Fall 2021 Comprehensive Program and Area Review (PAR):

Academic Programs

Dear Chabot Community,

Welcome to Fall 2021! This is the electronic template for the **Academic Programs Fall 2021 Comprehensive Program and Area Review (PAR).** We encourage you to work together with your program or service area to complete these questions collaboratively. One way to facilitate real-time collaboration is to upload these questions into a google doc. Please submit your completed template with attachments to your Dean/Manager by **10/11/21**. Your Dean/Manager will provide you with feedback. After you receive their feedback, you will then enter the information from your template (and attachments) into Qualtrics by **10/25/21**. Importantly, your PAR is NOT complete until you submit your responses on Qualtrics.

Please reach out to the PAR shared governance committee if you have any questions about filling out your Fall 2021 PAR! Co-Chairs: Deonne Kunkel Wu dkunkelwu@chabotcollege.edu and Cynthia Gordon da Cruz cgordondacruz@chabotcollege.edu.

Background Information:

- What organizational unit does your program/area belong to?

  __x__ Academic Services
  ___ Administrative Services
  ___ Student Services
  ___ Office of the President

- Name of your Program, Discipline, Area or Service:

  Engineering

- Name(s) of the person or people who contributed to this review:

  Tess Weathers, Dan Quigley

- What division does your Program/Area reside in?

  ___ Academic Pathways and Student Success
  ___ Applied Technology and Business
  ___ Arts, Media, and Communication
  ___ Counseling
  ___ Health, Kinesiology and Athletics
  ___ Language Arts
  __x__ Science and Mathematics
  ___ Social Sciences
  ___ Special Programs

Status of Program Goals from Prior Comprehensive PAR Cycle

- Please refer to the goals/new initiatives you established in the last comprehensive PAR cycle. The last comprehensive PAR was written in Fall 2017 to plan for 2018-19; 19-20; and 20-21. If you need a reminder of your goals, you can access them in the PAR App Program Review Reports.
  Click on:
  - PAR App Program Review Reports.
  - Then "Select Academic Year" on the top (choose 2018-19)
  - Then "Submissions" (in the left hand toolbar)
  - Then find your area and click "View" in the right most column
  - For **Academic Areas**, find question 8: "Reflecting on your answers to questions 1-7, what are your top goals (no more than 5) for the next three years?"
  - For **Service Areas**, find question 8: "Reflecting on your answer to questions 1-7, what new initiatives (no more than 5) do you propose for the next three years?"
  - For **Administrative Areas**, find question 9: "Reflecting on your answers to questions 1-8, what are your top goals (no more than 5) for the next three years?"

You should be able to view the goals you submitted in the last comprehensive PAR, which was written in Fall 2017 to plan for the three-year cycle starting in 2018-19. Please note that the "goals" you established are distinct from the outcomes for your service area (SAOs) or program area (PLOs). In general, SAOs and PLOs tend to be enduring and overarching aims for your service/program, whereas the goals for a comprehensive PAR year are more specific, are expected to be completed over the PAR cycle, and are often part of a concrete action plan to reach your overarching and enduring SAOs and PLOs. For example, one of the Learning Connection's SAOs is: "Students from diverse backgrounds and with diverse learning needs will receive tutoring that improves their abilities to complete assignments, study, and/or succeed in their courses." This is an enduring aim that is unlikely to change from PAR cycle to PAR cycle. A PAR goal for the Learning Connection might be to refine the student diversity and antiracist tutoring practices training for incoming tutors. This goal is specific, expected to be completed over the PAR cycle, and supports their SAO (if incoming tutors are trained in antiracist tutoring practices, they will be well-equipped to support students with diverse learning needs).

Goal from Previous Cycle	Status of Goal	Outputs or measures (e.g students served, program change made, etc.) Please explain.
1.Articulate ENGR 10 with local high schools - Work with Susan Benz to connect to local high schools with PLTW programs and form articulation agreements similar to current ones. Attend additional PLTW course training over summer to determine if other courses are eligible for articulation. Try to create a high school pipeline for incoming freshman to have ENGR10, 11, and 22 credit	___ Achieved __x__ In Progress ___ Not achieved but still relevant ___ Not achieved and no longer relevant	San Lorenzo, Arroyo, Hayward, and Castro Valley High Schools now have articulated PLTW programs for ENGR 10 and ENGR 11 dual enrollment. We also offer ENGR 10 for high school students who either do not have PLTW at their high schools or their schedules do not allow for them to take PLTW courses. For this goal to be achieved, we will need to set up similar articulation agreements with other PLTW high schools, add MTT 70, ENGR 11 and ENGR 22, to our summer bridge courses for high school students
2.Increase success rates in engineering courses- Add additional faculty, tutoring and learning assistants in classroom to help facilitate labs, answer questions, and work with class in groups.	___ Achieved __x__ In Progress ___ Not achieved but still relevant ___ Not achieved and no longer relevant	This year, MESA student assistants helped with course and laboratory tasks, both online, and in-person as needed for our face-to-face offerings . We have employed students through Learning Connections

Also give students additional resources outside of class.		for ENGR 10, 22, and 25. These assistants improved student success and provided training, motivation, and funding for the assistants themselves. While our student assistants are essential in helping to support our students in/outside of the classroom. The department is in desperate need of an Engineering Laboratory Technician to help support the set up of new equipment, maintain equipment, manage supplies, and help with lab preparation and clean-up which would allow more time for student-faculty interactions. Major of the Community Colleges across the state including our sister college LPC have a dedicated lab technician to support their Engineering program.
3.Increase facilities, equipment, and supplies for engineering labs- Work with facilities committee and with measure A funds to secure an engineering and engineering technology lab/computer space &	__x__ Achieved __x__ In Progress ___ Not achieved but still relevant ___ Not achieved and no longer relevant	Engineering has purchased some class-based supplies; upgrades are still required for a cutting-edge, competitive, transfer-approved engineering curriculum. Although engineering needs major equipment for each class, (such

equipment for engineering courses		as industry-standard equipment, 3D printers, robotics kits, load and testing equipment, scales, and advanced electronics equipment) we are still in desperate need of appropriate space and facilities in order to house and store this equipment. The recently funded Dept. of Education HSI grant may provide potential funding for lab equipment to maintain transfer status and similar course content to UC and CSU courses. The new Bio Phase II-Faculty Office Building planned to replace 2100 will include a dedicated space for the Engineering program.
4.Add an Engineering Technology Program- Work with Yvonne Wu Craig to determine the type of engineering technology program that would be most beneficial for Chabot students, develop curricula, and work with engineering industry to recognize program.	___ Achieved __x__ In Progress ___ Not achieved but still relevant ___ Not achieved and no longer relevant	Engineering has worked with Yvonne Wu Craig to develop an NSF-HSI grant proposal that includes potential funding for curriculum development and industry partnerships. Industry partners (PCC Structurals, Gridscape Solutions, Anamet Materials) have agreed to offer company tours, job shadowing opportunities, internships, and speaking engagements.
5.Maintain and increase course articulation with UC's &CSU's- Add thermodynamics, dynamics, and strength of materials to engineering curriculum and articulate current courses to	__x__ Achieved __x__ In Progress ___ Not achieved but still relevant ___ Not achieved and no longer relevant	We have added thermodynamics, dynamics, and strength of materials to our engineering curriculum. Due to the increasing complexity of engineering transfer, this is ongoing. Many UC's and CSU's offer courses that are similar to Chabot's however, they are unwilling to accept course articulation or we have not submitted our courses

more UC & CSU engineering programs		to be articulated. Although c-id is commonly used in other areas, many engineering programs at UC's and CSU's are not using c-id. We also will need to add surveying to our curriculum as well.

