How is your program using Strong Workforce Funds?

SWP 2017/2018 Local Funding focused instructional support in the classroom. We attempted to put an instructional assistant in all of our core classes. Our evidence shows this is by far the biggest bang for the buck in supporting student success and student equity. Our prioritizing instructional support has improved student success in retention, completion, and degrees and certificates. The instructional assistants have also improved their skills and all ended up with great paying jobs when they left the position.

SWP 2017/2018 Regional Funding focused on the purchase of a five axis trunnion to support five axis machining and the upgrade in two VF2 CNC Controllers to allow five axis machining.

SWP 2018/2019 Local Funding again focused on instructional support in the classroom for the same reasons as above. Unfortunately this type of student support has come under attack by the Peralta District Administration and future instructional assistant positions are in jeopardy. We have also used 2018/19 funding to support curriculum development in five axis machining, the purchase of a of a full simulation software for evaluating and correcting CNC programs. Development of instructional videos to improve student success.

SWP 2018/2019 Regional Funding continue to focus on development of the multi-axis machining curriculum and tooling and fixturing for 5 axis operations. Regional funding is also supporting build out of the Advanced Industrial Maintenance Certificate including curriculum, tooling and equipment.

Enrollment Trends



Enrollment Trends Power BI dashboard

Note: Please consider the most recent 3 years when answering the questions below.

Set the filters above to your discipline, and discuss enrollment trends over the past three years

| Semester | Census | FTEs | Productivity | Day | Night |
|----------|--------|-------|--------------|-----|-------|
| Fall 15 | 231 | 52.06 | 12.64 | 105 | 126 |
| Fall 16 | 199 | 39.28 | 10.45 | 68 | 131 |
| Fall 17 | 200 | 43.41 | 13.18 | 70 | 130 |

Enrollment in the evening sections has remained level at between 90% to 110% fill rates in classes. As unemployment decreased the day classes showed fairly dramatic drops in numbers. Over the summer the department conducted eight open houses and over the winter break four additional open houses to recruit students. Significant gains have been made in daytime enrollment and evening classes are at 110% of capacity.

Set the filter above to consider whether the time of day each course is offered meets the needs of students.

We offer both day and evening classes. Because many of our students encounter shift changes at work or when they change jobs, we allow them to move from day to evenings or vice versa during the semester.

Are courses scheduled in a manner that meets student needs and demands? How do you know?

Yes.

Describe effective and innovative teaching strategies used by faculty to increase student learning and engagement.

- Initial assessment of student skills in English comprehension and arithmetic by the Machine Technology Department. This allows us to determine which students might need additional support and resources at the beginning of the semester as opposed at the point they start falling behind.
- Project-based learning helps students learn concepts in context, motivates traditionally unpopular topics like mathematics and encourages students to view mistakes as learning opportunities
- Project Planning Sheets including operations, tools and speed/feed calculations build technical literacy
- Student use professional-grade tools on industrial equipment to prepare them for industry
- Cameras mounted inside CNC machines broadcast to wall-mounted, large screen TV's so more students can view machine operations
- Instructional videos developed by faculty which cover course topics and project procedures supplement curriculum and engage younger students who are accustomed to learning using online multimedia resources. (These videos also increase recruitment and visibility of the department.)
- Faculty develop and fabricate visual aids using graphic design and animation software, machine tools and 3D printers

How is technology used by the discipline, department?

In manufacturing, technology is both invented and implemented in a continuous cycle. The core technology is and always has been precision mechanical. But industry's drive for automation and productivity also incentivizes state-of-the-art electronic and software technology updates. This includes: motion control devices and interfaces for industrial robots, CNC machine tools and dimensional measurement machines; CAD software for 3D solid modeling; CAM software for generation of machine tool programs; sensor and AI technology for automation. Faculty in the machine technology department must regularly update their own skills, course curriculum and shop equipment to stay relevant. Over the last three years, the department has purchased ~\$250K in new equipment, including: a coordinate measuring machine (CMM), two milling machines, two lathes, a profilometer, an optical comparator and 5th axis capability with requisite tooling for one of the CNC machining centers.

