PROGRAM REVIEW AND PLANNING

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

Department or Program:
Division:

I. DESCRIPTION OF PROGRAM *(Data resources: "Number of Sections" data from Core Program and Student Success Indicators; CSM Course Catalog; department records)*

The Fire Technology Department offers 9 separate courses for Spring 2010, ranging from Fire Protection Organization through the Fire Fighter I Academy courses. All courses are Certificate-applicable, Associate Degree-applicable, and University Transferable.

II. STUDENT LEARNING OUTCOMES *(Data resources: SLO records maintained by the department; CSM SLO Coordinator; SLO Website)*

a. Briefly describe the department's assessment of Student Learning Outcomes. Which courses or programs were assessed? How were they assessed? What are the findings of the assessments?

	Course	Title	1st Assess-ment Cycle	Number of course-level content SLOs	Number of course-level SLOs assessed as of March 09	Number of course-level SLOs projected for assess-ment by June 10	Instrument	Completion Status March 2010	2nd Assessment Cycle
1	715	Fire Protection Organization	Spring 2009	5	5	5	Exam questions, labs, term paper	Yes	2010
2	714	Wildland Fire Control	Spring 2010	6	0	6	Lab assignments, exam questions	no	2011
3	725	Fire Apparatus and Equipment	Spring 2010	6	0	6	Lab assignments, exam questions	partial	2011
4	730	Fire Behavior and Combustion	Spring 2009	10	10	10	Exam questions, term paper	yes	2010
5	740	Building Construction for Fire	Spring 2009	7	7	7	Test/exam questions	yes	2010

		Protection							
6	745	Fire Protection Systems and Equipment	Spring 2009	8	8	8	Test/exam questions	yes	2010
7	793	Fire Fighter 1 Academy	Spring 2010	6	0	6	Exam questions and manipulative skills test	partial	2010
8	795	Emergency Medical Technician	2009	4	4	4	Exam question, and manipulative skills test	partial	2010
9	800	Fire Service Entrance Test Preparation	2010	7	0	7	Exam question, oral exam presentation	partial	2011

Findings of Assessment:

FIRE 715

- *Observation:* Students are required to take this course as one of the six core classes as well as a pre-requisite to taking FF1 Academy. Students tend to do well in the course and the majority of students meet all learning outcomes when successfully completing the course.

FIRE 714

- *Observation:* This course is an elective and was created for students to learn basic wildland fire fighting techniques. These students found FIRE 714 very challenging and useful for applying for CALFIRE. Students completing the course achieve the learning outcomes and are adequately prepared to take more advanced manipulative skills courses.
- *Action:* This course is classroom lecture and not manipulative.

FIRE 725

- *Observation:* This course is an elective and was created for students to learn basic differences in the types of equipment and apparatus. It covers the operation, care, and maintenance, specifications, capabilities, and effective use of fire service equipment and apparatus. There is less demand for this course than the core classes. Students tend to do well in the course and the majority of students meet all learning outcomes when successfully completing the course.
- *Action:* This course is classroom lecture and not manipulative.

FIRE 730

- *Observation:* This course is one of the six core classes mandated by the State of California for a certificate or AS degree in Fire Technology. Students completing the course achieve the learning outcomes and are adequately prepared to take more advanced courses. The class covers the theory and fundamentals of how fires start, spread, and are controlled. It also includes an in-depth study of fire chemistry and physics, extinguishing agents, and fire control techniques. The overview of hazardous materials is also a part of this course. Students tend to do well in the course and the majority of students meet all learning outcomes when successfully completing the course.

FIRE 740

- *Observation:* This is one of the six core classes mandated by the State of California for a certificate or AS degree in Fire Technology. The course involves the study of the components of building construction that relate to fire safety and fire protection. It also covers the development and evolution of building and fire codes. The majority of students successfully completing the course have achieved the learning outcomes.

FIRE 745

- *Observation:* This is one of the six core classes mandated by the State of California for a certificate or AS degree in Fire Technology. It provides information relating to the features of design and operation of fire detection and alarm systems, heat and smoke control systems, special extinguishing and fire sprinkler systems, and water supply for fire protection. Students tend to do well in the course and the majority of students meet all learning outcomes when successfully completing the course.

FIRE 793

- *Observation:* This course is accredited through the California State Fire Marshal's Office as a certified fire fighter I academy. Lecture and manipulative instruction in all areas of responsibility of a firefighter. A certificate of completion will be awarded to students that possess a valid, current EMT certificate. Students tend to do well in the course and the majority of students meet all learning outcomes when successfully completing the course.

