

Physics Program Review 2012-2013

1. Program/Department Description

1A. Description

The strong emphasis in physics on fundamental concepts and problem solving makes it one of the most versatile majors available. The Physics major provides the basis for careers in applied physics and in interdisciplinary areas such as astronomy, biophysics, environmental science, oceanography, and scientific instrumentation.

Degrees/Certificates

Program's courses are designed to articulate to UC and CSU for transfer students. No degrees or certificates are awarded.

1B. 2012-2013 Estimated Costs (Certificate of Achievement ONLY) - Not Applicable

Required for Gainful Employment regulations.

	Cost		Cost		Cost		Cost
Enrollment Fees		Enrollment Fees					
Books/Supplies		Books/Supplies					
Total		Total		Total		Total	

1C. Criteria Used for Admission

Open admission with no pre-requisites.

1D. College Vision

Ventura College will be a model community college known for enhancing the lives and economic futures of its students and the community.

1E. College Mission

Ventura College, one of the oldest comprehensive community colleges in California, provides a positive and accessible learning environment that is responsive to the needs of a highly diverse student body through a varied selection of disciplines, learning approaches and teaching methods including traditional classroom instruction, distance education, experiential learning, and co-curricular activities. It offers courses in basic skills; programs for students seeking an associate degree, certificate or license for job placement and advancement; curricula for students planning to transfer; and training programs to meet worker and employee needs. It is a leader in providing instruction and support for students with disabilities. With its commitment to workforce development in support of the State and region's economic viability, Ventura

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College takes pride in creating transfer, career technical and continuing education opportunities that promote success, develop students to their full potential, create lifelong learners, enhance personal growth and life enrichment and foster positive values for successful living and membership in a multicultural society. The College is committed to continual assessment of learning outcomes in order to maintain high quality courses and programs. Originally landscaped to be an arboretum, the College has a beautiful, park-like campus that serves as a vital community resource.

1F. College Core Commitments

Ventura College is dedicated to following a set of enduring Core Commitments that shall guide it through changing times and give rise to its Vision, Mission and Goals.

- Student Success
- Respect
- Integrity
- Quality
- Collegiality
- Access
- Innovation
- Diversity
- Service
- Collaboration
- Sustainability
- Continuous Improvement

1G. Program/Department Significant Events (Strengths and Successes)

The program continues to provide a stable gateway and pathway for students entering engineering and life science to receive uninterrupted, sequential, fully transferable algebra and calculus-based physics courses to UC and CSU schools. Physics V02A/V03A is taught online and is designed for non-engineering majors. It has attracted students from outside Ventura County because of its distance ed online learning modality. The physics program surpassed the district student success and retention goals in FY12 by efficient scheduling, an excellent, stable core of instructors, and personal attention to students.

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K. Organizational Structure

President: Robin Calote

Executive Vice President: Ramiro Sanchez

Dean: Currently being Staffed

Department Chair: Dr. Steve Quon

Instructors and Staff

Name	Quon, Steve W.
Classification	Professor
Year Hired	1991
Years of Work-Related Experience	17
Degrees/Credentials	B.S., M.A., Ph.D.

Name	Colin Terry
Classification	Professor (Part-Time)
Year Hired	1987
Years of Work-Related Experience	
Degrees/Credentials	M.S., PhD (Physics)

Name	William Barber
Classification	Instructor (Part-Time)
Year Hired	2008
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S., PhD (Physics)

Name	Dale Synnes
Classification	Instructor (Part-Time)
Year Hired	2009
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S. (Physics)

Name	Orlando Warren
Classification	Instructor (Part-Time)
Year Hired	2011
Years of Work-Related Experience	
Degrees/Credentials	B.S., M.S. (Physics)

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2. Performance Expectations

2A. Student Learning Outcomes

2A1. **2012-2013** - Institutional Student Learning Outcomes

1. Communication - written, oral and visual
2. Reasoning - scientific and quantitative
3. Critical thinking and problem solving
4. Information literacy
5. Personal/community awareness and academic/career responsibilities

2A2. **2012-2013** - Program Level Student Learning Outcomes

For programs/departments offering degrees and/or certificates

1. N.A.
- 2.

2A3. **2012-2013** - Course Level Student Learning Outcomes

Attached to program review (See appendices).

2B. **2012-2013** Student SUCCESS Outcomes

1. The program will increase its retention rate from the average of the **program's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
2. The program will increase its retention rate from the average of the **college's** prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
3. The program will increase the student success rates from the average of the **program's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of c or better.
4. The program will increase the student success rates from the average of the **college's** prior three-year success rates. The student success rate is the percentage of students who receive a grade of C or better.

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2C. 2012-2013 Program OPERATING Outcomes

1. The program will maintain WSCH/FTEF above the 525 goal set by the district.
2. Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment. Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5,000 will be budgeted if funds are available.

