Program: Engineering
Division: STEM
Date: October 10, 2018
Writer(s): Keith Level
SLO/SAO Point-Person: Keith Level

Audience: Deans, Vice Presidents of Student Services and Academic Services, All Planning and Allocation Committees. This document will be available to the public.

Uses: This Program Review will be used to inform the campus and community about your program. It will also be used in the processes of creating Division Summaries, determining College Planning Priorities and allocating resources. A final use is to document fulfillment of accreditation requirements.

Time Frame: This Program Review should reflect on program status during the 2017-18 academic year. It should describe plans starting now and continuing through 2018-19. This document also provides the opportunity to describe more long-term plans (optional).

Sections: The first section of this Program Review focuses on general program reflection and planning. The second section has specific questions to be filled out by all programs this year. The third section is an SLO/SAO update. The fourth section is a review of curriculum. Only programs with curriculum need to complete Section 4.

Topics: A list of topics of particular interest to Program Review readers can be found here:
https://goo.gl/23jrxt
Help: Contact Karin Spirn: kspirn@laspositascollege.edu

Instructions:
1) *Please respond to each question as completely as possible.*
2) *If the requested information does not apply to your program, write "Not Applicable."*
3) *Optional: Meet with your dean to review this document before _____.*
4) *Send an electronic copy of this form to Karin Spirn and your Dean by _____.*

Links:

Program Review Home Page: https://goo.gl/XATgjJ
Fall 2017 Program Review Updates : https://goo.gl/pkv76m
Frequently Asked Questions: https://goo.gl/iIhRtt

Section One: Program Snapshot

A. Program Description: Briefly describe your program, including any information or special features of your program that will provide helpful context for readers of this Program Review.

Engineering covers 2 main programs:

(1) **Engineering Transfer**: Includes teaching courses necessary for Engineering majors to transfer to four-year colleges and universities, plus some guidance in strategies to improve transfer admission.

Courses in this category include ENGR 10 (Intro to Engineering), ENGR 22 (Engineering Graphics), ENGR 25 (Computational Methods for Engrs and Scientists), ENGR 35 (Statics), ENGR 44 (Intro to Circuit Analysis), and ENGR 46 (Materials of Engineering). Engineering Transfer students additionally enroll in many other disciplines' courses, including Mathematics, Physics, Chemistry, and Computer Science. LPC has averaged about 30 transfer students each year for the past several years.

(2) **Engineering Technology** (or ET): Started in Fall 2014, this program was initiated through a cooperative effort between LPC, Lawrence Livermore National Labs (LLNL), Growth Sector, and Alameda County. LPC developed a two-year AS degree program in Engineering Technology, and to date has graduated 3 cohorts (or groups). The program initially started with an emphasis on teaching military veterans, who after graduation would potentially work at LLNL as technologists. This has happened, and the program has now expanded to include non-veterans, and now includes about 10 different technical employers in the Tri-Valley area.

Courses in this category include ENGR 10 (Intro to Engineering), ENGR 22 (Engineering Graphics), and ENGR 37 (Applied Statics and Materials), this latter course being the only custom course created specifically for the ET program at LPC. Engineering Technology students additionally enroll in other disciplines' courses, including Mathematics, Physics, and Welding.

Out of the 3 graduating cohorts (2016-2018), there has been a total of 37 students who have graduated with an AS degree in Engineering Technology (additional statistics are listed at the end of this document).

B. Changes to Program and Needs: Describe any significant changes to your program or your program's needs since the previous Program Review Update (Fall 2017).

Support for the Engineering Technology program requires multiple people, in different roles. One of the most critical of these positions—Student Support Specialist—was staffed by Kelsey Wat up until January 2018. She was actually the 4th different person to take this job, in about a 2 year span, yet she grew into her role, developed an excellent rapport with the participating students, and provided invaluable guidance to the veterans as they pursued an academic degree. Her job was initially paid with external money (eg, Growth Sector), but this money was always assumed to be temporary, and that LPC, at some time in the future, would take on and internalize her position. This last step never happened. This full-time position was discussed for about a year, with limited progress, until Kelsey decided to take a similar job, out of state. Her leaving LPC was a critical blow to the ET program, and beyond its negative impact on those of us teaching ET courses, it sent a very negative message to the students who were participating in the program. Caryl Shill is currently serving in a part-time role as student support specialist, with fewer hours than afforded Kelsey, though the effect of Kelsey's leaving is still being felt throughout the program, most notably among the participating students. There is a current request for a full-time Student Support Specialist position, it remains to be seen how much support LPC will actually provide.

