Annual Program Review 2011-2012 – INSTRUCTIONAL

Division - Program

PHYSICAL SCIENCES- Physics

Authorization

After the document is complete, it must be reviewed and submitted to the Program Review Committee by the Division Chair.

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Division Chair: R Guglielmino
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Overview of the Program

All degrees and certificates are considered programs. In addition, divisions may further delineate and define programs based on their assessment needs (developmental sequences, career track, etc).

Statement of Purpose – briefly describe in 1-3 sentences.

The purpose of the physics program is to provide students with the opportunity and support to gain the knowledge and skills needed to pursue professional careers in science and engineering, and to provide general education courses for those seeking to get an AA degree.

Please list the **most significant achievement** accomplished since your last program review.

The most significant accomplishment since the last program review is the hiring of another fulltime instructor.

List the current major strengths of your program

1. Complete integration of computers into the Physics program
2. An outstanding Mac computer lab and a dedicated staff
3. Three semesters of carefully designed laboratory experiments

List the current weaknesses of your program

1. Aging computers
2. Limited fulltime technician hours
3. Limited number of courses and sections

1.0. Trend Analysis

For each program within the division, use the data provided to indicate trends (e.g., steady, increasing, decreasing, etc.) for each of the following measures.

Program	Academic Year	FTES Trend	FTEF Trend	WSCH / FTEF Trend	Full-Time % Trend	Fill Rate Trend	Success Rate Trend	Awards Trend
ASTRONOMY	2007-2008	74	4.0	586	40.0%	89.6%	60.7%	0
	2008-2009	63	3.2	630	50.0%	104.2%	64.8%	0
	2009-2010	65	3.2	651	37.5%	100.4%	64.7%	0
	2010-2011	52	3.8	439	57.9%	98.8%	63.4%	0
	% Change	-28.7%	-5.0%	-25.0%	+44.7%	+10.3%	+4.6%	--
	4-Yr. Trend	decreasing	stable	decreasing	increasing	increasing	stable	increasing
CHEMISTRY	2007-2008	472	28.2	534	49.3%	89.5%	68.9%	0
	2008-2009	477	24.9	609	57.4%	107.7%	67.6%	0
	2009-2010	531	26.1	647	51.9%	110.8%	68.5%	0
	2010-2011	453	28.0	515	49.3%	104.3%	67.2%	0
	% Change	-4.0%	-0.6%	-3.4%	-0.0%	+16.5%	-2.5%	--
	4-Yr. Trend	stable	stable	stable	stable	increasing	stable	increasing
GEOLOGY/ Oceanography	2007-2008	176	8.4	668	54.8%	85.8%	70.1%	0
	2008-2009	208	8.0	826	32.5%	102.4%	73.1%	0
	2009-2010	215	8.2	834	39.0%	103.5%	67.4%	0
	2010-2011	196	10.1	618	34.0%	110.5%	69.1%	0
	% Change	+11.4%	+20.2%	-7.4%	-37.9%	+28.9%	-1.4%	--
	4-Yr. Trend	increasing	increasing	stable	decreasing	increasing	stable	increasing
PHYSICAL SCIENCE	2007-2008	22	1.6	439	0.0%	100.0%	72.6%	0
	2008-2009	6	0.4	457	100.0%	104.2%	72.0%	0
	2009-2010	0	0.0	--	--	--	--	0
	2010-2011	0	0.0	--	--	--	--	0
	% Change	-100.0%	-100.0%	--	--	--	--	--
	4-Yr. Trend	decreasing	decreasing	increasing	increasing	increasing	increasing	increasing
PHYSICS	2007-2008	89	5.8	488	86.2%	70.7%	72.3%	0
	2008-2009	95	5.6	541	85.7%	78.4%	68.7%	2
	2009-2010	111	5.4	653	55.6%	92.2%	73.9%	0
	2010-2011	109	7.3	473	55.4%	93.1%	70.4%	1
	% Change	+22.4%	+26.4%	-3.2%	-35.7%	+31.6%	-2.6%	--
	4-Yr. Trend	increasing	increasing	stable	decreasing	increasing	stable	increasing
PHYSICAL SCIENCES DIVISION **TOTAL**	2007-2008	833	48.0	553	52.3%	86.2%	68.5%	0
	2008-2009	849	42.1	641	56.3%	101.3%	69.6%	2
	2009-2010	922	42.9	684	48.8%	104.3%	68.2%	0
	2010-2011	811	49.2	524	47.7%	103.7%	68.0%	1
	% Change	-2.7%	+2.6%	-5.2%	-8.7%	+20.3%	-0.8%	--
	4-Yr. Trend	stable	stable	stable	stable	increasing	stable	increasing

1.1. Describe how these trends have affected student achievement and student learning:

The physics department has the highest success in the division(70.4 %).This is significantly higher than most 4 year institutions. This is particularly significant in that the engineering courses are taught at a higher level than most 4 year institutions because of the extensive use of calculus. Students are thus very well prepared to transfer to 4 year institutions . Our fill rates are high and increasing.

