



Academic Program Review 2012-2014

Department: Engineering

Date of Submission:

List the full-time and part-time faculty that worked on this document:

Craig Rutan

Program Review - *Departments*

Getting Started: Guidelines and Materials

Overview and Planning

Welcome to the Santiago Canyon College (SCC) *Academic Program Review Template*. Each department will complete its program review during the Fall 2013 semester. Program review is an integral part of institutional success, starting with important evaluations of student success and progress and ending with thoughtful projections of where you'd like to go as a department, in large part based on *student achievement data* and *outcomes assessment data*; your careful analysis and honest assessments make positive change possible and likely.

Purpose

Program review produces a "bridge document" that serves to connect *local* considerations, like student performance, SLO assessment, curricula development, department dialogue with *global* considerations, like SCC's Educational Master Plan, budgeting and allocation of resources, facilities utilization, long term planning and Accreditation.

Program Review as Bridge Document Part of the Integrated Planning Process



Support

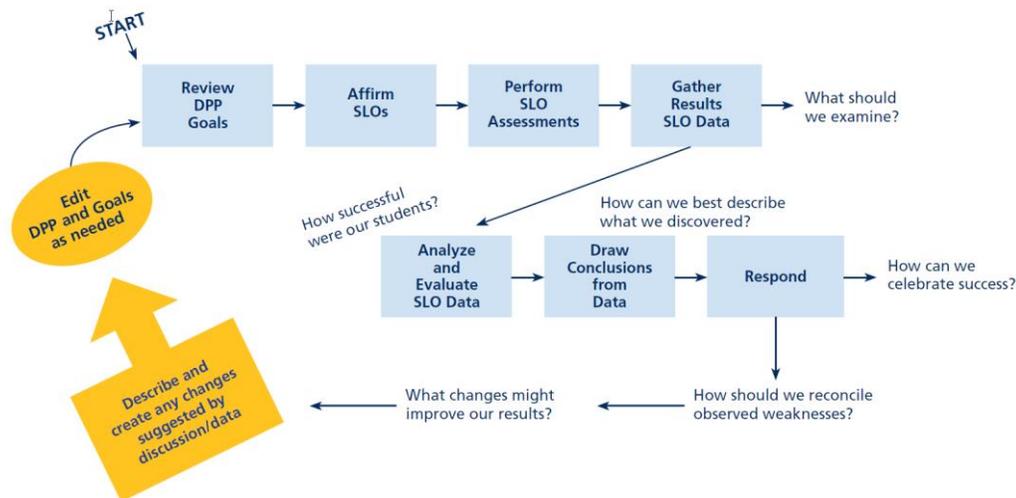
Because most of the program review is done by you in your department, capturing the results of your own processes and conversations is an important element. Some of the questions that follow will help you bring this into light. But you may need some information or assistance in certain areas, such as, data collection/analysis. You might also want help gathering and interpreting student demographic data. Some offices and individuals who are at your service to assist in your program review process are listed below:

- Office of Institutional Effectiveness and Outcomes Assessment – Aaron Voelcker, Assistant Dean
- Members of the Educational Master Plan Committee (EMPC) – Roberta Tragarz, Chair
- RSCCD Department of Research – Nga Pham, Director
- Supporting departments and documents (See [Appendix 1](#))
- Lexicon of essential terms (See [Appendix 2](#))

Process and Expectations

Program Review fits into a larger cycle which brings together your annual Department Planning Portfolios (DPPs) and informs the Educational Master Planning process and prepares the college for Accreditation (See [Appendix 3](#)).

The natural flow of this work is outlined in the following steps:



Departmental Conversation

- Departments gather to review their DPPs (*Where should we start?*)
- General and SLO assessment data is gathered on student success and progress (*What should we examine?*)
- Data is analyzed and results described (*How successful were our students? How can we best describe that?*)
- Conclusions lead to conversations about effectiveness of current SLOs, department initiatives, curricula, and resources (*Where there is success, how might we celebrate and promote that? Where there is weakness, how might we adjust to intervene and improve?*)
- Success is noted, and changes or recommendations considered (*In what ways will we describe our plan going forward?*)

Documentation and Reporting

- Program Review is completed and approved by department
- Program Review is submitted to EMPC and distributed to program faculty and the division office.
- Meeting is scheduled in which department shares its results and considerations with EMPC (format is discussion, not presentation – committee members typically ask questions and interact with department representative about items/issues presented in their report)
- EMPC uses that review to inform: the PIE; the budgeting process; revisions to the Educational Master Plan; and Accreditation processes.

The Optimal Result

A well-conceived Program Review describes in **concrete** terms the department's successes, challenges and directions for change and growth based on **evaluation of student achievement and outcomes assessment data**. It's the document that periodically validates a department's ability to meet its goals and objectives for student success and highlights the resources needed to meet those outcomes in the future.

Part I: Overview of Academic Program Information

1. Award Programs

Please list the degrees and certificates offered by this program:

N/A

2. Course Offerings – if you require different breakdowns that are discipline sensitive or particularly meaningful (e.g. day/night, lecture/lab) please contact the [RSCCD Research Department](#).

