PROGRAM REVIEW AND PLANNING

Approved 9/2/08 Governing Council

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: Engineering
Division: Math/Science

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

The engineering program provides the lower division engineering classes necessary for transfer to baccalaureate programs. All transfer students in engineering typically take Math (251, 252, 253, 270, 275), Chemistry (210), and Physics (250, 260, 270). Depending on transfer school and major, students also take 1-6 engineering classes and 0-3 CIS classes.

The program offers six engineering courses clustered into three math prerequisite levels.
Prereq of Math 130:
ENGR 100 Introduction to Engineering
ENGR 210 Engineering Graphics
Prereq of Math 251:
ENGR215 Computational Methods for Engineers and Scientists
ENGR 270 Materials Science (also requires Chem 210)
Prereq of Math252 or beyond:
ENGR 230 Engineering Statics (also requires Phys 250)
ENGR 260 Engineering Circuits (also required Phys 260)

One course at each prerequisite level is offered in each semester. Curricular offerings are coordinated with Canada College's engineering program to provide greater flexibility for students. Enrollment is such that each campus offers only a single section of each course in an academic year. By coordinating courses, we provide students with the option of taking ENGR 100 (F CSM, Sp Canada), ENGR210 (F Canada, Sp CSM), ENGR230 (F CSM, Sp Canada), and ENGR270 (F Canada, Sp CSM) in either semester. Additionally, students can take both ENGR215 (CSM only) and ENGR240 (Canada only). ENGR260 is offered in the spring semester at both campuses due to its extensive prerequisites.

Although the program offers an A.S. degree in engineering, the B.S. degree is considered necessary for work in the field and most students do not take classes beyond those required for transfer.

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 09	Instrument	Comple-tion Status March 09	2nd Assessment Cycle
1	100	Introduction to Engineering	2008-2009 (Fall only)	8	SLOs 1, 2, and 4 in progress sp09 based on F08 data	3 based on F08 data	Exam questions, project, assignments	partial	First cycle continues 2009-2010 (SLOs 3, 5,6) 2010-2011 (SLOs 7, 8) Second cycle starts 2011
2	210	Engineering Graphics	2009-2010 (as of 08-09, Spring only; last offered F07)	8	0	0	Exam questions, project, assignments	no	First cycle: 2009-2010 (SLOs 7, 8) 2010-2011 (SLOs 1-4) 2011-2012 (SLOs 5, 6)
3	215	Computatio n-al Methods (Matlab)	2008-2009 (as of 08-09, Fall only)	7	SLOs 1, 6, and 7 in progress sp09 based on F08 data	3 based on F08 data	Exam questions, project, assignments	partial	First cycle continues 2009-2010 (SLO 4) 2010-2011 (SLOs 2, 3, 5) Second cycle starts 2011
4	230	Engineering Statics	2008-2009 (Fall only)	5	SLOs 1-5 in progress sp09 based on F08 data	5 based on F08 data	Exam questions	partial	Second cycle starts 2009-2010
5	260	Circuits and Devices	2008-2009 (Spring only)	8	SLOs 1-4 analyzed F08 based on Sp08 data	4 based on Sp08 data	Exam questions, lab reports & practicum	partial	First cycle continues 2009-2010 (SLOs 5, 6) 2010-2011 (SLOs 2,8) Second cycle starts 2011
6	270	Materials Science	2008-2009 (Spring only)	7	0	0	Exam questions, project, lab reports/obs ervations, assignments	no	First cycle: 2009-2010 (SLOs 1, 3) 2010-2011 (SLOs 4-7) 2011-2012 (SLOs 1, 2)

b. 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.

GE-SLOs → Program Courses ↓	**Effective Communication**	**Quantitative Skills**	**Critical Thinking**	**Social Awareness and Diversity**	**Ethical Responsibility**
ENGR 100	X (secondary)	X (primary)			X(tertiary)
ENGR 210	X (secondary)	X (primary)			
ENGR 215		X (primary)			
ENGR 230		X (primary)			
ENGR 260		X (primary)			
ENGR 270	X(tertiary)	X (primary)			

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?