Additionally, the department employs instructional technology in the classroom in the following ways:

- Cameras mounted inside CNC machines broadcast to wall-mounted, large screen TV's (*In process*)
- Instructional videos developed by faculty cover topics specific to the department's curriculum (*Current and in process*)
- Visual aids developed by faculty using graphic design and animation software and digital design tools like 3D printers aid in student comprehension (especially for kinesthetic learners) (*Current and in process*)
- Project drawings are being updating using modern CAD software (*In process*)
- Simulation software for CNC machine tool operations (*Current*)
- CAD software for manipulating 2D/3D part views (*Current*)
- SMART classroom projectors for software demonstrations and instructional videos and docucam for close-ups of examples (*Current*)

How does the discipline, department, or program maintain the integrity and consistency of academic standards with all methods of delivery, including face to face, hybrid, and Distance Education courses?

We only teach face to face. The strong emphasis on project based learning that is aligned with our SLO's, PLO's, and the strong participation of industry in our program validate the integrity and consistency of our program,

Curriculum

Please review your course outlines of record in CurricUNet Meta to determine if they have been updated or deactivated in the past three years. Specify when your department will update each one, within the next three years.

| |
|--|
| |
|--|

CurriQunet Meta

Please summarize the Discipline, Department or program of study plans for curriculum plans for improvement. Below, please provide details for individual course improvement. Add plans for new courses here.

| Course | Degree/Certificate | Status |
|----------|---|-------------------------------|
| Mach 20 | Mach Tech AS/CA Advanced Machining CA | current |
| Mach 30 | Mach Tech AS/CA Advanced Machining CA | Needs update |
| Mach 31 | Mach Tech AS/CA Advanced Machining CA | current |
| Mach 32 | Advanced Machining CA | New under development |
| Mach 75 | Inspection CA | Needs update |
| Mach 200 | | Waiting for CC status for 200 |
| Mach 205 | Mach Tech AS/CA | current |
| Mach 206 | Industrial Maintenance CA | current |
| Mach 207 | Advanced Industrial Maintenance CA | current |
| Mach 208 | Advanced Industrial Maintenance CA | current |
| Mach 209 | Advanced Industrial Maintenance CA | Under development |
| Mach 210 | Mach Tech AS/CA Advanced Machining CA Inspection CA | current |
| Mach 211 | Inspection C/A | current |
| Mach 212 | Inspection C/A | Under development |
| Mach 220 | Mach Tech AS/CA | current |

| | | |
|---|--|--|
| Mach 230 | Mach Tech AS/CA | At curriculum committee |
| Mach 255 | | current |
| Machine Technology | Certificate/Degree | Will be updated with Mach 230 and new LMI data |
| Industrial Maintenance | Certificate | Will be updated with new LMI data |
| Inspection | Certificate | Needs Mach 212 (new) and update of Mach 75 and LMI data |
| Advanced Industrial Maintenance | Certificate | Needs Mach 209 Fluid Control Systems, 230 and LMI data |
| Advanced Machining | Certificate | Needs Mach 32 (new) and update of Mach 30 and LMI data |
| LRNE 521 Non-Credit | Test Preparation for the Skilled Trades | Approved CIPD |
| LRNE 522 Non-Credit | Apprenticeship and Civil Service Opportunities | Approved CIPD |
| LRNE Skilled Trades Apprenticeship and Civil Service Test Preparation | Non-Credit Certificate | Approved CIPD (Needs narrative completion to move to state for approval) |
| | | |

Assessment – Instructional

Student Learning Outcomes Assessment

List your Student Learning Outcomes

*See attached assessment planning document.

Were there any obstacles experienced during assessment? What worked well? (Mainly based on evidence in the report, attach other evidence as necessary)

Peter Brown, former full-time faculty and assessment coordinator for the department, retired at the end of Spring 2018. Adam Balogh was subsequently hired as a replacement and started Fall 2018. This changeover resulted in some loss of institutional knowledge and the new hire had to be trained in the assessment process.

The assessment module in META is relatively new and it was challenging to learn to navigate the system and find relevant information. (Heather Sisneros and Rebecca Bailey, the Laney College assessment coordinators, were of great assistance during the assessment process.)

Because of course updates, some of the department's learning outcomes are under review.

It is generally difficult to get assessment data from part-timers and to convince them of the importance of assessment.

What percent of your programs have been assessed? (mainly based on evidence in the report, attach other evidence as necessary; note: a complete program assessment means all Program Learning Outcomes (PLOs) have been assessed for that program)

100% of program assessments have been completed as of Spring 2017.

How has your dept worked together on assessment (planning together)? Describe how your dept works well on assessment? Describe things that went well or obstacles. What aspects of assessment work went especially well in your department and what improvements are most needed?