As coordinator of the Engineering programs, Keith Level was given 0.25 CAH (1.7% of a full-time load) for Fall 2018. Although this is an increase from 0 CAH, which was his compensation between Fall 2008 and Spring 2018, it is still inadequate given all of the responsibilities involved in the coordination of two very different programs. Many coordinators at LPC receive 2.0 CAH or more unassigned time to help manage responsibilities outside the classroom. Engineering is long overdue to receive more substantial compensation.

Two different Engineering Advisory meetings have been scheduled for Fall 2018. One took place on September 13, 2018, and the 2nd meeting is scheduled for December 5, 2018.

Keith Level was on Sabbatical Leave for Fall 2017, and will also be on Sabbatical Leave for Spring 2019. His Sabbatical Leave for Fall 2017 included many LPC administrative tasks, including evaluating 5 different adjunct faculty, substitute teaching for one adjunct faculty member who resigned 3 weeks into the semester, interviewing and hiring a replacement for the adjunct instructor who resigned, three rounds of scheduling, plus other administrative tasks.

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
X	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities		Services to Students
X	Curriculum committee items	X	Financial/Budgetary	X	LPC Collaborations		SLO/SAO Process
X	Enrollment Management		Human Resources		Pedagogy		Technology Use
	External Factors		Learning Support		Professional Development		

C. Reflection: What plans from the <u>2017 Program Review</u> or any <u>previous Program Reviews/Updates</u> have been achieved and how? You may also describe achievements that were not planned in earlier Program Reviews.

Achieved:
More ENGR course sections offered
An increase in laboratory equipment, particularly in the ENGR 46 (Materials) course
ENGR 46 (*Materials in Engineering*) was increased from 3 to 4 units, adding an extra hour of lecture time each week.

Not Yet Achieved:
More extensive SLOs, including PSLOs, for all ENGR courses
Unassigned time for Engineering Coordinator, as Engineering Technology has significantly added to the responsibilities of the job.
Some modification or resolution of ENGR 10 (*Introduction to Engineering*); it requires an additional unit to articulate with San Jose State University's Intro to Engineering course.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt		
Community Partnerships/Outreach	X	Facilities, Supplies and Equipment, Software	LPC Planning Priorities		Services to Students
Curriculum committee items		Financial/Budgetary	LPC Collaborations	X	SLO/SAO Process
Enrollment Management		Human Resources	Pedagogy		Technology Use
External Factors		Learning Support	Professional Development		

D. IR Data Review: Describe any significant trends in your program's data from the office of Institutional Research and Planning. (Note: this information will be available in August 2018. Not all Programs have IR data packets available; if your program does not have a data packet, you may note that in the response box). You may also discuss any other data generated for your program by the Office of Institutional Research and Planning.

IR Data Packet Trends:

- Enrollment numbers have nearly doubled between 2014 and 2018

- FTEF numbers have nearly doubled in that same time, from 1.0 to 2.0

- Productivity has been mainly constant for the last 5 years, ranging from a low of 334 to a high of 387 between Spring 2014-Spring 2018, and ranging from a low of 271 to a high of 410 in Fall 2013-2017. The stipulated standard of 525 WSCH/FTEF is not a realistic goal for Engineering courses, particularly those with a laboratory component (eg, ENGR 22-Engineering Graphics, uses a lab which has only 24 computer stations, and is equal to 4.25 CAH, or 0.283 FTEF.   This

course, by itself has a WSCH/FTEF ratio of 425, which is well below the target of 525.)

- The percentage of productive grades (C grade or higher) in ENGR classes has ranged from about 60% to 72% in the last 5 years (with one anomaly of 82% during Spring 2017). Successful grade percentages in similar programs include Mathematics (56% and 60% for the last 5 years) and Physics (71% and 78% for the last 5 years).

Conclusion: The ENGR program has been growing quickly, the percentage of productive grades is equal to or more than percentages found in similar programs.

