**Entry #:** 63 - Mathematics, Science and Engineering

Status: Submitted Submitted: 3/22/2024 12:13 PM

#### DRAFT

### OVERVIEW OF PROGRAM REVIEW AND PLANNING FOR INSTRUCTIONAL PROGRAMS

Program Review and Planning is about evaluating and assessing programs and documenting plans for improving student success rates. Through review of and reflection on key program elements, Program Review and Planning identifies program strengths and strategies necessary to improve the academic discipline, program, and/or services to support student success.

The College also uses Program Review and Planning as the conduit to request resources (human, technology, facilities and funding) to further help improve and support programs.

#### ALL PROGRAMS WILL COMPLETE AN ANNUAL PROGRAM REVIEW FOR 2023-2024.

### **BASIC PROGRAM INFORMATION**

**Division Name** Mathematics, Science and Engineering

Microsoft\_List\_ID

**Discipline Name** Engineering (ENGR)

Department Chair NameDepartmentHector Garcia Villahgarcia

Department Chair email hgarciavilla@palomar.edu

**Department Name** 

Physics/Engineering

**Please list the names and positions of everyone who helped to complete this document.** Hector Garcia Villa, Chair

Website address for your discipline https://www2.palomar.edu/pages/physics/

#### **Discipline Mission statement**

The Department has not developed an agreed on mission statement for this discipline. This will be a goal for the coming year after we have hired several new faculty. A suitable stand-in is presented here:

The mission of the Engineering Program at Palomar College is centered on harnessing the principles of science, mathematics, and empirical evidence to forge technologies that enhance our global society. We are committed to delivering an exemplary educational experience, characterized by a rigorous curriculum that cultivates analytical prowess, quantitative aptitude, and exceptional problem-solving skills. This preparation is designed to equip our students for successful careers across the diverse spectrum of engineering disciplines.

Our dedication extends to creating a dynamic and inclusive teaching and learning environment that welcomes students from varied backgrounds, with different experiences, needs, abilities, and aspirations. We are equally supportive of students aiming for transfer to four-year institutions as we are of those pursuing technical certifications, demonstrating our broad commitment to educational empowerment.

At the heart of our mission lies the commitment to providing thorough and challenging courses that not only meet high academic standards but also ignite creativity and passion for applied science and engineering. Our goal is to foster an environment where students can achieve excellence and find joy in innovation and engineering pursuits.

#### (Click here for information on how to create a mission statement.)

Does your discipline have at least one degree or certificate	Are any of your programs TOP coded as vocational (CTE/
associated with it?	CE)?
Yes	No

#### List all degrees and certificates offered within this discipline.

AS

#### BASIC PROGRAM NFORMATION: FACULTY AND STAFFING RESOURCES

In this section, you will identify how many faculty and staff support your discipline's programs. This information is considered when you request permanent staff and faculty hires. It is also useful as you evaluate your program and the human resources and talent you have to support our students.

To help you answer questions in this section, you will need the links shown in red.

#### Enter the number of permanent or full-time faculty support your discipline (program)?

1

For this past fall semester, what was your Full-time FTEF assigned to teach classes?	For this past fall semester, what was your Part-time FTEF assigned to teach classes? (Part-time FTEF = PT hourly and
0.2	overload.)
	0.47

# List the classified and other permanent staff positions that support this discipline. If possible, include number of months and percentage workload.

ADA: Julie Thurston-Donaghy. Once a week, remotely, shared with CSIT. About 2.5% workload for Engineering (about one hour a week), absolutely insufficient.

#### List additional hourly staff that support this discipline and/or department. Include weekly hours.

Randy Parker: 20 hours/week, shared with Physics. Victor del Rio: 20 hours/week, shared with Physics.

### **COURSE INFORMATION**

In this section, you will review how students perform in the courses you offer as part of your program. The Chancellor's Office Vision for Success goals focus on eliminating equity gaps and increasing timely completions. Examining, reflecting upon, and developing strategies to improve course success rates is one way to help the college meet its Vision for Success Goals and support our students in reaching theirs.

Data are provided to help you examine differences in course success rates (C or better) across student demographic categories (e.g., gender) and course type (e.g., face-to-face, online).