2D. Mapping of Student Learning Outcomes - Refer to TracDat

3. Operating Information

3A. Productivity Terminology Table

Sections	A credit or non-credit class. Does not include not-for-credit classes (community education).
Census	Number of students enrolled at census (typically the 4 th week of class for fall and spring).
FTES	Full Time Equivalent Students A student in the classroom 15 hours/week for 35 weeks (or two semesters) = 525 student contact hours. 525 student contact hours = 1 FTES. Example: 400 student contact hours = $400/525 = 0.762$ FTES. The State apportionment process and District allocation model both use FTES as the primary funding criterion.
FTEF	Full Time Equivalent Faculty A faculty member teaching 15 units for two semesters (30 units for the year) = 1 FTE. Example: a 6 unit assignment = $6/30 = 0.20$ FTEF (annual). The college also computes semester FTEF by changing the denominator to 15 units. However, in the program review data, all FTE is annual. FTEF includes both Full-Time Faculty and Part-Time Faculty. FTEF in this program review includes faculty assigned to teach extra large sections (XL Faculty). This deviates from the prior practice of not including these assignments as part of FTEF. However, it is necessary to account for these assignments to properly represent faculty productivity and associated costs.
Cross Listed FTEF	FTEF is assigned to all faculty teaching cross-listed sections. The FTEF assignment is proportional to the number of students enrolled at census. This deviates from the practice of assigning load only to the primary section. It is necessary to account for these cross-listed assignments to properly represent faculty productivity and associated costs.
XL FTE	Extra Large FTE: This is the calculated assignment for faculty assigned to extra large sections (greater than 60 census enrollments).The current practice is not to assign FTE. Example: if census>60, 50% of the section FTE assignment for each additional group of 25 (additional tiers).
WSCH	Weekly Student Contact Hours

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	The term "WSCH" is used as a total for weekly student contact hours AND as the ratio of the total WSCH divided by assigned FTEF. Example: 20 sections of 40 students at census enrolled for 3 hours per week taught by 4.00 FTEF faculty. $(20 \times 40 \times 3) = 2,400$ WSCH / 4.00 FTEF = 600 WSCH/FTEF.
WSCH to FTES	Using the example above: $2,400$ WSCH x 35 weeks = 84,000 student contact hours = $84,000 / 525 = 160$ FTES (see FTES definition). Simplified Formulas: $FTES = WSCH/15$ or $WSCH = FTES \times 15$
District Goal	Program WSCH ratio goal. WSCH/FTEF The District goal was set in 2006 to recognize the differences in program productivity.

3B: Student Success Terminology

Census	Number of students enrolled at Census (typically the 4 th week of class for fall and spring). Census enrollment is used to compute WSCH and FTES for funding purposes.
Retain	Students completing the class with any grade other than W or DR divided by Census Example: 40 students enrolled, 5 students dropped prior to census, 35 students were enrolled at census, 25 students completed the class with a grade other than W or DR: Retention Rate = $25/35 = 71\%$
Success	Students completing the class with grades A, B, C, CR or P divided by Census Excludes students with grades D, F, or NC.

Program specific data was provided in Section 3 for all programs last year. This year, please refer to the data sources available

at http://www.venturacollege.edu/faculty_staff/academic_resources/program_review.shtml

In addition, the 2011-2012 program review documents will provide examples of last year's data and interpretations.

3C: **2012 - 2013** Please provide program interpretation for the following:

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3C1: Interpretation of the Program Budget Information

Total Expenses by Fund, Org, Category for: 111-30182 - Physics		FY09	FY10	FY11	FY12	Bud FY13
1	FT Faculty	170,291	176,203	177,027	201,898	156,595
2	PT Faculty	80,535	93,094	85,884	87,623	85,626
4	Student Hourly	0	0	457	0	0
7	Supplies	246	498	269	455	0
8	Services	100	100	0	0	0
9	Equipment	240	0	209	0	0
Activity for 30182 - Physics		251,412	269,895	263,847	289,976	242,221

Total Expenses by Fund, Org, Account for: 111-30182 - Physics		FY09	FY10	FY11	FY12	Bud FY13
111 30182 1110 190100	Faculty - Full Time Instructional	123,143	123,690	123,690	114,933	89,895
111 30182 1170 601000	Faculty - ReAssigned Time - Instruc	0	0	0	19,977	9,988
111 30182 1311 190100	Faculty Summer Instructional Hourly	8,242	15,616	9,365	9,365	9,365
111 30182 1321 190100	Faculty Fall Instructional Hourly	28,963	31,191	30,156	36,574	36,574
111 30182 1323 190200	Faculty Fall Extr Pay Stip Hourly	5,331	5,499	5,499	0	0
111 30182 1331 190100	Faculty Spring Instructional Hourly	30,704	31,103	31,244	35,669	35,500
111 30182 1333 190200	Faculty Spring Extr Pay Stipd Hour	2,383	3,920	4,909	0	0
111 30182 1340 190200	Faculty Facilitr/Coord/Hrly Stipend	500	500	0	500	1,000

Budget for the Physics Department remained stable in FY 12 relative to FY11. No additional sections were added and no capital equipment purchases were made. So any accounting differences were due to changes in benefits.

3C2: Interpretation of the Program Inventory Information

Pg 345 inventory list:

The current Subtotal Inventory for physics, General as currently posted in the Banner Financial System is \$13,986. This inventory list is not complete and will require review by each program. Based on this review an updated inventory list will be maintained by the college.

As a general remark, capital equipment in physics has a use life of several years. Therefore, we expect that when a full inventory list is established for the Department, that the list will be stably maintained.

