

The Program Review process should serve as a mechanism for the assessment of performance that recognizes and acknowledges good performance and academic excellence, improves the quality of instruction and services, updates programs and services, and fosters self-renewal and self-study. Further, it should provide for the identification of weak performance and assist programs in achieving needed improvement. Finally, program review should be seen as a component of campus planning that will not only lead to better utilization of existing resources, but also lead to increased quality of instruction and service. A major function of program review should be to monitor and pursue the congruence between the goals and priorities of the college and the actual practices in the program or service.

~Academic Senate for California Community Colleges

INSTRUCTIONS

This *Annual Update for Program Review and Planning* is due each year that your *Comprehensive Program Review and Planning* report is not due.

(For information about program review cycles, see Instructional and Student Services program review rotation schedules posted online in their respective sections of the program review webpage: http://collegeofsanmateo.edu/prie/program_review/program_review.php)

Resources for Supporting Documentation:

A listing of resources and documents which provide data or information for each section is included at the end of this document, after the final signature page. These resources are posted online and their URLs are listed at the end of this document.

(You may delete this section, when you submit your final program review.)

Next Steps:

All *Annual* and *Comprehensive Program Review and Planning* reports are due March 25, 2010. This date is aligned with CSM's *Integrated Planning Calendar*.
(See: http://collegeofsanmateo.edu/prie/institutional_documents.php.)

Upon its completion, please email this *Program Review and Planning* report to the Vice President of Instruction, the Vice President of Student Services, the appropriate division dean, the CSM Academic Senate President, and the Dean of Planning, Research, and Institutional Effectiveness (PRIE).

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DEPARTMENT OR PROGRAM: Electronics Technology

DIVISION: Business and Technology

1. BRIEF DESCRIPTION OF PROGRAM: With the start of the 2011-2012 academic year, the Electronics Technology Department has completed a three-year self-induced reconfiguration. In essence, the old electronics technology program, as listed in the 2009-2010 College catalog, outlived its need. The program was preparing students for employment that no longer exists in the nine-county SF Bay Area. Starting in Summer of 2009, the program began a reconfiguration process that focused the major on electrical power systems and instrumentation. This reconfiguration continued through the next academic year (F'09 and Sp'10) and, by Fall 2010 a "first draft" was essentially complete. The reconfiguration involves banking many courses used in the old major, replacing them with new refocused course work, revamping program literature, and learning to deal with a new exciting source of employment for program graduates. The source of employment includes public and private utilities as well as private sector companies that use electronics hardware to facilitate the production or creation of their unique product(s).
2. Based on the elements in your *Core Program and Student Success Indicators* (provided by PRIE for each program) and the goals stated in your most recent Program Review, please identify any key successes and challenges.

The biggest success was the identification of industry sectors that show promise of employment growth over the next ten years. The public and private utilities of the greater Bay Area are facing a "Gray Tsunami", basically 50-to-60% of their current technical workforce is eligible for retirement and could file papers at any time. The threat of losing 50% of their most experienced technical workers has forced the utilities into a "planning for the future" mode. A partnership of several Bay Area utilities, including Pacific Gas and Electric, San Francisco Public Utilities Commission (both Fresh Water and Wastewater Enterprise), and East Bay Municipal Utility District, came together and asked College of San Mateo for assistance in workforce development. That request spurred many curriculum design meetings that began in the Spring of 2009. While monthly meetings were the norm as the program structure was being developed, the frequency of such meetings has now reached a more manageable quarterly pace.

Job descriptions, instructional goals, company-based apprenticeship standards, College course content and review, employment qualifications, and recruiting were all addressed. In the Spring of 2010, a new program was launched leading to a one-year certificate of completion in Electrical Power Systems and Instrumentation. Heavy recruiting was undertaken, with extensive company support, starting in late Spring of 2009 through the end of Summer 2009. Enrollment in our entry-level courses doubled. That enrollment success continued into our advanced course work offered for the first time in 2010 and 2011.

Along the way, content outlines had to be revised and updates, new courses added, SLOs, at the course level, realigned, prerequisites and co-requisites had to be established and justified, and new industry appropriate lab activities and equipment had to be identified and acquired.