FIRE 795

- *Observation:* This course offers instruction that is controlled by the Health and Medical community. The learning outcomes are evaluated through weekly quizzes and several examinations that are mandated to measure the students comprehension of the subjects. The student must take a National Registry exam in order to be certified as an EMT. The minimum score for this course as well as the Final exam is 80%. The retention rate is around 50% of those that start. By contrast, those that finished last semester had a 100% passing rate on the Final exam.
- *Action*: The course is constantly reviewed by the instructor as well as the medical and health professionals that set the standards for this course.

III. DATA EVALUATION *(Data resources: Core Program and Student Success Indicators from the Office of Planning, Research, and Institutional Effectiveness)*

a. Referring to the Enrollment and WSCH data, evaluate the current data and projections. If applicable, what programmatic, course offering or scheduling changes do trends in these areas suggest? Will any major changes being implemented in the program (e.g. changes in prerequisites, hours by arrangement, lab components) require significant adjustments to the Enrollment and WSCH projections?

The Enrollment and WSCH data for Fire Technology has been and is very positive. Our numbers have generally been higher than the average for the school. We were informed by the State that beginning ASAP all CACCs that have an FT program increase the number of core courses from five (5) to six (6). This sixth core course was a firefighter safety course that is mandated by the State Board of Fire Services. We offered this course in Fall 2009. This probably created a differing projection for the Enrollment and WSCH for that semester and beyond. We also changed the pre-requisite for the acceptance to the fire academy to include the completion of FIRE 715- Introduction to Fire Protection. This is (FT1) which is also a required course for the AA/AS in Fire Technology. Because this is a pre-requisite and a required course for the degree/certificate program we determined that we needed to offer it in both semesters. If not offered, students would be delayed needlessly and would have a

concern about the ability to progress through the program efficiently.

b. Briefly evaluate the department's assessment of Student Learning Outcomes. If applicable, based on past SLO assessments, 1) what changes will the department consider or implement in future assessment cycles; and 2) what, if any, resources will the department or program require to implement these changes? (Please itemize these resources in section VII of this document.)

Most course-level SLOs have been assessed. Some courses are only offered once a year, making it more difficult to implement changes from SLO assessment findings from the previous year. Because the majority of our courses have only a single section, the assessment findings can more easily be used to improve the course if the same instructor teaches it. Instructors often modify a course as they are teaching it when discovering that students have a hard time with particular topics, and will spend more lecture and/or lab time to address difficulties. This data again shows a positive for the Fire Technology program. We currently have no full-time faculty. We utilize part-time faculty that are currently working as active fire service personnel or are recently retired from the fire service and are "giving back" to the service that they have enjoyed a career in. This group is particularly effective as they have the experience and knowledge to back-up what they teach. All part-time people at this point are on track to continue for the foreseeable future.

c. Below please update the program's SLO Alignment Grid. The column headings identify the GE-SLOs. In the row headings (down the left-most column), input the course numbers (e.g. ENGL 100); add or remove rows as necessary. Then mark the corresponding boxes for each GE-SLO with which each course aligns. The definitions of the GE-SLOs can be found on the CSM SLOAC website: http://www.smccd.net/accounts/csmsloac/sl_sloac.htm (click on the "Institutional" link under the "Student Learning Outcomes" heading.) If this Program Review and Planning report refers to a vocational program or a certificate program that aligns with alternative institutional-level SLOs, please replace the GE-SLOs with the appropriate corresponding SLOs.

IV. STUDENT SUCCESS EVALUATION AND ANALYSIS *(Data resources: Educational Master Plan; "Success Rates," "Dimension" data from Core Program and Student Success Indicators; previous Program Review and Planning reports; other department records)*

a. Considering the overall "Success" and "Retention" data from the Dimension section of Core Program and Student Success Indicators, briefly discuss how effectively the program addresses students' needs relative to current, past, and projected program and college student success rates. If applicable, identify unmet student needs related to student success and describe programmatic changes or other measures the department will consider or implement in order to improve student success. (*Note that item IV b, below, specifically addresses equity, diversity, age, and gender.*)

The Retention rate for Fire Technology has historically been fairly steady. To look at it over several years shows some ups and downs but in the long term the numbers have increased over a period marked by September 11, 2001. Below is the data that was provided for the Fall 2009 Cycle.