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3C3: Interpretation of the Program Productivity Information

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Program Review Productivity and WSCH Ratios Report

PHYS						
PHYS Productivity Measures	FY09	FY10	FY11	3 Yr Avg	FY12	Change
Sections,	29	32	30	30	29	-4%
Census,	586	638	624	616	635	3%
FTES,	82	90	88	87	90	3%
FT Faculty,	1.43	1.52	1.52	1.49	1.51	2%
PT Faculty,	1.17	1.07	1.00	1.08	1.00	-7%
XL Faculty,	0.00	0.00	0.00	0.00	0.00	0%
Total Faculty,	2.59	2.59	2.52	2.57	2.51	-2%

1. There were no significant changes in the overall Physics Productivity Measure for FY12 compared to the 3 preceding year average beyond what could be expected from variances in fiscal accounting.
2. There are no XL classes for physics.

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3C4: Interpretation of the Program Course Productivity Information

The screenshot shows a PDF document with two tables. The first table is titled 'District WSCH Ratio: WSCH / (FTFTE + PTFTE)' and the second is 'College WSCH Ratio: WSCH / (FT FTE+PT FTE+XL FTE)'. Both tables list physics courses with columns for Title, FY09, FY10, FY11, 3 Yr Avg, FY12, % Change, Dist Goal, and % Goal. A red box highlights the '% Goal' column in the first table, and a red arrow points from this box to the text below.

District WSCH Ratio: WSCH / (FTFTE + PTFTE)									
Course	Title	FY09	FY10	FY11	3 Yr Avg	FY12	% Change	Dist Goal	% Goal
PHYSV01	Elementary Physics,	551	696	651	630	667	6%	450	148%
PHYSV02A	General Physics I,	555	795	735	690	690	0%	450	153%
PHYSV02AL	General Physics I Laboratory,	370	362	512	405	501	24%	450	111%
PHYSV02B	General Physics II,	390	435	420	414	375	-9%	450	83%
PHYSV02BL	General Physics II Laboratory,	270	280	267	272	267	-2%	450	59%
PHYSV03A	Gen Physics I: Calculus-Based,	555	795	735	699	690	-1%	450	153%
PHYSV03AL	Gen Physics I Lab: Calculus,	370	347	512	402	502	25%	450	111%
PHYSV03B	Gen Physics II: Calculus-Based,	390	435	420	416	375	-10%	450	83%
PHYSV03BL	Gen Physics II Lab: Calc-Based,	270	280	272	274	236	-14%	450	53%
PHYSV04	Mechanics,	585	585	593	588	563	-4%	450	125%
PHYSV04L	Mechanics Laboratory,	720	680	750	717	730	2%	450	162%
PHYSV05	Electricity & Magnetism,	458	388	465	437	488	12%	450	108%
PHYSV05L	Electricity & Magnetism Lab,	600	510	590	567	650	15%	450	144%
PHYSV06	Optics, Heat & Modern Physics,	240	315	248	268	300	12%	450	67%
PHYSV06L	Optics, Heat & Modern Physics Lab,	320	420	320	353	394	12%	450	88%
PHYSV90	Directed Studies in Physics,	0	0	0	0	0	0%	450	0%
Annual WSCH Ratio for PHYS		477	524	526	509	536			

College WSCH Ratio: WSCH / (FT FTE+PT FTE+XL FTE)									
Course	Title	FY09	FY10	FY11	3 Yr Avg	FY12	% Change	Dist Goal	% Goal
PHYSV01	Elementary Physics,	551	696	651	630	667	3%	450	148%
PHYSV02A	General Physics I,	555	795	735	690	690	7%	450	153%
PHYSV02AL	General Physics I Laboratory,	370	362	512	405	501	26%	450	111%
PHYSV02B	General Physics II,	390	435	420	414	375	1%	450	83%
PHYSV02BL	General Physics II Laboratory,	270	280	267	272	267	-2%	450	59%
PHYSV03A	Gen Physics I: Calculus-Based,	555	795	735	699	690	5%	450	153%
PHYSV03AL	Gen Physics I Lab: Calculus,	370	347	512	402	502	27%	450	111%
PHYSV03B	Gen Physics II: Calculus-Based,	390	435	420	416	375	1%	450	83%
PHYSV03BL	Gen Physics II Lab: Calc-Based,	270	280	272	274	236	-1%	450	53%
PHYSV04	Mechanics,	585	585	593	588	563	1%	450	125%
PHYSV04L	Mechanics Laboratory,	720	680	750	717	730	5%	450	162%
PHYSV05	Electricity & Magnetism,	458	388	465	437	488	6%	450	108%
PHYSV05L	Electricity & Magnetism Lab,	600	510	590	567	650	4%	450	144%
PHYSV06	Optics, Heat & Modern Physics,	240	315	248	268	300	-7%	450	67%
PHYSV06L	Optics, Heat & Modern Physics Lab,	320	420	320	353	394	-9%	450	88%
PHYSV90	Directed Studies in Physics,	0	0	0	0	0	0%	450	0%
Annual WSCH Ratio for PHYS		477	524	526	509	536			

We see that 60% of the physics courses offered scored healthy scores in % Goal ranging from 108-162% of the District goal. Of those that didn't:

- Physics V06/6L – this is the last of a 3 semester sequence of physics for engineering majors. Some students take the option to transfer after having finished Physics V05 to 4 year schools. **Beginning Fall 2013 the Department will be offering Phys V06 in the Spring semester only.**
- Physics V02B/2BL and V03B/V03BL – these courses are part of a fully online, concurrent 2 semester physics sequence for non-engineering majors: V02A/03A in Fall, and V03B/03B in Spring. We notice that the lab portions show lower

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scores that the lecture. This is due to the fact that not all students need to take the lab because they have fulfilled this requirement elsewhere.