After you complete your review of course success data, you are asked to confirm that you have assessed each course SLO within the past three years.

#### Link: Course Data

#### **COURSE SUCCESS AND RETENTION**

#### Have your overall course success rates increased, decreased, or stayed the same over the last 5 years?

Stayed the same

#### Was this expected? Please explain.

Yes, since only minor changes were made to curriculum, staff and student population.

#### Have your overall course retention rates increased, decreased, or stayed the same over the last 5 years?

Stayed the same

#### Was this expected? Please explain.

Yes, since only minor changes were made to curriculum, staff and student population.

#### Are there differences in success or retention rates in the following groups? (choose all that apply)

Please share methods that your department is using to improve retention and success rates in your courses. If you are focusing on a specific group like online students or a demographic group please include that information in your answer.

We have comprehensive tutoring program, a STEM center, and facilitated study groups that encourage collaborative learning. Also, flexible scheduling to serve non-traditional student populations.

#### **COURSE STUDENT LEARNING OUTCOMES (SLOs)**

Excluding courses that haven't been offered in the last three years, do you confirm that all of your courses have been assessed since August 2020 (Result Summary Date)?

Yes

Upload a copy of your SLO report from Nuventive ("Report 0. Last Result Date and Action Date for All Active Course Outcomes")

ENGR\_0. Course SLO Report Last Result Date and Action Date for All Active Course Outcomes(1).xls 7 KB

 $\checkmark$ 

### **PROGRAM INFORMATION**

In this section, you are asked to consider and evaluate your programs, including the annual number of completions, and their program learning outcomes,

#### **PROGRAM COMPLETIONS**

Student success is at the core of what we do in assisting students in achieving their goals.

The Chancellor's Office Vision for Success stresses the importance of Program Completion as a major goal for our students. In addition, transfer and career readiness are key components of Palomar College's mission statement.

#### Link: Program Completions

Access the link above titled "Progam Completions" and copy and paste five years of completion data for each of your discipline's degrees and certificates.

21/22: 1 20/21: 3 19/20:5 18/19:7 17/18: 3

#### **PROGRAM LEARNING OUTCOMES**

Do you confirm that all of your programs have been assessed since August 2020 (Result Summary Date)?

Yes

XIS

Upload a copy of your SLO report from Nuventive ("Report 2. Last result, action, and follow-up date for each active program outcome").

ENGR 2. Last Result, Action, and Follow-up Date for Each Active Course Outcome.xls 6 KB

 $\checkmark$ 

#### **Program Review Reflection and Summary**

In this section you are asked to evaluate your programs by considering their program learning outcome assessments, the annual number of completions, and any other internal or external factors that had an impact on your program.

#### What factors have contributed to the success of your program(s)? Describe how they have contributed.

- Talented faculty. We hired a full-time engineering instructor, and this is helping our program, part-time faculty and students achieve better results and have a more cohesive curriculum when a full time faculty member is involved.

#### What factors have presented challenges for your program(s)? Describe the impact of these challenges.

- Decrepit facilities:Students are currently working in cramped quarters using old and often malfunctioning equipment, making it difficult to make accurate measurements. We have improved the equipment somewhat, but we need to improve the classroom in which they are working (Q-10).

- Lack of classified support for our department: we do not have an ISA or an ADA.

- not having a faculty member dedicated to electrical engineering, as we are attempting to partner with CSUSM and are a feeder school to their engineering program.

### CAREER AND LABOR MARKET DATA

The Chancellor's Office Vision for Success stresses the importance of increasing the percent of exiting students who report being employed in their field of study. It is important for us to consider how **all** of our programs connect to future careers.

Go to this website <u>https://www.onetonline.org/</u> and enter your discipline in the bubble on the top right for ideas about potential occupations. Click on an example to see more detail.

#### The following websites are for CTE related data:

- •Centers of Excellence (many other data resources besides supply and demand) Password: GetLMI
- •LaunchBoard
- •LaunchBoard Resource Library
- •Chancellor's Office Data Mart
- •Career Coach-San Diego Workforce Partnership
- •EDD Labor Market Info
- <u>Career One Stop</u>

# What kinds of careers are available for people who complete your programs (and/or transfer)? (Refer to O\*net Link below) Are there any new or emerging careers? If so, how would the new or emerging careers impact your future planning?