Mark an X before each area that is addressed in your response.			Definitions of terms: https://goo.gl/23jrxt		
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software	LPC Planning Priorities	Services to Students
	Curriculum committee items		Financial/Budgetary	LPC Collaborations	SLO/SAO Process
X	Enrollment Management		Human Resources	Pedagogy	Technology Use
	External Factors		Learning Support	Professional Development	

E. **Other Data Review (Optional): Describe any significant findings based on other data regarding your program. Possible sources of relevant information might include, but are not limited to, the following:**

- o **Data generated by your program**
- o **CEMC Data**
- o **Labor Market Data**

Numbers of Engineering Transfer Students:
There has been no formal, reliable method to count Engineering transfer students who transfer from Las Positas College to four-year universities. Informally, Keith Level has polled certain groups of students (enrolled in either ENGR 44 or ENGR 46 during Spring semesters) to determine how many are transferring. The net result of this is an average of 25-30 transfer students (of those counted) to four-year universities, in the last 5 years.

Reported data for the Engineering Technology Program:
See attachments at end

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
	Community Partnerships/Outreach	X	Facilities, Supplies and Equipment, Software		LPC Planning Priorities	Services to Students
	Curriculum committee items	X	Financial/Budgetary	X	LPC Collaborations	SLO/SAO Process
X	Enrollment Management	X	Human Resources		Pedagogy	Technology Use
	External Factors		Learning Support		Professional Development	

F. **Impacts to Students (Optional): Discuss at least one example of how students have been impacted by the work of your program since the last Program Review Update (only if you did not already answer this in Questions B-E).**

More variety in course offerings: Prior to 2017-18, ENGR 35 (Statics) and ENGR 44 (Intro to Circuits Analysis) were only offered one time per year. For 2017-18 and 2018-19, they are now offered during both Fall and Spring semesters, which gives students more flexibility to complete their lower division courses necessary to transfer successfully.

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software		LPC Planning Priorities	X	Services to Students
	Curriculum committee items		Financial/Budgetary	X	LPC Collaborations		SLO/SAO Process
X	Enrollment Management		Human Resources		Pedagogy	X	Technology Use
	External Factors		Learning Support		Professional Development		

G. Obstacles: What obstacles has your program faced in achieving plans and goals?

Same obstacles as listed in about the last 4-5 Program Reviews and Program Review updates:

1. People / unassigned time
2. Scheduling

Too much work for a one full-time person department. Teaching Engineering classes are challenging, with most classes combining lecture and laboratory components. Unlike some other related disciplines, there are not inflated unit values in Engineering courses (eg, ENGR has no 5-unit classes, and just two 4-unit classes, out of a total of 7 courses). As a result, it takes a teaching load of 4-5 courses each semester to reach 15 CAH, the contractual minimum threshold. Added to this is a dramatic increase in administrative tasks, particularly involving the Engineering Technology program.

Although 0.25 CAH was granted in Fall 2018 for unassigned time, this amount is still inadequate.

Scheduling is an on-going challenge, and needs to occur every semester. Engineering and Engineering Technology involve unique challenges when scheduling classes: fitting course days/times around other ET sequence courses, finding laboratory space for courses, avoiding conflicts with other Engineering Transfer courses, avoiding conflicts with other required Math and Physics courses required for transfer. Scheduling should be a collaborative process, yet is too frequently practiced with consideration of only the needs of individual departments.

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software	X	LPC Planning Priorities		Services to Students
	Curriculum committee items		Financial/Budgetary	X	LPC Collaborations		SLO/SAO Process
	Enrollment Management		Human Resources		Pedagogy		Technology Use
X	External Factors		Learning Support		Professional Development		

H. Short Term Planning: What are your most important plans (either new or continuing) for next year? Describe plans starting now and continuing through AY 2018-19.

Keith Level is on sabbatical leave for Spring Semester 2019, and staffing all ENGR courses and keeping both the Engineering Transfer and Engineering Technology programs running smoothly is the most pressing immediate demand.

Other short term plans include (a) new degrees and certificates in Engineering, (b) developing Guided Pathways for Engineering Transfer and Engineering Technology students, and (c) getting SLO information more up-to-date.