Learning Outcomes Assessment Results

SLO:

Student Learning Outcomes (SLOs): SLOs are the outcomes that instructors aim for students to successfully reach by the end of a course. SLOs should be established for each course, listed in CurricUNET, displayed on all course syllabi, and assessed in CurricUNET on a 5-Year cycle. The following questions are about SLO assessment.

- How many courses in your discipline have SLOs developed and listed in CurricUNET?
  __x__ All courses
  ___ Almost all or most courses
  ___ About half of the courses
  ___ A few courses
  ___ No courses

If any courses do not have SLOs, please explain why.

- How many courses in your discipline have rubrics (or some other form of assessment) developed to measure SLOs?
  __x__ All courses
  ___ Almost all or most courses
  ___ About half of the courses
  ___ A few courses
  ___ No courses

If any courses do not have rubrics to measure SLOs, please explain why.

- How many courses in your discipline had their SLOs assessed and recorded in CurricUNET in the 5-year cycle?
  ___ All courses
  __x__ Almost all or most courses
  ___ About half of the courses
  ___ A few courses
  ___ No courses

If any courses were not assessed in the five-year cycle, please explain why.

The only courses that have not been evaluated are courses that have not yet been offered or are currently in their first semester.

- Assessing SLOs has led to improvements in my area.
  ___ Strongly disagree
  ___ Somewhat disagree
  __x__ Neither agree nor disagree
  ___ Somewhat agree
  ___ Strongly agree

PLOs:

Certificate and Degree programs also establish and assess **Program Learning Outcomes** (PLOs). PLOs are the outcomes students should successfully reach when they complete all the requirements for a certificate or degree program. PLOs are also assessed in CurricUNET on a 5-year cycle.

- Were all Program Learning Outcomes (PLOs) assessed in the 5-year cycle in CurricUNET?
  ___ Yes, all PLOs were assessed in the 5-year cycle.
  __x__ Almost all PLOs were assessed in the 5-year cycle.
  ___ No, many PLOs were not assessed in the 5-year cycle.

If any PLOs were not assessed in the five-year cycle, please explain why.
Computational Design Certificate of Achievement is exempt from PLO Assessment because not all of the required courses for the certificate have been offered.

- Assessing PLOs has led to improvements in my area.
  ___ Strongly disagree
  __x__ Somewhat disagree
  ___ Neither agree nor disagree
  ___ Somewhat agree
  ___ Strongly agree

Institutional Supports and Barriers

Reflect on your experiences, data, and/or previous program reviews and consider what work in your discipline/service area you are most proud of and what problems remain a major challenge. Then respond to the following questions:

- What institutional-level supports or practices were particularly helpful to **your program or area** in reaching its PAR Goals, SLOs, PLOs, SAOs, and/or the college mission?
  Curriculum committee, CTE Pathways group, and supplies/equipment funding were very helpful in engineering. Curriculum committee was very helpful in making necessary curriculum and program changes such as adding courses, modifying courses, and creating certificates/degrees. This committee is very well structured, gives great feedback, and gives timely responses. Susan Benz and Christina Read were also instrumental in our outreach efforts and articulation agreements with PLTW courses to ENGR 10 and ENGR 11. In recent years, we have started procuring some of the necessary equipment and supplies needed to run the nine labs that we offer.
- What institutional-level barrier or challenges prevented or hindered **your program or area** from reaching its PAR Goals, SLOs, PLOs, SAOs, and/or the college mission?
  We have not been able to achieve our goals in receiving a dedicated engineering lab assistant, gain access to adequate and necessary lab facilities, articulate engineering courses to UC's and CSU's, keep our technology up to date, nor use F hour funding effectively due to PAF approval process.

  Engineering has been asking for a dedicated or shared lab assistant since 2015. We offer nine different labs with specialized equipment for each one. Each semester we offer 7 - 8 three hour labs each week. Assuming one hour set up, one hour break down, and lab support during each three hour lab would result in 35 - 40 hours per week. Engineering course lectures also require support due to the nature of the engineering curriculum. This also does not include the maintenance and repair of equipment, supply inventory and organization, and checking out supplies and equipment to instructors and students. We have received funding for an engineering/electronics lab assistant through Strong Workforce, however, this position was against union policies and was not determined until much later after the hiring date. Since then, we have been unable to secure an engineering lab assistant position which has significantly hindered our program offering adequate labs.

  The engineering lab facilities at Chabot are inadequate. Aside from not being able to use necessary lab equipment due to space and power supply, there is also not enough seating for a full 24 person class, nor is there enough equipment to be used for a full 24 person class for each of the nine lab classes that we offer.

  The articulation officer, Shannon Stanley, has been wonderful to work with, however, the process of articulation is very burdensome in engineering. Each Chabot course needs to be articulated with every

engineering discipline at every UC and CSU, as many do not use the c-id process. We also receive very little communication if programs change or we lose articulation with a course. This process should become a regular college-wide committee to keep and maintain articulated courses up to date with UC's, CSU's and high schools.

IT does not seem to have adequate resources to maintain and update computers and software.

PAF approval process is not timely and usually does not get approval until the middle of semesters. There needs to be a process for approving PAFs before a semester begins.

Maintenance does not have adequate funding to maintain and keep our classes, office, and labs clean and maintained. Rooms are filled with ants/spiders along with dust and debris from use.

- What institutional-level supports or practices do employees in your program/area believe are particularly helpful **to students** in reaching their educational milestones and/or goals? (i.e., from your vantage point, what does Chabot do for students that we should **keep** doing?)
  The MESA/TrioSTEM programs are absolutely fantastic. Not only are retention rates for MESA students exceptional, the program itself has filled many gaps we have found in Engineering. For example, as we don't have a lab assistant, MESA has been funding engineering student assistants to help fill that gap in a piecemeal capacity. These students are also able to act as tutors, which is especially helpful as we are not allotted support through Learning Connections for ENGR 43, 45, and 36. MESA/TrioSTEM also provides STEM-specific counseling, which has been critical to get the students moving effectively along the engineering pathway. The STEM Center has also been an important resource for students, especially when we are in-person. Students benefit from the study spaces, the calculators and textbook checkouts, computer access, and guest speakers and events.
- What institutional-level barriers or challenges do employees in your program/area believe are a hindrance **to students** in reaching their educational milestones and/or goals? (i.e., from your vantage point, what does Chabot do that we should **stop** doing or **change** to better support our students?)
  Many students have expressed frustration through the counseling program. Whether it's the inability for students to get timely appointments, or the counseling staff's lack of knowledge regarding STEM courses (specifically, the new engineering courses and certificates) students are often coming to the faculty to help them plan and research their learning plans. Engineering and Counseling need to develop a better relationship wherein Counseling is able to stay informed of the new opportunities in Engineering. In general, our students would benefit with increased STEM-specific tutors as are supported through MESA/TrioSTEM.

