



2018-19 Program Review – Instructional

Program Overview

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

The Laney College Engineering Department’s mission is to develop and cultivate students’ ability to think critically, problem solve, and communicate innovative ideas. Through a foundational knowledge in math, science, and engineering and hands on experience with modern technology students will be provided with the skills necessary to succeed upon transferring or entering the workforce.

List your Faculty and/or Staff

Mallory Barkdull
Mahmood Noii

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.

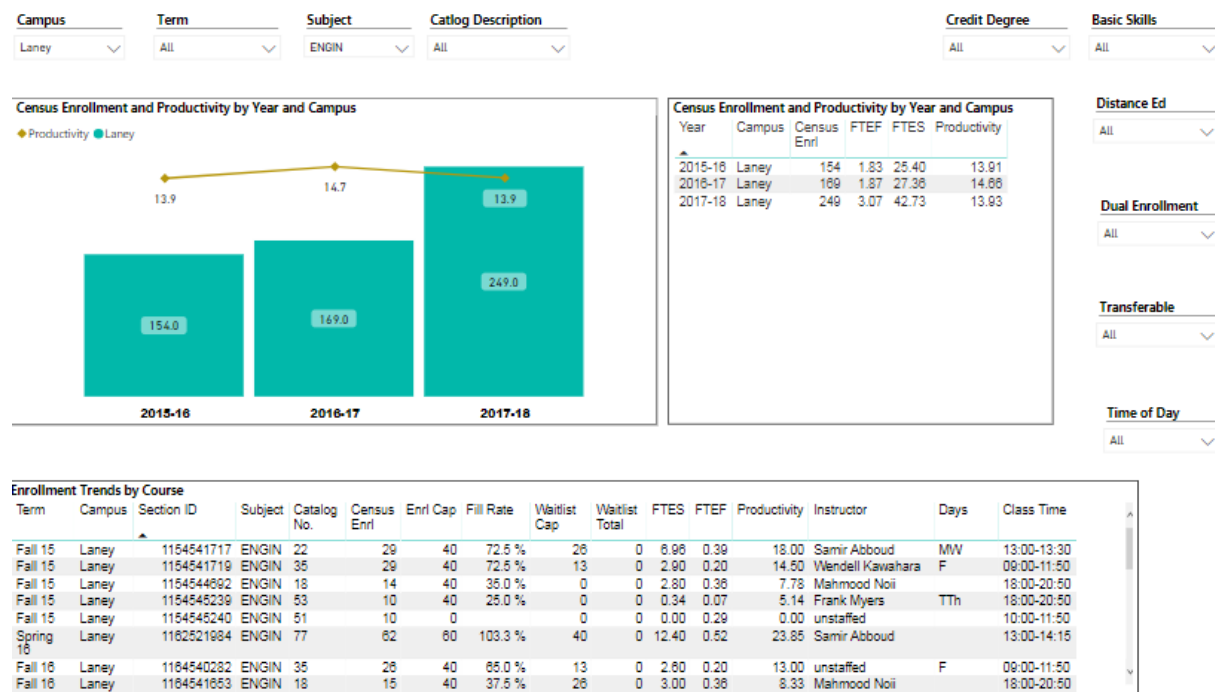
No goals were listed in the prior APU. Below are the most recent program goals

- Complete assessment for SLOs of each course before comprehensive program review time (College goal – 3.6, not completed)
- Update curriculum to add more courses with no prerequisites to encourage participation in engineering of historically underrepresented students (College goal – 1.3, 4.4, 4.5, 5.1, completed the curriculum by adding ENGIN 10 and ENGIN 120 – will need to wait until courses are taught to see if the desired goal is met.
- Update curriculum to improve student’s ability to transfer to 4 year institutions (College goal – 3.2, curriculum has been added including ENGIN 10 and ENGIN 36)
- Add more curriculum so students transferring to 4 year institutions are more competitive (College goal – 3.2, not completed- I have begun planning curriculum for Dynamics and Thermodynamics)
- Provide more student support services including tutoring (College goal – 4.5, 5.1, not complete- we provided one tutor last semester, but more tutoring services are required for engineering courses)
- Create student groups on campus to promote diversity in engineering including the Society of Women in Engineering, National Society of Black Engineers, Society of Hispanic Professional Engineers (College goal – 4.5, 5.1, 5.2, 5.3, not completed)

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

Currently I teach my materials laboratory in the physics lab (A274), my graphics lab in the architecture lab (G240) and my MATLAB lab in the other architecture lab (G270). I teach my lecture courses in various smart rooms around campus. There are currently no facilities dedicated to engineering.