1.2. Is there other relevant quantitative/qualitative information that affects the evaluation of your program?

The physics department provides many other services to students in addition to instruction. We have many SI workshops and a computer lab that is used by students to drop in, finish labs, do homework , and just hang out. Effectively , we have created a learning community environment. Additionally ,we have a strong relationship with JPL and coordinate an internship program with them(SIRI Program). We also have student internships with two local engineering firms.

2.0. Student Learning and Curriculum

Provide the following information on each department and program within the division.

List each Department within the Division as well each degree, certificate, or other program* within the Department	Active Courses with Identified SLOs n/n	%	Active Courses Assessed n/n	%	Course Sections Assessed n/n	%	If this area has program outcomes have they been assessed? Yes or No
PHYSICS	6	100%	1	16%	1	50%	-

2.1. Please comment on the percentages above.

All courses in physics have SLO's and 16 % have been assessed. Physics is in the process of dramatically improving that % and by the end of Spring 12 all courses will be assessed. The low % has been because the physics department for the last three years has had only 1 fulltime instructor to manage 6 courses and 5 labs.

2.2. a) Please provide a ***link**** to all program assessment timelines here. This link could be to your division /department website, eLumen, etc.
b) Briefly summarize any pedagogical or curricular elements of courses/programs that have been changed or will be changed as a result of developing assessment timelines and course/program alignment matrixes.
c) Based on the program assessment timelines you have developed and the evidence you have gathered, please comment briefly on how far along your division/program is in the assessment process.

2.2a.The link to our assessment timelines is
http://vision.glendale.edu/index.aspx?page=245
.
2.2b. Since only one course in Physics has been assessed, significant changes have not been made in courses. The physics department is behind in course assessment because it is a program with only one fulltime instructor that has 6 different courses and 5 different labs. However, the department is presently making a focused effort to improve this .

2.2c Because of our assessment timeline, **all of our courses should be assessed by the end of spring.**

2.3 a) Please provide a ***link*** to any program and/or relevant course assessment reports. Does the evidence from assessment reports show that students are achieving the desired learning outcomes?
b) Please briefly summarize any pedagogical or curricular elements of courses and/or programs that have been changed or will be changed as a result of the assessments conducted.

2.3aThe link to our assessment reports is
http://vision.glendale.edu/index.aspx?page=245
The only physics course assessed Physics 110 shows that 78% of our students were achieving the desired goal.

2.3b. As a result of the Physics 110 assessment, our energy lectures and internet investigations are being updated.

2.4 Please list all courses which have been reviewed in the last academic year.
Note: Curriculum Review is required by the Chancellors Office every 6 years.

No physics courses have been formally reviewed but informally we are continually updating our lectures and improving our labs.

2.5 Please list all degree/certificate programs within the division that were reviewed in the last academic year.

The only degree./certificate program in the division is the Physical sciences AA . The PSLO for that has just been updated but the program has not been reviewed.

2.6 For each program that was reviewed, please list any changes that were made.

N/A

3.0. Reflection and Action Plans

3.1 What recent activities, dialogues, discussions, etc. have occurred to promote student learning or improved program/division processes?

a. The departments fulltime teachers, adjuncts, and staff now meet regularly to work out problems and discuss pedagogy to promote student learning.
b. The division meetings now include a significant time block to discuss teaching and learning issues.
c. The division is planning a retreat devoted to improving our curriculum.
d. A new fulltime person has been hired and is evaluating the methodology in **all** of our courses.