Number of unique courses offered by your program:			4	
Number of Sections Offered	2009-2010	2010-2011	2011-2012	2012-2013
Classroom Instruction	X	X	X	X
Distance Education - Hybrid	X	X	X	X
Distance Education – Non Hybrid	X	X	X	X
Overall	X	X	X	X
Total Enrollment (Seats Filled)	2009-2010	2010-2011	2011-2012	2012-2013
Classroom Instruction	Y	Y	Y	Y
Distance Education - Hybrid	Y	Y	Y	Y
Distance Education – Non Hybrid	Y	Y	Y	Y
Overall	Y	Y	Y	Y
Students per Offered Section	2009-2010	2010-2011	2011-2012	2012-2013
Classroom Instruction	Y/X	Y/X	Y/X	Y/X
Distance Education - Hybrid	Y/X	Y/X	Y/X	Y/X
Distance Education – Non Hybrid	Y/X	Y/X	Y/X	Y/X
Overall	Y/X	Y/X	Y/X	Y/X

3. Faculty Workload

	Full-time		Part-time		Total	
	#	%	#	%	#	100%
Lecture Hour Equivalent (LHE)						
Number of faculty	#FT		#PT		#FT+#PT	
LHE per faculty	(FT LHE)/(#FT)		(PT LHE)/(#PT)		(LHE)/(#Faculty)	
Total FTES					#	
Total FTEF (LHE/30)					#	
Efficiency (FTES/FTEF)					(FTES)/(FTEF)	

4. **Support Staff as of fall 2013** (instructional aide, student assistant, lab coordinator, etc.)

Title of Position	Number	Full-time or Part-time	Months per Year	Hours per Week
None				

5. **Facilities as of fall 2013**

Number of classrooms used exclusively by the program	0
Number of classrooms shared with other programs	0
Number of labs or other learning spaces used exclusively by the program	0
Number of labs or other learning spaces shared with other programs	2
Number of office spaces used exclusively by program faculty and staff	0
Number of office spaces shared with other programs' faculty and staff	1
Number of storerooms used exclusively by the program	0
Number of storerooms shared with other programs	1
Number of conference rooms and collaborative spaces used exclusively by program faculty and staff	0
Number of conference rooms and collaborative spaces shared with other programs' faculty and staff	0

6. **Resources as of fall 2013**

List and describe any specialized equipment or resources that are used exclusively by the program:

8 BK Precisions Bench Digital Multi-Meters
10 Breadboards
Various Resistors, Capacitors, Inductors, Transformers, and Operational Amplifiers

Note: Additional equipment/resources listed in the previous physics/physical science program review are still in use, but this equipment will now be shared with the engineering program. This includes 18 Fluke True RMS Digital Multi-Meters, 18 DC Power Supplies, 8 Bench Digital Multi-Meters, 9 Function Generators, and 9 Analog Oscilloscopes.

Part II: Program Goals and Objectives

1. What processes does your program follow to create, evaluate, and update DPP goals?
2. How is SCC's mission statement reflected in your goals? ("Santiago Canyon College is an innovative learning community dedicated to intellectual and personal growth. Our purpose is to foster student success and to help students achieve these core outcomes: to learn, to act, to communicate and to think critically. We are committed to maintaining standards of excellence and providing accessible, transferable, and engaging education to a diverse community.")
3. Below are the strategic goals from the 2012-2016 SCC Educational Master Plan. In the second column, fill in any of your specific DPP goals that support that EMP goal. A department goal may fit with multiple EMP goals and it is possible that some EMP goals might not match with any of your department goals. *Note: see Part II.4 if you have additional DPP goals you're currently managing.*

Education Master Plan Goals	Department Goals Directly from DPP
1. Strengthen outreach and recruitment	
2. Align the college curriculum to focus on student completion of pathways	Improve the transfer rates of engineering majors at SCC.
3. Promote an integrated approach to supporting student success	
	Improve the problem solving skills of physics and engineering students.
4. Promote a college identity of high quality, academic excellence, and personalized education	Improve the transfer rates of engineering majors at SCC. Improve student performance in laboratory courses.
5. Support faculty in offering high quality instruction to students in the classroom and online	
6. Maintain and enhance the college's technological infrastructure	
7. Maintain the facilities infrastructure	
8. Support and encourage focused green practices on campus	
9. Develop and support an infrastructure related to web and social media	
10. Support faculty development in the areas of innovative pedagogies and curriculum design	
	Improve the transfer rates of engineering majors at SCC.
11. Increase educational goal completion for university transfer, degrees, and certificates	Improve the problem solving skills of physics and engineering students.

	Improve student performance in laboratory courses.
12. Increase student learning and achievement through a culture of continuous quality improvement	Improve the problem solving skills of physics and engineering students. Improve student performance in laboratory courses.
13. Strengthen and develop relationships with key partners and stakeholders	
14. Develop sustainable, alternative revenue streams utilizing existing resources	
15. Strengthen capacity to seek and acquire grant funding for the purpose of developing innovative programs and services that align with the college mission and vision	

Part II: Program Goals and Objectives (Continued)

4. If you have department goals that do not support any of the Educational Master Plan Goals, please list them in the space provided below.

N/A

Part III: Student Achievement Data Analysis

Please provide a summary of the data and indicate any significant patterns, trends, or anomalies that the department has identified, especially including, but not limited to, disproportionate impact. Describe how the data were used and what changes to the program were made (or will be made) based on analysis of the data.

Required

1. Institution-Set Standard for student success: **63%**
2. Student success rate (grades of A, B, C, Credit or Pass):
 - a. How does the success rate for your program compare to the institution-set standard for success?