The 2A/3A Fall semester is heavily populated, but the 2B/3B population is reduced due to the natural 30 – 40% attrition rate associated with online courses. Because of this attrition, the calculation of WSCH/FTF shows a significantly smaller number for the “B” course.

Comparing the Physics Productivity Measures against the College Productivity Measures (see tables above) we see that the total number of Sections, Census, and FTES by the Physics Program were better than the overall College numbers even while faculty additions were less. This is a remarkable commentary on the efficiency of the Department.

From the Program Review Data 2012/2013 provided in 3C4a we find that the FY12 Physics WSCH = 1346. This represents 0.84% of the FY12 College WSCH of 159,365 (see table below)

The total WSCH for physics by FY is:

FY09	1237
FY10	1357
FY11	1324
FY12	1346

These numbers show a jump of nearly 10% from FY09 to FY10, and then stable consistency after that. We interpret this jump as due to the return of the workforce to school during the Great Recession.

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3C5: Interpretation of Program Retention, Student Success, and Grade Distribution

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Student Success by Subject, Fiscal Year, Term, Course Ventura College

PHYS Comparative Summary

Fiscal Year	A	B	C	P CR	D	F	NP NC	W	Graded	I	Completed	Success		
FY09	223	138	85	0	12	25	0	86	569	0	483	85%	446	78%
Distribution %	39%	24%	15%	0%	2%	4%	0%	15%						
FY10	248	122	97	2	19	33	0	102	623	0	521	84%	469	75%
Distribution %	40%	20%	16%	0%	3%	5%	0%	16%						
FY11	258	132	102	0	15	24	0	78	609	0	531	87%	492	81%
Distribution %	42%	22%	17%	0%	2%	4%	0%	13%						
PHYS Prior Three Year Average	243	131	95	1	15	27	0	89	600	0	512	85%	469	78%
	40%	22%	16%	0%	3%	5%	0%	15%						
FY12	260	156	104	0	17	25	0	67	629	2	562	89%	520	83%
Distribution %	41%	25%	17%	0%	3%	4%	0%	11%						
College Prior Three Year Average	33%	19%	13%	4%	5%	10%	1%	15%						

PHYS Course Detail for Spring, 2012 Fiscal Year = FY12 Term Code = 201203

CourseID	Elementary Physics	A	B	C	P CR	D	F	NP NC	W	Graded	I	Completed	Success		
PHYSV01	Elementary Physics	12	15	13	0	2	1	0	8	51	0	43	84%	40	78%
PHYSV02B	General Physics II	8	1	0	0	0	0	0	3	12	0	9	75%	9	75%
PHYSV02BL	General Physics II Labor	8	1	0	0	0	0	0	3	12	0	9	75%	9	75%
PHYSV03B	Gen Physics II:Calculus-	8	3	1	0	0	1	0	0	13	0	13	100%	12	92%
PHYSV03BL	Gen Physics II Lab:Calc-	9	2	0	0	0	2	0	0	13	0	13	100%	11	85%

The Physics FY12 student retention and student success significantly improved relative to the prior 3 year average. We attribute the internal program improvement due to closer monitoring of student progress through Early Alert, SLO, use of online study resources, and most of all, a stable core of dedicated Instructors who have taught specific courses repeatedly.

3C6: Interpretation of the Program Completion Information

Physics awards no certificates or degrees

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3C7: Interpretation of the Program Demographic Information

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Student Demographics by Subject, Year, Term, Course													Ventura College	
Course	Year or Title	Hispanic	White	Asian	Af Am	Pac I	Filipino	Nat Am	Other	Female	Male	Other	Avg Age	
PHYS	FY09	245 43%	176 31%	38 7%	11 2%	7 1%	29 5%	5 1%	58 10%	135 24%	433 76%	1 0%	25	
PHYS	FY10	240 39%	228 37%	49 8%	10 2%	3 0%	33 5%	5 1%	55 9%	143 23%	479 77%	1 0%	24	
PHYS	FY11	232 38%	257 42%	42 7%	14 2%	0 0%	22 4%	1 0%	41 7%	173 28%	436 72%	0 0%	24	
PHYS	Prior 3 Year Average	239 40%	220 37%	43 7%	12 2%	3 1%	28 5%	4 1%	51 9%	150 25%	449 75%	1 0%	24	
PHYS	FY12	210 33%	285 45%	59 9%	9 1%	2 0%	28 4%	9 1%	27 4%	174 28%	453 72%	2 0%	23	
College	Prior 3 Year Average	35,417 41%	33,507 39%	2,963 3%	3,014 3%	652 1%	2,480 3%	1,210 1%	6,906 8%	47,665 55%	38,082 44%	403 0%	27	

PHYS	Course Detail for Spring, 2012	Fiscal Year = FY12								Term Code = 201203			
PHYSV01	Elementary Physics	24	17	2	2	1	0	2	3	19	31	1	23
PHYSV02B	General Physics II	1	8	2	1	0	0	0	0	6	6	0	24
PHYSV02BL	General Physics II Laborat	1	8	2	1	0	0	0	0	6	6	0	24
PHYSV03B	Gen Physics II:Calculus-Ba	3	6	2	0	0	0	0	2	2	11	0	23
PHYSV03BL	Gen Physics II Lab:Calc-B	3	6	2	0	0	0	0	2	2	11	0	23
PHYSV04	Mechanics	11	20	4	0	0	1	1	1	6	32	0	23

Comparing the Program's FY12 with its prior 3 year average we see a continuing drop in Hispanics and increase in White. It is interesting to speculate if this has something to do with the decrease in engineering manufacturing where entry level jobs are normally found, and more emphasis on advanced engineering design requiring sharper analytical skills. The remaining categories remain essentially unchanged.