Our biggest departmental challenge has been identifying and then quickly responding to the "growing pains" of a brand new major. For example, we launched the program with a 16-unit certificate requirement and had to expand to the 19-unit certificate during 2010/2011 because the faculty quickly recognized that the student body needed more exposure to power supplies, amplifiers, oscillators, and digital devices. At the request of our industry partners, the program was launched with a one-year completion goal. This goal proved unrealistic, especially for evening college students, and the program was stretched to 18 months. Finally, infusing the curriculum, at both the lecture and lab levels, with "power systems and instrumentation" examples, problems, and activities has been challenging because "traditional" text and lab materials available from recognized publishers are still focused on classical electronics engineering technology. Finally, recruiting new students and being able to maintain advance class offerings in the light of repeated semesters of budget "pressure" is an ongoing challenge.

3. Are you on track for meeting the goals/targets that your program identified in its most recent Program Review? If not, please explain possible reasons why. If needed, update your goal/targets based on these reasons.

Yes, we have been amazingly successful in meeting our goals for the program. In 2010, we abandoned the program goals for our old electronics engineering technology program and established the following five goals for the new program:

- a. Complete the development and implementation, up through the State level, of a 24-unit major in Electrical Power Systems and Instrumentation.

Status: We are preparing to submit official paperwork to the State for authorization to offer a 35-unit major (19 original units plus four new courses) in Electrical Power Systems and Instrumentation.

- b. Complete the curriculum development activities necessary to establish a new 24-unit major in Electrical Power Systems and Instrumentation.

Status: Curriculum development for the ELEC 442 course has been completed. Curriculum development for the ELEC 422 course needs to be edited to reflect our new PLCs. Curriculum development for the Industrial Data Communications course is being pilot tested in an ELEC 690 Special Problems course in Spring 2012. Curriculum development for the Fluid Power course needs to be started.

- c. Establish an effective set of recruitment documents and materials that will service the college community and our industry partners.

Status: The program has an active web site at (www.collegeofsanmateo.edu/powersystems), we are crosslinked on the PG&E employment web site as well as the Eastbay MUD web site, we have developed post card handouts, we have a tri-fold program handbill, a robust Powerpoint presentation for recruitment, and we run four to six new-student program orientation meeting each semester.

- d. Refurbish and re-equip 19-24 or 19-36 to support our new major.

Status: Lab 19-24 was remodeled and new equipment installed in Spring 2011. Lab 19-36 has been CAT5 wired for Internet access in Spring 2012.

- e. Hiring appropriate full-time faculty to support the program.

Status: A new tenure-track full-time faculty member was hired starting Fall 2011.

4. Have you identified any new goals or projects for the program to focus on during this next year? Please explain (grants, stipends, initiatives, etc.).

Completion of numbers 3a and 3b above. Completion of said goals is vital for our program to be successful.

5. Are there any critical issues you expect to face in the coming year? How will you address those challenges?

There are three critical issues we face in the coming year. First is funding for curriculum development. Our new course structure needs curriculum development and expecting an academic staff made up almost entirely of adjunct faculty to complete this task is unrealistic. Second, we need funding to buy the necessary equipment to run the advanced classes in the program. As a program, we pride ourselves on having created an instructional environment that has enough equipment for each student. This situation allows us to actively pursue our primary goal of offering high quality hands-on technical training to our student body. To be forced to back away from this goal is unacceptable. Finally, the department needs technical support staff. We lost our part-time staff technician to "managed hiring" two years ago and have been running a patchwork support process ever since. We even managed to get an employment grievance filed against our Dean because a student assistant was "caught" opening equipment boxes in our new lab. The institution cannot spend close to \$750K remodeling and re-equipping two labs and then just expect that the hardware will jump out of the shipping boxes, plug itself in, and test itself.

The solution to the problems listed above is money and people. We have a staff of talented adjunct faculty to are will to assist in curriculum development, just not for free. We also have a decent idea of the kinds of hardware we need to implement the rest of the new program and hopefully external funding via grants will provide a path to a purchase order. Finally, we realize that hiring a new technical staff person might be asking a bit much, but with the changeovers that are underway at KCSM-TV we might be able to offer a displaced technical worker a new home in a new round of "managed hiring".