While SCC has created four courses for students planning to transfer into various engineering majors, these courses have not been offered yet. We are still waiting for course to course articulation agreements with local universities like CSUF, CSULB, UCI, UCR, UCSD, and Cal Poly Pomona.

3. Student success rate in basic skills courses (grades of A, B, C, Credit or Pass):
4. Student retention rates (any grade except W): N/A
5. Student retention rates in basic skills courses (any grade except W): N/A
6. Number of degrees and certificates awarded. [Use the list from Part I]: N/A
7. Student Demographic Data (See [Appendix 4](#)) (Ethnicity, Age, Gender, Veteran Status)

We have not offered any engineering courses yet, so we have no demographic data. We expect the demographics of the engineering program to be similar to the physics program, but even fewer older students. SCC will only be serving engineering students looking to transfer into four year programs. The lack of certificate programs, like those offered at SAC, will reduce the number of students coming to our program for retraining.

8. Labor market trends and needs: Review the labor market data on the [California Employment Development Department](#) website for jobs related to your program.
 - a. What occupations are related to your program?

There are many possible occupations related to engineering. These include engineers, technicians, and educators. Only some of these occupations are listed because our program is focused on students that will transfer into degree programs. Many technicians only require certificates, similar to those offered at Santa Ana College.

- i. Aerospace Engineering
- ii. Biomedical Engineers
- iii. Chemical Engineers
- iv. Civil Engineers
- v. Computer and Information Research Scientists

- vi. Computer Programmers
- vii. Computer Systems Analysts
- viii. Electrical and Electronic Drafters
- ix. Electronics Engineers
- x. Engineering Teachers
- xi. Engineers, All Other
- xii. Environmental Engineers
- xiii. Industrial Engineers
- xiv. Materials Engineers
- xv. Mechanical Drafters
- xvi. Mechanical Engineers
- xvii. Sales Engineers
- xviii. Semiconductor Processors
- xix. Software Developers, Applications
- xx. Software Developers, Systems Software

b. What are the occupational projections for employment?

- i. Aerospace Engineering – 13.3 % growth
- ii. Biomedical Engineers – 67.5 % growth
- iii. Chemical Engineers – 15.8 % growth
- iv. Civil Engineers – 12.6 % growth
- v. Computer and Information Research Scientists – 19 % growth
- vi. Computer Programmers – 10.8 % growth
- vii. Computer Systems Analysts – 17.8 % growth
- viii. Electrical and Electronic Drafters – 10 % growth
- ix. Electronics Engineers – 12.9 % growth
- x. Engineering Teachers – 12.9 % growth
- xi. Engineers, All Other – 11.9 % growth
- xii. Environmental Engineers – 25 % growth
- xiii. Industrial Engineers – 11.1 % growth
- xiv. Materials Engineers – 17.2 % growth
- xv. Mechanical Drafters – 10.4 % growth
- xvi. Mechanical Engineers – 9.8 % growth
- xvii. Sales Engineers – 23.5 % growth
- xviii. Semiconductor Processors – 2.3 % growth
- xix. Software Developers, Applications – 27.7 % growth
- xx. Software Developers, Systems Software – 31.9 % growth

c. How do these projections affect planning for your program?

There will never be enough engineers, but not every engineering occupation is always in need of new employees. Currently Computer Engineering/Computer Science and Biomedical Engineering are the two hottest growth fields. While different programs will become more popular, all engineers have to take some of the same courses at the freshman/sophomore level.

SCC is offering these courses and demand should remain high as there is always demand for more engineers.

9. Rates of progress through the basic skills course sequence within your program using the California Community College Chancellor's Office Data Mart [Basic Skills Progress Tracker](#) (see [Appendix 5](#)).

Optional [Discuss if your department has access to any of the following data]

10. Student surveys
11. Program exit exams or other assessments of graduating students
12. Number of students who take and pass external license examinations
13. Data on former students' post-SCC experiences (e.g. transfer success, career advances, post graduation surveys)
14. Other data pertaining to the program's instructional effectiveness

Part IV: Course Student Learning Outcomes Assessment

1. How does the program systematically assess its course student learning outcomes using specific and measurable performance criteria? How is this assessment carried out and who is involved in the assessment process?

Our program has not yet offered any courses. The assessment of these courses, once offered, will involve the use of embedded questions. These embedded questions will be developed in collaboration between the section's instructor and Professor Rutan. The laboratory outcome for Engineering 230 will be done be evaluation of a circuit design project. Each of these assessments will require the students to score 70% or higher to be successful. Successful courses will require 70% of the students completing the course to achieve success on the outcome.

2. Upon review of course student learning assessment data, give at least one specific example of
 - a. A course student learning outcome which students have definitely met and why you think students were successful.

We have no data where students have met the outcome because none of these courses have been scheduled. We do expect high success rates in these courses due to the high quality of students planning to transfer to a university in an engineering discipline.

- b. A course student learning outcome which students have definitely **not** met and why you think students were unsuccessful. What changes have you considered making?

Due to some struggles with the assessment of physics classes, we will be watching initial assessment of these courses to ensure that achievement levels on outcomes are not significantly lower than course success rates. This has been an issue in physics courses and something similar could be observed in engineering.

3. What changes has the program *already* made based on its assessment of course student learning outcomes? Give specific examples.

N/A

4. Describe how you know if the changes have increased success?

N/A

Part V: Program Student Learning Outcomes Assessment

1. How is your assessment process for program student learning outcomes *different* from the process by which you assess courses? What, if any, assessments does do you use specifically for your program outcomes?

