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| **Discipline:**  | **Date:** **12/6/2015** |
| **Instructional Discipline Reviewed (Each discipline is required to complete a Program Review.)** |  |

**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.

**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** |

**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](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Productivity%20Metric%20Summary.aspx)
	+ [Course Success and Retention Rates](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Success%20and%20Retention.aspx)
	+ [Degrees and Certifications](https://sharepoint2.palomar.edu/sites/IRPA/SitePages/Degrees%20and%20Certifications.aspx)

There is not much difference for the last two years. The enrollment and success rates in physics remain the same despite that the overall Palomar enrollment decrease. Again, we believe this is due to our effort to strengthen bonds among instructors and students, and among students by opening a lab space while it is not in session, usually from 8 a.m. to 9 p.m. Monday through Friday. Instructors are also available during that time period so that students have opportunities to ask questions and get help. We also try to have get-together as many times as possible during a semester. On these occasions, current students are relaxed and can have more casual conversations with their professors and colleagues. Transferred students come back at these times, share their experiences, and advise current students. This helps students to go through our tough but worthwhile program, successfully transferring to 4-year universities and on the way to their professional careers. |

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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/>

To meet one of the SLO assessments for the Physics 230 series, we have been updating equipment (Atwood machines and air carts) and continue to introduce more labs which require computer acquisition system (Pasco GLX).  |

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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.**

We predicted that the number of students in physics and engineering would increase dramatically due to the current/future need of qualified engineers last year, but the prediction was incorrect. The total enrollment was the same for last two years. Considering the trend of enrollment decreasing, we think the result is acceptable. 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.**

Engineering majors are still very popular; thus, we will have to increase more offering in physics courses, which also requires more qualified full- and part-time physics instructors. However, we found there has been a shortage of physics instructors in Southern California including San Diego County. It is extremely difficult and challenging to find qualified physics part-time instructors.  |

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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.)**

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**STEP II. Progress on Previous Year’s Goals and Plans** (See ”Step III - Updated Goals and Plans” in your completed 2014-15 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: Increase the number of offerings in 230 (Physics & Engineering Majors) series and 200 (life science majors) series.Outcome: The Physics 200/201 Series has grown from 48 to 96 students per semester in Fall and from 48 to to 72 in the Spring. We are having difficulty finding adjunct teachers for this program and feel that the program can be dramatically expanded with the hire of another full-time faculty member.Goal #2: Continue to introduce/update more labs/equipment/demos which require computer acquisition system (Pasco GLX).Outcome: We made some progress, and we will keep working on it.Goal #3: Reclaim priority scheduling right of NS-259.Outcome: We ask the dean from time to time, but his reply is always, "I will look into it." We reminded him per his request to resolve this issue via email on 8/14/2015, but nothing has been done. Goal #4: We need lecture rooms to hold 48 students to parallel with the 24 student lab room.Outcome: It has not been met.We will keep these as our goals since none of those goals for the last two years has been met.New Goals:Goal #5(new): Restructure the 120/200/121/201 curriculum to maintain transferrability and compatablity with other programs.Goal #6 (new): Improve Physics 232 Lab curriculum by adding State Physics Labs.Goal #7: Keep SI/LA program.Rationale: Our SI/LA program has been very successful. It has been funded by STEM grant, but the fund is cut and the only fund we get is via Cal State San Marcos.Outcome: We continue to have a high success rate. |

**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 [*Budget Category*](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.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:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.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.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **a1.**  | **Load Cell and Amplifier Set for physics 230 lab** | **600010** | **Goal #2** | **Goal #1** | **We have only three sets of this apparatus. Currently, lab groups have to wait for their turns to do this part of lab** | **$3500** |
| **a2.**  | **Handheld Gaussmeter for Physics 231** | **600010** | **Goal #2** | **Goal #1** | **This is a new experiment for "Inductance." We need to measure accurate magnetic field strengths.** | **$3300** |
| **a3.**  | **Diffraction** **Apparatus** | **600010** | **Goal #1** | **Goal #1** | **Required to update curriculum in physics 121/201/232 labs** | **$600 X 7 = $4200** |
| **a4.**  | **Solid State Physics Lab Apparatus** | **600010** | **Goal #5** | **Goal #1** | **Update Physics 232 Lab Curriculum****Required to replace broken units in Physics 232** | **$1200X4 = $4800** |
| **a5.** | **HeNe Lasers** | **600010** | **Goal #5** | **Goal #1** | **Required to replace broken units in Physics 232** | **$1000X6 = $6000** |