Enrollment and WSCH data for the Fall2008 cycle show a decline over the past three years. However, current year enrollments in the "entry-level" courses (those with the lowest math prerequisite level; ENGR 100 in fall, ENGR 210 in spring) are significantly higher than in previous years; ENGR 100 enrollment in F08 was 64% higher than in F07 (18 vs. 11); ENGR210 enrollment in Sp09 is 77% higher than in F07 (23 vs. 13). The increase may in part be due to the move of ENGR210 from Fall to Spring semesters, providing one engineering course at the lowest math prerequisite level in each semester.

b. Referring to the Classroom Teaching FTEF data, evaluate the current data and projections. If applicable, how does the full-time and part-time FTE affect program action steps and outcomes? What programmatic changes do trends in this area suggest?

For many years (and through 06-07), two of the engineering courses were taught by adjuncts with experience specific to these courses. For personal reasons (retirement, relocation), these adjuncts left the program in 07-08 and all courses were taught by the sole full-time faculty member (who also carries load in counseling and on occasion in the Business/Tech division). Changes in FTEF reflect this shift. For Sp09, one adjunct has returned, bringing the benefits of current industry experience to the classroom. In addition, the sole full-time faculty member has reassigned time as interim chair of Committee on Instruction. We anticipate that annually one or two classes will be taught by adjuncts and the remainder by full time faculty.

c. Referring to the Productivity data, discuss and evaluate the program's productivity relative to its target number. If applicable, what programmatic changes or other measures will the department consider or implement in order to reach its productivity target? If the productivity target needs to be adjusted, please provide a rationale. (Productivity is WSCH divided by FTE. The College's general target productivity will be recommended by the Budget Planning Committee.)

Numbers for engineering can be deceptive, as both the number of sections and the total enrollments are small. WSCH in engineering is among the lowest in the math/science division. The FTEF is rarely above 1; however the faculty member assigned teaches courses in other areas and is involved in advising, outreach, and campus-level committees.

The significant increase in enrollment in the entry-level engineering courses in F08 and Sp09 will result in an increase in productivity for the current year.

It is important to keep in mind that students who transfer in engineering successfully complete 21 units of advanced math classes, 12 units of physics classes, 5-10 units of chemistry, and 0-12 units of CIS classes in addition to the one to six engineering classes required for transfer. Without the attraction of the engineering program, many might take all these classes elsewhere.

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.*)

Student success and retention rates have remained roughly constant over the three years reflected in the Fall 2008 cycle data. Engineering students are determined; engineering classes can be difficult. What is key is not only success at CSM prior to transfer, but success in upper division courses after transfer. A lower division engineering program that offers increased challenge and difficulty through the three levels of math prerequisites provides solid preparation for success after transfer.

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.

Engineering courses are taken by students with a broad range of ethnicity. The small number of students in the program makes it difficult to draw conclusions about success across groups.

Engineering enrollment remains heavily male; the fraction of women remains smaller than the national average for engineering programs. However, the national average includes bioengineering and environmental engineering, which have larger fractions of women but typically do not require many lower

division engineering courses for transfer.

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 strong preparation provided by CSM's math and physics programs continues to produce students who are well prepared for engineering courses. The participation of the engineering faculty member in campus-wise activities such as PEP increases visibility of the program. The program continues to host activities such as the annual alumni panel and the annual transfer panel; these provide current students with first-hand information on opportunities for and after transfer. The program continues to benefit from its location in building 19, which allows the sharing of facilities with technology programs and easier "cross-talk" between students in engineering and technology. The engineering student study room in 19-042 provides a casual gathering place for group study outside of class with easy access to the faculty office in 19-046 for support.	Students who transfer and complete a B.S. degree in engineering continue to find high-paying jobs that make visible contributions to society.
Weaknesses	With only a single full-time faculty member (who is active in campus-level committees and in students services and who also provides support to architecture), it is difficult to find time for departmental-level administrative tasks (program review, assessment, updating of curriculum) and effective outreach to local high schools.	There is no formal support program outside of classes for engineering students. Our sister colleges to the north and south both have active MESA programs. Incoming students interested in math, science, and engineering may be drawn to Skyline and especially to Canada for the