3.2 Using the weaknesses, trends and assessment outcomes listed on the previous pages as a basis for your comments, please briefly describe your plans and/or modifications for program/division improvements

Plans or Modifications	Anticipated Improvements
Update computers	Experimental data taking , graphing, and analyzing will be more reliable with fewer system crashes. More up to date software will be added.
Hire a second fulltime technician Add additional courses or sections	Labs will be more efficient with fewer equipment breakdowns and less student frustration with malfunctioning equipment that has not been properly maintained Courses will be less crowded and a more diverse set of curriculum will be developed

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2011 PROGRAM REVIEW

Section 4
Resource Request

Physical Sciences: Physics *5 Mini Macs for Lab*	**I: PS.Phy-1**

Type of Request:
___ Facilities/Maintenance ___ Classroom Upgrades ___ New space
___ Instructional Equip. ___ Non-Instructional Equip ___ Conference/Travel ___ Training
__X_ Computer/Hdware ___ Software/Licenses ___ Supplies ___ Other

Mandatory: Is this request for one-time funding? _X__ OR Does this request require ongoing funding?___

If this is a repeat request, please list the Resource ID code or year requested: _____

Mark if the following apply to this request: ___ Health & Safety Issue ___ Legal Mandate
___ Accreditation Requirement ___ Contractual Requirement

4.1. Clearly describe the resource request.

5 desktop Mac Mini computers for Physics Mac lab at $850 each = Total Amt. Req. $4250

4.2. Justification and Rationale: What planning goal, core competency or course/program SLO does this request address? Use data from your report to support your request.

Eleven of 18 computers in the Physics Mac lab are **5 years or older.** We want to start replacing them. **They are dying and breaking down regula**rly.The PLO"S for the Physical Science AA and the course SLO'S for Phy 101,102 and 103 all involve the use of computers .
See http://vision.glendale.edu/index.aspx?page=245. Additionally , our program review action item in 3.2 sets this as a major goal. Our program review weakness item on the first page lists this as a major weakness in our program, Core competency 7a and 7b involve computer and technical skills.

4.3. What measurable outcome will result from filling this resource request?

Students will be better able to do sophisticated experiments and analysis without the computer systems crashing. They will be better able to meet SLO's 1 and 2 for Physics 101,102, and 103 and program SLO's 2 and 3for the Physical Science AA program. We expect our overall success rate to improve because we believe that the comprehensive way we use computers in lab and homework and throughout the course is a major reason our success rate is the highest in the physical sciences.

APPROVALS

AGENCY	***DECISION***							
The Program Review Committee has reviewed the data, outcomes and plans in the report and finds this request to be:	Well supported							
	Adequately supported							**X**
	Not supported							
	Reason:	Sect.1: Data		Sect.2: SLOs		Sect.3: Plans		Other:
Standing Committee Review of Resource Request **Committee:**				Prioritization Score				

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Section 4: CHAC REQUEST

PHYSICAL SCIENCES-Physics *Assist. Lab Technician*	I: PS.Phy-2

If this is a repeat request, please list the year(s) requested: _____

4.1. Describe the position including the complete description used to advertise for the position. Also include the division/department/program or service and full-time percentage for the position.

Assistant lab technician Physics/ Geology - 35 hour position(25 hours in Physics , 10 hours in Geology) 35/40 =87 %

Description of position- Assists in performing a variety of duties related to computerized instructional support including the ability to use general and discipline specific software applications as well as the setup and maintenance of equipment used for instruction in all physics and geology labs.
Note this is a replacement position for Marcus Duran(100 %) who resigned two years ago and was partially replaced by a temporary part time hourly person.(Barbara Falkowski)

4.2 Criteria:

a) Are there state or federal mandates particular to this program/service?
If so, please describe.

Cal/Osha dictates many safety rules that require the employment of a **trained experience**d individual. The physics department does a number of experiments where safety is a serious issue- particularly those involving Electricity and high voltage experiments. To be safe and meet Osha's standards we need a trained experienced technician. If our present part time person leaves it will take at least 3 years to train a new person. During that time safety may be compromised.

b) How does this position support the objectives and functions of the college in regards to the Mission Statement, EMP goals, annual college goals and/or student need?

The mission statement ,the colleges goals and the states educational goals include providing support to students planning to transfer to a 4 year institution. The physics department is a dynamic engine that produces large numbers of transfer students. Almost all of the students who go through the Physics sequence of Physics 101.102. and 103 transfer to the UC's and Cal States.
To keep this transfer engine running efficiently we need the technical support that this position will create.
Students need to be up to date with the latest technology in order to achieve their goals in Science and Engineering.) The physics department has a lot of computer technology, electromagnetic instrumentation, and optical instruments like spectrometers and interferometers which require constant technician attention. Hiring a permanent technician will make it more likely we will be able to continue to meet their goals.

c) Please provide quantitative data to support your request (such as program review, research office reports, surveys, etc.)

