**Palomar College – Program Review and Planning**

**Instructional Programs**

**YEAR 1**

**Academic Year** **2010-11**

**Purpose of Program Review and Planning:** The institution assesses progress toward achieving stated goals and makes decisions regarding the improvement of institutional effectiveness in an on-going and systematic cycle of evaluation, integrated planning, resource allocation, implementation, and re-evaluation. Evaluation is based on analyses of both quantitative and qualitative data (ACCJC/WASC, Standard I, B.3.)

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| **Discipline: Engineering** | **03/10/2011** |
| **Instructional Discipline Reviewed (Each discipline is required to complete a Program Review)** | **Please Add Date (00/00/2011)** |

**STEP I. ANALYSIS**

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|   |   |  |  |  | **<<Prelim>>** | ◄▬ Preliminary Fall 2010 data are as of 1/30/2011 |   |
|   |   | **Fall 2007** | **Fall 2008** | **Fall 2009** | **Fall 2010** | **Definitions** |
| **Enrollment at Census** | 63 | 97 | 102 | 99 | *Self Explanatory* |
| **Census Enrollment Load %** | 51.64% | 78.23% | 83.61% | 78.57% | Enrollment at Census Divided By Sum of Caps (aka "Seats") |
| **WSCH** | 133 | 231 | 240 | 232 | Weekly Student Contact Hours |
| **FTES** | 4.43 | 7.69 | 7.99 | 7.75 | One Full-Time Equivalent Student = 30 WSCH |
| **Total FTEF** | 0.67 | 0.73 | 0.67 | 0.67 | Total Full-Time Equivalent Faculty |
| **WSCH/FTEF** | 199 | 315 | 360 | 349 | WSCH Generated per Full-Time Equivalent Faculty Member |
| **Full-time FTEF** | 0.40 | 0.60 | 0.60 | 0.60 | FTEF from Contract Faculty |
| **Hourly FTEF** | 0.27 | 0.07 | - | - | FTEF from Hourly Faculty |
| **Overload FTEF** | - | 0.07 | 0.07 | 0.07 | FTEF from Contract Faculty Overload |
| **Part-Time FTEF** | 0.27 | 0.13 | 0.07 | 0.07 | Hourly FTEF + Overload FTEF |
| **Part-Time/(Total FTEF) %** | 40.00% | 18.18% | 10.00% | 10.00% | Percent of Total FTEF Taught By Part-Time Faculty |
| Student Achievement: **Non Distance Education Courses** |   |   | Those NOT taught via Distance Ed (see below) methods of instruction |
|  **● Retention Rate** | 100.00% | 98.59% | 100.00% | 97.22% | Non-W Eligible Grades (see next line) Divided by All Eligible Grades |
|  **● Success Rate** | 78.72% | 69.01% | 85.33% | 88.89% | A,B,C,CR/P Grades Divided By A,B,C,CR/P,D,F,FW,NC/NP,W Grades |
| Student Achievement: **Distance Education Courses** |   |   | Those taught via Internet, TV or non line-of-sight interactive methods |
|  **● Retention Rate** | - | - | - | - | Non-W Eligible Grades (see next line) Divided by All Eligible Grades |
|  **● Success Rate** | - | - | - | - | A,B,C,CR/P Grades Divided By A,B,C,CR/P,D,F,FW,NC/NP,W Grades |
| **Degrees Awarded** | 3 | 1 | 1 | N/A\* | Degree Counts Are for the Full Academic Year (thus, \*N/A for 2010-11) |
| **Certificates Awarded:** |  - |  - |  - | N/A\* | Certificate Counts Are for the Full Academic Year (\*N/A for 2010-11) |
| **- Under 18 Units** |  - |  - |  - | N/A\* | Certificate Counts Are for the Full Academic Year (\*N/A for 2010-11) |
| **- 18 or More Units** |  - |  - |  - | N/A\* | Certificate Counts Are for the Full Academic Year (\*N/A for 2010-11) |