		added support provided by MESA.
Opportunities	The recent articulation of ENGR 100 with a new introductory course at UC Berkeley, along with the existing articulation of ENGR 100 with a similar course at SJSU, should help attract students to this gateway course. The relocation of student services to Building 19 and the closing off of other areas of campus for construction brings more students in contact with the engineering program. There is an opportunity for department activities (such as the alumni panel and design competitions) achieve higher visibility in the campus community.	The downturn in the economy and the restriction of enrollment at CSU and UC campuses may lead to increased enrollment of students with a higher level of academic preparation; for these students, transfer in engineering within 2 to 2 ½ years is possible.
Threats	The engineering program has benefited from the sharing of facilities with the drafting, electronics, and CIS programs. Tight budgets and the reconfiguration of some of these programs may lead to the need for engineering to contribute more funds for shared software and hardware. Low enrollments continue to be a concern, especially in the current fiscal climate.	The lack of coherence in lower division programs at transfer schools means that each engineering course is required by fewer programs than in the past. An even larger base of students planning to transfer in engineering will be required to meet minimum enrollment levels in each course. A large fraction of students come to CSM in need of remedial math; it may be difficult to attract these students to a major that typically requires completion of precalculus and then 2 ½ to 3 years of additional study prior to transfer.

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).

The modest funds received for equipment and software allow the program to continue to offer courses that articulate with those at transfer schools. No new positions have been requested.

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.

Action Steps:

1. Maintain the caliber and improve articulation of engineering courses.
   a. Instructors stay up-to-date on course offerings and articulation at transfer schools.
   b. Articulation agreements are reviewed for gaps; ways to address these gaps are developed.
   c. To the extent possible, current versions of software are used and lab facilities are modernized.

2. Increase awareness of and access to the engineering program for students at or below Math 130.

3. Revitalize the engineering student club.

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

The Educational Master Plan calls for increased offerings in emerging technologies and refinement of programs in high-tech and knowledge-based professions. Engineering fits this profile. The entry level degree in engineering is at the bachelor level. Engineering courses and facilities must be kept up-to-date so that they articulate at transfer schools.

The Educational Master Plan also recognizes the increasing proportion of students entering at the basic skills level in math. We must make it easier for students at this level to see the benefits of developing the advanced skills needed in high-tech and knowledge-based professions, regardless of their eventual major.

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

Action Step 1: Maintain the caliber and improve articulation of engineering courses.

Outcome 1: Instructors stay up-to-date on course offerings and articulation at transfer schools by attending semi-annual statewide Engineering Liaison Committee meetings.

Outcome 2: Gaps in articulation agreements are addressed.

Outcome 3: Current versions of software are in use in ENGR100 (EXCEL and MATLAB), ENGR 210 (SOLIDWORKS and AUTOCAD), and ENGR215 (MATLAB). New labs activities with more modern equipment are integrated into ENGR260 and ENGR270.

Action Step 2: Increase awareness of and access to the engineering program for students at or below Math 130.

Outcome: Assessment of the potential of different approaches, including a hands-on survey course in engineering with fewer math prerequisites, design competitions open to the campus at large, guest speakers on topics related to engineering, and development of application examples for use in pre-transfer math classes. Depending on outcome, may result in a proposal for professional development or an application for program improvement funds.

Action Step 3: Revitalize the engineering student club.

Outcome: Increased student activities will be a benefit for current students and will increase the profile of

the program on campus and in the district. Although the club is a student group, engineering faculty should assist its reemergence by 1) organizing an introductory meeting early in the fall semester, 2) helping the students with contacts for at least one field trip each semester, and 3) encouraging student participation and co-sponsorship of the annual Engineering Alumni Panel and the annual Engineering Transfer Workshop.

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.**
None.	Input text here.	Input text here.

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.**
None.	Input text here.	Input text here.