Mark an X before each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
X	Community Partnerships/Outreach		Facilities, Supplies and Equipment, Software	LPC Planning Priorities		Services to Students
X	Curriculum committee items		Financial/Budgetary	LPC Collaborations	X	SLO/SAO Process
	Enrollment Management		Human Resources	Pedagogy		Technology Use
	External Factors		Learning Support	Professional Development		

I. Long Term Planning (Optional): Please detail any long-term plans for the next 3-5 years. (Only if you have significant plans, such as implementation of a grant project, creation of long-term initiatives including those using restricted funds such as Equity or SSSP, construction and outfitting of a new building).

Future of Engineering Technology program. Hiring a full-time student support specialist is only a minimum requirement, yet has been very challenging to achieve. Communication between the various parties in ET also remains an on-going challenge.

Grow the Engineering Transfer program in a manageable way. Without some well-defined and on-going support from the college, this will be very challenging.

New buildings. There has been some general discussion about remodeling Building 1800, though the history of the building and its issues challenges how effective this could truly be. The construction of Building 1850 in 2014 was to originally include a dedicated Engineering room upstairs, yet resulted in no dedicated classroom and a reduction in storage. ENGR courses have doubled in numbers of students between 2014-2018.

Mark an X before to each area that is addressed in your response.				Definitions of terms: https://goo.gl/23jrxt		
	Community Partnerships/Outreach	X	Facilities, Supplies and Equipment, Software	X	LPC Planning Priorities	Services to Students

Curriculum committee items	X	Financial/Budgetary	X	LPC Collaborations		SLO/SAO Process
Enrollment Management		Human Resources		Pedagogy		Technology Use
External Factors		Learning Support		Professional Development		

Section Two: Current Topics (Required for All Programs)

A. Educational Master Plan: A list of goals and strategies appears on page ii of the Educational Master Plan, which can be accessed here: (https://goo.gl/1AefkX**). If applicable, describe how your program's upcoming plans reflect the goals described in the college's Educational Master Plan (your plans are described in Section 1, Questions H-I, or on a previous program review if you did not complete this year's Program Snapshot).**

The portions of the Educational Master Plan which apply most to the short and long-term goals for Engineering include the following:

Educational Excellence
  A2. Support existing and new programs.
  A3. Create accessible class schedules and supportive services.
  A6. Focus on workforce readiness.
Community Collaboration
  B2. Update programs to serve workforce needs.
  B3. Develop and strengthen private and public sector partnerships.
Supportive Organizational Resources
  C3. Provide appropriate staffing levels.
  C4. Meet current and future technology needs
Organizational Effectiveness
  D1. Streamline existing processes.
  D2. Enhance transparency and accountability.
  D3. Expand professional development.

Short Term:
  ▪ Keith Level's sabbatical leave in Spring 2019 supports D3, *Expanding professional development.*
  ▪ Hiring replacement faculty supports C3, *Provide appropriate staffing levels.*
  ▪ New degrees and certificates in Engineering support supports A2, Support existing and new programs.
  ▪ Developing Guided Pathways for Engineering Transfer and Engineering Technology students supports D1, *Streamline existing processes*
  ▪ Getting SLO information more up-to-date supports D1, *Streamline existing processes*

Long Term:
  ▪ Hiring a full-time student support specialist for the Engineering Technology program supports A2, A3, A6, B2, B3, C3, and D1 above
  ▪ Communication between the various parties in ET supports A2, A3, B2, B3, C3 and D1 above.

- Growing the Engineering Transfer program in a manageable way supports A2, A3, A6, C3, D1, and D2 above
- New buildings supports A2, A3, B2, C3, C4, and D1 above.

B. Program-Set Standard (Instructional Programs Only): Did your program meet its program-set standard for successful course completion? _X_yes _____no

(Note: this information will be available in August 2018)

If your program did not meet your program-set standard, discuss possible reasons and how this may affect program planning or resource requests.

C. Facilities: Do you have any facilities needs that are currently unmet? If yes, please describe.

Storage is inadequate. A doubling of enrollment numbers in the last 5 years, coupled with a decrease in storage space, has led to too many pieces of equipment being stored on countertops in Rm 1822.

D. Professional Development

Section 87153 of California Education Code specifies the type of Professional Development activities that may be funded by the Community College Professional Development Program. You can review these activities here: https://goo.gl/w8sqBM

D1. Summarize the aspects of professional development that have been working well for your program. This might include the process of obtaining funds, the types of training your program members have been attending, etc.