4. Performance Assessment

4A1: 2012-2013 Institutional Level Student Learning Outcomes

Institutional Level Student Learning Outcome 1	Performance Indicators
Communication	This ISLO will not be assessed by Physics.
Operating Information	

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Analysis – Assessment

Institutional Level Student Learning Outcome 2	Performance Indicators
Reasoning – Scientific and Quantitative	75 %of students will reach a satisfactory or higher level according to the institutional communication rubric for scientific and quantitative reasoning.
Operating Information	
This ISLO will be assessed in the 2012/13 academic year for the following courses: Physics V01, V02B/2BL, V03B/3BL, V04/4L, V05/5L, V06/6L	
Analysis – Assessment	
This ISLO has not yet been assessed. It will be based on the 2012 Institutional Student Learning Outcomes Ventura Community College Scoring Rubric: Quantitative Reasoning Skills	

Institutional Level Student Learning Outcome 3	Performance Indicators
Critical Thinking and problem solving	This ISLO will be assessed in the 2012/13 academic year for the following courses: Physics V01, V02B/2BL, V03B/3BL, V04/4L, V05/5L, V06/6L
Operating Information	
Analysis – Assessment	

Institutional Level Student Learning Outcome 4	Performance Indicators
Information Literacy	This ISLO will not be assessed by Physics
Operating Information	

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Analysis – Assessment

Institutional Level Student Learning Outcome 5	Performance Indicators
Personal/community awareness and academic / career responsibilities	This ISLO will not be assessed by Physics
Operating Information	
Analysis – Assessment	

4A2: 2012-2013 Program Level Student Learning Outcomes - For programs/departments offering degrees and/or certificates

Physics does not offer degrees or certificates

Program-Level Student Learning Outcome 1	Performance Indicators
Operating Information	
Analysis – Assessment	

Program-Level Student Learning Outcome 2	Performance Indicators
Operating Information	

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Analysis – Assessment

Program-Level Student Learning Outcome 3	Performance Indicators
Operating Information	
Analysis – Assessment	

Program-Level Student Learning Outcome 4	Performance Indicators
Operating Information	
Analysis – Assessment	

Program-Level Student Learning Outcome 5	Performance Indicators
Operating Information	
Analysis – Assessment	

4A3: 2012-2013 Course Level Student Learning Outcomes - Refer to TracDat

4B: 2012-2013 Student Success Outcomes

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Student Success Outcome 1	Performance Indicators
The program will increase its retention rate relative to itself	The program will increase its retention rate from the average of the program's prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census.
Operating Information	
The prior 3 year retention rate was 85%. The FY 12 retention rate was 89%	
Analysis – Assessment	
The results exceeded the goal by a substantial margin. It should be noted that this performance indicator cannot realistically be increased beyond this point as a 89% retention is tremendously high.	

Student Success Outcome 2	Performance Indicators
The program will increase its retention rate relative to the College	The program will increase its retention rate from the average of the college's prior three-year retention rate. The retention rate is the number of students who finish a term with any grade other than W or DR divided by the number of students at census
Operating Information	
The average of the college's prior three-year retention rate was 84%	
Analysis – Assessment	
The FY 12 student retention rate was 89%. This is substantially higher than the College's 84%. The moderate class size of the physics courses plays a significant role in student success because of more direct contact with the Instructor by the student. Smaller size classes make a difference.	
Student Success Outcome 3	Performance Indicators
The program will increase the student success rates relative to itself	The program will increase the student success rates from the average of the program's prior three-year success rates. The student success rate is the percentage of students who receive a grade of c or better.
Operating Information	
The prior 3 year student success rate was 78%. The FY 12 student success rate was 83%	
Analysis – Assessment	
The results met the goal by a substantial margin. It should be noted that this performance indicator cannot realistically be increased beyond this point as 83% student success rate is tremendously high.	

Student Success Outcome 4	Performance Indicators
The program will increase the student success rates relative to the College	The program will increase the student success rates from the average of the college's prior three-year success rates. The student success rate is the percentage of students who receive a grade of C or better.

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Operating Information
The average of the College's prior 3-year success rate was 69%
Analysis – Assessment
The FY 12 student success rate was 83%. This is substantially higher than the College's 69%. The moderate class size of the physics courses plays a significant role in student success because of more direct contact with the Instructor by the student. Smaller size classes make a difference.