6. STUDENT LEARNING OUTCOMES (SLOs) AND ASSESSMENT FOCUS FOR THIS YEAR:

- a. Academic areas: Identify at least one course SLO on which to focus. Describe the assessment strategies you will use and your method of reflection and documentation for this cycle.

The SLO selected for focus was in the ELEC 441 course dealing with sensors, data transmission standards, and calibration techniques. The SLO specifically deals with developing skills in the calibration techniques referred to as "as found, as left". Through a series of lecture presentations, classroom demonstrations, homework assignments, and six laboratory activities (almost 37% of all lab work) the concepts and procedures of this

industry standard calibration process will be drilled home. Homework is evaluated for concept accuracy and all six lab activities are checked by the instructors to be sure the calibration process is documented. There is even a lab practical calibration activity included in the final exam.

Indeed, final exam lab results for Fall 2011 were outstanding. Students had to demonstrate the operation of the current-to-pressure converter using industry standard calibration equipment as the driving signal source and the output pressure indicator. The students did an excellent job holding accuracy, linearity, and overall performance. Even their technical write-ups were well executed--clear, concise, and technically accurate.

b. Student services areas: N/A

7. SUMMARY OF RESOURCES NEEDED TO REACH PROGRAM ACTION STEPS

(Data resources: Educational Master Plan, 2008, Institutional Priorities, 2008-2011, College Index, 2009-2010, GE-SLOs, SLOs; department records; Core Program and Student Success Indicators; previous Program Review and Planning reports)

a. In the matrices below, itemize the resources needed to reach program action steps and describe the expected outcomes for program improvement.* Specifically, describe the potential outcomes of receiving these resources and the programmatic impact if the requested resources cannot be granted.

*Note: Whenever possible, requests should stem from assessment of SLOs and the resulting program changes or plans. Ideally, SLOs are assessed, the assessments lead to planning, and the resources requested link directly to those plans.

Classified Positions Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
The Electronics Technology Department is requesting one (1) full-time instruction aide position.	This request is based upon the new Department goals and targets listed in #3 above--specifically action items a through d. The work involved in implementing items 3a and 3b involves extensive design and creation of instructional demonstration hardware and laboratory hardware plus there is a huge maintenance and repair issue to be dealt with. This individual needs to have the long term program commitment to work hand-in-hand with full-time faculty (see above request). Expecting part-time faculty to take on many of the hardware	Clearly, the biggest reason driving the need for full-time instructional support is curriculum development. As the full-time faculty develop the necessary list of instructional hardware and laboratory activities needed to implement the instructional program and meet the course and program SLOs, professional level support is essential for timely completion of the listed activities. The Department is almost starting with a clean slate of course material and lab work. The building process will be complex and lengthy. Program success, however,

	<p>development and maintenance tasks listed and assumed in 3a and 3b is above and beyond the normal expectation placed on such faculty. Program continuity, program growth, and program credibility all hinge on the availability of full-time instructional support for full-time and part-time faculty such that extensive technical support and assistance is available to the program.</p> <p>Additional an instructional aide can help in lab management and lab coverage. Staffing a lab with one faculty member and one instructional aide will allow for larger, more diversified, enrollment at lower overall program cost.</p>	<p>demands that we follow through with these activities and, to do so in a timely manner, requires the assistance of an instructional aide.</p>
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- b. For instructional resources including equipment and materials, please list the exact items you want to acquire and the total costs, including tax, shipping, and handling. Include items used for instruction (such as computers, furniture for labs and centers) and all materials designed for use by students and instructors as a learning resource (such as lab equipment, books, CDs, technology-based materials, educational software, tests, non-printed materials). Add rows to the tables as necessary. If you have questions as to the specificity required, please consult with your division dean. Please list by priority.

Resources Requested	Expected Outcomes if Granted and Expected Impact if Not Granted	If applicable, <u>briefly</u> indicate how the requested resources will link to achieving department action steps based on SLO assessment.
14--Automation Direct PLCs with appropriate I/O and Communications modules--\$1,000@ 12--Automation Direct Variable Frequency Drives--\$200@ 24--Sets of electrical hardware for ELEC 421 labs-Siemens or equivalent--\$1,000@ 24--Polou 2.4 GHz. data transceivers--\$25.00@ 24--Cloud Computing Network Interface Modules--\$100.00@	<p>The list of requested resources includes the equipment necessary to build out our advanced electronics lab. Included in the list are class sets of equipment and hardware necessary to equip and launch the advanced classes in the program--including the PLC class, the advanced instrumentation class, the industrial data communications class, and the fluid power class. If this equipment and hardware</p>	<p>Electrical Power Systems and Instrumentation is a lab intensive program. Most all of our new technical courses include a lab component. Course and program SLOs detail the need for laboratory experiences in the curriculum. When the lab equipment does not work or does not work correctly or is not available, then the lab experiences don't happen and the SLOs are not satisfied. The lack of functional</p>