Academic Programs/Disciplines Data

In order to reach Chabot's mission, the college looks at the following outcome metrics to evaluate previous program success and plan for the future. Some outcomes will be more applicable to particular programs in specific PAR cycles; please look at the data available on the outcomes that are most relevant to your program and use it to answer the following questions:

FTES and Enrollment

FTES is an enrollment metric. It basically converts the total number of units students are taking in a given timeframe (e.g., semester, academic year, etc.) into the equivalent number of full-time students that would be needed to generate this same number of units. Colleges are funded based on the FTES they generate (both historically and now as the "Base Allocation" in the Student Centered Funding Formula). Please check out the Chabot College Enrollment Management Data Dashboard to respond to the questions below. The data in this section will be given to the Chabot Enrollment Management Committee (CEMC) to support their work.

- Over the past 3 years, in comparison to the overall FTES trends of the college, FTES in your discipline have:
  ___ Decreased in comparison to the overall college trends
  ___ Stayed roughly the same in comparison to overall college trends
  __x__ Increased in comparison to overall college trends

Please provide a brief explanation that would help the college understand these trends (e.g., tangible reasons for the increase or decrease).

Evaluation of the enrollment trends shows that Engineering FTES is increasing in comparison to the overall college trends. For example, in Fall 2018, engineering made up 0.62% of the college's FTES. In Spring 2021, engineering made up 0.64%. Another metric to consider is the percent change since Fall 2018. Engineering's FTES has decreased by only 12% since Fall 2018, however overall college FTES has decreased by 14%. This does not include summer courses that have been added. If we include summer FTES, this shows we have increased FTES by 2 - 3% each year since 2018-2019.

- As noted above, enrollments impact our funding. Please review the courses in your discipline in the Chabot College Enrollment Management Data Dashboard: are there specific courses/sections that, on average, across the past three years did not fill to capacity? Why might this be?

There are 3 courses that do not fill to capacity: ENGR 36, 43, and 45. These courses are the most advanced engineering courses we offer (they require the most pre-requisites), thus the student body that is eligible to take these classes is much smaller than for other engineering courses.

These courses are capstone classes that should be offered both Fall and Spring, even if they are low enrolled because they are required for transfer, and are often taken in the students' last year at Chabot. If we only offer one section a year, we will be above capacity for that one semester, meaning, we will have to turn students away as a result of lab capacity (both equipment ,physical space and the lack of a dedicated lab technician). This may result in students delaying transfer for another year, or they may take the class elsewhere.

- Is there anything faculty in your area would consider doing to improve overall discipline productivity* while maintaining our commitment to student learning? (e.g., taking additional students in sections with higher fill rates or changing the days/times or format—in-person, hybrid, online—of low fill-rate classes, etc.)
  **productivity=(FTES or WSCH)/FTEF or the number of full time students or weekly student contact hours per full time faculty member*

Engineering is willing to change its scheduling habits for low enrolled courses from a once per semester basis to a once per year basis. This can be accomplished by scheduling ENGR 36, ENGR 43, and ENGR 45 as hybrid where lectures are online and labs are in person. Due to the number of students needing these classes in their last year before transfer, the college may need to add two lab sections with one large lecture course for each of these courses. If we were to implement the following scheduling, it will save the college approximately 0.5 - 1 FTEF. Assuming the same number of students annually in each course should increase our average WSCH/FTEF by 41 - 117. This range depends on if an additional lab section is added or not. We will need to work with other disciplines and counseling to announce and advertise these changes before they are implemented. We are also willing to add

additional students to courses that are waitlisted. The table below summarizes what we currently offer and when, compared to a schedule with once/year double-lab sections of 36, 43, and 45.

CurrentScheduling		WSCH /FTEF		New Scheduling		WSCH/ FTEF
Fall	**Spring**			**Fall**	**Spring**	
ENGR 10 x2	ENGR 10 x2	604		ENGR 10 x2	ENGR 10 x2	604
ENGR 11	ENGR 11	407		ENGR 11	ENGR 11	407
ENGR 15	x	no data		ENGR 15	x	no data
ENGR 16	x	no data		ENGR 16	x	no data
ENGR 22	ENGR 22	495		ENGR 22	ENGR 22	495
ENGR 25	ENGR 25	555		ENGR 25	ENGR 25	555
ENGR 36	ENGR 36	300		ENGR 36	x	392 - 600
x	ENGR 40	no data		x	ENGR 40	no data
ENGR 43	ENGR 43	300		x	ENGR 43	420-600
ENGR 45	ENGR 45	217		ENGR 45	x	295 - 434
x	ENGR 47	no data		x	ENGR 47	no data
x	ENGR 85	no data		x	ENGR 85	no data
Average		411		Average		452 - 527

- Are there any classes in your discipline which routinely fill to capacity and for which there is often a waitlist? If yes, please list here.

  Yes, typically we see ENGR 10 (two sections), ENGR 11, ENGR 22, and ENGR 25 fill to capacity with a small waitlist each semester. We also offer ENGR 10, ENGR 22, and ENGR 25 courses during the summer session and we plan to offer ENGR 11 as well.

  ENGR 10: Introduction to Engineering
  ENGR 11: Engineering Design and Analysis
  ENGR 22: Engineering Design Graphics
  ENGR 25: Computational Methods for Engineers and Scientists

Enrollment Disaggregations:
*Enrollments** can be disaggregated by race and ethnicity, gender, etc.
*Enrollments are the total number of class enrollments/seats in a given time period. A student enrolled in multiple courses increases the count for each of those courses. This is a count of *seats filled*, not a count of persons filling them.

Take a look at disaggregation of your enrollments by race and ethnicity (and/or by gender) over the past three years on the Chabot College Course Enrollments and Success Rates Dashboard. Consider how the representation of traditionally underrepresented race/ethnicity/gender student groups in your program compares to the typical makeup of your discipline, field, or industry (and/or for disciplines with large percentages of General Education enrollments—like English, math and communication studies—consider how the representation of traditionally underrepresented race/ethnicity/gender student groups in your **major courses** compare to your discipline, field, or industry).

- The representation of traditionally underrepresented race/ethnicity/gender student groups in our **discipline/major** compared to our industry/field:
  ___ could be improved.
  ___ is just right.
  __x__ is outstanding - we are increasing the diversity of the field.

For disciplines with a high percentage of offerings that are required for General Education—such as English, math, or communication studies—please also compare the representation of traditionally underrepresented race/ethnicity/gender student groups/disproportionately impacted groups (DI Groups) in your **general education** classes to the overall student body population.

- DI Groups in our **general education** classes:
  ___ are **underrepresented** in comparison to their representation in the student body.
  ___ have **similar representation** in comparison to their representation in the student body.
  ___ are **overrepresented** in comparison to their representation in the student body.
  __x__ Not applicable, our discipline does not have high enrollments in general education classes.

Please provide a brief explanation that would help the college understand these trends (e.g., tangible reasons to understand the representation of DI groups in your general education classes at Chabot).

Non-Credit

- Does your program/area offer non-credit classes?
  ___ Yes
  __x__ No

- Over the next 3 years, non-credit course offerings in our program/area are planned to:
  ___ Decrease
  __x__ Stay the same as they are now
  __ Increase

Course success rates

Refer to the Chabot College Course Enrollments and Success Rates Dashboard.

- Over the past three years, how have course success rates in your discipline changed? Course success rates have:
  ___ Decreased
  __x__ Stayed roughly the same
  ___ Increased

Use the Chabot College Course Enrollments and Success Rates Dashboard to disaggregate your course success rates. Do any populations jump out to you as disproportionately impacted (succeeding at lower rates than students from other racial/ethnic, gender groups, or the overall college average)?