Most of our students seek to earn a BS in Engineering. This is the initial degree required for many different engineering careers, such as:

- Architectural Engineering
- Electrical and Electronic Engineering
- Mechanical Engineering
- Chemical Engineering
- Computer Engineering
- Industrial Engineering
- Environmental Engineering
- Civil Engineering
- Engineering Teachers, Postsecondary
- Automotive Engineering
- Bioengineers and Biomedical Engineers
- Nanotechnology Engineering
- Petroleum Engineers
- Aerospace Engineering
- Ship Engineers
- Sound Engineering
- Robotics Engineering
- Bio Medical Engineering

# What are the associated knowledge, skills, abilities (KSA's) needed for the occupations listed above? (click examples in the link above to get ideas)

#### KNOWLEDGE:

Engineering and Technology — Knowledge of the practical application of engineering science and technology. This

includes applying principles, techniques, procedures, and equipment to the design and production of various goods and

services.

Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their

applications. Design — Knowledge of design techniques, tools, and principles involved in production

of precision technical plans,

blueprints, drawings, and models.

Physics — Knowledge and prediction of physical principles, laws, their interrelationships, and

applications to understanding fluid, material, and atmospheric dynamics, and mechanical, electrical, atomic and sub- atomic structures and processes. Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming. SKILLS: Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. Reading Comprehension — Understanding written sentences and paragraphs in work related documents. Science — Using scientific rules and methods to solve problems. Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. Complex Problem Solving — Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions. ABILITIES: Written Comprehension — The ability to read and understand information and ideas presented in writing. Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense. Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events). Information Ordering — The ability to arrange things or actions in a certain order or pattern according to a specific rule

#### How does your program help students build these KSA's?

Our engineering program at the community college is meticulously designed to cultivate and enhance the Knowledge, Skills, and Abilities (KSAs) essential for success in the engineering field. Here's how our program addresses each area: Knowledge:

Engineering and Technology: We provide a foundational understanding of engineering principles and technology through practical application in coursework and lab experiences. Our curriculum covers the design and production processes of various goods and services, ensuring students can apply their learning in real-world contexts.

Mathematics: Our program emphasizes the importance of mathematics in engineering, offering comprehensive courses in arithmetic, algebra, geometry, calculus, and statistics to prepare students for their critical role in problem-solving and design. Design: Students learn design techniques, tools, and principles through hands-on projects and assignments that involve creating technical plans, blueprints, drawings, and models, preparing them for precision engineering tasks.

Physics: We delve into physical principles, laws, and their applications, enabling students to understand and predict the behavior of fluid, material, and atmospheric dynamics, as well as mechanical, electrical, atomic, and sub-atomic structures.

Computers and Electronics: Our curriculum includes in-depth studies of electronics, covering circuit boards, processors, electronic equipment, and software applications, to ensure students are proficient in modern engineering tools.

Skills:

Critical Thinking: We foster critical thinking through problem-based learning, challenging students to evaluate various solutions and approaches to engineering challenges.

Reading Comprehension: Our program includes a significant amount of technical reading and documentation, enhancing students' ability to understand complex written material related to their field.

Science: By integrating scientific rules and methods into our curriculum, students learn to apply these principles effectively to solve engineering problems.

Active Listening: Group projects and collaborative learning environments encourage active listening, ensuring students learn to value and incorporate diverse perspectives in their work.

Complex Problem Solving: Through coursework that involves real-world engineering problems, students develop the ability to identify, evaluate, and implement effective solutions.

Abilities:

Written Comprehension: Assignments, reports, and research projects are integral to our program, improving students' ability to understand and synthesize written information.

Deductive and Inductive Reasoning: Through case studies and analytical exercises, students enhance their reasoning skills, learning to apply general rules to specific problems and to form logical conclusions from disparate pieces of information. Information Ordering: Our curriculum emphasizes the importance of organization and structure, from coding projects to the design and execution of engineering plans, teaching students to arrange information and actions systematically.

The following four questions are for CTE programs only. If you are not a CTE program, please go back to the BASIC INFORMATION tab and select "no" for "Are any of your programs TOP coded as vocational (CTE/CE)?"

