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| **Discipline: Engineering** | **Date 01/27/2015** |
| **Instructional Discipline Reviewed (Each discipline is required to complete a Program Review.)** | **Add Date   (00/00/0000)** |

**DEFINITION**

Program Review and Planning is the means by which faculty, staff, and/or administrators complete a self-evaluation of an academic discipline, program, or service.  The self-evaluation includes an analysis of both quantitative and qualitative data on how the academic discipline, program, or service is supporting the mission and strategic planning of Palomar College in meeting the educational and career interests of students.  Through the review of and reflection on key program elements, such as program data and student learning outcomes, Program Review and Planning defines the curriculum changes, staffing levels, activities, and/or strategies necessary to continue to improve the academic discipline, program, or service in support of student success.  The Program Review and Planning process also ensures short-term and long-term planning and identification of the resources necessary to implement identified goals and priorities.  (ACCJC Standard I.B3; AB-1725, 10+1)

**Purpose of Program Review and Planning:**

Program Review and Planning for Years 2 and 3 provides a “check-in” on the Year 1 Comprehensive PRP. The PRP documents the vision and planning for a program or discipline. It also provides information for the development of the College’s Strategic Plan goals and annual objectives, documents overarching themes/issues occurring across academic programs and instruction, identifies the needs for resource allocations, and identifies department needs for developing the annual Staffing Plan update.

[**Palomar College Mission**](http://www.palomar.edu/about/goals.aspx)

Our mission is to provide an engaging teaching and learning environment for students of diverse origins, experiences, needs, abilities, and goals. As a comprehensive community college, we support and encourage students who are pursuing transfer-readiness, general education, basic skills, career and technical training, aesthetic and cultural enrichment, and lifelong education. We are committed to helping our students achieve the learning outcomes necessary to contribute as individuals and global citizens living responsibly, effectively, and creatively in an interdependent and ever-changing world.

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| **List everyone who participated in completing this Program Review and Planning Document.**  **Takashi Nakajima**  **Art Gerwig** |

**STEP I. Evaluation of Program & SLOAC Data.** In this section, examine and analyze updated program data, the results of SLOACs, and other factors that could influence your program/discipline’s plans for the current year. Consider trends and any changes in the data as they relate to this year’s analysis.

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| 1. **Analysis of Program Data. Review and comment on any significant changes or noted concerns since last year’s PRP.**   **(For enrollment, WSCH, & FTEF data, use Fall term data only).**   * + Enrollment, Enrollment Load, WSCH, and FTEF (<http://www.palomar.edu/irp/PRP_WSCH_FTEF_Load.xlsx>) **(Use Fall term data only).**   + Course Success and Retention rates (<http://www.palomar.edu/irp/PRP_Success_Retention.xlsx>**). Note, this file is very large and there will be a delay both when you open the file and again when you initiate the first search.**   + Degrees and Certificates (<http://www.palomar.edu/irp/PRP_Degrees_Certs.xlsx>).   The enrollment in engineering has increased by 25% while success rates remain high despite Campus enrollments have decreased. The data shows that the department is moving in the right direction. As stated in the last year's PRP, a lot of effort has been put into giving students opportunities to participate in hands-on projects and we keep continuing to do so. The department also organizes get-togethers where students can congregate and interact in a relaxed environment. They have been very successful and this has proven to build exceptional learning communities and has increased student success. These events also strengthen the rapport between faculty and students. These events are also frequented by former students that are now attending several universities, thereby providing current students with clear educational pathways and motivation for success. Our dean has funded one of these events and we are grateful. We hope the dean will fund all the events we hold in the future. |

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| 1. **SLOACs. Using the comprehensive SLOAC reports and faculty discussions as a guide, summarize your planned SLOAC activities for courses and programs for the current academic year. Link to SLOAC resources:** <http://www2.palomar.edu/pages/sloresources/programreview/>   With the available funds we received, we purchased some new equipment. It is bing used in this academic year. The new SLOAC data will be taken by the end of spring 2015. Initial indications look very promising. |

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| 1. **Other Relevant Data and Information.** 2. **Review other data and/or information that you included in last year’s assessment of your program (see Step II.C). (Examples of other data and factors include, but are not limited to: external accreditation requirements, State and Federal legislation, four-year institution directions, technology, equipment, budget, professional development opportunities). Describe other data and/or information that you have considered as part of the assessment of your program. If there is additional information you are using to assess your program this year, also describe that information here.**   The course requirement for Physics and Engineering both in lower as well as upper division is very challenging. The necessary critical thinking skills that need to be developed in order to solve problems can only be accomplished by repeated exposure to modern equipment and technology equal to those used in industry.   1. **Given this updated information, how are your current and future students impacted by your program and planning activities? Note: Analysis of data is based on both quantitative (e.g., numbers, rates, estimates, results from classroom surveys) and qualitative (e.g., advisory group minutes, observations, changes in legislation, focus groups, expert opinion) information.**   In order to meet the demands of industry which is currently still facing a shortage of quality physicists and engineers, more students need to graduate within these disciplines. Curriculum and course offerings need to keep up with the industry requirements. This includes instruction using the tools and techniques used in industry. Ideally, this exposure starts at the high school level or even earlier, which clearly justifies the request for an Engineering Program Coordinator in order to build these pathways from early education through graduation. |