Engineering does not have any degrees or certificates. SCC has not established outcomes for academic programs, only awards; therefore, the engineering program has not outcomes to assess.

2. Upon review of program learning assessment data, what patterns, trends, or anomalies did your program identify?

N/A

3. It is understood that many programs have a small number of students who actually earn a degree or certificate in that program. If small sample size was not an issue, what additional techniques could you use to assess your program?

N/A

Part VI: Curriculum and Program Management

1. With *SCC's Mission Statement* in mind, explain how your program meets the academic, developmental, and vocational needs of SCC's diverse student population? Does your program offer learning opportunities that extend beyond the traditional classroom experience?

The courses offered by the engineering program are highly specialized, transferrable courses designed to satisfy major preparation requirements for various engineering disciplines. They are mission appropriate since they are designed to serve the needs of transfer students in engineering, but they are not appropriate for a general audience or general education students. In addition to the four courses offered by our program, engineering majors may be expected to complete calculus, differential equations and linear algebra, calculus-based physics, computer programming, and land surveying. All of these courses are currently offered at SCC.

2. Does your program offer sufficient courses, with sufficient frequency, at appropriate times, and through appropriate delivery modes to meet the major requirements, transfer goals, and general education and elective needs of the student body? If not, list what changes would help accomplish this.

We have not offered any of our courses yet. We anticipate offering one or two classes each semester at SCC. SAC has expressed concern that our new courses will hurt their enrollments. We will do our best to ensure that similar engineering courses are not scheduled in the same semester at each campus.

3. How does the faculty *review the processes* it uses to manage the curriculum and program, including the process of introducing new courses, the process of conducting quadrennial reviews, and the process of creating new programs?

Our new courses were created after reviewing the courses offered at many local community colleges and reviewing the major preparation requirements for several engineering majors listed on assist.org. Once the courses to be developed were determined, Professor Rutan reviewed articulated course outlines from other community colleges and modified them for use at SCC. Local universities are currently reviewing our courses to determine if they will be articulated as major preparation for engineering majors. If any universities request changes, those changes will be implemented before any of our courses are scheduled.

Quadrennial review will occur, for the first time, in three years. Assuming these courses have been articulated, changes will only be made if there are changes to articulation agreements or if universities alter their curriculum. Since these courses were specifically designed for transfer requirements, there is no reason to change the course outlines if the courses are accepted by all of our local universities.

4. How does the faculty coordinate the program with other academic programs, including the Library, and with student services? How does the faculty maintain their knowledge of other programs and services offered at SCC? If applicable, what contact does the program have with outside advisory groups?

The engineering courses will be scheduled to not conflict with other courses that engineering majors are likely to take (engineering physics, calculus, linear algebra and differential equations, general chemistry, surveying, and computer programming). These students will likely be at SCC for three years and their schedules will be impacted every semester. Once we begin to offer courses, we will work with counseling to ensure that students know what SCC will be offering. These students understand what courses they need to take, but we will need to make sure that they are aware that we are now offering them. This will help us keep these students here instead of losing them to OCC or Saddleback.

5. Upon consideration of the information you have presented in this section, what areas or issues will need attention from the program in the next two years?

Our only possible issue, at this time, is the rejection of one or more of our courses by local universities. If that happens, any changes requested will be made and the courses will be resubmitted by our Articulation Officer.

Part VII: Resources

1. How well do the facilities (classrooms, labs, offices, meeting rooms, storage) used by the program meet its needs? Do facilities and equipment meet appropriate safety criteria?

We expect to share space with the physics program. It is unclear whether this arrangement will be sufficient. We will have more information during the next APR in two years.

2. How sufficient are the program's equipment, supplies, and materials? Does the program have a budget and timeline for the purchase of needed equipment and supplies?

New laboratory supplies and equipment were ordered using funds from the Title V grant. This equipment, combined with the equipment used by the physics program, will be sufficient for the one laboratory course that the program offers.

3. How well do technology resources (i.e., computers, software, media and presentation equipment) meet the instructional (classroom and laboratory) needs of the program?

The program has access to the laptop and tablet computers used by the physics program. The physics labs are already mediated. These resources should be sufficient for the next two years.

4. How well do technology resources (i.e., faculty computers and software), training, and technical support meet the administrative (i.e., faculty office work) needs of the program?

Professor Rutan's office computer was purchased in 2010 and will need to be upgraded soon. He hopes that laptop computers will be offered when upgrades are made available.

5. How adequate is staff support (provided by administrative assistants, lab assistants, learning facilitators, and instructional assistants, and other classified staff) to meet the instructional and administrative needs of the program?

We do not have any support staff for the program. We hope to have support from the instructional assistant for the physics program, if this individual is hired.

6. Does your program receive any categorical (Basic Skills, STEM, Title V) funding? If so, what major activities or resources has the funding allowed for? What impact has this had on your program (address both positive *and* negative impacts)? If the college were to sustain these activities, which are critical to your program and what would be required to institutionalize them?

The program received some equipment and supplies from the Title V grant. Additionally, the grant will pay for some of the new courses to be offered. We hope to take advantage of this funding, but are still waiting on the articulation of our courses.

7. Upon consideration of the information you have presented in this section, what areas or issues will need attention from the program in the next two years?

There is nothing that really needs attention. Until our courses are being offered, there is no way to know if we have sufficient resources.