The types of professional development needed for Engineering include maintaining knowledge and currency in a wide variety of topics: Solidworks software, incorporating 3D printing into Engineering courses (including *Engineering Graphics*), teaching lecture and laboratory for ENGR 44 (*Electrical Circuits*) and ENGR 46 (*Materials of Engineering*), teaching Matlab programming courses in ENGR 25, developing lectures and demonstrations used in ENGR 10 (*Intro to Engineering*)

D2.

Summarize any needs, desires and visions your program has regarding professional development, as well as any challenges.

Keith Level will likely retire within the next 5 years. His replacement will take on the responsibility of teaching a broad range of very technical subjects, and will likely need substantial support to teach 4-5 classes in each semester, and handle the ever-growing number of administrative tasks outside the classroom.

E. Program Suggestions (optional): What questions or suggestions do you have regarding the Program Review forms or process?

> The Program Set Standard, in the way it is used in Program Review, is too simplistic to be useful. It only compares a program's current numbers against that same program's past performance. This seems to unnecessarily penalize a program which has been successful in the past.   The idea that a program with a success rate of 50-55% is deemed acceptable, and another program with a success rate = 75-80% deemed unacceptable, is illogical.
>
> It's very unclear to me how there is any connection between Program Review and anything else (eg, resource allocation). Does a superior Program Review lead to more funds? Does an inferior Program Review lead to diminished funds? Is there always a direct correlation between the quality of the Program Review and the quality of the program? Might there be a truly effective program that generates a poor Program Review (and thus sees a reduction in funding)?
>
> It would help to have very specific directions about what to include, and what not to include, in Program Review.
>
> https://goo.gl/1AefkX   was a dead link (was supposed to link to the Educational Master Plan)
>
> Finally, when issues repeatedly appear in multiple Program Reviews (eg, unassigned time, facilities), which is very much the case in this Engineering Program Review, it is because this issue has **not** been resolved satisfactorily.

Section Three: SLOs/SAOs (Required for All Programs)

A. In the box below, copy and paste your "Plans for Analysis of SLO/SAO Data" from last year's Program Review. This plan can be found in the <u>2017 Program Review</u> Section 1 Question L.

(If discussing multiple PSLO/SAOs copy the box below as needed.)

Circle One: **CSLO**   PSLO   SAO
Course, Program Name, or Student Service Area: **ENGR 10 (Introduction to Engineering)**
Text of CSLO/PSLO/SAO: Upon completion of ENGR 10, students will be able to design and demonstrate a solution, using the engineering design process, to an engineering design problem.
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO. NOT APPLICABLE

B. Below, report on your program's progress on the plan described in Question (A) above.

Text of CSLO/PSLO/SAO: Upon completion of ENGR 10, students will be able to design and demonstrate a solution, using the engineering design process, to an engineering design problem.
SLOs: Assessment data collected from _____5_____ sections over ____5_____ semesters. SAOs: Assessment data collected from _____ students over _____ semesters.
Describe the quantitative or qualitative results: For the 5 semesters assessed, more than 90% of the students achieved either an Average, Above Average, or Mastery, for the design project (Table Jumper design project).
Discuss and reflect upon student achievement for this CSLO/PSLO/SAO. Discuss any actions taken so far (and results, if known) and your action plan for the future: The Table Jumper design project is a challenging project for students, typically working in teams of 2-4 students. Although the goal is Mastery (the Table Jumper successfully moving across a 50-cm gap), the groups who achieve Average and Above Average still experience the challenge of troubleshooting, analyzing, and working cooperatively within a group.
What changes in student achievement are evident across the semesters you analyzed? What are some possible explanations for these changes?

The summer school students, who are typically not on-going LPC students, had the lowest scores, while the other four semesters were comparable in achievement.

DO you plan to continue tracking this SLO in the next year? Explain.

Yes, and in multiple sections. There is some thought of incorporating some type of laboratory exercise to help facilitate students in constructing and troubleshooting their designs.

C. Planning: What are your future plans (either new or continuing) for SLO/SAO analysis for next year?   Identify the PSLOs, CSLOs, or SAOs that your program plans to focus on the upcoming year with subsequent analysis (next year's program review). (Copy the box below as needed.)