### **PROGRAM GOALS**

#### **Progress on Prior PRP Goals**

In the most recent PRP cycle, you identied a set of goals Provide an update to your most recent PRP goals.

Click here for previous PRPs with goal information.

#### **Prior PRP Goals**

#### **Prior Year PRP Goal 1**

**Brief Description** Hire a full time faculty member.

#### **Goal Status**

Ongoing

# Add any comments related to your work on prior goal (e.g., success, challenges, reasons for eliminating a goal). Describe Outcomes, if any.

We are limited by the FTEF that is allocated to our department. We have born the brunt of FTEF cuts which eliminates offerings of engineering prerequisite courses. We have worked with Fari and Tina Recalde to mitigate this problem and now have sufficient offerings to attract students to our Engineering program, and we are ready to hire a full time Electrical Engineering Faculty member.

#### Prior Year PRP Goal 2

#### **Brief Description**

Revise Curriculum.

#### **Goal Status**

Ongoing

Add any comments related to your work on prior goal (e.g., success, challenges, reasons for eliminating a goal). Describe Outcomes, if any.

We can complete this goal by allotting time and resources. We need time to develop new curriculum (classified support staff would help), and money to purchase new equipment to support the new curriculum.

Describe any changes to your goals or three-year plan as a result of this annual update.

#### Do you have any new goals you would like to add?

Yes

#### **Establishing New Goals and Strategies for the Next Three Years**

#### Goal 1

#### **Brief Description**

Hire a full time lab assistant (ISA IV or equivalent).

#### How will you complete this goal? Include Strategies and Timeline for Implementation.

Hopefully the administration will unfreeze the hire, as it has already been approved.

#### **Outcome(s) expected (qualitative/quantitative)**

Obtain the necessary support to run our labs. We have hourly employees that help, but this untenable in the long run (please refer to last year's PRP, as this was already explained).

Additionally, having clean, organized and well-maintained lab equipment makes the lab room environment healthier and safer for our students. There are electrical and mechanical instruments that can be hazardous if not maintained and stored properly.

# How does this goal align with your department mission statement, the college Vision Plan 2035, and /or Guided Pathways?

By having the proper lab support, we will be able to fulfill our mission of providing excellent Physics education to the next generation of our region's scientists and engineers, we will attract more students into our program, and it will improve our enhance student learning.

#### **Expected Goal Completion Date**

5/27/2024

### RESOURCES

Congratulations! You are nearing completion. In this section, you will consider the resources you need to implement your threeyear program review plan and/or address any findings from your assessment of your discipline.

The section is organized into the following five parts:

- PART 1: Staffing Needs (Faculty and Additional Staff)
- PART 2: Budget Review
- PART 3: Technology Needs
- PART 4: Facilities Needs

PART 5: One Time Request for Other Needs (NonTechnology Equipment, Supplies, Operating Expenses, Travel)

Reflect upon the three year plan you created above, your current operations, and any upcoming factors (retirements, changes in legislation, and changes in policies or procedures) that will impact your unit. How will you allocate resources to implement your plan? Describe additional resources needed to improve the effectiveness of your unit/program. All resource requests must be aligned with the College's <u>Vision Plan 2035</u>.

Summarize any reallocation/re-organization of resources you are making based upon your three-year plan, your current operations, and any other factors (e.g., legislation). Describe the impact of the reallocation of resources to your unit.

NOTE: All requests listed in the PRP will be reviewed by deans and supervisors, then forwarded to the appropriate review group for prioritization. A resource requests approved to move forward in the review process does NOT guarantee a position or funding.

#### **PART 1: STAFFING NEEDS**

Requests for faculty will follow the prioritization process currently in place in the Faculty Position Prioritization committee, which reports to the Education, Equity, and Student Success Council. Requests for new staff positions will be prioritized at the division level and reviewed at Exec.

#### Are you requesting additional full-time faculty?

Yes

#### **REQUEST FOR ADDITIONAL FULL-TIME FACULTY**

#### **Faculty Request 1**

Title of Full-Time Faculty position you are requesting

Full Time Electrical Engineering Faculty Position

# How will this faculty position help meet district (Guided Pathways, Strategic Plan, Strategic Enrollment Management etc.), department and/or discipline goals? Please be sure to tie this back to your PRP goals and three year plan.