Part VIII: Faculty

1. What are faculty members doing to remain current in knowledge of learning theory, instructional strategies, and content? In which professional organizations and conferences do faculty members participate?

Professor Rutan is a member of the Institute of Electrical and Electronics Engineers (IEEE) and monitors the Engineering Faculty listserv from the ASCCC. He regularly monitors the major requirements using assist and will continue to do so going forward.

2. How do faculty members participate in college-wide programs, shared governance bodies, and leadership activities? In what ways do faculty and staff serve as resources for the community?

Professor Rutan is currently the Chair of the Curriculum and Instruction Council and also serves on the College Council, Academic Senate, Academic Senate Executive Board, the Planning and Institutional Effectiveness Committee, the SCC Enrollment Management Committee, District Curriculum and Instruction Council, and as the Co-Chair of the 2014 Institutional Self Evaluation Steering Committee. Additionally, Professor Rutan continues to serve as the FDRG lead for physics in the C-ID project, served two years on the Academic Senate for California Community Colleges (ASCCC) Curriculum Committee, and currently serves on the ASCCC Operational Oversight Committee, the ASCCC Hiring and Evaluations Task Force, the Scorecard Technical Advisory Group for the California Community Colleges Chancellors Office, and the Natural Sciences Scoping Committee of the Intersegmental Committee of Academic Senates. During his statewide service, Professor Rutan has presented many sessions at regional meetings, plenary sessions, and curriculum institutes.

3. Are adequate numbers of qualified faculty available to teach all sections in a program's offerings?

We do not know the answer because we have not offered any section yet. One of the SAC full time engineering faculty has offered to teach one class for SCC each semester. Between him and Professor Rutan, we may not require any adjunct faculty for the first few years.

4. Are adequate and appropriate mentoring and faculty development opportunities available and do department faculty regularly utilize these opportunities?

There could always be more professional development activities to aid instructors. Professor Rutan, as the only engineering faculty on campus, would love to be able to attend conferences on engineering education. It is not feasible to offer on campus professional development in these areas since there is only one engineering faculty members.

5. To what extent are part-time faculty members knowledgeable about the program's practices and standards? What opportunities are provided for part time faculty members to become engaged in department activities and communication?

The program has no adjunct faculty.

6. Upon consideration of the information you have presented in this section, what areas or issues will need attention from the program in the next two years?

If funding is available, Professor Rutan should attend a conference about trends in engineering education at community colleges.

Part IX: Internal and External Communication

1. When were the program's Departmental Planning Portfolio (DPP), catalog, and Educational Master Plan (EMP) entries last updated to ensure currency and accuracy?

Engineering shares a DPP with Physics and that DPP is updated every year. Our courses now appear in the college catalog and Professor Rutan will review those entries each year.

2. How does the program keep its website comprehensive and current? Does the website contain the department's mission? Does the website contain current contact information (telephone numbers, email addresses, and office hours and locations) for program faculty and staff? Are program and course Student Learning Outcomes (SLOs) posted? Are outcomes assessment results posted?

Engineering courses and course SLOs are listed on the Physics and Engineering Department website. This website is updated each semester by the department chair. Professor Rutan's faculty information is listed on the department page and this page has a link to his personal page on the SCC website. His office hours are listed on his personal site. Course SLO results will be listed once the courses are offered, assuming the ability is available from Taskstream.

3. How does the program keep counselors, advisors, and student service personnel informed about the program's courses, their sequencing, and the criteria for placement?

Professor Rutan will meet with the counselors once they begin to be scheduled. He will discuss the purpose of each course and the intended audience. Not all engineering courses are appropriate for every discipline.

4. How well do faculty communicate about and coordinate the work of the program?

The program was created by the passage of the Title V grant. This grant was reviewed and approved by the Academic Senate and College Council. The creation of the courses and the reasons for not creating a degree were discussed at the Curriculum and Instruction Council. Until the courses are scheduled, there is nothing else to share, except that we are in a holding pattern waiting on a reply for local universities.

5. Upon consideration of the information you have presented in this section, what areas or issues will need attention from the program in the next two years?

Professor Rutan will need to work with counseling once the program's courses are ready to be offered. Additionally, he will need to work with faculty in STEM to advertise these courses to perspective students.

Part X: Planning Agenda for: Engineering

Please consider areas or issues that will need attention from your program in the next two years. From that information, complete the chart below. This document will be used to help college planning and resource allocation. It will also show that SCC is linking assessment and student success data to planning. Definitely include any action that may need institutional support, but also include your currently anticipated actions to let the college know what your program is planning. Feel free to add rows if necessary.

Action: Actions can include a pedagogical change at the department level (i.e. create supplemental activities for Psychology 100 OR try “flipping the classroom” for a pilot group of 3 instructors) or a specific resource request (i.e. increase the number of SI sections in Calculus OR develop an Engineering Library OR hire a new full-time faculty member).

Supporting Data: The data should justify the need for the action. It may give evidence of a deficiency you are trying to remedy or it may indicate a success that you wish to replicate. You can fill in this column by referring to information in this document (i.e. IV-2b to refer to student outcomes data given in Part IV question 2b), information in a completed course or program assessment report or reports (i.e. English 101 Fall 2012 or Art Spring 2011), information from an outside study (i.e. <http://ir.uiowa.edu/cgi/viewcontent.cgi?article=2381&context=etd>), or any other data that you think is relevant. Do your best to find data, but feel free to include other justification.