It is difficult to train part-timers to use META and to justify the time they would spend entering data, so the department assigned a full-time faculty member as the assessment coordinator. Course instructors and the department chair jointly define course SLO's. The assessment coordinator decides upon SLO's to be assessed in a given cycle. Designating an assessment coordinator has improved assessment data collection and submission, but it is difficult to get responses from part-timers and this sometimes slows down the process. Additionally, the current assessment coordinator is a new hire and requires time to learn the assessment process.

Collaboration

*See above.

Leadership Roles

Louis Quindlen – Department Chair for Machine Technology
Adam Balogh – SLO/PLO assessment coordinator for Machine Technology

Planning Process

The department is currently in Comprehensive Program Review. As part of CPR, faculty worked with Heather Sisneros to complete an Assessment Planning Document to schedule SLO assessment over the next four years.

Dept meetings for Collaboration

10/29/18 – (with Rebecca Bailey) to go over META and CPR assessment criteria
12/18/18 – (with Heather Sisneros) to create Assessment Planning Document
1/16/19 – Machine Technology departmental meeting
1/28/19 – (with Heather Sisneros) to enter CPR assessment data

*In addition, Machine Technology faculty met informally several times throughout the Fall 2018 and Spring 2019 semester to discuss assessment.

Data Analysis

SLO's are assessed primarily by scores earned on tests and class projects (metal parts manufactured individually by students). This helps us identify patterns in student comprehension of course material.

Another, sometimes more useful, metric for SLO assessment is surveys completed by employed students/graduates and their employers. This helps us evaluate student "readiness" for the entry-level job market. In the past, we were discouraged from using this metric to assess SLO's, but we are currently working on integrating these surveys into our assessment process.

We are currently revisiting SLO's to reflect technology updates and feedback from local industry.

We are currently reducing the number of SLO's to no more than three per course to make assessment more manageable and meaningful.

We are currently mapping SLO's to PLO's, and PLO's to ILO's.

What were the most important things your department learned from assessment? Did implementation of your action plans result in better student learning? In other words, how has your department used the results of assessment to improve student learning and/or curriculum? Please be as detailed as possible.

MACH 30: Previously, students learned to use Computer-Aided Manufacturing (CAM) software at the start of the course, but did not adequately learn to read, write and modify G-code programming language for Computer Numerical Control (CNC) machines. Students lacked intuitive understanding of the machine interface and scored low on assessment criteria. Over the past two years, MACH 30 has been changed to focus solely on manual G-code programming. CAM software is introduced in MACH 31, the second course in the series. MACH 30 is in the process of being updated in META. Outcomes have improved significantly.

MACH 75: This course is being updated to the ASME Y14.5-2009 standards for Geometric Dimensioning and Tolerancing.

MACH 210, 220, 230: Curriculum for this course is project-based. Students often require more repetition of procedural demonstrations than time and staffing will allow. This has hampered student progress. We are developing video media showing procedures for course projects. These videos are specially designed for viewing on smartphones and other small screens. A handful of videos are complete and have already positively impacted student outcomes.

*Many of our students are being placed in industrial maintenance positions. Based on input from students and industry, we concluded that students were not developing competency in the advanced skillset. We decided to develop more curriculum focused on industrial maintenance and to develop an Advanced Industrial Maintenance certificate (C.A.).

MACH 230: This course has been rewritten as a maintenance machining class. The rewrite has been completed and submitted to the curriculum committee. This course will be part of the Advanced Industrial Maintenance certificate. New maintenance-focused projects have improved student outcomes.

MACH 207: This course is being developed to build skills in operation and maintenance of mechanical drives. The course has been completed, submitted to and approved by the curriculum committee and the State. This course will be part of the Advanced Industrial Maintenance certificate.

MACH 209: This course is being developed to build skills in operation and maintenance of fluid control systems. The course is currently being written. This course will be part of the Advanced Industrial Maintenance certificate.

MACH 211: Quality Control/Assurance is another field in local industry which is in need of trained personnel. MACH 211 was developed to build skills in precision dimensional measurement. This course will be part of a future Quality Control/Assurance certificate.

Does your department participate in the assessment of multidisciplinary programs? If Yes, Describe your department's participation and what you learned from the assessment of the program that was applicable to your own discipline.

The various participating departments (E/ET, Electricity, Welding, Machine Technology) meet regularly to discuss student progress. However, there has been little formal discussion about the relative success of the program for each department. Our goal is to meet once during the Spring 2019 semester. Non-Machine Technology courses will need to be assessed and mapped to IMM PLO's.