Having a full time Electrical Engineering faculty member is essential to creating a proper pathway for students to transfer to CSUSMs recent Electrical Engineering major. As a feeder school it is incumbent upon us to develop the curriculum that aligns with CSUSM, SDSU and the UCs to ensure that when our students transfer the units they earned at Palomar College articulate to their new institution. We are currently at least two lower division courses short of what our students need, and we need a subject matter expert to develop the curriculum as well as lead our students forward in their course needs.

# Is there a scarcity of qualified Part-Time Faculty (for example: Specialized degree/experience, emerging/rapidly changing technology, high demand)?

Yes, it is very difficult to find part time engineering faculty. Most engineers are busy engineering things, and don't have time for things like curriculum development, grant writing, outreach, etc. All of which need to be done to alert the community of the excellent resource that our engineering program is.

# Are you requesting this position for accreditation, regulatory, legislative, health and safety requirements? Please explain.

No.

# Utilizing your PRP data, please summarize the discipline productivity, efficiency, and any regional career education needs for this discipline.

Engineering, particularly electrical engineering, is an area in high demand in industry. We need to foster and develop this program. We have an AA degree in engineering that allows students to get into the workforce quickly if they need to do so financially.

#### Is your department affected by faculty on reassigned time? If so, please discuss.

We are a small department, and one of our faculty members has been the SLO coordinator for the last 3 years. As we only have 4 full time faculty members, one is department chair (40%), one has SLO reassigned time (40%), and one is on preretirement (40%), we need another full time faculty member with expertise in Electrical Engineering to develop labs an curriculum.

#### Are you requesting AA, CAST for Classified Staff?

Yes

### **REQUEST FOR ADDITIONAL CLASSIFIED, CAST, AA**

#### Staff, CAST, AA request 1

This year, units are asked to identify new positions only as part of the PRP process. Vacant positions will be addressed outside of the PRP process.

If you are requesting STAFF, please fully complete this section. If not, you can skip to the next resource section. Click "+Add Staff, CAST, AA request" below for each additional request.

When considering the funds required for a position, consult the HR website for position salary schedule and the <u>Benefits</u> <u>Worksheet</u> for additional costs related to benefits for the position.

#### Title of new position

Hire a full time lab assistant (ISA IV or equivalent).

Is the position request for AA, CAST, or	
Classified staff?	

Is this request for a full-time or part-time position? Full Time

Classified

# How does the position fill a critical need for current, future, or critical operations?(e.g. accreditation, health and safety, regulatory, legal mandates, institutional priorities, program trend analyses of growth/stability.)

We need a full-time, dedicated ISA to serve as our lab technician. Currently, we offer many labs (all of our classes require lab sections), but we do not have an ISA assigned.

We have three labs rooms, and no one assigned to maintain them. Therefore, our full-time faculty is

spending lots of unpaid time to clean, resupply, purchase equipment and maintain the lab facilities.

This is untenable, as faculty are already feeling burned out having to spend all this time

in lab upkeep on top of their contractual obligations.

Additionally, having a clean, well-maintained lab equipment would make the lab room environment healthier and safer.

There are electrical and mechanical instruments that can be hazardous if not maintained and stored properly.

# Does the position assist in establishing more efficient District operations through either of the following: reorganization/restructuring OR use of technology?

No.

#### Is there funding that can help support the position outside of general funds?

No

#### Describe how this position helps implement or support your three-year PRP plan.

It would allow faculty to devote their time to create and update the lab curriculum, which is in dire need right now in the Physics department.

It would allow the full-time faculty in the department to have more time to coordinate courses and programs with our transfer partners.

Also crucially, the learning experience of our student would be far better, and safer.

#### **Educational Vision Plan 2035 Objective**

1:3	2:1	2:4	3:5
1:4	2:2	3:2	4:1
1:5	2:3	3:4	4:3

#### If the position is not moved forward for prioritization, how will you address this need?

We do not have a back up plan. Possibly internal discussion within the department, and request release time to take care of the lab rooms or cancel classes due to lack of lab equipment maintenance.

#### Staff, CAST, AA request 2

This year, units are asked to identify new positions only as part of the PRP process. Vacant positions will be addressed outside of the PRP process.