Resources Needed: This should include any supplies/equipment, human resources, technological needs, and facilities needs. Include an estimated dollar amount whenever reasonably possible.

PLANNING AGENDA – 2012-2014		
Actions	Supporting Data	Resources Needed
Obtain course to course articulation for all four engineering courses with all local universities (UCI, UCSD, UCR, UCLA, Cal Poly Pomona, CSUF, CSULB, CSUSB)	These courses are designed to meet the specific needs of engineering transfer students. Without these agreements, there is no reason for a student to taken any of these courses.	No additional resources are need.
Begin offering engineering courses to SCC students.	SCC determined that it wanted to create an engineering transfer program when it wrote and passed the Title V grant. These courses are a vital piece in making that program a reality.	LHE to offer a minimum of one engineering course each semester.

Program Review Summary Report

This “executive summary” report is intended to be shared with College Council and other areas of the college that may not see your department’s entire program review document. This report allows you to provide an update of your department’s plans, needs, accomplishments, and concerns to a collegial governance body consisting of representatives from all areas of the college.

Department: Engineering

Date: February 16, 2014

Briefly describe and explain what is working well in your department.

The creation of our courses went as expected. We hope to have articulation agreements in place soon. The Title V grant provided funds to create our courses, purchase equipment for these first courses, and to offer instruction in these courses. Without the grant, we would not be so close to offering this program.

Briefly describe and explain what is not working well or needs attention in your department.

The program is in a holding pattern and cannot move forward without articulation agreements with local universities. SCC has no way to speed up this process.

List and briefly explain the plans your department has in the areas of facilities, technology, equipment, and personnel in the next 2 years. Please provide an expected date for each item.

Facilities: We do not anticipate any facilities needs in the next two years. We believe that the shared facilities with the physics program will be sufficient.

Technology: We do not anticipate any technology needs in the next two years. We believe that the technology shared with the physics program will be sufficient.

Equipment: We do not anticipate any equipment needs in the next two years. Between the equipment provided by the Title V grant and that shared with the physics program, we should be fine.

Personnel: We have not personnel needs at this time. We hope to utilize the physics program’s instructional assistant, if this individual is hired.

Summarize any other findings from your program review and planning process that you would like to share with the college community.

This is a wonderful opportunity for SCC. Engineering is always an area of high demand and SCC has the ability to establish a focused program that will greatly benefit the students

in our community. We are indebted to the Title V grant for providing the initial funds to create our courses and purchase our initial laboratory equipment. We also own thanks to President Vazquez for his vision in bringing engineering to SCC.

Appendix 1 - Supporting Departments and Documents

Checklist of recommended supporting documents to compile prior to beginning program review.

Some documents might not apply to your program and you may want to add additional documents if relevant.

The RSCCD Research department is available to help departments construct student surveys and graduate surveys. The RSCCD Research department can also furnish data specific to your program that has not already been provided in this document. Please contact Nga Pham at (714) 480-7467 or email Pham_Nga@rscdd.edu.

RSCCD Website

- [RSCCD Vision and Goals](#)
- [RSCCD Reports Directory](#)
- [RSCCD Demographic Data](#)

RSCCD Research

- [AA/AS Degrees Awarded, 2007-2012](#)
- [Certificates Awarded, 2007-2012](#)
- [2009-2012 FTES Generated by Department by Semester](#)
- [Fall 2008 - Fall 2012 Course Grade Distribution by Department](#)
- [Fall 2012 Course Grade Distribution by Department by Ethnicity](#)
- [Fall 2012 Demographics by Department by Course](#)

SCC Website

- [SCC Catalog and Schedule of Classes](#)
- [SCC Mission](#)
- [SCC Institutional Student Learning Outcomes](#)
- SCC Goals (p. 71-75) [2012-2016 Educational Master Plan](#)
- Community/student demographics and trends (p. 17-51) [2012-2016 Educational Master Plan](#)
- [Department Web Pages](#)
- [SCC Curriculum and Instruction Council](#)

Department Planning Portfolio (DPP) (login required)

- Departmental vision and mission statement
- Department Goals

Assist.org

- Articulation agreements with colleges

Department Documents

- Course syllabi
- [Curriculum course outlines](#)
- [Program SLOs](#)
- [Course SLOs](#)
- [Assessment results](#)
- Mapping from course SLOs to General Education SLOs from course outlines
- Minutes from department meetings
- Previous program review documents
- Department and instructors' websites
- Course sequence chart
- Scheduling matrix
- Equipment request forms
- Graduate surveys
- Student surveys
- Department accomplishment List
- Coordinator and committee List
- Department Flex schedule
- Articulation agreements with high schools
- Data on enrollment, excess demand, retention, cancelled classes

Appendix 2 - Lexicon of Essential Terms

Award Programs – a series of courses and activities that leads to a degree or certificate

Department Planning Portfolio (DPP) – is a document that departments/units use to annually review progress and set goals.

Efficiency – is the ratio of FTES divided by FTEF. Demonstrates how many full-time equivalent students are served by one full-time equivalent faculty.

Educational Master Plan – is the primary campus-wide planning document and contains the overview planning piece: those elements that have broad implications for the college as a whole, that bridge more than one department or unit, or that reside apart from the units as currently configured.

FTEF – Full-time equivalent faculty, which is measured in terms of lecture hour equivalents (LHE), is a unit of measurement that defines the calculated (not actual) number of faculty that are equivalent to the number carrying a full “load” of work. One FTEF is equal to 15 LHE.