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: Annual renewal of MATLAB license. **Number:** 50 seat license	If granted, allows continued offering of ENGR100 and ENGR215 in forms suitable for	Allow use of current software in ENGR 100 and ENGR215.

Vendor: Mathworks **Unit price:** N/A. **Total Cost:** $400 **Status*:** Maintenance	articulation.	
Item: Contribution toward Technology Division renewal/upgrade of licenses for Solidworks and AutoCAD **Number:** N/A **Vendor:** N/A **Unit price:** N/A **Total Cost:** $500 **Status*:** Maintenance/upgrade	If granted (and with additional funds provided by Drafting), allows continued offering of ENGR210 in form suitable for transfer.	Allow use of current software in ENGR 210.
Item: Polymer experiment kit **Number:** developed in-house **Vendor:** developed in-house **Unit price:** developed in-house **Total Cost:** . $600 **Status*:** New	If granted, allows purchase of supplies for a polymer lab experiment for ENGR 270, modernizing the course.	Modernizes the lab experience in ENGR270.
Item: Repair of Buehler Duomet2 Belt Surfacer **Number:** **Vendor:** Buehler or local **Unit price:** N/A **Total Cost:** . $1000 (estimate; cost new is $1000) **Status*:** Repair	If granted, allows repair of one of two surfacers used in ENGR270 metals labs.	Allows students to complete lab in timely manner.

** 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.

Course Number	Last Updated	Six-year Update Due
ENGR 100	2007-2008 catalog	2013-2014 catalog
ENGR 210	2007-2008 catalog	2013-2014 catalog
ENGR 215	2008-2009 catalog	2014-2015 catalog
ENGR 230	2007-2008 catalog	2013-2014 catalog
ENGR240 (not offered at CSM; kept on books for consistency with Canada College)	2008-2009 catalog	2014-2015 catalog
ENGR 260	2007-2008 catalog	2013-2014 catalog
ENGR 270	2007-2008 catalog	2013-2014 catalog

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.

Melissa Green, Robert Hasson, Barbara Uchida

Overview of the program and the field:
The CSM engineering curriculum is a rigorous program for students intending to transfer to a four-year school. Although there is low enrollment in engineering, the current administration's support for strong math and science education in grades K-12 will eventually increase the pipeline of engineering students. The U.S. Department of Labor predicts that engineering employment will grow by 11 percent over the 2006-16 decade. In particular, biomedical engineering is expected to grow by 21%, civil engineering by 18%, environmental engineering by 25%, industrial engineering by 20%, with all other areas of engineering predicting modest to substantial gains in employment. (Source: USDL Bureau of Labor Statistics http://www.bls.gov/oco/ocos027.htm#outlook)

Students with better math skills are more likely to major in engineering than computer science, and the CIS department has many engineering students enrolled in programming classes, which is beneficial to CIS enrollment. The current decline of the financial industry might attract more students with strong math skills to both engineering and computer science. (Sources: ComputerWorld http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9130129&intsrc=hm_list;
http://www.computerworld.com/action/article.do?command=viewArticleBasic&articleId=9115616)

Although in the short term enrollments in scientific disciplines may not increase significantly, it seems highly likely that they will improve in the long term, beginning in the next couple of years. In any event, engineering as a major has a brighter future than most other areas of study and, in light of the growing concern over environmental issues, might actually rebound far more healthily than many other science majors.

The program at CSM:
The interrelationship between engineering, math, science (especially physics), and CIS cannot be overemphasized. An increase (or decrease) in one of these areas will likely translate into a similar increase (or decrease) in the others. Returning to a double Phys 250 in each of the Fall and Spring semesters will hopefully help to increase enrollments in all of these areas. As noted in the Program Review, the decline in the economy and the limitations on enrollments (plus increased fees) at the UCs and CSUs may lead to increases in our enrollments.

The inconsistency in requirements for engineering transfer programs impacts enrollments at CSM. Laura is to be commended on keeping track of the changes at the various CSU and UC campuses and adjusting courses at CSM so that they will be articulated as widely as possible. Since many transfer programs have very specialized lower division requirements for each individual engineering major, it is a challenge to offer the right mix of classes for our students and to maintain high enrollments in CSM's engineering courses. It is vital that the engineering program continue to exist at CSM and get administrative support both so that we are serving the community needs and for the impact that this program has on so many other disciplines at CSM.

