



# Santiago Canyon College

## DEPARTMENT PLANNING PORTFOLIO

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DEPARTMENT PLANNING PORTFOLIO  
 DEPARTMENT: Physics and Engineering  
 DIVISION: Mathematics and Sciences  
 ACADEMIC YEAR: 2010-2011

### Department's Vision:

The Physics and Engineering Department envisions a comprehensive general education and transfer program for students in chemistry, physics, and engineering. The courses offered encourage students to pursue lifelong learning and interest in the physical universe, engineering, and, technology.

### Department's Mission:

The mission is to help students understand and appreciate the physical universe by promoting scientific literacy and encouraging curiosity, involvement, and enthusiasm in science and to apply that knowledge to future technology.

GOALS/TASKS/ACTIVITIES	WHO'S RESPONSIBLE	ESTIMATED TIMELINE/COMPLETION	RESOURCES NEEDED	PROGRESS
<b>Improve the problem solving skills of students taking calculus based physics.</b>				
1. Purchase 13 Tablet Computers	rutan_craig	August 2007	\$23,500 for all required equipment	Completed
2. Purchase SynchronEyes software for tablet computers	rutan_craig	August 2007	\$779 for permanent lab license	Completed
3. Configure tablet computers to communicate via the network using the SynchronEyes software.	rutan_craig	October 2007	Assistance from ITS	Completed
4. Create new example problems to be solved by students during lecture, in pairs, on the tablet computers.	rutan_craig	Ongoing	None	In Progress
5. Integrate the use of tablet computers into	rutan_craig	Ongoing	None	In Progress

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course lectures.

6. Purchase additional 21 tablet computers. This will provide 16 student tablets (1 per 2 students) for each physics lab and 1 for each instructor.

rutan\_craig,  
swift\_cynthia

August 2010

\$25000

Completed

7. Purchase additional SynchronEyes software license.

rutan\_craig

December 2010

\$800

In Progress

8. Have all 32 tablet computers configured for use in the new Science Center.

rutan\_craig

December 2010

We will need ITS to install the purchased software, configure the software, and deliver the tablet computers to SC-203 and SC-204.

In Progress

#### Increase the maximum number of lab groups for each class section to 8.

1. Purchase two additional sets of Pasco equipment for Halliday, Resnick, and Walker (base and extended)

rutan\_craig

August 2010

\$10,000

Completed

2. Purchase 4 student spectrometers from Sargent Welch.

rutan\_craig

August 2010

\$2000

Completed

3. Purchase 4 student radiation kits from ScienceKit.

rutan\_craig

August 2010

\$6000

Completed

4. Purchase 4 centripetal force kits ScienceKit.

rutan\_craig

August 2010

\$1600

Completed

5. Purchase additional electronics test equipment (oscilloscopes, function generators, DC power supplies, DMMs).

rutan\_craig

August 2010

\$5500

Completed

#### Add student learning outcomes to all physics courses.

1. Write student learning outcomes for all engineering physics courses.

rutan\_craig

November 2007

None

Completed

2. Create student learning outcomes for physics 279 and 289.

swift\_cynthia

August 2010

None

Completed

3. Create student learning outcomes for Physics 210 and 211.

rutan\_craig

August 2010

None

Completed

4. Write student learning outcomes for physics 109 and all physical science courses.

swift\_cynthia

August 2010

None

Completed

5. Include student learning outcomes in all

rutan\_craig,

Ongoing

None

In Progress

physics course syllabi.	swift_cynthia				
6. Collect and organize student results to evaluate the effectiveness of all courses based upon student learning outcomes.	rutan_craig, swift_cynthia	Ongoing	None		In Progress
<b>Create additional modern physics labs.</b>					
1. Purchase 8 Photoelectric Effect Systems from Pasco Scientific.	rutan_craig	August 2010	\$20,000		Completed
2. Create labs on the photoelectric effect and the measurement of Planck's constant for Physics 211, 289, and 237.	rutan_craig, swift_cynthia	June 2011	None		In Progress
<b>Create additional electrostatics lab.</b>					
1. Purchase 8 Coulomb balances from Sargent Welch.	rutan_craig	December 2009	\$10,000		Completed
2. Purchase 8 high current power supplies from Sargent Welch.	rutan_craig	June 2009	\$6000		Completed
3. Create a Coulomb's law lab for physics 227, 211, and 289.	rutan_craig	June 2011	Additional items may need to be purchased to make a laboratory experiment possible.		In Progress
<b>Improve efficiency of physics labs.</b>					
1. Hire lab technician or science laboratory coordinator for the Physics program. Currently the physics faculty are responsible for setting up all labs, putting all lab equipment away, maintaining lab equipment, and ordering all equipment and supplies. This situation is not ideal and will become more problematic as the program grows and the proposed engineering program begins at SCC.	rutan_craig, swift_cynthia	unknown	\$60000 annually		In Progress
<b>Create and Update Laboratory Manuals for all Physics Classes</b>					
1. Create laboratory manuals for Physics 109, 210, 211, 217, 227, 237, 279, and 289	rutan_craig, swift_cynthia	Completed	All physics courses have an existing manual.		In Progress
2. Create new experiment using photoelectric effect apparatus for Physics 237, 211, and 289	rutan_craig	June 2011	None		In Progress

3. Create new magnetic force lab using Cenco current balances. This lab will be part of Physics 227, 211, and 289.	rutan_craig	June 2011	Cenco current balances need to arrive at SCC. Additional equipment may be needed.	In Progress
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Number of active session(s): 2