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

From 2015-2016 to 2017-2018 enrollment increased by almost 62%. This is due to hiring the first full time faculty in engineering, adding ENGIN 45 – Properties of Materials, and offering classes more often.

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

Enrollment in evening classes has more than doubled from 15-16 to 17-18 which is most likely due to the fact that we offered ENGIN 18 (the only engineering evening course) in both fall and spring in 17-18. Enrollment in day classes has also increased (most likely due to the reasons stated above). While the evening classes are filling- it may be interesting to offer a class typically offered during the day during the evening and see if enrollment numbers change.

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

Without having the same classes offered both during the day and evening, it is impossible to answer this question. Both day and evening classes are filling, but it is impossible to state whether or not they would fill more if offered at a different time without experimenting.

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

Combining lecture with hands-on active learning as well as laboratory activities. ENGIN 10 and ENGIN 22 are project based courses where students learn skills through working with a group to design a final project. Group work is also employed in ENGIN 77.

How is technology used by the discipline, department?

ENGIN 22, 35, 36, 45, and 77 are all taught by the instructor projecting notes taken on a tablet utilizing the technology installed in the smart classrooms. This displays information more clearly than writing on a white board and allows the instructor to re-visit the notes projected earlier in the class. The fablab is used a lot for ENGIN 22 and the technology in that space is paramount for the success of the program.

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?

All classes currently taught in engineering are face-to-face. Furthermore- there is only one section of each class taught each semester by the same instructor, so classes are consistent based on that. Course material is consistently compared with similar courses at UC and CSU campuses to ensure the same material is being covered. All the engineering curriculum has been recently updated.

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.

With the exception of ENGIN 22, which is currently in review, and ENGIN 18, which was last updated in 2015, all curriculum has been updated and is up to date. ENGIN 18 will be updated this semester.

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.

New courses – Dynamics, Thermodynamics, and Independent Study

We would also like to add a program/degree for engineering.

Assessment – Instructional

Student Learning Outcomes Assessment

List your Student Learning Outcomes

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

N/A

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)

0%

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?

N/A

Collaboration

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Leadership Roles

--

Planning Process

--

Dept meetings for Collaboration

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Data Analysis

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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.

N/A

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.

N/A

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.

N/A

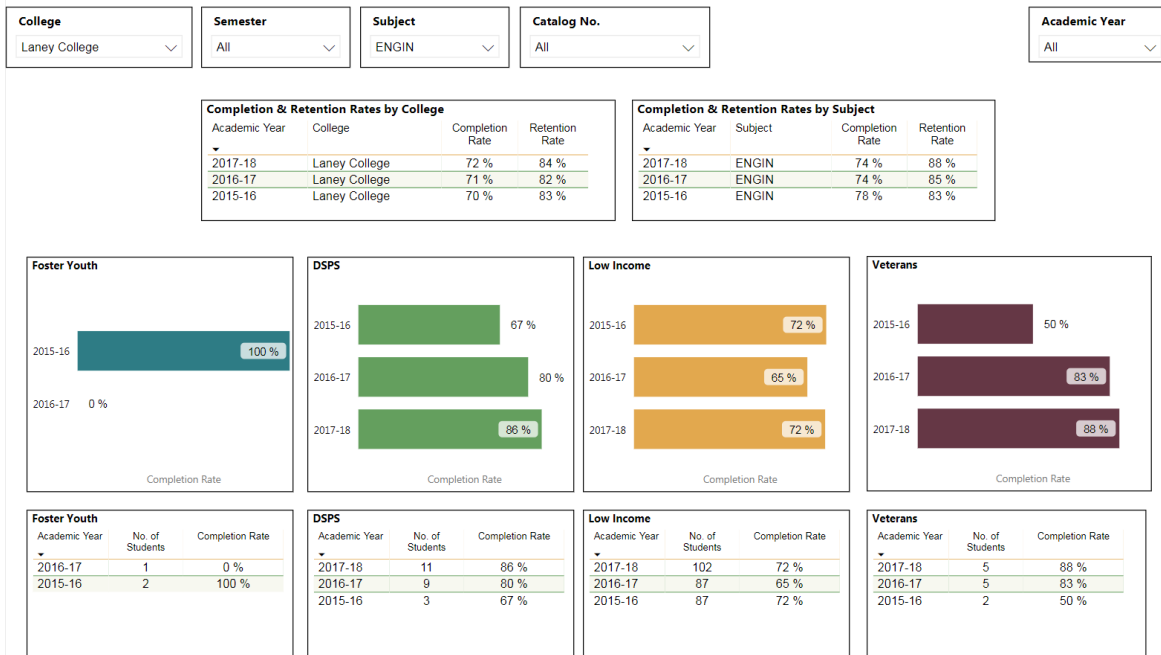
What support does your department need from administrators, assessment coordinators and/or your campus assessment committee to continue to make progress in assessment of outcomes and implementation of action plans?