**Budget category b. Technology (acct 600010, examples: computers, data projectors, document readers). Enter requests on lines below. Click here for examples of technology:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.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.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **b1.**  |  | **600010** |  |  |  |  |
| **b2.**  |  | **600010** |  |  |  |  |
| **b3.**  |  | **600010** |  |  |  |  |
| **b4.**  |  | **600010** |  |  |  |  |
| **b5.** |  | **600010** |  |  |  |  |

**Budget category c. Supplies (acct 400010 and per unit cost is <$500). Enter requests on lines below. Click here for examples of supplies:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.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.**  | **Canon VIXIA HF R600 High Definition Camcorder Deluxe Bundle**  | **400010** | **Goal #2** |  | **Replacement of lab equipment for Physics 230 lab # 8 & 11 (We are currently using web-cameras, but the quality of picture is very poor - the result we obtain from them is marginal to poor.)** | **$325 X 2 = $650** |
| **c2.**  | **Material to upgrade speed of light lab to 6 stations** | **400010** | **Goal #1** | **Goal #1** | **Required to upgrade Physics 121/201/232 labs so 6 groups can do simultaneously** | **$500 X 4 = $2000** |
| **c3.**  | **Hook Collar Support Clamps for Physics 230** | **400010** | **Goal #1** | **Goal #1** | **Replacement of lab equipment for Physics 230 lab** | **$200** |
| **c4.**  | **BANANA JACK s for Physics 231** | **400010** | **Goal #2** | **Goal #1** | **Replacement of lab equipment for Physics 231 lab** | **$200** |
| **c5.** |  | **400010** |  |  |  |  |

**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:** [**Budget Category**](http://www.palomar.edu/irp/Document%20Library/PRP%20Budget%20Category.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.)** |
| --- | --- | --- | --- | --- | --- | --- |
| **d1.**  | **Matlab program** | **500010** | **Goal #2** | **Goal #1** | **Other schools use it for numerical analysis.**  |  |
| **d2.**  | **Budget increase for printing costs** | **500010** |  |  | **The printing budget has not increased since I moved to this department 20 years ago, but copying cost keeps increasing. Each year we spend beyond our budget for incurred printing costs. This printing is used to conduct normal classroom quizzes, exams and activities.** | **Additonal $1500** |
| **d3.**  | **Budget increase for mailing costs** | **500010** |  |  | **The mailing budget has not increased since I moved to this department 20 years ago. The postage was 29 cents in 1994 and is 49 cents now. There is no way we can mail the same amount with 1994 budget.**  | **Additional $200** |
| **d4.**  |  | **500010** |  |  |  |  |
| **d5.** |  | **500010** |  |  |  |  |

**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.**  |  | **500010** |  |  |  |  |
| **e2.**  |  | **500010** |  |  |  |  |
| **e3.**  |  | **500010** |  |  |  |  |
| **e4.**  |  | **500010** |  |  |  |  |
| **e5.** |  | **500010** |  |  |  |  |

**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)** |
| --- | --- | --- | --- | --- | --- | --- |
| **f1.**  | **SI/LA** | **230010** | **Goal #2** | **Goal #1** | **As STEM fund runs out, we need another fund to keep our successful SI/LA programs to support Physics & Engineering students.** | **$2000/student/semester X 4 students/semester X 2 semesters = $16000** |
| **f2.**  |  | **230010** |  |  |  |  |
| **f3.**  |  | **230010** |  |  |  |  |
| **f4.**  |  | **230010** |  |  |  |  |
| **f5.** |  | **230010** |  |  |  |  |