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| 1. **Labor Market Data. For Career/Technical disciplines only, review and comment on any significant changes or concerns since last year’s PRP. (See Step II.D). This data is be found on the CA Employment Development website at** [**http://www.labormarketinfo.edd.ca.gov/**](http://www.labormarketinfo.edd.ca.gov/)**. Go here and search on Labor Market Information for Educators and Trainers (http://www.labormarketinfo.edd.ca.gov/Content.asp?pageid=112). Click on summary data profile on right side of page to search by occupation. (Check other reliable industry or government sources on Labor Market Data websites that support findings and are relevant to Region Ten – San Diego/Imperial Counties. Include job projections and trends that may influence major curriculum revisions.)**   There is still shortage in the labor market and Engineering majors are in strong demand. |

**STEP II. Progress on Previous Year’s Goals and Plans** (See ”Step III - Updated Goals and Plans” in your completed 2013-14 PRP at <http://www.palomar.edu/irp/PRPCollection.htm>).

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| **Discuss/Summarize progress on last year’s goals. Include**   1. **the impact on resources allocated and utilized;** 2. **any new developments or concerns that are affecting the program;** 3. **any new goals for the program; and** 4. **other information you would like to share.**   Goal #1:New building for Physics & Engineering  Outcome: It has not been met.  Goal #2: Create Engineering Coordinator Position.  Outcome:It has not been met.  Goal #3: Update and modernize the lab equipment.  Outcome: With the funding supplied from last year's PRP, the engineering discipline was able to replace some of old/broken/out-of-date equipment. This helped students great deal to see/use/learn how modern equipment used in industry. We hope to keep updating our equipment for better student learning. In addition, new components/supplies have allowed students to explore more modern and advanced projects. |

**STEP III. Resources Requested for FY 2014-15:** Now that you have completed Steps I and II, Step III requires you to identify all additional resources you will need to achieve goals, plans and strategies for Step II. First, identify all resource needs in each budget category. You may have up to five (5) requests per budget category. Provide a meaningful rationale for each request and how it links to your Goals, Plans, and Strategies. Resource requests to simply replace budget cuts from previous years will not be considered. Negotiated items should not be included in any resources requested. PLEASE NOTE THAT ALL FUNDING ALLOCATED BY IPC IS ONE-TIME AND MUST BE SPENT WITHIN THE DEFINED TIMELINE. Requests that support more than one discipline should be included on the “Academic Department Resource Requests” PRP form only. [*Click here for examples of each budget category.*](http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf)

Prioritize within each category and then prioritize across categories in Step IV.

\*Refer to Strategic Plan 2016 Objectives at http://www.palomar.edu/strategicplanning/StrategicPlan2016-Year2.pdf

**Budget category a. Equipment (acct 600010 and per unit cost is >$500). Enter requests on lines below. Click here for examples of equipment:** [**http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf**](http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
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| **a1.** | **3D printer** | **600010** | **Goal #1** | **Goal #1** | **3d printers have become affordableand are used extensively in industry. We need to update our equipment for students success.** | **$7000** |
| **a2.** | **digital osciloscopes** | **600010** | **Industry standard issue** | **Goal #1** | **Required to update curriculum in Engineering 126 & 210** | **$800 X 20 = $16000** |
| **a3.** | **ESD mats**  **(ElectroStatic Discharge mats)** | **600010** | **This is a safety issue** | **Goal #1** | **These are important safety equipment to drain static electricity through top layer of the mat to protect both students and equipment.** | **$2400** |
| **a4.** |  |  |  |  |  |  |
| **a5.** |  |  |  |  |  |  |

**Budget category b. Technology (acct 600010, examples: computers, data projectors, document readers). Enter requests on lines below. Click here for examples of technology:** [**http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf**](http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
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| **b1.** |  |  |  |  |  |  |
| **b2.** |  |  |  |  |  |  |
| **b3.** |  |  |  |  |  |  |
| **b4.** |  |  |  |  |  |  |
| **b5.** |  |  |  |  |  |  |

**Budget category c. Supplies (acct 400010 and per unit cost is <$500). Enter requests on lines below. Click here for examples of supplies:** [**http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf**](http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **c1.** | **Electronics supplies for Engr. 126, 210. & 245** | **400010** | **Goal #1** | **Goal #1** | **Various electronic components, such as resistors, wires, capacitors, inductors, clippers, wire strippers, ESC storage contatiners, Tool boxes, etc.** | **Additional $4,000** |
| **c2.** |  |  |  |  |  |  |
| **c3.** |  |  |  |  |  |  |
| **c4.** |  |  |  |  |  |  |
| **c5.** |  |  |  |  |  |  |