N/A

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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

The average completion rate was 74%. Age groups that fall more than 3% below this are 35-54, 55-64, and 65 & above which indicates that students 35 and above are not completing courses at the same rate as students 34 and below. One reason for this could be the number of students who are aged 35 and above is far lower than the number of students aged 34 and below which can drastically affect the statistics. However, this still indicates that we could be better serving our students aged 35 and above. Perhaps offering office hours at different times could help improve these rates and students aged 35 and above tend to be working students who cannot make time for all of my office hours.

Ethnicity

The average completion rate was 74%. Ethnicity groups that fall more than 3% below this are Black/African American, Hispanic/Latino, Two or More, and Unknown/NR. This indicates that underrepresented students in the engineering program are completing courses at a far lower rate than those who are white or Asian (both of which had completion rates well above the average). These statistics are quite disappointing and show that our program needs to do better to serve underrepresented students. One way to do this is to offer more tutoring services as well as creating support groups on campus such as the National Society for Black Engineers. The trend seems to be consistent throughout the engineering courses, with ENGIN 35, ENGIN 22, and ENGIN 77 having the lowest completion rates for these groups. I suggest we provide tutoring for students in these courses immediately.

Note- these completion rates are consistent with trends in math and physics, so perhaps our programs could work together to better serve STEM students.

Gender

The average completion rate was 74%. The completion rate for female students was 70%. Once again this shows that we aren't successfully serving our underrepresented students. Additionally, female students made up less than 23% of the engineering student population. Not only do we have fewer female students, but they are not completing courses at the same rate as the male students. ENGIN 45 was the only course where female students had a higher completion rate than male students (86% vs 75%). We will address this by offering tutoring services and attempting to create a chapter of the Society of Women Engineers on campus. Another goal is trying to identify why female students tended to perform well in ENGIN 45 and trying to mirror those methods in other courses.

Foster Youth Status

There were no foster youth students in engineering in 2017-2018.

Disability Status

The percentage of completions by DSPS students has increased from 67% in 15-16 to 86% in 17-18 which indicates our current program tends to be serving DSPS students well.

Low Income Status

The completion rate of low income students is slightly lower (2% points below) the average completion rate. Our instructor regularly advertises programs for low income students during class such as the food pantry. We will continue to do this in order to better serve our low income students.

Veteran Status

The completion rate of veterans has drastically increased from 50% in 15-16 to 88% in 17-18; however it should be noted that there were only 2 veterans taking classes in 15-16. We need to work to better recruit veterans into our program and figure out how we can make engineering more appealing to those students.

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

Face-to-Face

All classes are taught face-to-face. The completion rate was 78%, 74%, and 74% in 15-16, 16-17, 17-18, respectively. The completion rate dropped 4% with the hiring of our full time faculty, but this timing also coincides with the addition of more course offerings as well as the discontinuation of certain courses which could have contributed to the drop in completion rate.

Hybrid

N/A

100% Online

N/A

Dual Enrollment

The completion rate for Dual Enrollment was 75% which is consistent with the program average. There is only one year of dual enrollment data.

Day time

Day time instruction has remained steady over the last 3 years with the rate not varying more than 3%.

Evening

The evening completion rate dropped in 2017-2018. This could be because the number of students increased drastically.

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

The completion rate is higher than the completion rate for the college.

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

N/A

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?