CSM Program Review: Fall 2009 Cycle
Core Program and Student Success Indicators
Academic Years 2006/07 to 2008/09

Division: 4411 - Business/Technology/Fire Science Technology Department

INDICATOR	Academic Year 2006-07	2007-08	2008-09	Projections 2009-10	2010-11	2011-12
Enrollments/Dup. Headcount	571	695	693	775	836	897
WSCH	4181.6	4985.21	4907.6	5417.47	5780.47	6143.47
FTES	139.4	166.2	163.6	180.6	192.7	204.8
LOAD (WSCH/FTEF)*	891	944	997	1051	1104	1157
Retention %	92%	90%	89%	87%	85%	84%
Success %	84%	85%	84%	85%	85%	86%
Classroom Teaching FTEF						
Full-time FTEF	0	0	0			
Adjunct FTEF	4.69	5.28	4.92			
Overload FTEF (F-T Faculty)	0	0	0			
Retired FTEF	0	0	0			
Total FTEF	4.69	5.28	4.92			
Percent Full-time	0%	0%	0%			
Reassigned FTEF	0	0	0			
Number of Sections	16	20	21			
% Vocational Education	100%	100%	100%			
% Transferable	0%	0%	0%			
% Degree Applicable	0%	0%	0%			
% Basic Skills	0%	0%	0%			

Projection Methodology

Linear projections based upon 3 years' prior data, using simple linear regression trend analysis. NOTE: Not intended as a goal or target.

Notes: Academic Year = Fall + Spring only.

Successful Course Completion Rates: 2008-09

Demographic Variable	Count	Col%	Success	Non-Success	Withdraw	% Success	% Non-Success	% Withdraw
Ethnicity								
Asian	39	6	34	5	5	87	13	13
Black	16	2	11	5	3	69	31	19
Filipino	24	3	17	7	6	71	29	25
Hispanic	119	17	93	26	14	78	22	12
Native Am	0	0	0	0	0	0	0	0
Pac Islander	6	1	5	1	1	83	17	17
White	389	57	342	47	37	88	12	10
Other	93	14	77	16	11	83	17	12
Unrecorded	0	0	0	0	0	0	0	0
Total	686	100	579	107	77	84	16	11
Gender								
Female	43	6	42	1	1	98	2	2
Male	634	92	530	104	74	84	16	12
Unrecorded	9	1	7	2	2	78	22	22
Total	686	100	579	107	77	84	16	11
Age								
19 or less	151	22	108	43	31	72	28	21
20-24	289	42	246	43	29	85	15	10
25-29	150	22	141	9	8	94	6	5
30-34	50	7	44	6	4	88	12	8
35-39	33	5	27	6	5	82	18	15
40-49	7	1	7	0	0	100	0	0
50+	4	1	4	0	0	100	0	0
Unrecorded	2	0	2	0	0	100	0	0
Total	686	100	579	107	77	84	16	11

DEFINITIONS:

Enrollments/Dup.Headcount:
Sum of end-of-term enrollments.

WSCH:
"Weekly Student Contact Hours" = total hours per week a student attends a specific class. WSCH are used to report apportionment attendance and FTES.

Retention%:
The percentage of enrollments with a grade of A, B, C, D, F, CR, NC, I, at end-of-term. (Only excludes WPs.)

Success%:
The percentage of enrollments with a grade of A, B, C, CR at end-of-term.

FTEF:
"Full-Time Equivalent Faculty" is calculated at the course level as a proportion of a full-time teaching load. FTEF is calculated by using the Faculty Load Credit (FLC) assigned to the course.

LOAD (Productivity) WSCH/FTEF:
Ratio of the weekly contact hours of enrolled students and a faculty's hours of instruction per week = faculty load. The State's productivity measure is 525 WSCH/FTEF.

Reassigned FTEF:
Faculty assigned to projects to which there is no course/CRN.

FTES:
Full-Time Equivalent Students. Definition to be supplied.

*Slight discrepancies in the ratio of WSCH/FTEF (LOAD) are due to the rounding of numeric figures.

b. Briefly discuss how effectively the program addresses students' needs specifically relative to equity, diversity, age, and gender. If applicable, identify unmet student needs and describe programmatic

changes or other measures the department will consider or implement in order to improve student success with specific regard to equity, diversity, age, and gender.

Numbers do not vary significantly with any of the groups profiled. Although, traditionally there are 1/10 as many women as men enrolled in FIRE courses, the performance of women who are enrolled does not vary greatly from that of men.