Two of our 3 learning objectives in PHYSICS 101.102. and 103 are related to computer usage in The Physics Mac lab and this technician oversees and maintains that computer system. Note that the physics program review document states that a weakness of our program is inadequate permanent technician staffing and that one of our action items is to hire a second permanent technician.

d) Is this request related to compliance with a collective bargaining agreement? If so, please explain.

Our physics technicians work from 8am to 8 pm and the CSEA contract will not allow one technician to do that.

e) Are there industry standards that directly relate to this position? If so, please explain.

No

4.3 Additional Information

a) What implications does the addition of this position have on: budget, staffing, facilities and equipment?

This position will result in a savings to the college since we will be replacing a 100 % position that was filled by a person with many years of experience with a 35 hour(87 %) position likely to be filled by a person with less experience. Two fulltime persons are an absolute necessity given the size and number of classes offered in the physics and geology departments.

This hiring will likely result in equipment that is better maintained (particularly the computers in the Physics Mac lab) and result in fewer frustrating computer crashes and equipment malfunctions during labs. Note physics is very difficult for the average student to learn normally and extremely difficult when equipment is breaking down, No new facilities or equipment will be required because of the addition of a permanent second technician.

b) Discuss any benefits your program may have lost from not receiving this requested position.

If we do not get this position, the temporary hourly technician we have now will likely leave for a fulltime job elsewhere . Since it takes at least 3 years to train a new technician , this would be a serious setback for the physics department and the physical sciences division

c) Are there any special concerns that are not addressed in this request? If so, please explain.

If we don't get a second fulltime technician the technical support that the physics department provides for the rest of the physical science division will cause problems in Chemistry and Geology. The physics techs provide technical support for the computers used in Chemistry and Geology and other parts of the campus for MAC's. Presently, the physics department is straining to provide adequate technical support for its labs, and the students are sometimes suffering the consequences of equipment that is poorly maintained. The physics department presently has one fulltime

technician and one part time temporary technician .The physics department has multiple labs going on simultaneously (usually two and sometimes three). It is imperative that we have two fulltime technicians to cover these simultaneous multiple labs .

Geology presently has **no t**echnicians for its two lab courses which typically has 6 lab sections. And so the new physics technician would help out during off hours in Geology and Oceanography.

d. Describe how this position enhances student success and/or program outcomes.

The physics department has the highest success rate in the Physical Science division. We believe this to be because computers are completely integrated into all aspects of our program- lecture, lab, simulations and homework. The lab equipment and the computers need to be working properly in order for this to happen. Sufficient technician hours are required to do this.

Note that in the SLO's for Physics 101 ,102. and 103, computer usage is required. Additionally ,the Program SLO for the division also involves computer skills . Hiring another technician to keep our labs and computers running smoothly is necessary in order to achieve these outcomes.

The physics department currently does a number of state of the art computer interfaced labs in which students learn to program computers and sensors to work together to record, monitor and analyze data. These experiments while pedagogically outstanding require a lot of technical skills to maintain and operate. We need really good (not temporary) technicians to make them work.

4.4 Please attach data from Human Resources on new classified hires in your program during the past five years, including the full-time percentage of each new hire.

See HR email below:

From: "Nicole Hise" <nhise@glendale.edu>
Date: October 4, 2011 10:50:51 AM PDT
To: "'Rick Guglielmino'" <richardg@glendale.edu>
Subject: New Hires (Classified)

Hi Rick:

I was able to pull a Discoverer report for the last 5 years beginning 7/1/2006. It appears that you have only hired 3 new classified employees in the last 5 years in the Physical Science Division.

1.	*Yelena Zakaryan*	*Sr. Instruct Lab Tech-Chemistry*	*9/5/06*
2.	*Anahit Tosunyan*	*Science Lab Tech-Chemistry*	*11/19/07*
3.	*Melina Allahverdi*	*Admin Asst (rehired off rehire list)*	*2/4/08*

Markus Duran (formerly Smalling) was hired in 2002. All other hires were temporary hourlies such as Falkowski.

I hope this info help. Note no new classified hires have been done in Physics since 2002.(Marcus Smalling-Duran) and he resigned in 2009.

Nicole Hise, Human Resources Generalist
Glendale Community College
(818)240-1000 ext.3135

APPROVALS

AGENCY	***DECISION***								
The Program Review Committee has reviewed the data, outcomes and plans in the report and finds this request to be: **NA**	Well supported								
	Adequately supported								
	Not supported								
	Reason:	Sect.1: Data		Sect.2: SLOs		Sect.3: Plans		Other:	
Standing Committee Review of Resource Request **Committee: Academic Affairs**						Prioritization Score			

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