**Budget category d. Operating Expenses (acct 500010; examples: printing, maintenance agreements, software license) Enter requests on lines below. Click here for examples of operating expense:** [**http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf**](http://www.palomar.edu/irp/2013CategoriesforPRPResourceRequests.pdf)

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already partially funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, etc.)** |
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| **d1.** |  |  |  |  |  |  |
| **d2.** |  |  |  |  |  |  |
| **d3.** |  |  |  |  |  |  |
| **d4.** |  |  |  |  |  |  |
| **d5.** |  |  |  |  |  |  |

**Budget category e. Travel Expenses for Faculty (acct 500010: faculty travel only)**

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits if applicable)** |
| --- | --- | --- | --- | --- | --- | --- |
| **e1.** |  |  |  |  |  |  |
| **e2.** |  |  |  |  |  |  |
| **e3.** |  |  |  |  |  |  |
| **e4.** |  |  |  |  |  |  |
| **e5.** |  |  |  |  |  |  |

**Budget category f. Short-term hourly (temporary and student worker). Enter requests on lines below.**

| **Priority Number for Resource Requests** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits if applicable)** |
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| **f1.** |  |  |  |  |  |  |
| **f2.** |  |  |  |  |  |  |
| **f3.** |  |  |  |  |  |  |
| **f4.** |  |  |  |  |  |  |
| **f5.** |  |  |  |  |  |  |

**STEP IV. Prioritize Resource Requests.** Now that you have completed Step III, prioritize all of your resource requests as one group; not prioritized within each budget category. This means you could have your #1 priority in technology, your #2 priority in short-term hourly, and your #3 priority in equipment, etc. If you actually have five (5) requests in each of the six (6) budget categories, you would end up with 30 prioritized requests**. IPC will not consider requests that are not prioritized.** Note that all funding allocated by IPC is one-time and must be spent within the defined timeline.

| **Priority Number for all Resource Requests in Step III** | **Resource Item Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide ~~a~~ detailed rationale for each item. Refer to your goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If item is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include tax, shipping, benefits, etc.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **1.** | **Electronics supplies for Engr. 126, 210 & 245** | **400010** | **Goal #1** | **Goal #1** | **Various electronic components, such as resistors, wires, capacitors, inductors, clippers, wire strippers, ESC storage contatiners, Tool boxes, etc.** | **Additional $4,000** |
| **2.** | **3D printer** | **600010** | **Goal #1** | **Goal #1** | **3d printers have become affordableand are used extensively in industry. We need to update our equipment for students success.** | **$7000** |
| **3.** | **digital osciloscopes** | **600010** | **Goal #1** | **Goal #1** | **Required to update curriculum in Engineering 126 & 210** | **$800 X 20 = $16000** |
| **4.** | **ESD mats**  **(ElectroStatic Discharge mats)** | **600010** | **This is a safety issue** | **Goal #1** | **These are important safety equipment to drain static electricity through top layer of the mat to protect both students and equipment.** | **$2400** |
| **5.** |  |  |  |  |  |  |
| **6.** |  |  |  |  |  |  |
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**STEP V. Contract Position Requests.** Prioritize all contract positions you feel are needed to achieve goals, plans and strategies identified in Step II. Include all requests for Classified, CAST, and Administrator positions that either replace a vacancy due to retirements, resignations, lateral transfers, etc., or any new positions. You may request up to ten (10) positions and they must be prioritized to be considered by IPC. Please note that only these position requests will be prioritized by IPC when developing the annual Staffing Plan for Instruction.   (Do not include faculty positions.)

| **Priority Number for Contract Position Requests** | **Position Title/Category**  **Requested** | **Fund Category** | **Discipline goal addressed by this resource** | [**Strategic Plan 2016 Objective Addressed by this Resource**](http://www.palomar.edu/strategicplanning/PALOMAR_STRATEGICPLAN2016.pdf)**\*** | **Provide a detailed rationale for the each position. The rationale should refer to your discipline’s goals, plans, analysis of data, SLOACs, and the Strategic Plan. (If position is already funded, name the source and describe why it is not sufficient for future funding.)** | **Amount of Funding Requested (include benefits)** |
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| **1.** | **Engineering Program Coordinator** | **212210** | **Goal #1** | **Goals #1 & #2** | **The enrollment in Engineering Program is increasing. We need a coordinator to manage/coordinate our curriculum including, but not limited to; creating new course offerings, contacting and communicating with local industries, 4-year universities, and local high schools. Currently, the full time instructor has no time since his teaching load is more than full.** |  |
| **2.** | **Full time Lab assistant** | **212210** | **Goal #1** | **Goal #1** | **An increase in time from our lab assistant would be very beneficial. (Currently shared with Earth Science/ Physics & Engineering) His current office in ES department is not beneficial and productive for our department.** |  |
| **3.** |  |  |  |  |  |  |
| **4.** |  |  |  |  |  |  |
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| **10.** |  |  |  |  |  |  |

**Department Chair/Designee Signature Date**

**Division Dean Signature Date**