- Check all groups that are ***disproportionately impacted*** (succeeding at lower rates than students from other racial/ethnic, gender groups, or the overall college average):
  __x__ African American/ Black
  ___ Asian American/ Asian
  ___ Filipino/x
  ___ Latinx/ Chicanx
  ___ Native American/ Alaska Native

__x__ Pacific Islander/ Hawaiian
__x__ White/ European American
___ Female
__x__ Male

(Comment/Explain) Please provide a brief explanation that would help the college understand the trends in overall course success rates or disproportionate impacts in course success rates for any student group:
Overall Success: Our Non-Success rates have actually decreased over the last three years, however Withdrawal rates have increased since Spring 2020, likely due to the impact of COVID-19.
African American/Black: Unfortunately, we have very low enrollments in this population, with only 4 semesters that had more than 10 students. This small sample size makes the data very volatile and difficult to assess with accuracy. A clear solution would be to recruit more African American/Black students into engineering in the first place.
White: Over the last three years, Engineering has had an average of 11.9% white students (ranging from 15-35 students). The campus average is 13.4% white. This is the second-smallest Racial-Ethnic group (behind African American/Black), and thus may suffer from the same small-sample size volatilities.
Male: Most of our students are male (~80%) so most non-success in engineering will be a part of the male population (compared to college-wide data)
Pacific Islander: There is no information for success rates in Engineering for Pacific Islander/Hawaiian population as enrollment is consistently at 1 or 2 students.

The Office of Institutional Research strives to continually improve representation in our data. Currently, we have a dashboard on course enrollments and success rates, which can be disaggregated by race/ethnicity, gender, and part-time/full-time status. What other student group(s) would you like to be able to disaggregate by in the dashboard? How will this disaggregation promote Chabot's mission? (Please keep in mind we will need to build further disaggregation into the dashboard over time and we will work in the order that is possible to do based on data availability and for which there is the most interest in Chabot campus community.)
The current disaggregation methods are already very helpful. As Chabot is beginning to address equity of the LGBTQ+ community, it may be valuable to incorporate that data to see if there are any changes as the college begins to promote awareness around this less-addressed aspect of our college's community.

Program completion (AD-Ts, AA/AS, Chancellor-approved Certificates)

Take a look at the IR report on Degrees by Discipline.

- Over the past 3 years, what is the trend in Degrees awarded (AD-Ts and AA/AS) in your program(s)?
  ___ Decreased
  __x__ Stayed roughly the same
  ___ Increased

Take a look at the IR report on **Chancellor-Approved** Certificates by Discipline.

OIR now has two separate certificate reports: Chancellor Approved Certificates by Discipline and All Certificates by Discipline.

- Over the past 3 years, what is the trend in **Chancellor-Approved** certificates awarded in your program(s)?
  ___ Decreased
  __x__ Stayed roughly the same
  ___ Increased

- Please provide a brief explanation that would help the college understand these trends in degree and certificate completion. (e.g., tangible reasons for the increase or decrease).
  Two engineering certificates were approved in Fall 2020. During the first year, there were two required courses that were not offered in Fall 2020, Spring 2021, nor Summer 2021. MTT 70 is a required course for Technical Design Drafting Certificate and ENGR 15 is a required course for Computational Design Certificate.

We will need help from the college to advertise these courses and certificates as well as work on scheduling these courses so students can earn these certificates. Many students have the requirements completed for the certificates and Engineering AS but do not apply for it. It would be beneficial to automatically award these certificates and degrees to students who take the required courses. Also, many students focus on completing transfer requirements rather than certificates or degrees as there many required courses that vary significantly by discipline and transfer university.

- If your area does not produce a lot of degrees or Chancellor-approved certificates, is there an associated industry test for which you are preparing students or non-Chancellor-approved certificates? If you have any data on success rates or numbers for the industry certification/test or for non-Chancellor-approved certificates, please share. (Optional)
  We are not currently advising students to take an industry test, however, we would like to start offering the Solidworks User test for students who have completed ENGR 10, ENGR 11, and ENGR 22. This can also benefit students in Machine Tooling Technology.

- What barriers make it difficult for students to complete your program? Are there any barriers that could be disproportionately experienced by students from a particular demographic group (e.g., racial/ethnic, age, disability status, parents, etc.)
  There are many significant barriers to students completing the engineering program. Math requirements, scheduling, multiple transfer requirements, as well as the overall rigor of the program, to name a few. Many students experience disproportionate barriers based on race, gender, age, disability status, and home responsibilities, however, the main barriers are how well prepared students are before starting at Chabot and how much time they are willing to dedicate to their educational plan. Most engineering students will take at least 3 years to transfer assuming they are starting at MTH 37/Trigonometry. Students will need to take at least 12 units each semester and be willing to spend 40+ hours per week on their courses. Many students need to work and do not have the support for this type of dedication.

Staffing Analysis

In this section you will analyze trends in staffing, technology, and facilities.

Staffing	Current # (Fall 2021)	How has staffing for this group changed in the last 3 years (decrease, flat, increase)
Full-time Faculty	2	___ Decreased __x__ Stayed roughly the same ___ Increased
Part-time Faculty	3	___ Decreased ___ Stayed roughly the same __x__ Increased
Full-time Classified Professionals	0	___ Decreased __x__ Stayed roughly the same ___ Increased
Part-Time Permanent or Hourly Classified Professionals	0	___ Decreased __x__ Stayed roughly the same ___ Increased
Student Employees	4	___ Decreased ___ Stayed roughly the same __x__ Increased

Independent Contractors/Professional Experts	0	___ Decreased __x__ Stayed roughly the same ___ Increased

Academic Disciplines Only: Compare changes over the past three years in the FTES/enrollment in your area with changes in staffing in this same time period. What do you notice?
The Engineering FTES has increased year over year by 2 - 3% each year since 2018. Our part time pool has increased from 2 to 3 faculty members. We are also willing to grow to four faculty members. Although the percentage growth of our program is less than our part time faculty growth, full time engineering faculty are teaching mathematics and will start teaching environmental science courses. The need for part time faculty is also a result of the specialization of engineering courses that are offered at Chabot.

Compare the representation of DI populations in your program's/area's staffing (faculty, classified professionals, and administrators) to the representation of DI populations in the students you serve. What do you notice? If there is a gap in representation between students and the Chabot professionals who serve them, how has your program/area addressed that gap?
The female to male ratio of our student population is approximately 1:5, our full time faculty is 1:1 and our part time faculty is 2:1. Our Latinx student population is approximately 1:2, however, we do not have any Latinx faculty. Our program has addressed this gap by offering Latinx guest speakers, industry tours, and student panels.

Technology
- The **technology** in our program/area is sufficient to support student learning and/or carry out our program/area outcomes and goals.
  ___ Strongly disagree
  __x__ Somewhat disagree
  ___ Neither agree nor disagree
  ___ Somewhat agree
  ___ Strongly agree

If you strongly disagree or somewhat disagree, please explain. (optional)
Many of our courses require use of special software in order to maintain articulation. Specifically, MATLAB, Autodesk Inventor and Fusion360, SolidWorks, and MakerBot 3D Printing Software. There are different challenges for in-person and distance learning regarding this technology. For in-person learning, we require multiple licenses of each of these programs across multiple locations (room 1804, STEM Center, and faculty offices/laptops). Some of these programs are subscription-based, which requires seamless communication between Engineering, IT, and the software companies, which has not always been the case. Some of these programs require regular updates, however, without "administrator" access for faculty, we must alert IT in every instance for every location - a process that is not efficient for engineering faculty or IT staff. For online learning, many of our students have struggled to purchase the required software or are unable to download the software onto their current computing platforms. Additional laptops (not chromebooks) with the required software pre-installed need to be easily provided to all students in need to ensure they do not spend hundreds of dollars on software that Chabot is already paying for. Individual members of the IT staff have been incredibly helpful, however it is the institutional policy level that has been the major hindrance.