4C. 2012-2013 Program Operating Outcomes

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WSCH by Subject Year Course												PHYS		
Subject	FY	Course Title	Sections	Census	FTES	WSCH	FTEFx	FT FTE	PT FTE	XL FTE	D Goal	C Ratio	D Ratio	CL
PHYSV02	FY12	General Physics I Laboratory	2	20	2.13	32	0.06	0.03	0.03	0.00	450	501	501	2
PHYSV02	FY12	General Physics II	1	12	1.60	24	0.06	0.06	0.00	0.00	450	375	375	1
PHYSV02	FY12	General Physics II Laborator	2	12	1.20	18	0.07	0.07	0.00	0.00	450	267	267	2
PHYSV03	FY12	Gen Physics I: Calculus-Bas	1	26	3.47	52	0.08	0.08	0.00	0.00	450	690	690	1
PHYSV03	FY12	Gen Physics I Lab: Calculus	2	27	2.88	43	0.09	0.04	0.04	0.00	450	502	502	2
PHYSV03	FY12	Gen Physics II: Calculus-Bas	1	13	1.73	26	0.07	0.07	0.00	0.00	450	375	375	1
PHYSV03	FY12	Gen Physics II Lab: Calc-Bas	2	13	1.30	20	0.08	0.08	0.00	0.00	450	236	236	2
PHYSV04	FY12	Mechanics	2	75	10.00	150	0.27	0.27	0.00	0.00	450	563	563	0
PHYSV04	FY12	Mechanics Laboratory	2	73	7.30	110	0.15	0.00	0.15	0.00	450	730	730	0
PHYSV05	FY12	Electricity & Magnetism	2	65	8.67	130	0.27	0.27	0.00	0.00	450	488	488	0
PHYSV05	FY12	Electricity & Magnetism Lab	2	65	6.50	98	0.15	0.08	0.08	0.00	450	650	650	0
PHYSV06	FY12	Optics, Heat & Modern Physi	2	40	5.33	80	0.27	0.27	0.00	0.00	450	300	300	0
PHYSV06	FY12	Optics, Heat & Modern Physics	2	38	3.80	57	0.14	0.14	0.00	0.00	450	394	394	1
FY12 Total for PHYS			29	635	89.72	1,346	2.51	1.51	1.00	0.00	450	536	536	13
Average Section Size = 22			Percent Full Time Faculty = 60%			College Ratio / D Goal = 119%			Percent Cross Listed = 45%					
4 Year Total for PHYS			120	2,483	350.93	5,264	10.21	5.97	4.24	0.00	450	516	516	51
Average Section Size = 21			Percent Full Time Faculty = 58%			College Ratio / D Goal = 115%			Percent Cross Listed = 43%					

Program Operating Outcome 1	Performance Indicators
The program will maintain WSCH/FTEF above the 525 goal set by the district.	The program will maintain WSCH/FTEF above the 525 goal set by the district.
Operating Information	
The Program WSCH/FTEF for FY12 was 536. The District goal was 450	
Analysis – Assessment	
The Program performed at 119% of the District 525 goal. Over the last 7 years the Physics Department has operated on a lean F/T faculty staff of 2 plus a capable core of P/T instructors which has translated to a high WSCH/FTEF ratio. Looking forward this formula has changed to 1 F/T faculty with added P/T instructors. Future data may well reflect these core staff changes.	

Program Operating Outcome 2	Performance Indicators
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Inventory of instructional equipment is functional, current, and otherwise adequate to maintain a quality-learning environment.	Inventory of all equipment over \$200 will be maintained and a replacement schedule will be developed. Service contracts for equipment over \$5,000 will be budgeted if funds are available.
Operating Information	
None provided	
Analysis – Assessment	
Program inventory continues to be in process.	

4D. Program Review Rubrics for Instructional Programs

Academic Programs

Point Value	Element	Score
Up to 6	Enrollment demand	5
Up to 6	Sufficient resources to support the program (ability to find qualified instructors; financial resources; equipment; space)	2
Up to 4	Agreed-upon productivity rate	4
Up to 4	Retention rate	4
Up to 3	Success rate (passing with C or higher)	3
Up to 3	Ongoing and active participation in SLO assessment process	3
Total Points	Interpretation	
22 – 26	Program is current and vibrant with no further action recommendation	
18 – 21	Recommendation to attempt to strengthen the program	21
Below 18	Recommendation to consider discontinuation of the program	

TOTAL

CTE Programs

Point Value	Element	Score
Up to 6	Enrollment demand	
Up to 6	Sufficient resources to support the program (ability to find qualified instructors; financial resources; equipment; space)	
Up to 6	Program success (degree / certificate / proficiency award completion over 4 year period)	
Up to 4	Agreed-upon productivity rate	
Up to 4	Retention rate	
Up to 4	Employment outlook for graduates / job market relevance	

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Up to 3	Success rate (passing with C or higher)	
Up to 3	Ongoing and active participation in SLO assessment process	
Total Points	Interpretation	
31 - 36	Program is current and vibrant with no further action recommendation	
25 - 30	Recommendation to attempt to strengthen the program	
Below 25	Recommendation to consider discontinuation of the program	

5. Findings

2012-2013 - FINDINGS

Finding 1:

Physics exceeded District goals for retention and student success. This was achieved through a combination of early screening of students, use of Early Alert, enforcement of pre-requisites, individual student course counseling, and use of interactive online homework grading systems by the textbook publisher.

Finding 2:

As a result of 1 retirement of F/T physics faculty in Spring 2012, the Physics Department is now operating with 1 F/T faculty, the Department Chair. This scenario was forecasted by the Department to Administration in the 2011-2012 Program Review.

Finding 3:

Finding 4:

Finding 5:

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6. Initiatives

6A: 2011-2012 – Initiatives

Initiative Curriculum Improvement

Use Desire to Learn (D2) as class organizer.

Improve curriculum using publisher tools such as WileyPLUS Homework Grader and Tracker system, textbook updates, and other teaching aids such as Youtubes and online physics simulators.