| **I. A. Reflect upon and provide an analysis of the four years of data above (for a sample analysis see** <http://www.palomar.edu/irp/11PRYear1/sampleforIA.pdf>) |
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| **Analysis shows the enrollment has dramatically increased over the past four years. WSCH/FTEF also increased by 75% which clearly shows the growth of the Engineering department. Retention rate and success rates are very high. This is mainly due to the thoroughness of the Physics curriculum, which prepares the students for the Engineering courses. In addition, many of the students are involved in projects through the Engineering Club PEPSO. The camaraderie and cohesion within this cohort is unequaled and leads to great success.** |

| **I. B. Please summarize the findings of a Course or Program SLO assessment conducted by your discipline. (For examples, see** <http://www.palomar.edu/irp/11PRYear1/PRPsloExamples.pdf>) |
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| **N/A** |

| **I. C. Reflect upon the SLO assessment findings in Box B above. Discuss overall observations and any areas of concern or noteworthy trends.**  **(For examples of such analysis, see** <http://www.palomar.edu/irp/11PRYear1/PRPsloExamples.pdf>) |
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| **Although we aim to provide students with a challenging and rewarding experience here, but consistently we find that the astonishingly low budget available to us and the age and lack of available equipment makes this an uphill battle. The attendance of students in PEPSO and their eagerness to be involved in hands-on projects is evidence that more experiencial education is needed in the classroom. If these students are not able to put themselves into the world of an engineer during their education, then they will be less valuable to their future employers. The goal of education is to prepare students to be productive members of society and without practice this journey for them will be longer than it needs to be, and this comes at the cost of society at large.**  |

| **I. D. For Career Technical disciplines only, please provide a brief summary of the labor market outlook. This data can be found at** [**http://www.labormarketinfo.edd.ca.gov/**](http://www.labormarketinfo.edd.ca.gov/) **Please include job projections and trends that may influence major curriculum revisions.** |
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| **N/A** |

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| **STEP II. PLANNING****Reflecting on the 4-year trend data, the SLO assessment results, and the college’s** [**Strategic Plan 2013**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**, describe/discuss the discipline planning related to the following: (For sample reflections, see** <http://www.palomar.edu/irp/11PRYear1/samplesforII.pdf>) |

| **II. A. Curriculum, programs, certificates and degrees (consider changes due to Title 5 or other regulations, CSU/UC transfer language updates, articulation updates, student retention or success rates, workforce and labor market projections, certificate or degree completions, etc.)** |
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| **The Engineering discipline is in dire need of supplies, tools, and an adequate work space. Several projects are being developed by students from three institutions. (Palomar, CSUSM and Mira Costa) The main drive for these projects originates at Palomar making this the likely place to nurture and develop this hands-on approach. Even though CSUSM and Mira Costa don't offer an Engineering program, the Applied Physics Program at CSUSM is a suitable alternative for many of our students. This makes the relationship between Palomar and CSUSM for both physics and engineering programs extremely important. Cooperation between students is blossoming, creating and strengthening the pathway to CSUSM.**  |

| **II. B. Class scheduling (consider enrollment trends, growth, course rotation, sequencing, Center/Site offerings, comprehensiveness, etc.)** |
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| **Our class offerings right now are at a minimum. Our transfer and AA-degree required courses are offered only once a year, making class selections for students difficult. Part of the Engineering 100 course is to lay out an education plan for the students in order to avoid requiring a course for transfer during a semester when it is not offered. Considering the prerequisites for some of these courses (Completion of Calculus based Physics), enrollment for these courses remains depressed. An increase in success in Physics 230 will lead to higher enrollment numbers in Engineering.** |

| **II. C. Faculty (Briefly discuss the faculty hiring needs for this discipline. This discussion does not replace the requirement to submit a Rationale Form for Faculty Hiring to IPC.)** |
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| **Currently, the Engineering department doesn't require any new faculty. An increase in time from our lab assistant would be very beneficial. (Currently shared with Earth Science/ Physics & Engineering)** |