If you are requesting STAFF, please fully complete this section. If not, you can skip to the next resource section. Click "+Add Staff, CAST, AA request" below for each additional request.

When considering the funds required for a position, consult the HR website for position salary schedule and the <u>Benefits</u> <u>Worksheet</u> for additional costs related to benefits for the position.

#### **Title of new position**

ADA

4:4 4:5

4:6

4:7 5:1

5:2

5:3

5:4

5:5

#### Is the position request for AA, CAST, or **Classified staff?**

Is this request for a full-time or part-time position? **Full Time** 

Classified

How does the position fill a critical need for current, future, or critical operations?(e.g. accreditation, health and safety, regulatory, legal mandates, institutional priorities, program trend analyses of growth/stability.)

Listed from the ADA job summary:

"Performs a variety of complex and responsible administrative support functions for an assigned academic department or program requiring a detailed knowledge of District policies, practices and procedures; performs class scheduling, instructor load planning and related functions for each semester and instructional period, using District enterprise systems and specialized software; serves as a liaison between the department or program and faculty, students, other academic departments and the community."

Of course, the job description has more details in all the tasks the ADAs do for the department. Currently we do not have anyone doing this job (0 employees assigned by Palomar district to perform those duties). As a consequence, the Chair has had to take on additional responsibilities to make up for the lack of support. This goes against the Palomar-PFF contract, and the Chair has expressed their intention not to continue doing these tasks next academic year.

#### Does the position assist in establishing more efficient District operations through either of the following: reorganization/restructuring OR use of technology?

Yes.

#### Is there funding that can help support the position outside of general funds?

No

#### Describe how this position helps implement or support your three-year PRP plan.

In general, for all the planned PRP projects (and unplanned events), an ADA his a crucial element in the normal functioning of an academic department.

Educational Vision Plan 2035 Objective			
1:1	1:10	3:2	
1:2	2:1	3:3	
1:3	2:2	3:4	
1:4	2:3	3:5	
1:5	2:4	3:7	
1:6	2:5	3:8	
1:7	2:6	4:1	
1:8	2:7	4:2	
1:9	3:1	4:3	

#### 1.1/:-:--Ed

#### If the position is not moved forward for prioritization, how will you address this need?

We do not have a backup plan. As an academic department, we must have an ADA. This is in line with Palomar policies, Senate resolutions and PFF contract.

If this need is not met, the department will not be able to perform all the required duties: scheduling, budgeting, staffing, etc.

#### **PART 2: BUDGET REVIEW**

Request that your ADA provide you with your Available Budget Report and complete this section.

Review your recent Budget/Expenditure reports and consider your three-year PRP plan.

#### Do you have any ongoing needs or needs to augment your regular budget?

No

### PARTS 3, 4 and 5 – TECHNOLOGY, FACILITIES AND OTHER NEEDS

1.One-Time Fund Requests. Through the PRP process the college implements an approach for prioritizing ad allocating onetime needs/requests. Prioritization takes place through the appropriate groups, leadership, and the Budget Committee. The executive team and Resource Allocation Committee consider various sources for funding PRP requests. Resource requests also inform the larger planning process like Scheduled Maintenance Plans, Staffing Plans, and institutional strategic planning.

For more information about funding sources available, see <u>IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG</u> <u>WORKFORCE GUIDELINES</u> (on the left menu of the webpage).

If you are a CTE program and think you may qualify for CTE funds for your PRP request(s), you are STRONGLY encouraged to answer the call for Perkins/Strong Workforce grant applications in February. Contact the Dean of CTEE for additional information.

Consider submitting one-time requests only if you have verified that you cannot fund the request using your general discretionary funds or other funds.

1.Technology and Facilities Review. Requests for technology and facilities are assessed by the Deans and then, if appropriate forwarded to the proper institutional group (e.g., technology review committee, or facilities) for review and feedback.

#### PART 3: TECHNOLOGY NEEDS

Will you be requesting any technology (hardware/software) this upcoming year?

No

#### **PART 4: FACILITIES REQUESTS**

#### Do you have resource needs that require physical space or modification to physical space?

No

#### PART 5: OTHER ONE-TIME NEEDS

For more information about funding sources available, see <u>IELM BLOCK GRANT, LOTTERY, PERKINS AND STRONG WORKFORCE</u> <u>GUIDELINES.</u> Please check with your department chair on the availability for this cycle.