Initiative ID Physics 00

Links to Finding 1

E-1 to E-3

The Physics Department seeks to improve its high success (81%) and retention (87%) rates by supplementing courses with D2L resources and publisher resources for increased student learning.

Benefits

Students will have more learning resources to draw from in the courses. Using independent grading systems such as WileyPLUS Homework Grader and Tracker System will provide the Instructor with another means of assessing student progress.

Request for Resources None

Funding Sources None required

No new resources are required (use existing resources)	X
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software))	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

Outcomes

1. Desire to Learn (D2L) continued to be used as an online class organizer and content resources

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2. WileyPLUS online homework grader and tracker system as successfully integrated into Physics V02/V03/V04/ V05. The feedback from students who have seriously used the online system has been very positive. There seems to be a definite one-to-one correspondence between successful use of WP and performance on exams.
3. The Physics V02/V03 textbook was updated to be compatible with WileyPlus.
4. New Youtubes and online physics simulators were investigated and tried out in classroom lectures.

Initiative: Addition of 1 F/T Faculty Position

The Physics/Astronomy Department seeks to add one F/T faculty member to its existing 2 F/T faculty

Initiative ID : Physics 01

Links to Finding 2

A-1 to A3

In order to prepare for retirement attrition to take place in a few years Physics/Astronomy needs to add a new F/T faculty position to maintain its F/T faculty count, and to groom the new faculty person to take over the responsibilities of Department Head. No new F/T physics/astronomy faculty has been added since 1991. The 2 existing F/T members will be retiring over the next few years synchronously. This means that unless there is a new F/T person in place and serving as Department Head, the Department could be facing a situation of no Department Head and zero F/T faculty.

Benefits:

The addition of a Physics/Astronomy F/T faculty position will prevent an abrupt transition to a Department without a Department Head and zero F/T faculty which would certainly not best serve students. Nearly all engineering and technical majors at the college need some if not most of the physics courses offered at the College in order to transfer to UC and CSU. All these programs would be significantly impacted if there were not a viable functioning Physics/Astronomy Department

Request for Resources: The Physics/Astronomy Department seeks to add one F/T faculty member

Funding Sources

Please check one or more of the following funding sources.

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services	X

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(includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

Outcomes

Unfortunately, the Program Review Committee denied Initiative Physics 01 and chose to defer the above 2011 2012 recommendation.

With the retirement of the 2 F/T physics/astronomy faculty last Spring 2012, the department is now at critical mass with 1 F/T faculty, and the retirement scenario described in the 2010-2011 initiative is playing itself out.

Initiative: Equipment

Replace key core laboratory data acquisition instrumentation and support equipment.

Initiative ID: Physics 02

Links to Finding 3:

A1 to A5

The Physics Department runs on an annual budget of \$1500 which supports about \$188,000 worth of equipment, that is, the Department maintains its capital equipment that it uses for classroom instruction with annual budget equal to less than 1% of the net capital equipment inventory value while all the while meeting or exceeding District goals for retention and student success. This is remarkable by any measure.

There are key core laboratory data acquisition interface boxes and support equipment used in most of the physics courses that are at end of useful life, or have degraded sufficiently to affect laboratory measurement results. They include Pasco computer interface boxes, air tracks, motion carts, and power supplies. Some of these items have not been replaced for over 15 years.

Benefits

Capital equipment funding would prevent contraction of lab experiments due to equipment failure, and improved control over unwanted errors in measurement due to worn out apparatus. This will improve student satisfaction in laboratory experience as well as strengthen their scientific measurement skills.

Request for Resources

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Physics requests an allotment of \$26,000 to purchase replacement laboratory equipment near end of service life.

Funding Sources

Please check one or more of the following funding sources.

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	X
Requires college equipment funds (other than computer related)	X
Requires college facilities funds	
Requires other resources (grants, etc.)	

Outcomes

Initiative Physics 02 was denied by the Program Review Committee.

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2011 - 2012 FINAL Program Initiative Priority Ratings

Line Number	Division Code	Program	Category	Program Priority (0, 1, 2, 3...)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (R, H, M, L)	Initiative ID	Initiative ID	Initiative Title	Resource Description	Resource Category	Estimated Cost	Adjusted Cost	Accumulated Costs	Full Time or Part Time
1	31	Physics	None	0	H			Physics 00	PHYS1200	Curriculum Improvement	Continuously improve curriculum using publisher textbook updates and auxiliary tools and incorporate them along with D2L	0			-	
2	31	Physics	Faculty	1	H			Physics 01	PHYS1201	Addition of 1 F/T Faculty Position	Physics/Astronomy seeks to add 1 F/T Faculty Position. The 2 current F/T have been at the college for 20 and 27 years, and a new F/T faculty position needs to be in place to handle impending retirements	1	108,000	108,000	108,000	FT
3	31	Physics	Technology	2	L	M	H	Physics 02	PHYS1202	Equipment	Replacement of laboratory data acquisition interface boxes that are at end of useful life	3	9,000	9,000	117,000	
4	31	Physics	Equipment	2	L	M	M	Physics 02	PHYS1202	Equipment	Replacement of core support equipment including air tracks, motion carts, power supplies, and LRC meters that have degraded sufficiently to affect lab measurements.	4	17,000	17,000	134,000	

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6B: 2012-2013 INITIATIVES

Initiative ID should be consistent. For example:

2011-2012 identified initiatives - ART1201, ART1202, etc.

2012-2013 identified initiatives - ART1301, ART1302, etc.