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| **STEP III. RESOURCE REQUESTS FOR DISCIPLINE:**  |
| **III. A. Describe the resources necessary to successfully implement the planning described above. Provide a detailed rationale for each request by referring to the analyses of data and SLO assessment results in Step I and/or to any other evidence not apparent in the data or SLO Assessment** results. NOTE: Do **NOT** include Resource Requests that duplicate requests from other disciplines In your department. Place requests common to two or more disciplines on the form: ACADEMIC DEPARTMENT RESOURCE REQUESTS. |

| **a. Equipment (per unit cost is >$500) *Enter requests on lines below.*** |
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| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **a1.**  | **•Physics Lab Bundle with the Xplorer GLX** **•2.2 m PAScar Expanded Dynamics System** **•Centripetal Force Pendulum** **•Rocket Engine Test Bracket** **•Stress/Strain Apparatus (PASPORT)** **•Replacement Test Coupons (Full Set)** **•Photogates and Fences -- DynamicsSystems** **•Photogate Tape Set** **•PASPORT Quad Temperature Sensor****•Stainless steel Temperature probe****•Bridge Set****•Load Cell Amplifier Set****•Advanced Bridge Set****•Large Structure Set****•Truss Set****•Truss Screws****•Connectors****SUBTOTAL****GRAND TOTAL (TAX, ETC)** | **1** | **SP 2 & 6** | **Modernizing equipment** | **• $21483****• $3003****• $875****• $78****• $2787****• $556****• $973****• $273****• $1308****• $528****• $396****• $3423****• $798****• $598****• $294****• $80****• $100****$37553****$45065** | **on-going (regular replacement required)** | **no** |
| **a2.**  | **•Ballistic Pendulum Accessory** **•Mini Ballistic Pendulum Accessory****•PASPORT Rotary Motion Sensor** **•Mini Rotational Accessory****TOTAL****GRAND TOTAL**  | **2** | **SP 2 & 6** |  | **• $623****• $623****• $1393****• $1113****• $3752****• $4510** | **on-going (regular replacement required)** | **no** |
| **a3.**  | **Air Compressor** | **3** | **PS 2 & 6** | **Q-10 room needs an Air Compressor** | **$900** | **One-time** | **no** |
| **a4.**  | **Fluke TiS Thermal Imaging Scanner** | **4** | **PS 2 & 6** | **Lab usage** | **$3000** | **One-time** | **no** |
| **a5.**  |  |  |  |  |  |  |  |

| **b. Technology (computers, data projectors, document readers, etc.) *Enter requests on lines below.*** |
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| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **b1.**  | **Desktop computers:****Lab room (Q-10)** | **1** | **SP 2 & 6** | **Computers in Q-10, where most of engineering classes are held, were removed without any consultation with us in the beginning of 2010. They have not been replaced since then.** | **7 compters X $1700/computer = $11900** | **on-going** | **IS** |
| **b2.**  |  |  |  |  |  |  |  |
| **b3.**  |  |  |  |  |  |  |  |
| **b4.**  |  |  |  |  |  |  |  |
| **b5.**  |  |  |  |  |  |  |  |

| **c. Budget for 4000s (per unit cost is <$500 supplies) *Enter requests on lines below.*** |
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| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **c1.**  | **•Coefficient of Restitution Demo****•Discover simple mechanics kits****•Mechanical engineering model (3 speed)****•Mechanical engineering model (cam)****•Mechanical engineering model(cone clutch)****•Mechanical engineering model(friction drive)****•Mechanical engineering model(worm gear)****•K'nex froces, energy & motion kit****•K'nex exploring machines kit****•K'next real bridge building kit****•Advanced Young's Modulus Apparatus****•Metric scale adhesive tape****•Micormeter screw attachment****•Four stroke diesel engine****•Gas turbine engine model****•Rotary Engine model****•Steam engine model****•Vacuum bagging supplies****•Air compressor****•Glue****•Soldering gun tips****•solder****•Electronics components****subtotal****total** | **Sets are grouped together. We can't determine priorities because they are all equally important** | **SP 2 & 6** | **Currently the budget is $200, but instructors are not able to purchase enough supplies to support students' learning/success. Those supplies are, but not limited to, wood, styro-foam, glue, hand and power tools, fiber glass, epoxy, vacuum bagging supplies and electronics components. In the past, instructors have been supplying from their own pocket. Also, the budget is usually used to cover printing cost. For those who distribute budget also should understand that Engineering education is very expensive. However, those students are going to be successful, productive, and large comtributers back to our society.** | **•116.4****•62.75****•210****•487.90****•1215.29****•20.29****•146.29****•610.15****400****400****50****480****200****1500****5868.97** **7043.00** | **on-going** | **no** |
| **c2.**  |  |  |  |  |  |  |  |
| **c3.**  |  |  |  |  |  |  |  |
| **c4** |  |  |  |  |  |  |  |
| **c5.**  |  |  |  |  |  |  |  |