Facilities
- The **facilities** in our program/area are sufficient to support student learning and/or carry out our program/area outcomes and goals.
  __x__ Strongly disagree
  ___ Somewhat disagree
  ___ Neither agree nor disagree

___ Somewhat agree
___ Strongly agree

If you strongly disagree or somewhat disagree, please explain. (optional)
Our lab facilities are not sufficient to support student learning nor to carry out our program outcomes and goals. Our computer lab works well with the software we need, however, we cannot use any equipment or supplies needed for our classes. Our lab facility cannot support more than 20 students at a time and we do not have enough equipment to run labs for more than 10 students at a time. We constantly have to devise work-arounds with the time we have and lack of equipment to cover student learning goals. Many students are unable to work on all aspects of lab assignments because of this. Along with inadequate space, lack of equipment, and labs in several buildings for the same class period, we also face electrical, plumbing, and hood inadequacies for the equipment we do have. Often the power breaker will trip, will cause flooding, or we have been asked to not use equipment needed in our labs.

Professional Development

- In general, **Faculty members** in my program/area regularly participate in professional development activities offered **by/at Chabot.**
  ___ Strongly disagree
  ___ Somewhat disagree
  ___ Neither agree nor disagree
  ___ Somewhat agree
  __x__ Strongly agree

- In general, **Classified Professionals** in my program/area regularly participate in professional development activities **offered by/at Chabot.**
  ___ Strongly disagree
  ___ Somewhat disagree
  __x__ Neither agree nor disagree
  ___ Somewhat agree
  ___ Strongly agree

- In general, **Faculty members** in my program/area regularly participate in professional development activities offered **outside of Chabot.**
  ___ Strongly disagree
  ___ Somewhat disagree
  ___ Neither agree nor disagree
  ___ Somewhat agree
  __x__ Strongly agree

- In general, **Classified Professionals** in my program/area regularly participate in professional development activities offered **outside of Chabot.**
  ___ Strongly disagree
  ___ Somewhat disagree
  __x__ Neither agree nor disagree
  ___ Somewhat agree
  ___ Strongly agree

- How did these professional development experiences contribute to improving your program/area, equity, and/or student learning and achievement?
  Professional Development is necessary in the field of engineering in order stay current on engineering practice and the supporting science. The engineering faculty is encouraged to attend the Engineering Liaison Council (ELC) is a network of higher education engineering instructors across California that hosts bi-annual meetings. These meetings have been incredibly worthwhile by providing pedagogical support, curriculum development and transferability discussions, and opportunities for networking with other engineering professors. This can directly result in increased student learning as cutting-edge teaching techniques, lab activities, and course materials are often shared at the ELC meetings. Scientific and Engineering conferences (such as Women in Engineering and the American Geophysical Union Annual Meeting) have provided faculty with opportunities and techniques to promote and foster diversity within engineering while also learning about and contributing to the frontiers of scientific research. One full-time member of the faculty is currently participating in the Science, Engineering, and Math Equity Institute, which has facilitated a network and set of tools that can improve equity within the classroom.

Program Maps and Equity in Scheduling

The data in this section is intended to support the further development of Guided Pathways at Chabot. Respondents' answers will be given to the Guided Pathways Steering Committee for analysis.

- **Turning in Program Maps**: A first draft of your **Program Map** for each credit degree and certificate offered within your discipline was due in May. If you already submitted all Program Maps and have no required changes or new program modifications, then you're done for now! If you did not turn in all program maps *or* changes are required *or* you have new program modifications, then please submit these Program Maps by **October 11th, 2021**. You can submit your Program Map(s) by following these steps: 1) go to this template in Google Docs,* 2) click on "file," 3) choose "make a copy", 4) click on "share with the same people," 5) rename it for the degree/certificate that you are creating and 6) update the file to your program map. Then it will *automatically be stored* in the folder for submitting it to Guided Pathways.
  *There appears to be a current bug in Microsoft Products that does not allow links to google docs to automatically open (for some people). If you cannot open the link above, try manually copy pasting the address into a browser window. https://docs.google.com/document/d/1zU4G_Kps1CNYmR8ZOczX8RergfkJLPpU_XU3KfQC86s/edit

- Have you completed all program maps for your discipline?
  __x__ Yes (or we will do so by the deadline).
  ___ No, because one or more of our program(s) is/are being discontinued (please fill in name of program in space below).
  ___ No, because one or more of our program(s) cannot currently be completed because not all classes have been offered recently or will be offered in the next 3 years (please fill in name of program in space below).
  ___ No, for another reason… (please fill in the reason below).

If you checked off "No" above, please explain.

- Can a student who is working toward the degree(s)/certificate(s) in your area take all their required courses for this program: 1) during the day or 2) in the late afternoon/evening/weekend or 3) online? What changes would be needed to ensure access for students in all three scenarios?
  1. **Yes, however, there are two classes that have jeopardized students earning certificates, MTT 70 and ENGR 15. ENGR 15 has been cancelled until this semester due to low enrollment. MTT 70 is not offered regularly. We will need to have ENGR 15 offered every fall semester and MTT 70 should be offered in either fall or spring and during summer.**
  2. **No**
     To be able to fully complete this degree program in late afternoon/evening/weekend, we would need additional faculty in order to offer classes simultaneously. More critically, we would need the

classroom/lab space to offer classes on evenings/weekends. As is, engineering classes are scheduled M-F from 8am through 7pm in order to have the space available for our required computer and engineering labs, and to compress that into evenings/weekends would not be possible with the amount of computer space and lab space/equipment we currently have. It is possible that strategic scheduling (i.e. alternating offerings between morning and evenings by semester) would help, but this would require substantial scheduling on behalf of co-courses in math and physics.

3. **No-All classes and instructors must be approved through the COOL process.**

- How are you collaborating with other disciplines with whom you share students to ensure that your schedules are not conflicting, so that students with specific educational goals can take the courses they need to finish in a timely fashion? Please discuss the discipline(s) with whom you already collaborate, as well as any discipline(s) with whom you would like to start collaborating.
  We share scheduling drafts with math, chemistry, and physics, and have attempted to utilize program maps to understand which courses students may be taking at the same time. We also meet with discipline coordinators to ensure courses being offered do not conflict with one another.