Progress is being made on the assessment of SLOs for the engineering courses. Should most of the engineering courses also satisfy the institutional/GE SLO for Critical Thinking? Certainly, these courses increase students' ability to analyze and solve problems. Students must think about which engineering concepts apply to the problem, come up with a logical approach to the problem, and incorporate concepts and skills developed in math and physics courses.

Currently the California Community College system reports that 3 out of 5 students entering the system place at remedial level in math and/or English. This has inhibited enrollment in disciplines with strong math requirements, as students graduating high school often have to spend one or more additional semesters just to attain college-level preparation. (Source: USA Today http://www.usatoday.com/news/education/2008-09-15-Colleges-remedialclasses_N.htm).

The lack of a CSM MESA program probably makes it more difficult for CSM ngineering students to get sufficient academic support services. It also makes it more likely that engineering students will leave for colleges that do offer such support. Again this critically impacts CSM's course enrollments in physics, chemistry, CIS, and mathematics.

MESA programs provide students with support, information, and community. The Union of Student Engineers (USE) and the engineering faculty member provide all of these on a smaller and less institutionalized scale. In the past, the student engineering club has been more active than at the present. One department goal (action step) might be to revitalize USE to provide some of the services provided by MESA at Canada and Skyline. The reality is that engineering students at CSM do take advantage of the USE room to work together on assignments and meet socially. So there is an aspect of peer-tutoring and networking that takes place on an informal basis. In the past, there had been more overlap between the USE members and the Science Club. For the last couple of years, the Science Club has been more heavily biology majors. There could be an attempt to do some joint activities with the two clubs. While we don't have MESA at CSM, the engineering students do take advantage of the Math Lab and the Integrated Science Center to get help from faculty and to work together in small groups. Much of this is focused on the science and math classes that the engineering students are taking; but these classes make up the majority of the units that engineering students take at CSM. In terms of other services provided by MESA, it should be pointed out that Laura is one of the few remaining academic advisors at CSM and that she does provide information about engineering majors, transfer engineering programs and schools, internships, etc to our engineering students. Basically, to some extent CSM's engineering students do receive a lot of support. The challenge is to formalize and publicize these activities.

Threats/challenges to the program for the next year are the added flex days in the middle of the semester. These mean cutting material from courses since they will have fewer class meetings. Also, the timing of the flex days is not very beneficial for students. If there is a need to have flex days during the semester, they should not decrease actual class instructional time and would be better for students if they could be used as "dead days" between the end of classes and the beginning of final exams. The proposed "compressed calendar" would have potentially negative impacts on the engineering program and on the science, technology, and math programs.

The scheduling of engineering classes presents an ongoing challenge. Each engineering course is offered only once a year; to promote access, the engineering department must schedule around changes in the schedules for other disciplines and also arrange the engineering courses so that one person can teach them all in the rooms appropriate for each. This will become an even greater challenge with mid-semester flex days and/or the compressed calendar.

Engineering is certainly a knowledge based field. If CSM really wants to promote such fields, then this is one to promote. Building engineering enrollments will also affect the perception in the external world of strong Science/Technology/Engineering/Math programs at CSM. We have only one professor to maintain the engineering program. Laura has done great work in doing so.
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b. Briefly describe the program's response to and intended incorporation of the ACT report recommendations.

The engineering program appreciates the feedback provided by the ACT. Revitalization of the engineering club (Union of Student Engineers or USE), suggested by the ACT, has been added as an action item. The only resource required for this action item is engineering faculty time.

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: March 24, 2009

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

Primary program contact person: Laura Demsetz
Phone and email address: 650 574-6617 demsetz@smccd.edu

Full-time faculty: Laura Demsetz
Part-time faculty: Tim Westmore
Administrators:
Classified staff:
Students:

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Faculty's signatures *Date*

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Dean's signature *Date*