2--IT Department approved routers--\$5,000@ 24--Fluid power test/experimentation stations--\$1,250.00@ 28--PCs with Flat screens--\$1,000@ 1--Network laser printer--\$1,000@ Status*: New	is not available, then the advanced course work for the AS degree cannot be offered in a timely manner.	lab equipment means that the expected outcomes of the SLOs don't happen and there is no black magic, short of putting the student in front of functioning equipment, that will cause the SLOs to be met.
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*Status = New, Upgrade, Replacement, Maintenance or Repair.

8. PROGRAM REVIEW PARTICIPANTS AND SIGNATURES

Date of this *Annual Update for Program Review and Planning* evaluation: 4/4/2012

Please list the department's *Annual Update for Program Review and Planning* report team as appropriate:

Primary program contact person: Steven Gonzalez

Phone and email address:

Full-time faculty: Steven Gonzalez

Part-time faculty: Ken Manders, Roy Brixen, Dragos Micodin, San Abboud

Administrators: Kathleen Ross

Classified staff: None

Students:

Primary Program Contact Person's Signature	Date
Full-time Faculty's Signature	Date
Part-time Faculty's Signature (as appropriate)	Date
Administrator's Signature (as appropriate)	Date
Classified Staff Person's Signature (as appropriate)	Date
Student's Signature (as appropriate)	Date
Dean's Signature	Date

**Annual Program Review
RESOURCES FOR SUPPORTING DOCUMENTATION**

This section contains a listing of sources for data and key documents referred to in this *Annual Update* along with other resources. Contact information for relevant people is also included.

Academic Senate

<http://www.collegeofsanmateo.edu/academicsenate/>

Contact: csmacademicsenate@smccd.edu

Diana Bennett, President, bennettd@smccd.edu, (650) 358-6769

College Catalogs and College Class Schedules are archived online:

<http://collegeofsanmateo.edu/schedule/archive.asp>

Course Outlines are found at:

<http://collegeofsanmateo.edu/articulation/outlines.asp>

Committee on Instruction

<http://www.smccd.net/accounts/csmcoi>

Contact: Laura Demsetz, Chair, demsetz@smccd.edu, (650) 574-6617.

Program Review Resources (includes forms, data, and completed program reviews for both instructional and student services program review)

Core Program and Student Success Indicators (see links for "Quantitative Data for Instructional Programs")

Distance Education Program Review Data

Glossary of Terms for Program Review

Listing of Programs Receiving Program Review Data from PRIE

Rotation Schedule for Instructional Program Review, 2008-2014

http://collegeofsanmateo.edu/prie/program_review/program_review.php

Office of Planning, Research, and Institutional Effectiveness (PRIE)

<http://collegeofsanmateo.edu/prie/>

Contact: John Sewart, Dean, sewart@smccd.edu, (650) 574-6196

Contact: Milla McConnell-Tuite, Coordinator, mcconnell@smccd.edu, (650)574-6699

At PRIE Website:

College Index, 2009-2010, http://collegeofsanmateo.edu/prie/institutional_documents.php

Comprehensive Listing of Indicators and Measures, 2009-2010

http://collegeofsanmateo.edu/prie/institutional_documents.php

Division/Department Workplans, Spring 2009 (only)

http://collegeofsanmateo.edu/prie/institutional_documents.php

Educational Master Plan, 2008, <http://collegeofsanmateo.edu/prie/emp.php>

Institutional Priorities, 2008-2011

http://collegeofsanmateo.edu/prie/institutional_documents.php

Student Learning Outcomes (SLOs) website:

<http://www.collegeofsanmateo.edu/sloac/>

Contact: Frederick Gaines, Interim SLO Coordinator, gainesf@smccd.edu, (650)574-6183