Circle One:
CSLO   PSLO   SAO
Course, Program Name, or Student Service Area:
ENGR 25 (Computational Methods for Engineers and Scientists)
Text of CSLO/PSLO/SAO:
Demonstrate an understanding of the use of Microsoft Excel in solving problems using numerical methods.
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO.
NOT APPLICABLE

Circle One:
CSLO   PSLO   SAO
Course, Program Name, or Student Service Area:
ENGR 25 (Computational Methods for Engineers and Scientists)
Text of CSLO/PSLO/SAO:
Demonstrate effective creation and calling of Function files, including passing variables to a function, within Matlab
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO.
NOT APPLICABLE
Circle One:
CSLO   PSLO   SAO
Course, Program Name, or Student Service Area:
ENGR 35 (Statics).

Text of CSLO/PSLO/SAO:
Demonstrate the ability to construct accurate Free Body Diagrams
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO.   NOT APPLICABLE

Circle One: CSLO   **PSLO**   SAO
Course, Program Name, or Student Service Area: Establish a PSLO which measures the number of Engineering Transfer students who successfully transfer to a four-year university.
Text of CSLO/PSLO/SAO: To be determined
If you plan to analyze a PSLO, identify the courses that are mapped to the PSLO.   The most logical courses to map to this PSLO are ENGR 35 (Statics), ENGR 44 (Intro to Circuit Analysis), and ENGR 46 (Materials of Engineering), which are often taken by students shortly before they transfer.

D. SLO/SAO Suggestions (optional): What questions or suggestions do you have regarding SLO/SAO planning, assessment and reporting?

There currently is no way to report numbers of LPC Engineering Transfer students who are successfully admitted into a four-year university's Engineering program. Statistics of this type have been kept for most of the previous 11 years, but only shared in an informal way. In my opinion, this should be treated as one of the highest priorities of the program, yet currently does not show up in any SLO data.   My best understanding of why this is the case is because this type of statistic is difficult to track on an individual course basis, i.e., students who successfully transfer are in many different courses at LPC just before they transfer. Transfer seems to be high priority, though the ability to accurately measure how many students transfer seems limited by the current SLO process.

The following questions ask you to review your program's curriculum. To see the last outline revision date and revision due date:

> **1. Log in to CurricUNET**
> **2. Select "Course Outline Report" under "Reports/Interfaces"**
> **3. Select the report as an Excel file or as HTML**

Curriculum Updates

A. Title V Updates: Are any of your courses requiring an update to stay within the 5 year cycle? List courses needing updates below.

> **Courses requiring an update:**
> ENGR 22 (Engineering Graphics)
> ENGR 25 (Computational Methods for Engrs and Scientists)
> ENGR 35 (Statics)
> ENGR 46 (Materials of Engineering)

B. Degree/Certificate Updates: Are any degrees/certificates requiring an update to do changes to courses (title, units) or addition/deactivation of courses? List needed changes below.

> ENGR 35 (Statics) will be re-submitted to Curriculum Review within the next week, mainly for the purpose of gaining C-ID approval at the statewide level. The other 3 courses listed above will also be submitted to Curriculum before the end of Fall Semester 2018.

C. DE Courses/Degrees/Certificates: Detail your department's plans, if any, for adding DE courses, degrees, and/or certificates. For new DE degrees and/or certificates (those offered completely online), please include a brief rationale as to why the degree/certificate will be offered online.

> There are no immediate plans to add DE courses at LPC. DE courses are currently fairly rare in the Engineering discipline at community colleges, though this may change with the advent of the OEI statewide.

Statistics on the Engineering Technology Program, Las Positas College

Students enrolled in program since the beginning, May 2014:	119
Female/Male Student Demographics:	F-13.5% M-86.5 %
Students completing coursework:	
*Earned AS degree	37
*Transferred to 4-year Engr discipline	5
Students completing summer internships, cohorts 1-4:	68
Overall retention of cohorts 1-4:	61%
Students receiving FT employment LLNL upon degree completion:	18
Students receiving FT employment other, upon degree completion:	3*

Cohort 5:

*Total # of students	15
*Vets	53%
*Women	33%

Students needing FT internships/work experience summer 2019:

*Cohort 5	15
*Cohort 4	3