FTES – Full-time equivalent student is a unit of measurement that defines the calculated (not actual) number of students that are equivalent to the number carrying a full “load” of coursework.

Institution-Set Standard – is a standard set by an institution, derived from historical student achievement data, that serves as a minimum threshold for student performance. If student achievement data falls below the institution-set standard, a course of action must be defined in order to address performance deficiencies.

LHE – lecture hour equivalent is the first step in computing faculty load. It standardizes the number of lecture and lab hours taught by faculty. A full load is equal to 15 LHE.

Outcomes Assessment Data – these data are derived from course and/or program assessment efforts and allow institutions the ability to determine the degree to which students are learning the defined curriculum for a course or program.

Retention Rate – is the proportion of students who stay in the course to the end of the term and receive a letter grade. It is the proportion of all letter grades that are not Withdrawals of a grade of W.

Student Achievement Data – are measures of student achievement of short, near, and long term educational goals. Examples include course retention, course success, attainment of unit benchmarks, graduation and/or transfer.

Success Rate – is the proportion of students who successfully complete a course. It is the proportion of all letter grades that are an A, B, C, Credit or Pass.

Appendix 3 - Long Term Planning Highlights

Long Term Planning Highlights

Beginning in 2016, the published EMP follows a 6-year cycle, program review follows a 3-year cycle, and these cycles are synchronized and in phase with the 6-year accreditation cycle. There are some irregular periods prior to 2016. This was designed so that all processes are synchronized beginning in 2016. For example, given that the 2007-2012 EMP was already in place, a shorter 4-year EMP for 2012-2016 was necessary to achieve synchronization with the accreditation cycle beginning in 2016.

Year	DPP	Budget	Evaluation	Program Review	EMP Development	Accreditation	EMP Implementation
2007 to 2008	Fall						EMP 2007-2012
	Spring						
2008 to 2009	Fall					Site Visit	
	Spring			Program Review			
2009 to 2010	Fall	Review DPP, Submit Requests → Allocation					
	Spring		Evaluate, Update DPP		Review EMP		
2010 to 2011	Fall	Review DPP, Submit Requests → Allocation				Midterm Self Study	
	Spring		Evaluate, Update DPP				
2011 to 2012	Fall	Review DPP, Submit Requests → Allocation		Program Review		Midterm Report	
	Spring		Evaluate, Update DPP		Write EMP		
2012 to 2013	Fall	Review DPP, Submit Requests → Allocation					EMP 2012-2016
	Spring		Evaluate, Update DPP				
2013 to 2014	Fall	Review DPP, Submit Requests → Allocation		Program Review		Self Study	
	Spring		Evaluate, Update DPP		Review EMP		
2014 to 2015	Fall	Review DPP, Submit Requests → Allocation				Site Visit	
	Spring		Evaluate, Update DPP				
2015 to 2016	Fall	Review DPP, Submit Requests → Allocation		Program Review			
	Spring		Evaluate, Update DPP		Write EMP		
2016 to 2017	Fall	Review DPP, Submit Requests → Allocation				Midterm Self Study	EMP 2016-2022
	Spring		Evaluate, Update DPP				
2017 to 2018	Fall	Review DPP, Submit Requests → Allocation				Midterm Report	
	Spring		Evaluate, Update DPP				
2018 to 2019	Fall	Review DPP, Submit Requests → Allocation		Program Review			
	Spring		Evaluate, Update DPP		Review EMP		
2019 to 2020	Fall	Review DPP, Submit Requests → Allocation				Self Study	
	Spring		Evaluate, Update DPP				
2020 to 2021	Fall	Review DPP, Submit Requests → Allocation				Site Visit	
	Spring		Evaluate, Update DPP				
2021 to 2022	Fall	Review DPP, Submit Requests → Allocation		Program Review			
	Spring		Evaluate, Update DPP		Write EMP		

Appendix 4 - Student Demographic Data

Appendix 5 - Basic Skills Progress Tracker – Introduction and Instructions

The Basic Skills Progress Tracker (or Progress Tracker, for short) tracks cohorts of students in four general areas: English reading, English writing, ESL, and math. ESL may be subdivided into four related areas (integrated, reading, writing, & listening) depending on the curriculum of the college(s) included in the query. The Progress Tracker establishes cohorts of students by looking at the first basic skills course ever taken by a student in a basic skills subject area. This starting cohort will be in a yellow highlighted cell in the final report. Basic skills courses in the four major basic skills areas are identified by TOP code and by CB21 code (COURSE-PRIOR-TO-COLLEGE-LEVEL).