V. REFLECTIVE ASSESSMENT OF INTERNAL AND EXTERNAL FACTORS AND PROGRAM/STUDENT SUCCESS *(Data Resources: Educational Master Plan; "Dimension: Retention and Success" data from Core Program and Student Success Indicators; previous Program Review and Planning reports; department records)*

a. Using the matrix provided below and reflecting on the program relative to students' needs, briefly analyze the program's strengths and weaknesses and identify opportunities for and possible threats to the program (SWOT). Consider both external and internal factors. For example, if applicable, consider changes in our community and beyond (demographic, educational, social, economic, workforce, and, perhaps, global trends); look at the demand for the program; review program links to other campus and District programs and services; look at similar programs at other area colleges; and investigate auxiliary funding.

	INTERNAL FACTORS	EXTERNAL FACTORS
Strengths	The department has experienced instructors, who are well-versed in course material. Courses are taught by industry professionals who can offer a 'real world' experience and current trends to the material.	The Fire Technology Coordinator meets monthly with an Advisory Committee made up of training professionals that compare and suggest needs of the service to what is being taught in the courses. The curriculum is controlled by the CA State Fire Training Advisory Committee so that classes taught by CACCs are similar from one part of the state to another.
Weaknesses	Due to the P/T status of the coordinator position it makes it difficult to see all of the classes on a regular basis and to keep in touch with the students and instructors. Due to the P/T status of the instructors it is difficult to meet with them with any regularity. Also because they are working professionals they are subject to "call-back" to their agencies during large scale events. (Terrorism, EQ, and Wildfires.)	Students are often underprepared in the English/Reading areas, and their writing skills are often not at a level that makes essays and written research papers a viable grading option.
Opportunities	Living in the Bay Area, we have the opportunity to hire faculty who are involved with leading edge technology. Former students will often return to work as instructional aides to "give back". We attempt to pay attention to technology trends to keep our program relevant.	Marketing and recruitment is not needed as the program has historically had to turn students away because of the amount of seats available in most classes. This trend is seeing some change as the economic trend is for less hiring in the fire service during this period. The fire service has been pursuing a partnership with the Fire Technology

		program to expand the offerings to include the current working fire service people.
Threats	The economic downturn is the only foreseeable threat as the funding for CACCs is continuously being taken away. This is both an internal and external issue.	The ever-changing nature of emergency response requires constant training and rethinking of actions for responders. The current dip in the economy has forced the re-thinking of the ways to deliver emergency services. This will pose a threat to the number of students that will be able to get jobs as those numbers stay at lower levels.

b. If applicable, discuss how new positions, other resources, and equipment granted in previous years have contributed towards reaching program action steps and towards overall programmatic health (you might also reflect on data from Core Program and Student Success Indicators). If new positions have been requested but not granted, discuss how this has impacted overall programmatic health (you might also reflect on data from Core Program and Student Success Indicators).

We have been fortunate to have had a great working relationship with the fire service in San Francisco, San Mateo and Santa Clara Counties. Because of our instructional staff coming from these areas they have been able to keep our needs for equipment and tools known. As agencies replace equipment the older equipment is often offered to our program. This helps keep our cost for program delivery lower while still allowing us to offer current training on relatively current equipment.

There is, however, a need for us to maintain certain items that must remain current for the program to continue to be a certifiable delivery point for EMS and Fire Service training that is not available except by purchase. These items must be kept current or we will be forbidden to offer certificates which will cause a drop in enrollment. The certification is the main draw for individuals to our program.

VI. Action Steps and Outcomes *(Data resources: Educational Master Plan, GE- or Certificate SLOs; course SLOs; department records; Core Program and Student Success Indicators; previous Program Review and Planning reports; Division work plan)*

a. Identify the program's action steps. Action steps should be broad issues and concerns that incorporate some sort of measurable action and should connect to the Educational Master Plan, the Division work plan, and GE- or certificate SLOs.

- We want to offer in-service classes to our local fire service students. This partnership will provide a more direct link to our fire service agencies and allow the college and the Fire Service Agencies to share in funding that can be available through Federal Programs the Homeland Security and other sources. A partnership with an onsite training facility for the fire service and college to share would be a tremendous benefit to the college, community, and the fire service as a whole.

b. Briefly explain, specifically, how the program's action steps relate to the Educational Master Plan.

According to the Educational Master Plan, San Mateo county is projected to have an increase in demand for many types of professions. In order to maintain retention, and help more of our students succeed in this area and move on to transfer and employment, additional support is needed.

c. Identify and explain the program's outcomes, the measurable "mileposts" which will allow you to determine when the action steps are reached.