 **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.**  | **Load Cell and Amplifier Set for physics 230 lab** | **600010** | **Goal #2** | **Goal #1** | **We have only three sets of this apparatus. Currently, lab groups have to wait for their turns to do this part of lab** | **$3500** |
| **2.**  | **Handheld Gaussmeter for Physics 231** | **600010** | **Goal #2** | **Goal #1** | **This is a new experiment for "Inductance". We need to measure accurate magnetic field strengths.** | **$3300** |
| **3.**  | **Diffraction** **Apparatus** | **600010** | **Goal #1** | **Goal #1** | **Required to update curriculum in physics 121/201/232 labs** | **$600 X 7 = $4200** |
| **4.**  | **Canon VIXIA HF R600 High Definition Camcorder Deluxe Bundle**  | **500010** | **Goal #2** | **Goal #1** | **Replacement of lab equipment for Physics 230 lab # 8 & 11 (We are currently using web-cameras, but the quality of picture is very poor - the result we obtain from them is marginal to poor.)** | **$325 X 2 = $650** |
| **5.** | **Solid State Physics Lab Apparatus** | **600010** | **Goal #5** | **Goal #1** | **Update Physics 232 Lab Curriculum****Required to replace broken units in Physics 232** | **$1200X4 = $4800** |
| **6.** | **HeNe Lasers** | **600010** | **Goal #5** | **Goal #1** | **Required to replace broken units in Physics 232** | **$1000X6 = $6000** |
| **7.** | **Material to upgrade speed of light lab to 6 stations** | **400010** | **Goal #1** | **Goal #1** | **Required to upgrade Physics 121/201/232 labs so 6 groups can do simultaneously** | **$500 X 4 = $2000** |
| **8.** | **Hook Collar Support Clamps for Physics 230** | **400010** | **Goal #2** | **Goal #1** | **Replacement of lab equipment for Physics 230 lab** | **$200** |
| **9.** | **BANANA JACK s for Physics 231** | **400010** | **Goal #2** | **Goal #1** | **Replacement of lab equipment for Physics 231 lab** | **$200** |
| **10.** | **Complete Speed of Light Apparatus for Physics 231** | **600010** | **Goal #2** | **Goal #1** | **As described in Step 1B, this is an effort to update/modernizing lab equipment. We do not have this apparatus, but being able to measure speed of light is a very important part of our curriculum in Physics 231.** | **$18900** |
| **11.** | **Matlab program** | **500010** | **Goal #2** | **Goal #1** | **Other schools use it for numerical analysis.**  |  |
| **12.** | **SI/LA** | **230010** | **Goal #7** | **Goal #1** | **As STEM fund runs out, we need another fund to keep our successful SI/LA programs to support Physics & Engineering students.** | **$2000/student/semester X 4 students/semester X 2 semesters = $16000** |
| **13.** | **Budget increase for mailing costs** | **500010** |  |  | **The mailing budget has not increased since I moved to this department 20 years ago. The postage was 29 cents in 1994 and is 49 cents now. There is no way we can mail the same amount with 1994 budget.**  | **Additional $200** |
| **14.** | **Budget increase for printing costs** | **500010** |  |  | **The printing budget has not increased since I moved to this department 20 years ago, but copying cost keeps increasing. Each year we spend beyond our budget for incurred printing costs. This printing is used to conduct normal classroom quizzes, exams and activities.** | **Additonal $1500** |
| **15.** |  |  |  |  |  |  |
| **16.** |  |  |  |  |  |  |
| **17.** |  |  |  |  |  |  |
| **18.** |  |  |  |  |  |  |
| **19.** |  |  |  |  |  |  |
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| **21.** |  |  |  |  |  |  |
| **22.** |  |  |  |  |  |  |
| **23.** |  |  |  |  |  |  |
| **24.** |  |  |  |  |  |  |
| **25.** |  |  |  |  |  |  |
| **26.** |  |  |  |  |  |  |
| **27.** |  |  |  |  |  |  |
| **28.** |  |  |  |  |  |  |
| **29.** |  |  |  |  |  |  |
| **30.** |  |  |  |  |  |  |

**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)** |
| --- | --- | --- | --- | --- | --- | --- |
| **1.**  |  |  |  |  |  |  |
| **2.**  |  |  |  |  |  |  |
| **3.**  |  |  |  |  |  |  |
| **4.**  |  |  |  |  |  |  |
| **5.** |  |  |  |  |  |  |
| **6.** |  |  |  |  |  |  |
| **7.** |  |  |  |  |  |  |
| **8.** |  |  |  |  |  |  |
| **9.** |  |  |  |  |  |  |
| **10.** |  |  |  |  |  |  |

 **Department Chair/Designee Signature Date**

 **Division Dean Signature Date**