How to use the Basic Skills Progress Tracker (aka Progress Tracker)

Progress Tracker query selections are made in a left to right fashion, just as one would read the text on a page. You must go in order from the top left of the query page to the top right of the query page, then drop to the second row of selections and proceed from left to right. When all selections have been made, click on the “View Report” button to see the report for your selected options. The following steps provide a walk-through for the successful operation of the Progress Tracker query. You should proceed as follows (in the given order):

1. **Select a specific college** as the focus of your query (or select “Statewide” for a query that includes the entire CCC system)
2. Select a **“Cohort Start Term”**. This term defines the beginning point for the basic skills cohort you will be tracking. All students who first enrolled in a given basic skills subject area in the term selected here will be included in the tracker. They need not be first time students in that term; they may be, but that is incidental. The cohort is defined here based on this term being identified as the first term they ever took a course in the given subject area at the selected college. Note that only courses at the focus college are considered when evaluating “first time in a basic skills subject area”, i.e., courses taken at other colleges are not evaluated. This focus is part of the design, as the tool is intended to help with the evaluation of local curriculum (unless the “Statewide” option is chosen, then the evaluation crosses all colleges).
3. **Choose an “End Term”** for your cohort tracking. This selection, in combination with the start term selected in step 2 will define the window of time being evaluated by the query. A typical time window is three years, though it is informative to process a variety of different time frames to see how that affects the progress of cohorts. Note that it is possible to set the start term and the end term to the same term in which case not much progress would be expected, though some patterns of cross-enrollment may be noted, particularly in the ESL and reading basic skills subject areas.
4. **Select a basic skills subject**; this is where you choose which basic skills area to focus on. The choices you see are dependent on the curriculum offered at the focus college selected in step 1 during the term selected in step 2. For instance, you may see only ESL – Integrated, if that is the only type of ESL course offered at the focus college, or you may see more options such as ESL – Listening, ESL – Writing, etc. Moreover, if the curriculum at the focus college was different at different points in times, the basic skills subject choices will reflect those changes when a new start term is selected. The four general basic skills areas (English – Reading, English – Writing, ESL, and Math) are defined by the Taxonomy of Program (TOP) coding used by the focus college.

5. **Select starting cohort level**; this drop down box allows you to select the starting level in the basic skills subject area. Courses that are “One Level Below Transfer” are the courses immediately prior to the transfer level course (i.e., the prerequisite for the transfer course). Courses that are “Two Levels Below Transfer” are the course prior to the prerequisite for the transfer level course, and so on.¹
6. The “**Customize Cohort**” selection is the final drop-down box and it is optional. It allows you to de-select courses that have been identified as belonging to a certain basic skills area at a certain level. In a typical query, there will be no need to use the “Customize Cohort” option, but there are several reasons why it may be useful in certain situations. For instance, you may click on the “Customize Cohort” button and see that some courses are improperly identified as courses at the level of interest. You could use this option to exclude those courses from being used in the formation of the basic skills cohort presented in the Progress Tracker report (you should also make a note of the improperly coded courses so that you can look into getting them coded properly, see FAQ below for more details). Another potential use of the “Customize Cohort” option is to refine a report so that you are focusing only on certain classes. Perhaps your college has some accelerated curriculum and some non-accelerated curriculum at a given level; you could use the “Customize Cohort” option to run a report for each type of course, as long as they have separate Course IDs. Cohort progress rates could then be compared across the different types of curriculum offered at the same level.
7. Click on “**View Report**” and after a brief wait the report should appear below your query selections.
8. If you wish, you may select to disaggregate the report by the demographic and programmatic categories provided in the “**Report Format Selection Area**” below the generated Progress Tracker report. Once you have checked the boxes corresponding to your areas of interest, click on the “**Update Report**” button in the bottom right of the screen.
9. Once a report is generated, clicking the “**Advanced Layout**” button provides new options are useful for customizing the look and content of your report. The advanced layout options replace the checkboxes of the “**Report Format Selection Area**” with a more complex set of options. You can filter the report area to show only selected categories of Gender, Age, Ethnicity, Financial Aid, etc. Filter categories can be dragged into the Row or Column display area and content that is displayed in rows can be dragged over to the column display area and vice versa. It may take some experimenting to see how to best use these options to create the custom report that best meets your needs. The “Data Area” allows you to arrange the order of the displayed data (Headcount, Attempts, and Success) to suit your reporting needs. One important use of the “Course IDs” field in the “Columns” area is to de-select the Course IDs of courses that do not necessarily belong in your final report. For instance, you may wish to de-select non-gatekeeper transfer level English courses. That is, if English 1A is the first transfer level English

¹ The CB21 MIS data element (COURSE-PRIOR-TO-COLLEGE-LEVEL) determines whether courses are identified as transfer level, one level below, etc. Only courses with TOP codes in English reading, English writing, math, and ESL are assigned CB21 codes. CB21 codes can be viewed for a given TOP code with the “Course Details” query on the CCCCCO Data Mart 2.0. Oftentimes, issues with a Progress Tracker report have to do with improper coding of the CB21 data element. Your local academic specialist and/or MIS guru should be able to work with you to get your college’s CB21 codes (or other MIS codes) coded properly and reported to the Chancellor’s Office.

course (aka, the gatekeeper course) you may wish to deselect English 2 or English 1B (for example) as those courses are subsequent to English 1A and do not carry the same significance in the context of a report that is focused on the progression of cohorts of students through the basic skills sequence. Also, if your college does not have pre-requisites on transferable English electives like literature or creative writing courses, you might also want to exclude these. By de-selecting those courses in the “Course IDs” field in the “Column Area”, headcount, attempts, and success in those courses are no longer counted or displayed in the report area of the Progress Tracker. Finally, if checked, the “Defer Layout Update” checkbox may improve performance by allowing you to make all your selections first and then apply all of your selections at the same time by clicking on the “Update” button in the lower right of the screen.

Data Fields:

- Student: Students number is the headcount.
- Attempts: Attempts is the count of enrollments by the students.
- Success: Success is the count of successful enrollments (grade of 'A', 'B', 'C', 'P', 'IA', 'IB', 'IC', 'IPP')