Does your department participate in your college's Institutional Learning Outcomes (ILOs) assessment? If Yes, Please describe your departments participation in assessing Institutional Learning Outcomes.

Going forward, we need to map PLO's to ILO's. The program's proposals will be modified Spring 2019.

What support does your department need from administrators, assessment coordinators and/or your campus assessment committee to continue to make progress in assessment of outcomes and implementation of action plans?

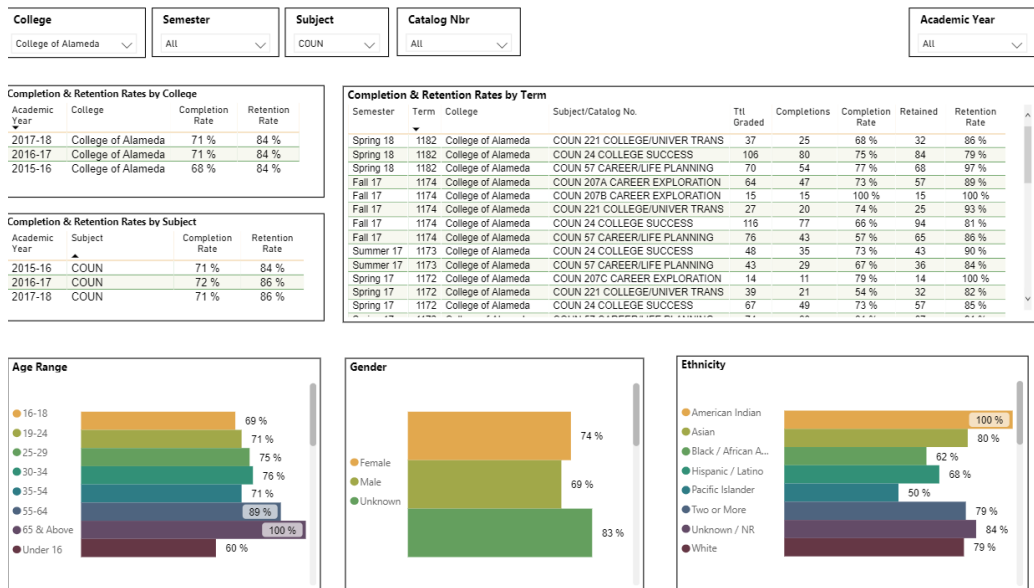
On-going training in the assessment process and META.

Support for using surveys from employed students/graduates and their employers as an assessment metric. This "real-life" metric makes sense for our department and is sometimes more useful than course assignments for assessing SLO's.

Please verify the mission statement for your program. If there is no mission statement listed, please add it here.

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Course Completion



Course Completion Power BI Dashboard

Consider your course completion rates over the past three years (% of student who earned a grade of "C" or better).

Use the filters on the top and right of the graphs to disaggregate your program or discipline data. When disaggregated, are there any groups whose course completion rate falls more than 3% points below the discipline average? If so, indicate yes and explain what your department is doing to address the disproportionate impact for the group.

Age

Younger Students 19-24 have tended to fail at a rate above the average. Many are trying out the machinist trade for the first time and discover they don't enjoy it or have little aptitude in this area.

Ethnicity

Blacks/African Americans scored 64% completion rate (9% below the average) Hispanic/Latino (5% below the average) Two or more (12% below the average)

Gender

Over the three year period that BI tool had date for, the success rates for men and women were even within a couple of percentage points except for the introductory Mach 210 class (women 8% below men). Success was lower there for men and women, but especially for women. Mach 210 is the introductory class and success rates are lower overall there. Many students are trying machining out the first time and some discover they do not enjoy the material, so they drop or do not successfully complete. The department has

developed a strong anti-discrimination and anti-harassment policy. (see below). We have removed students from the class for failure to adhere to that policy. It is also important to note that female students graduate and many have become the first women employed as machinist at their company. These include Shell Oil Refinery, EBMUD, and SFPUC.

Anti-Discrimination Policy

The faculty and staff in the Laney College Machine Technology Department have tried hard to make the shop and classroom environments welcoming and encouraging. These courses are available to anyone who wants to take them, regardless of one's race, sex, gender, sexual orientation, immigration status, language ability, disability, socio-economic class, personal background, etc. Everyone has a right to be here. To maintain this inclusive environment, prejudicial language, verbal and physical harassment, and discriminatory behavior linked to any of the preceding categories will not be tolerated. Please, respect one another.