Do you have one-time requests for other items (e.g., Non-technology equipment, supplies, operating expenses, travel) that your budget or other funding sources will NOT cover?

Yes

#### Requests

Item 1

#### What are you requesting?

Electronics breadboards

#### Provide a detailed description of the the request. Inlude in your response:

#### a. Description of the need? (e.g., SLO/SAO Assessment, PRP data analysis)

Upgrade current boards and provide enough for each student to have an individual board. Students construct different circuits throughout the semester. Currently students have to share boards with other sections and can't not save their work. Having 45 boards will allow students to keep their work from week to week and prevent back tracking.

#### b. Who will be impacted by its implementation? (e.g., individual, groups, members of department)

Engineering students (ENGR 126 and 210).

#### c. What are the expected outcomes or impacts or implementation?

Greatly streamline the electronics labs. This will positively impact students success in these two classes.

#### d. Timeline of implementation

As soon as possible (ideally Fall '24).

## What is the anticipated cost for this request? If any, list ongoing costs for the request (additional equipment, support, maintenance, etc.).

One time purchase, \$2500.

#### Do you already have a budget for this request?

#### What PRP plan goal/objective does this request align with?

Ensure students successful acquuisition of electronic circuits prototyping/construction.

#### What Educational Vision Plan 2035 Goal: Objective does this request align with?

1:2 1:4 1:10

If you have multiple requests for facilities and had to prioritize, what number would you give this? (1 = Highest)

What impacts will this request have on the facilities/institution (e.g.,water/electrical/ADA compliance, changes to a facility)?

None.

#### Will you accept partial funding?

No

#### Budget Category

Supplies

#### Please upload a copy of the quote, if available.



DigiKey Breadboard Quote.pdf 0.3 MB

 $\downarrow$ 

#### Item 2

#### What are you requesting?

Material tester

#### Provide a detailed description of the the request. Inlude in your response:

#### a. Description of the need? (e.g., SLO/SAO Assessment, PRP data analysis)

Purchasing a materials tester for the engineering classes is a strategic investment that significantly enhances the educational experience by providing students with hands-on, practical experience, thereby bridging the gap between theoretical knowledge and real-world applications. This not only prepares students for professional careers by giving them a competitive edge in the job market but also supports faculty research and innovation, contributing to the institution's reputation in engineering. Additionally, it ensures compliance with accreditation requirements and is vital for long-term educational quality. Such an investment enhances student engagement and retention, making it a valuable addition to the engineering program, benefiting both students and the institution in the long run.

#### b. Who will be impacted by its implementation? (e.g., individual, groups, members of department)

Students and instructors in our Engineering classes.

#### c. What are the expected outcomes or impacts or implementation?

The acquisition of a materials tester for an engineering materials class significantly elevates pedagogical and academic outcomes by providing a direct, hands-on learning experience, crucial for understanding complex material behaviors and properties. This practical exposure not only solidifies theoretical knowledge but also fosters critical thinking and analytical skills among students. It enriches the curriculum, aligns with modern pedagogical standards, and prepares students more effectively for the demands of the engineering field, enhancing their employability and readiness for industry challenges.

#### d. Timeline of implementation

As soon as possible (ideally Fall '24).

# What is the anticipated cost for this request? If any, list ongoing costs for the request (additional equipment, support, maintenance, etc.).

One time cost of \$16805.

#### Do you already have a budget for this request?

No

#### What PRP plan goal/objective does this request align with?

What Educational Vision Plan 2035 Goal:Objective does this request align with?				
1:2	1:5	2:6	3:7	
1:3	1:7	3:1		
1:4	1:10	3:6		

If you have multiple requests for facilities and had to prioritize, what number would you give this? (1 = Highest)

1



I confirm that all full-time faculty in this discipline have reviewed the PRP. The form is complete and ready to be submitted.

Yes

#### Enter your email address to receive a copy of the PRP to keep for your records.

hgarciavilla@palomar.edu

### **Feedback and Review**

#### **Department Chair**

I confirm that the PRP is complete.

Yes

### Department Chair Name

Hector Garcia Villa

Date

4/2/2024