- Are there any classes in your discipline that you do not offer every semester or every year that are required for any of your degrees or programs? In an ***ideal*** world, with perfect coordination and infrastructure, how would you want to communicate which **required courses** are **not** offered in all semesters to: 1) counselors, 2) other faculty, and 3) students? (If you offer all classes required for degrees/certificates in all semesters, then you can write NA.)
  1. Through email, meetings, or website updated each semester. 2. During subdiscipline meetings 3. Through website, counselors, and class schedule

Planning

Program/Area Goals: Please reflect on: 1) all the data you have reviewed, 2) the questions you have answered in this comprehensive PAR template, and 3) the various college planning documents (e.g., shorter term planning documents like the College's Planning Priorities (PRAC will post when complete), President's College Planning Initiatives, and Strategic Plan, all of which lead into the long-range planning document, the Educational Master Plan). Utilize your reflections, along with college planning documents, to develop 1-3 Goals to work on up through the next comprehensive-year PAR cycle. What are the anticipated *outputs** and *outcomes*** of your goals? How do your goals align with the Educational Master Plan (EMP)? Do your goals support the success of any DI Groups? Do your goals support any of the Student Centered Funding Formula (SCFF)*** metrics?
*outputs: direct short-term results like # of students served, workshops held, etc.
**outcomes: longer-term results like course success rates or degrees earned
***The Student Centered Funding Formula is the way all CA CC districts will be funded once the "hold harmless" period of funding expires.
Remember: Whereas **SAOs/PLOs** tend to be enduring and overarching aims for your service/program, the **goals** for a comprehensive PAR year are more specific, are expected to be completed over the PAR cycle, and are often part of a concrete action plan to reach your overarching and enduring SAOs/PLOs. For example, one of the Learning Connection's SAOs is: "Students from diverse backgrounds and with diverse learning needs will receive tutoring that improves their abilities to complete assignments, study, and/or succeed in their courses." This is an enduring aim that is unlikely to change from PAR cycle to PAR cycle. A PAR goal for the Learning Connection might be to refine the student diversity and antiracist tutoring practices training for incoming tutors. This goal is specific, expected to be completed over the PAR cycle, and supports their SAO (if incoming tutors are trained in antiracist tutoring practices, they will be well-equipped to support students with diverse learning needs).

Goal	Briefly describe the expected *outputs* (e.g., direct short-term results like # of students served, workshops held, etc) or *outcomes* (e.g., longer-term results like course success rates or degrees earned) for your goal.	EMP Alignment	Equity DI Group Alignment	SCFF Metric Alignment
1. Advertise and engage HUSD to promote engineering programs to high school students. Increase articulation agreements with PLTW program and summer bridge program	Increase student population, increase number of women entering engineering courses, increase African American students entering the program	___ Equity __x__ Access ___ Pedagogy and Praxis ___ Academic and Career Success __x__ Community and Partnerships	__x__ African American/Black ___ American Indian/Alaska Native ___ Latinx __x__ Pacific Islander/Hawaiian ___ Disabled ___ Foster Youth ___ LGBT __x__ DI Gender ___ Other _____	__x__ Enrollment/FTES ___ Transfer level English, math or ESL achievement ___ Degree or certificate completion ___ Transfer __x__ CTE Units ___ Attainment of a Living Wage ___Supplemental Metric (Financial aid or AB 540) ___Other_____
2. Coordinate and implement work based learning pathways to engineering companies	Increase the number of students earning Technical Design Certificate, Computational Design Certificate, and AS Engineering degree	___ Equity ___ Access ___ Pedagogy and Praxis __x__ Academic and Career Success __x__ Community and Partnerships	___ African American/Black ___ American Indian/Alaska Native ___ Latinx ___ Pacific Islander/Hawaiian ___ Disabled ___ Foster Youth ___ LGBT ___ DI Gender ___ Other	___ Enrollment/FTES ___ Transfer level English, math or ESL achievement __x__ Degree or certificate completion __x__ Transfer __x__ CTE Units __x__ Attainment of a Living Wage ___Supplemental Metric (Financial aid or AB 540) ___Other_____
3. Articulate Chabot Engineering courses with universities	Increase the number of engineering courses that transfer to UC's, CSU's, and other universities	__x__ Equity __x__ Access ___ Pedagogy and Praxis __x__ Academic and Career Success __x__ Community and Partnerships	___ African American/Black ___ American Indian/Alaska Native ___ Latinx ___ Pacific Islander/Hawaiian ___ Disabled ___ Foster Youth ___ LGBT ___ DI Gender ___ Other	_x___ Enrollment/FTES ___ Transfer level English, math or ESL achievement ___ Degree or certificate completion __x__ Transfer ___ CTE Units ___ Attainment of a Living Wage ___Supplemental Metric (Financial aid or AB 540) ___Other_____

Resource Requests

Contracts and Services Requests: Contracts and Services include things like equipment maintenance contracts, food vendors, external consultants or speakers. Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.
*Note: If your request is part of a larger project, please name the project and use the same project name for all requests related to the project so that committees can see the total cost of the project. We don't currently have a good system for different shared governance committees to come together and see the total cost of projects across resource requests that go to different committees. Adding this column to Program and Area Review is the ***start*** to figuring out a good process for this.

	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Vendor Name**	**Brief Job Description/Tasks**	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Length of Contract in Months** (1, 2, 10, 12, etc.)	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Item 1	1	**Individual Project**	_x_ New ___ Updated ___ Repeat	Keyence, Tinius Olsen, makerbot, instron,	Equipment training, maintenance, and calibration	This will be used to help engineering maintain its equipment and keep it operable by all instructors who teach the course. This will also ensure accurate measurements in laboratory activities	1	_x_ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$15,000

Equipment Requests

Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.
*Note: If your request is part of a larger project, please name the project and use the same project name for all requests related to the project so that committees can see the total cost of the project. We don't currently have a good system for different shared governance committees to come together and see the total cost of projects across resource requests that go to different committees. Adding this column to Program and Area Review is the ***start*** to figuring out a good process for this.

	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Vendor Name**	**Brief Item Description**	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Quantity** (1, 2, 10, 12, etc.)	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Item 1	2	Individual Request	___ New ___ Updated _x_ Repeat	Form Labs	3D printer	New 3D printers required to meet today's standards of additive manufacturing and required labs for articulation.	3	___ Annual _x_ 2022-23 ___ 2023-24 ___ 2024-25	$36,000
Item 2	3	Individual Requests	_x_ New ___ Updated __ Repeat	keyence	Measurement system	This piece of equipment will be used in multiple courses and is the industry standard in engineering graphic design	1	___ Annual _x_ 2022-23 ___ 2023-24 ___ 2024-25	$85000

Item 3	4	**Individual Request**	___ New __x__ Updated ___ Repeat	tinius olsen	tensile, compression, hardness, charpy testers, abrasive cutter	Need additional equipment to run labs in multiple courses	3	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$150,000
Item 4	5	**Individual Request**	__x__ New ___ Updated ___ Repeat	lowes	Woodworking equipment	This is needed in multiple courses for design	1	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$50,000
Item 5	6	**Individual Request**	__x__ New ___ Updated ___ Repeat	jameco	electrical equipment-oscilloscopes, power supplies, bread boards, function generators	This is needed in multiple electrical design courses	10	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$10,000
Item 6	1	**Individual Request**	__x__ New ___ Updated ___ Repeat	Dell, HP, etc.	Laptops	This is needed to hold engineering classes in the engineering lab, which has no student computers. Every engineering course requires the use of specialized software and need to be used in the lab with its equipment.	50	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$100,000

Facilities Requests
Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.

*Note: If your request is part of a larger project, please name the project and use the same project name for all requests related to the project so that committees can see the total cost of the project. We don't currently have a good system for different shared governance committees to come together and see the total cost of projects across resource requests that go to different committees. Adding this column to Program and Area Review is the start to figuring out a good process for this.