Foster Youth Status

Insignificant numbers (5 over three years)

Disability Status

Insignificant numbers (13 over three years)

Low Income Status

Low income status completed at 3% below the average. I feel these numbers were significantly improved by our strong scholarship programs and book purchasing programs.

Veteran Status

Veterans completed at the average across the department.

Consider your course completion rates over the past three years by mode of instruction. What do you observe?

Face-to-Face

All instruction is face to face.

Hybrid

NA

100% Online

NA

Dual Enrollment

NA

Day time

Day time students completed at 78%

Evening

Evening students completed at 71%. A high percentage of evening students are working full time jobs.

How do the course completion rates for your program or discipline compare to your college's Institution-Set Standard for course completion?

They exceed the college average of 67%

How do the department's Hybrid course completion rates compare to the college course completion standard?

NA

Are there differences in course completion rates between face to face and Distance Education/hybrid courses? If so, how does the discipline, department or program deal with this situation? How do you assess the overall effectiveness of Distance Education/hybrid course?

NA

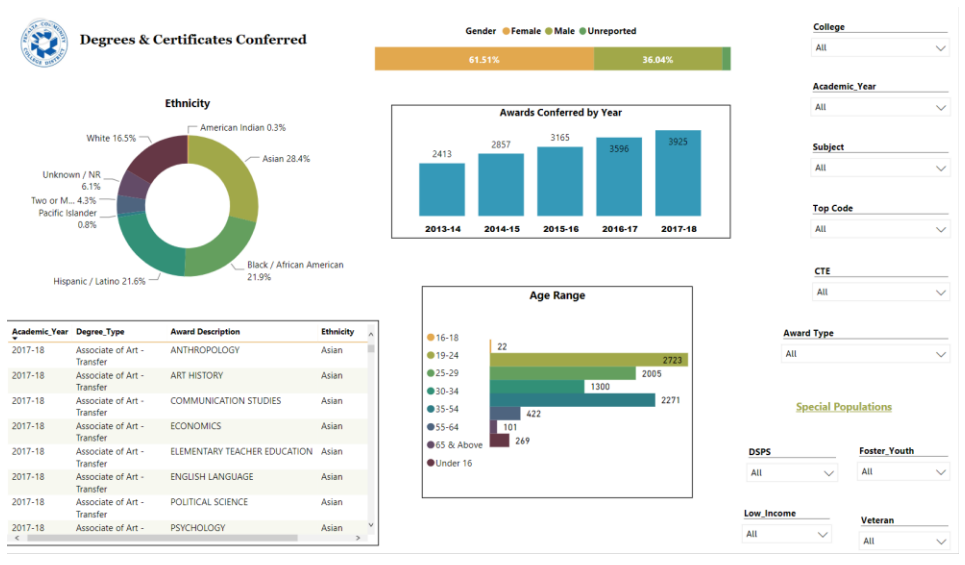
Describe the course retention rates over the last three years. If your college has an Institution-Set Standard for course retention, how does your program or discipline course retention rates compare to the standard?

The Machine Technology Department exceeds the college retention rate over the three year period by an average of 2%

What has the discipline, department, or program done to improve course completion and retention rates?

The department has increased our efforts to support our students financially (see Goal#3). Our new full time hire has excellent video skills and is developing videos and simulations to support and enhance our teaching the curriculum. We have expanded the time on Saturday and some Friday's for students to work on projects.

Degrees and Certificates Conferred.



Degrees & Certificates Power BI dashboard

What has the discipline, department, or program done to improve the number of degrees and certificates awarded? Include the number of degrees and certificates awarded by year, for the past three years.

Over the next 3 years, will you be focusing on increasing the number of degrees and certificates awarded?

What is planned for the next 3 years to increase the number of certificates and degrees awarded?

Engagement

Discuss how faculty and staff have engaged in institutional efforts such as committees, presentations, and departmental activities. Please list the committees that full-time faculty participate in.

Over the last three years Machine Technology faculty have participated in the following committees. College Council, Academic Senate, Curriculum Committee, Laney Career Technical Education Advisory Committee, Laney Facilities Committee, PCCD District Facilities Committee, PCCD District Career Technical Education Advisory Committee, and served as Laney Career Technical Education Liaison to the ASCCC. Machine Technology faculty have also served on BACCC Regional Consortium Advisory Committee on the rollout of Strong Workforce Funding Program.

Discuss how faculty and staff have engaged in community activities, partnerships and/or collaborations.