Program retention rates, and success rates measured annually, will allow us to determine the success of the program, as will SLO measurements in our courses.

VII. SUMMARY OF RESOURCES NEEDED TO REACH PROGRAM ACTION STEPS *(Data resources: Educational Master Plan, 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.

Full-Time Faculty Positions Requested	**Expected Outcomes if Granted and Expected Impact if Not Granted**	**If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.**
Fire Technology Coordinator	Improvement of the oversight of the program. Continued difficulty in meeting the objectives of the students and instructors.	Once funding rebalances and the opportunities become more realistic the ability to expand and offer more classes, the increase in FTES will be a measurable amount greater.

Classified Positions Requested	**Expected Outcomes if Granted and Expected Impact if Not Granted**	**If applicable, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.**
See Resources Requested*		

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, briefly indicate how the requested resources will link to achieving department action steps based on SLO assessment.**
Item: Office Copier/Fax **Number:** 1	**If Granted** – Xerox contract can continue uninterrupted.	N/A

Vendor: Xerox **Unit price:** N/A **Total Cost:** **$**5000.00 **Status*:** Maintenance This is a yearly cost needed to pay for the yearly contract of the Xerox Workcentre Pro shared by ADMJ & FIRE.	**If Not Granted** – Xerox contract cannot continue uninterrupted. Loss of fax machine. Test security for state regulated courses is of the utmost importance, and can be tied to certification. Given the number of instructors in the program, local access to a copier in the program suite would be preferred to requesting keys for workrooms in other buildings and having codes assigned.	
Item: Airway Manikin **Number:** 1 **Vendor:** Boundtree Medical **Unit price:** N/A **Total Cost:** **$**1800.00 **Status*:** New	**If Granted –** The unit will continue to be useful and the program will continue to flourish. **If not Granted** - The unit will be deemed unusable and the students will not be able to demonstrate their skills and the manipulative skills will not be done. **This could cause the course to be De-Certified**	Competency in manipulative skills is required to pass the course and is tied directly to course SLOs.
Item: AED Trainers **Number:** 3 **Vendor:** Boundtree Medical **Unit price:** **$**400.00 **Total Cost:** **$**1200.00 **Status*:** New	**If Granted -** EMT course would stay in compliance and continue to be certified, as AHA standards have changed and the current trainers cannot be re-programmed. **If Not Granted –** EMT course would fall out of compliance and be decertified.	Competency in manipulative skills is required to pass the course and is tied directly to course SLOs.
Item: Repair of Manikin **Number:** 1 **Vendor:** Laerdal **Total Cost:** $1500.00 **Status:** Repair This is a manikin used in the EMT program. Due to the use it has become damaged and needs	**If Granted –** The unit will continue to be useful and the program will continue to flourish. **If not Granted** - The unit will be deemed unusable and the students will not be able to demonstrate their skills and the manipulative	Competency in manipulative skills is required to pass the course and is tied directly to course SLOs.

repair to be usable	skills will not be done. **This could cause the course to be De-Certified**	

** Status = New, Upgrade, Replacement, Maintenance or Repair.*

VIII. Course Outlines *(Data Resources: department records; Committee On Instruction website; Office of the Vice President of Instruction; Division Dean)*

a. By course number (e.g. CHEM 210), please list all department or program courses included in the most recent college catalog, the date of the current Course Outline for each course, and the due date of each course's next update.

IX. Advisory and Consultation Team (ACT)

a. Please list non-program faculty who have participated on the program's Advisory and Consultation Team. Their charge is to review the Program Review and Planning report before its submission and to provide a brief written report with comments, commendations, and suggestions to the Program Review team. Provided that they come from outside the program's department, ACT members may be solicited from faculty at CSM, our two sister colleges, other community colleges, colleges or universities, and professionals in relevant fields. The ACT report should be attached to this document upon submission.

Has not been done

b. Briefly describe the program's response to and intended incorporation of the ACT report recommendations.

Has not been done.

Upon its completion, please email this Program Review and Planning report to the Vice President of Instruction, the appropriate division dean, and the CSM Academic Senate President.

Date of evaluation:

Please list the department's Program Review and Planning report team:

Primary program contact person: Keith Marshall/Michelle Schneider Phone and email address: (650) 574-6424 / (650) 574-6177

marshallk@smccd.edu
Schneider@smccd.edu

Full-time faculty:
Part-time faculty: Keith Marshall
Administrators:
Classified staff: Michelle Schneider
Students:

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Faculty's signatures Keith Marshall *Date 3/28/10*

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Dean's signature *Date*