	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Brief Item Description**	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Item 1	1	**Individual Request**	___ New __x__ Updated ___ Repeat	3000 SQ FT of space. Two new computer labs and one equipment lab for engineering	Need adequate lab and computer space to conduct all engineering courses. This includes adequate power, plumbing, ventilation, etc.	___ Annual ___ 2022-23 ___ 2023-24 __x__ 2024-25	$10,000,000
Item 2	2	**Individual Request**	__x__ New ___ Updated ___ Repeat	Convert study space into engineering lab, B1800	Need additional lab and storage space near the computer lab used for in person courses. Upgrade Power for utilization of engineering equipment	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$20,000
Item 3	3	**Individual Request**	__x__ New ___ Updated ___ Repeat	Upgrade/remodel room 1612	Current space does not have adequate lab space for a full lab section, not enough equipment, stations. Need additional power upgrades to run equipment	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$100,000
Item 4	4	**Individual Request**	__x__ New ___ Updated ___ Repeat	Run lines to hook up 3D printers to student computers	To use equipment, lines connecting computers and 3D printers must be installed	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$100,000

Human Resource Requests (e.g., Faculty, Classified, Administrative, Student Workers, etc.)
Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.
*Note: In the project name column, if your request is part of a larger project, please name the project and use the same project name for all requests related to the project. We don't currently have a good system for different shared governance committees to come together and see the total cost of projects across resource requests that go to different committees. Adding this column to Program and Area Review is the ***start*** to figuring out a good process for this.

	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Classification**	**Position Title**	**Avg. hours per week** (5, 20, 40, etc.)	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Position 1	1	Individual Request	___ New ___ Updated _x_ Repeat	___ Admin FT _x_ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly ___ Other	Senior Laboratory Technician, Engineering *willing to combine physics lab tech position with engineering	40	We need an engineering lab tech to help support nine different and unique labs, each with specialized equipment, supplies, and needs. This position is needed for safety of students, operation of equipment, and supporting faculty	_x_ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$84,000
Position 2	2	Individual Request	___ New _x_ Updated ___ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT _x_ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly ___ Other _____	Physics Instructor	40	Need to hire new Physics instructor to support engineering students. All engineering students will need to take 3+ physics courses. Without a full time physics instructor, the engineering transfer time will increase significantly.	xAnnual ___ 2022-23 ___ 2023-24 ___ 2024-25	$150,000
Position 3	3	Individual Request	___ New _x_ Updated ___ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT _x_ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly	Mathematics Instructor	40	Need to hire new Mathematics instructor to support engineering students. All engineering students will need to take 5+ mathematics courses. Without a full time mathematics instructor, the engineering transfer	xAnnual ___ 2022-23 ___ 2023-24 ___ 2024-25	$150,000

				___ Other			time will increase significantly.		
Position 4	4	Individual Request	___ New _x_ Updated ___ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT _x_ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly ___ Other _____	Geology/ Environmental Science Instructor	40	A geology/environmental science instructor that can resurrect the geology program and help integrate a multidisciplinary campus-wide environmental science program is needed to maintain our relevancy as a forward-thinking climate-aware community college. Engineering students will also have to take introductory geology, and many engineering concepts can also be tied into environmental science curriculum.	xAnnual ___ 2022-23 ___ 2023-24 ___ 2024-25	$150,000
Position 5	6	Individual Request	___ New ___ Updated _x_ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign _x_ Student Hourly ___ Other	Engineering Student Assistants	40	Need help and support to maintain equipment, organize supplies, and help operate equipment/supplies in class/lab.	_x_ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$30,000
Position 6	5	Individual Request	___ New ___ Updated _x_ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT	**HSI STEM release time**	10	If selected, both engineering instructors will need release time to participate in the HSI STEM grant.	Annual _x_ 2022-23 _x_ 2023-24 _x_ 2024-25	$35,000

				___ Faculty PT ___ Faculty F-hour __x__ Faculty Reassign ___ Student Hourly ___ Other					
Position 7	7	Individual Request	___ New ___ Updated __x__ Repeat	___ Admin FT ___ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT ___ Faculty PT __x__ Faculty F-hour ___ Faculty Reassign ___ Student Hourly ___ Other	**Engineering Workshop leader**	40	Run additional workshops for students to help increase success rates, give students work based learning opportunities including working with NASA design project	**x**Annual __ 2022-23 __ 2023-24 __ 2024-25	$75,000
Position 8	8	Individual Request	__x__ New ___ Updated ___ Repeat	___ Admin FT __x__ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly	**IT**	40	Help maintain computers and set up engineering equipment	**x**Annual __ 2022-23 __ 2023-24 __ 2024-25	$150,000
Position 9	9	Individual Request	__x__ New ___ Updated ___ Repeat	___ Admin FT __x__ Classified FT ___ Classified Hourly ___ Classified PT ___ Faculty FT ___ Faculty PT ___ Faculty F-hour ___ Faculty Reassign ___ Student Hourly	**M&O-** Janitor	40	Help maintain cleanliness of buildings and classrooms.	**x**Annual __ 2022-23 __ 2023-24 __ 2024-25	$80,000

- The Faculty Prioritization Committee requires a completed **Faculty Prioritization Form** if you are requesting a full-time faculty position. There will be a spot on Qualtrics to upload this completed form. In the meantime, please just submit the completed form to your dean/manager when you turn in this template on **10/11/21**.

See Mathematics and Physics Program review

- The Classified Prioritization Committee requires a completed **Classified Professional Prioritization Form**. There will be a spot on Qualtrics to upload this completed form. In the meantime, please just submit the completed form to your dean/manager when you turn in this template on **10/11/21**. *willing to combine physics lab tech position with engineering

CHABOT COLLEGE

Classified Professionals Staffing Request Form

Office Use Only
Rec. Date: _____
Fiscal Year: _____
Program Review: _____

Please fill out one form for each classified professional position that you are requesting for your division/unit. This form is to be submitted as an appendix in your program review each fiscal year. Please note: positions vacated (e.g., through retirement or resignation) do not go through the annual Classified Prioritization Process. To refill these positions, please work with your area manager.

Division/Unit: Science & Mathematics/Engineering

Official Position Title Requested: Senior Laboratory Technician

For official position title, please visit: http://www.clpccd.org/HR/SEIU%20MOUs/ClassificationCompensationStudy_000.php.
If the position you are requesting does not appear on this list, please provide proposed position title and job description.

Has this position been requested, but not granted, in the past?: ☐ Yes ☐ No

Please indicate if this is a request for/to:

☑ New position 40 hours per week 12 months per year

Please attach proposed position title and job description if you are proposing a new position that does not appear on this list: http://www.clpccd.org/HR/SEIU%20MOUs/ClassificationCompensationStudy_000.php.

☐ Increase of an existing position
from: ☐ 9, ☐ 10, ☐ 11 month to: ☐ 10, ☐ 11, ☐ 12 month
from: _____ % to: _____ %

Estimate Increase / Proposed Annual Salary Cost:
(assume step 1 for vacant position) $ 84,000

Note: total cost of position will include salary + benefits.

Funding Source:
☑ **General** 100 %
☐ **Categorical** _____ %
☐ **Grant** _____ %
Grant name: _____

Justification:

Why is this position necessary?

Engineering currently offers nine very different and unique labs that involve specialized software, supplies, and equipment. In order to offer these labs, both full time engineering faculty must work an additional 20 hours per week or more in order to setup and put away labs, maintain equipment, organize supplies, clean lab, store hazardous waste, and serve as safety officers. Additional hours include setting up new equipment, ordering supplies, training part time faculty, and maintaining open lab hours for students. This position is necessary to keep students safe, ensure equipment and supplies are functional, and support faculty to create and offer excellent labs.

What educational programs or institutional purposes does this position support? How does the request relate specifically to your Program Review, college plans (Strategic Plan, Education Master Plan, Facilities Master Plan, Technology Plan), and/or Accreditation Recommendations?