N/A

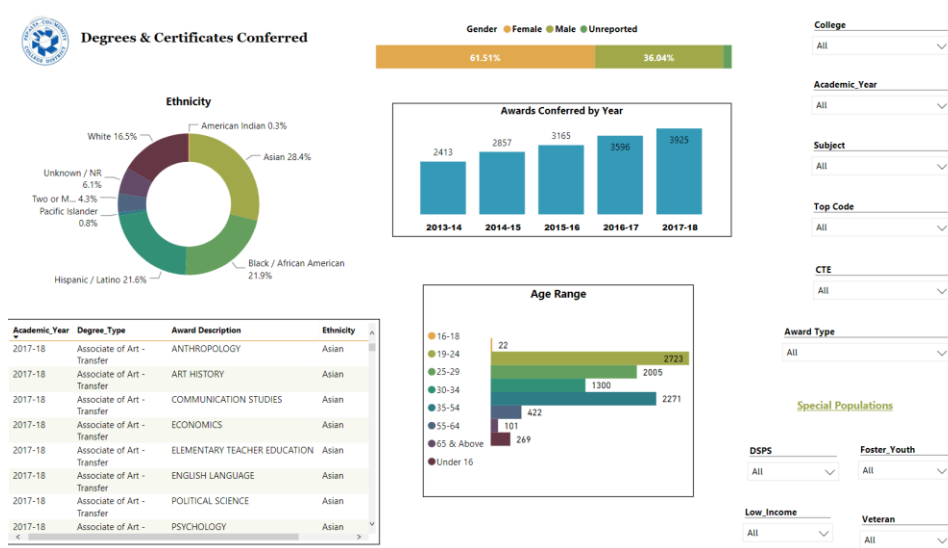
Describe the course retention rates over the last three years. If your college has an Institution-Set Standard for course retention, how does your program or discipline course retention rates compare to the standard?

Course retention rates have steadily increased over the last 3 years from 83% to 88%. The retention rates for engineering are higher than the retention rates for the college.

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

We have offered tutoring, more office hours, and have hired a full time faculty member. It is our impression that we need to offer more tutoring services.

Degrees & 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.

N/A there is no degree or certificate in engineering

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

Yes.

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

We will create a degree in engineering which will, of course, increase the number of 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.

Mallory Barkdull – faculty senate, department chair, lavender project, women’s history month committee

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

Mallory Barkdull – planning events on campus for Women’s History month and planning events for National Coming Out Day.

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

Currently he is not- I will work to improve this.

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				
Personnel: Student Worker	Tutors/ to improve student completion rates	\$5000		\$5000
Personnel: Part Time Faculty	Part time faculty/ we are adding to our courses and I will be unable to teach all of the classes. We will need someone to teach around 3-5 credits each semester.	I have no idea how to calculate this.	?	?
Personnel: Full Time Faculty				

Resource Category	Description/Justification	Total Estimated Cost
Professional Development: Department wide PD needed		
Professional Development: Personal/Individual PD needed	Funds to attend the Engineering Education Conference. As the only full time engineering faculty at Laney, it would be very beneficial to have the opportunity to discuss engineering pedagogy with other engineering instructors and to learn more about effective teaching strategies.	\$1000

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Prioritized Resource Requests Summary - Continued

Resource Category	Description/Justification	Total Estimated Cost
Supplies: Software	MATLAB software renewal for G270	?
Supplies: Books, Magazines, and/or Periodicals		
Supplies: Instructional Supplies	Metal and plastic specimens for Properties of Materials laboratories, materials for Engineering Graphics laboratories, Materials for Intro to Engineering laboratories	\$5000
Supplies: Non-Instructional Supplies		
Supplies: Library Collections		

Resource Category	Description/Justification	Total Estimated Cost
Technology & Equipment: New	3 point bending addition for instron machine – this will be used for ENGIN 36 and ENGIN 45 to show students how materials bend. This equipment could also be used to perform demonstrations and take measurements for the welding, machining, and carpentry departments.	\$2500

Technology & Equipment: Replacement		
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Prioritized Resource Requests Summary - Continued

Resource Category	Description/Justification	Total Estimated Cost
Facilities: Classrooms		
Facilities: Offices		
Facilities: Labs	Designated Engineering Lab- a space to teach all of the engineering labs including storage space for all of the equipment	??
Facilities: Other	Larger space for the fablab- the fablab currently doesn't have enough space to serve all of the students while getting new equipment to keep the space cutting edge	??

Resource Category	Description/Justification	Total Estimated Cost
Library: Library materials	Copy of each of the textbooks used in engineering and supplementary textbooks	\$700
Library: Library collections		

Resource Category	Description/Justification	Total Estimated Cost
OTHER		