|  **d. Budget for 5000s (printing, maintenance agreements, software license etc.) *Enter requests on lines below.*** |
| --- |
| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **d1.**  | **Budget increase for printing costs** | **1** | **SP 2 & 6** | **Each year we are deficit for incurred printing costs. This printing is used to conduct normal classroom quizzes, exams and activities** | **Additional $500** | **on-going** | **no** |
| **d2.**  |  |  |  |  |  |  |  |
| **d3.**  |  |  |  |  |  |  |  |
| **d4.**  |  |  |  |  |  |  |  |
| **d5.**  |  |  |  |  |  |  |  |

|  **e. Classified staff position (permanent/contract position requests unique to this discipline) *Enter requests on lines below.*** |
| --- |
| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **e1.**  | **Instructional Support Assistant III** | **1** | **SP 2,5, & 6** | **Currently we have a 50% share of this position with EarthSciences. We need a full time assistant to help labs, to develop labs, to maintain equipment, and to help our very active engineering students' projects.** |  | **on-going** | **no** |
| **e2.**  |  |  |  |  |  |  |  |
| **e3.**  |  |  |  |  |  |  |  |
| **e4.**  |  |  |  |  |  |  |  |
| **e5.**  |  |  |  |  |  |  |  |

| **f. Classified staff position (temporary and student workers position requests unique to this discipline) *Enter requests on lines below.*** |
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| **Resource**  | **Describe Resource Requested** | **Prioritize these requests****1,2,3, etc.** | **Strategic Plan 2013 Goal/****Objective Addressed by This Resource****(**[**Link**](http://www.palomar.edu/strategicplanning/STRATEGICPLAN2013.pdf)**)**  | **Provide a detailed rationale for the requested resource. The rationale should refer to your discipline’s plan, analysis of data, SLO assessments, and/or the College’s Strategic Plan** | **Estimated Amount of Funding Requested** | **Will this be one-time or on-going funding?** | **Is resource already funded (in part or in full)? If so, name source. Why is that source not sufficient for future funding?** |
| **f1.**  | **Student Workers** | **1** | **SP 2,5, & 6** | **Setup labs and activities for engineering classes. Students will bring demos to local schools - communtiy out reach**  | **$6400/year** | **on-going** | **no** |
| **f2.**  |  |  |  |  |  |  |  |
| **f3.**  |  |  |  |  |  |  |  |
| **f4.**  |  |  |  |  |  |  |  |
| **f5.**  |  |  |  |  |  |  |  |

| **III. B. Are there other resources (including data) that you need to complete your discipline review and planning?** |
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| **STEP IV. SHARE YOUR ACCOMPLISHMENTS (AKA Brag, Toot your horn) Please include at least one discipline accomplishment that you’d like to share with the college community.** |
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| **STEP V. ACCREDITATION For programs with an external accreditation, indicate the date of the last accreditation visit and discuss recommendations and progress made on the recommendations.** |
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| **STEP VI. COMMENTS Other comments, recommendations: (Please use this space for additional comments or recommendations that don’t fit in any category above.)** |
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| **Please identify faculty and staff who participated in the development of the plan for this department:** |
| **Takashi Nakajima*Name*** | **Art Gerwig*Name*** | ***Name*** |

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| --- | --- | --- |
| ***Name*** | ***Name*** | ***Name*** |

**Department Chair/Designee Signature Date**

**Division Dean Signature Date**

* **Provide a hard copy to the Division Dean no later than March 11**
* **Provide a hard copy with the Dean’s sign-off to Instructional Services by March 18**
* **Email an electronic copy to** **jdecker@palomar.edu** **by March 18**