Initiative 1: Addition of 1 F/T Faculty Position

ID Physics1301

The Physics Department FT faculty staff underwent a huge 50% reduction with the retirement of 1 of its 2 F/T faculty in Spring 2012 leaving the Department Head as the sole F/T faculty member. An additional F/T faculty position was requested but denied in the 2011-2012 Program Review. With the reduction of F/T physics faculty last Spring due to retirement, the Department is now operating at critical mass with 1 F/T faculty.

Links to Finding

3C3a and 3C5

Benefits – Adding a new F/T faculty will prevent a situation where there are no F/T physics faculty and no Physics Department Chair to run the department. Such a situation would cause a major disruption in the physics, engineering, and biology transfer programs, and associated technology programs.

Request for Resources - The Physics/Astronomy Department seeks to add one F/T faculty member

Funding Sources

No new resources are required (use existing resources)	
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	X
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

Initiative 2: Improve WSCH/FTEF scores for Physics V02B/2BL/V03B/3BL to District Goal

ID Physics1302

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As described in Section 3C4 the calculation of WSCH/FTF for Phys V02B and Phys V03B shows a significantly smaller number from the previous semester where the “A” portion of the course is taught. This is traced to the fact that V02B/V03B have undergone high online attrition rates. This initiative suggests corrective measures to increase throughput of students from the “A” to the “B” sequence starting Fall 2013.

- a. Early Alert: identify and flag weaker students through online tracking of completion of homework assignments through WileyPlus online homework tracker.
- b. Offer weaker students optional live tutoring sessions with the Instructor.
- c. Encourage weaker students to participate in weekly peer Study Groups

Links to Finding

3C4

Benefits – This initiative will improve retention and WSCH/FTF ratios for non-engineering physics Physics V02/V03

Request for Resources

None

No new resources are required (use existing resources)	X
Requires additional general funds for personnel, supplies or services (includes maintenance contracts)	
Requires computer equipment funds (hardware and software)	
Requires college equipment funds (other than computer related)	
Requires college facilities funds	
Requires other resources (grants, etc.)	

Initiative 3:

Initiative 4:

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6C: 2012-2013 Program Initiative Priority Ratings

Program	Finding Number	Category	Program Priority (R, H, M, L)	Division Priority (R,H,M,L)	Committee Priority (R, H, M, L)	College Priority (H, M, L)	Initiative ID	Initiative Title	Resource Description	Estimated Cost
Physics	1	Faculty	H				Physics1301	Addition of 1 F/T Faculty Position	With only 1 F/T faculty left in the Department, Physics/Astronomy critically needs to add 1 F/T faculty position to replace the retirement of the Department's other F/T in Spring 2012.	108,000
Physics	2	None	M				Physics1302	Improve WSCH/FTEF scores for Physics V02B/2BL/V03B/3BL to District Goal	Identify, flag weaker students through online tracking of completion of homework assignments. Offer weaker students optional tutoring sessions with the Instructor. Encourage students to join weekly peer Study Groups	none

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6D: PRIORITIZATIONS OF INITIATIVES WILL TAKE PLACE AT THE PROGRAM, DIVISION, COMMITTEE, AND COLLEGE LEVELS:

Program/Department Level Initiative Prioritization

All initiatives will first be prioritized by the program/department staff. Prioritize the initiatives using the **RHML** priority levels defined below.

Division Level Initiative Prioritization

The program initiatives within a division will be consolidated into division spreadsheets. The dean may include additional division-wide initiatives. All initiatives will then be prioritized using the **RHML** priority levels defined below.

Committee Level Initiative Prioritization

The division's spreadsheets will be prioritized by the appropriate college-wide committees (staffing, technology, equipment, facilities) using the **RHML** priority levels defined below.

College Level Initiative Prioritization

Dean's will present the consolidated prioritized initiatives to the College Planning Council. The College Planning Council will then prioritize the initiatives using the **RHML** priority levels defined below.

R: Required – mandated or unavoidable needs (litigation, contracts, unsafe to operate conditions, etc.).

H: High – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)

M: Medium – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)

L: Low – approximately 1/3 of the total program/department/division's initiatives by resource category (personnel, equipment, etc.)

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7. Process Assessment and Appeal

7A. Purpose of Process Assessment

The purpose of program review assessment is to evaluate the process for continual improvement. The process is required for accreditation and your input is very important to us as we strive to improve.

7B. 2012 - 2013 ASSESSMENT QUESTIONS

1. Did you complete the program review process last year, and if so, did you identify program initiatives? Yes; yes they were identified.

2a. Were the identified initiatives implemented? Yes, the non-funded ones were implemented.

2b. Did the initiatives make a difference? Yes, new textbooks with publisher online study resources were incorporated as well as new class lecture websites.

3. If you appealed or presented a minority opinion for the program review process last year, what was the result? N.A.

4. How have the changes in the program review process worked for your area? They have helped identify and rank current and future needs of the department. There is a lot of data to review which requires cross referencing for data interpretation. This requires Department Heads to become data analysts which is extremely time-consuming

5. How would you improve the program review process based on this experience? In order to streamline the process, I would make some categories such as demographics optional.

7C. Appeals

After the program review process is complete, your program has the right to appeal the ranking of initiatives.

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If you choose to appeal, please complete the appropriate form that explains and supports your position. Forms are located at the Program Review VC website.

The appeal will be handled at the next higher level of the program review process.