Laney Machine Technology Committee has played a key role in rebuilding machinist apprenticeships in the Bay Area. Over the past three years the department has gone from five apprentices to thirty one apprentices. WE have played a key role in organizing the Laney Career Technical Education Open House over the past 6 years. Laney

Discuss how adjunct faculty members are included in departmental training, discussions, and decision-making.

Prioritized Resource Requests Summary

In the boxes below, please add resource requests for your program. If there are no resource requested, leave the boxes blank.

| Resource Category | Description/Justification | Estimated Annual Salary Costs | Estimated Annual Benefits Costs | Total Estimated Cost |
|------------------------------------|---|--------------------------------------|--|------------------------------------|
| Personnel: Classified Staff | Part time Instructional Assistants are critical to safety and student success | \$40,000 Strong workforce funds | \$4,000 Strong Workforce Funds | \$44,000 Strong Workforce Funds |
| Personnel: Student Worker | | | | |

| | | | | |
|-------------------------------------|---|---|------------------------------|----------------------------------|
| Personnel: Part Time Faculty | As we roll out new courses in the new certificates, part time faculty will need to be increased. | \$12,000-\$15,000 Initial costs by Strong Workforce possible | \$1200-\$1500 | \$16,500 |
| Personnel: Full Time Faculty | Department Chair Louis Quindlen will be retiring at the end of Spring 2020 A new full time faculty will need to be hired | Initial salary savings of \$30K-40K | Initial Savings \$15K to 20K | Initial savings of \$45K - \$60K |

| Resource Category | Description/Justification | Total Estimated Cost |
|--|--|-----------------------------|
| Professional Development: Department wide PD needed | Development of Advanced Manufacturing component of program including development of multi-axis machining and automation into the curriculum. Already Budgeted in Round 2 Strong Workforce | \$10K |
| Professional Development: Personal/Individual PD needed | | |

Prioritized Resource Requests Summary - Continued

| Resource Category | Description/Justification | Total Estimated Cost |
|---------------------------|--|-----------------------------|
| Supplies: Software | SolidWorks Subscription 3D Solid Modeling/Simulation software for Mach 20, 31,32 | \$4,000 |
| | MasterCam CAD/CAM software for Mach 31, 32 | \$3,000 |
| | NC Simul 3D Simulation software for Mach 30, 31, 32 Already purchase Strong Workforce funds | \$15,000 |

| | | |
|---|---|-------|
| Supplies: Books, Magazines, and/or Periodicals | | |
| Supplies: Instructional Supplies | Materials (Steel, aluminum, stainless steel, tool steels) | \$10k |
| | Cutting tools, toolholders Strong workforce | \$10K |
| | fixturing for multi axis and CNC CMM (Strong Workforce) | \$15K |
| Supplies: Non-Instructional Supplies | | |
| Supplies: Library Collections | | |

| Resource Category | Description/Justification | Total Estimated Cost |
|--|-------------------------------------|-----------------------------|
| Technology & Equipment: New | | |
| Technology & Equipment: Replacement | New programmable heat treat furnace | \$15K |

Prioritized Resource Requests Summary - Continued

| Resource Category | Description/Justification | Total Estimated Cost |
|-------------------------------|---|-----------------------------|
| Facilities: Classrooms | Classrooms and labs have been updated with new video technologies. | |
| Facilities: Offices | | |
| Facilities: Labs | The Machine Technology machine shop needs major repairs and electrical upgrades. It is currently under powered electrically. Decisions have been made in the purchase of training equipment based on not what was needed, but on what the shop could handle electrically. As older equipment continues to get replaced this will be a bigger concern. Also for safety reasons electrical and air should be changed from floor mounted access to machines to overhead drop down. The removal of one | Bond |
| Facilities: Other | Electrically there are major safety issues. The electrical floor vaults that contain all of the machine wiring are full of metal chips and present a short danger. We have had \$100K in new machines waiting for electrical hookup. This is impacting our students and their ability to complete assigned work. Despite repeated promises from the vice chancellor of general services to hook up these machines, we are now going to an outside contractor to have this work performed. There is only one electrician in the entire district. | |

| Resource Category | Description/Justification | Total Estimated Cost |
|-------------------------------------|----------------------------------|-----------------------------|
| Library: Library materials | | |
| Library: Library collections | | |

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| Resource Category | Description/Justification | Total Estimated Cost |
|--------------------------|----------------------------------|-----------------------------|
| OTHER | | |