This position supports Engineering courses and its students' success. This position will help increase the number of students entering the program, increase success rates, decrease time to transfer, increase number of certificates/AS degrees awarded, increase the number of transfers, and create a comprehensive educational experience that will helps students succeed in their future careers.

Where will the individual work? To whom will the person report? Are there any special equipment/facilities needs to be considered?

This individual will work in buildings 1800 and 1600. They will work with full time engineering faculty on how to use equipment, store supplies, and set up/create labs. They will report to the Dean of Science and Mathematics. They will need a dedicated office space

What is the consequence of not funding this position?

The consequences of not funding this position will be unsafe lab conditions, broken/unsusable equipment, less prepared students, inadequate supplies, unable to train new lab faculty, and loss of articulation with UCs/CSUs

What alternative approaches have been considered in meeting the programmatic demands of this request?

Engineering has received student assistants in place of a lab technician. Although students learn a lot from this position, it does not help engineering faculty or the engineering program. Students are typically not capable of helping until their last year before transferring. Then we train them and they transfer. Students assistants cannot help when instructors are lecturing or performing other work related activities not in the lab.

How will the campus community (students, classified professionals, faculty, and community) be positively impacted by filling this position?

The campus community will be positively impacted in the following ways: Students will be safer, have more lab accessibility, increased success rates, and will be more knowledgeable of equipment in their careers. Faculty will have more time to create better labs, spend time recruiting students into program, participating in college wide activities, and have additional support in the lab. Other lab techs in other areas will have more time to collaborate with engineering and support shared equipment and supplies. The community will benefit from a robust engineering program that will take local students and provide them with Silicon Valley jobs

What other personnel currently provide support to this program and these students?

Currently, there are two full time faculty and three part time faculty that support this program and its students.

Requested by: Dan Quigley ***Date:*** 10/19/21 ***Area Manager:*** _____ ***Date:*** _____

Area Manager Notes/Response:

Professional Development, Travel, and Conferences
Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.
*Note: In the project name column, if your request is part of a larger project, please name the project and use the same project name for all requests related to the project. We don't currently have a good system for different shared governance committees to come together and see the total cost of projects across resource requests that go to different committees. Adding this column to Program and Area Review is the ***start*** to figuring out a good process for this.

	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Brief Description** (1-2 sentences)	**What Type of PD Request?**	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Number of Attendees** (1, 5, 10, etc.)	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Request 1	1	Individual Request	x New ___ Updated ___ Repeat	Sabbatical request- Update and write new labs for engineering courses with current and new equipment.	___ In-person conference with travel ___ Online conference/webinar ___ On-Campus Training ___ On-Campus Speaker x Other Equipment and lab training _____	Engineering lab equipment has significantly increased during the past few years. Since there is no engineering lab assistant, there has been no time to set up and implement new labs with newly acquired equipment. Need an entire year off to set up, run, and write new labs for 12 engineering courses.	1	___ Annual x 2022-23 ___ 2023-24 ___ 2024-25	$100,000
Request 2	2	Individual Request	x New ___ Updated ___ Repeat	American Geophysical Union Annual Meeting	x In-person conference with travel	Faculty who are actively engaged in geophysical scientific and engineering research and can	1	x Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$500 (online) - $2,000 (in-person

					__x__ Online conference/webinar ___ On-Campus Training ___ On-Campus Speaker ___ Other _____	present/attend this conference that represents the state-of-the-science.			with travel)
Request 3	4	Individual Request	__x__ New ___ Updated ___ Repeat	Solidworks testing center certification. Obtain training to take and pass certification test needed to become a testing center for solidworks user certificate	___ In-person conference with travel __x__ Online conference/webinar __x__ On-Campus Training ___ On-Campus Speaker ___ Other _____	Emergent need to give students on campus user certification to meet industry standards, help students obtain employment, and attract additional students to obtain certificate	5	___ Annual __x__ 2022-23 __x__ 2023-24 __x__ 2024-25	$3500
Request 4	5	Individual Request	__x__ New ___ Updated ___ Repeat	MATLab training for engineering instructors	___ In-person conference with travel __x__ Online conference/webinar __x__ On-Campus Training ___ On-Campus	Stay up to date on technology needed in majority of engineering courses. This software is updated yearly, many times with significant changes.	5	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$3,000
Request 5	6	Individual Request	__x__ New ___ Updated ___ Repeat	Solidworks conference	__x__ In-person conference with travel ___ Online conference/webinar ___ On-Campus Training	Attend yearly conference to go over latest tools and methods in Solidworks	5	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$15,000

					___ On-Campus Speaker ___ Other _____				
Request 6	3	Individual Request	__x__ New ___ Updated ___ Repeat	ELC meetings	__x__ In-person conference with travel ___ Online conference/webinar ___ On-Campus Training ___ On-Campus Speaker ___ Other _____	Attend semesterly conferences to go over engineering updates at community colleges, CSU's and UC's.	5	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$10,000

Supplies Requests

Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.

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	Rank (1, 2, 3, etc. after all requests have been entered)	Project Name Use the same project name for all requests related to a large project or put 'individual request'	New, Updated, or Repeat Request	Brief Item Description (1-2 sentences)	Justification **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences).	Quantity (1, 2, 10, 12, etc.)	Year(s) Needed	Estimated Cost Per Year (Total $)
Item 1	1	Individual Request	___ New ___ Updated __x__ Repeat	Necessary Engineering Supplies to fund current courses	Engineering offers nine different labs, each with its own unique consumable supplies. Each lab offers hands-on labs where students build, design, manufacture, and test. Due to the nature of these labs, a large number of consumable supplies are necessary.	1	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$12,000
Item 2	2	Individual Request	__x__ New ___ Updated ___ Repeat	Robotics kits needed for ENGR 10, ENGR 11, and ENGR 43	These help implement student learning outcomes for the specific courses.	30	___ Annual __x__ 2022-23 ___ 2023-24 ___ 2024-25	$10,000

Technology Requests

Criterion for distributing funding vary by committee (check out the Resource Allocation Rubrics available on PAR's website), but are consistently based on the Educational Master Plan, the College's Planning Priorities, and the President's College Planning Initiatives.

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	Rank (1, 2, 3, etc. after all requests have been entered)	**Project Name** Use the same project name for all requests related to a large project or put 'individual request'	**New, Updated, or Repeat Request**	**Was the feasibility of the request discussed with IT?**	**Brief Item Description** (1-2 sentences)	**Justification** **BRIEFLY** justify how this spending relates to the EMP, College's Annual Planning Priorities and/or President's Planning Initiatives (2-3 sentences)**.**	**Quantity** (1, 2, 10, 12, etc)	**Year(s) Needed**	**Estimated Cost Per Year** (Total $)
Item 1	1	**Individual Request**	___ New __x__ Updated ___ Repeat	__x__ Yes ___ No	Solidwork licenses needed to run ENGR 10, ENGR 11, ENGR 22, ENGR 36, and ENGR 45	Need industry standard software for students to use. Students will be able to take the Solidworks User Certification test which is industry recognized.able to take the Solidworks User Certification test which is industry recognized.	100	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$2000
Item 2	1	Individual Request	___ New __x__ Updated	__x__ Yes ___ No	ENGR 25 teaches MATLab & Simulink software.	This software is purchased yearly and must be purchased in order to offer ENGR 25, ENGR 36, ENGR 43, and ENGR 45.	**100**	__x__ Annual ___ 2022-23 ___ 2023-24 ___ 2024-25	$6000