Chaffey College Program Review
Three Year Review 2011

PROGRAM OVERVIEW

Program Title: Engineering

Program Code: 901 - ENGINEERING

Review Type: Instructional

Does this review contain any career technical education (occupational) programs?
No

External Regulations:
No

Chaffey College Mission Statement
Chaffey College improves lives within the diverse communities it serves through equal access to quality occupational, transfer, general education, and foundation programs in a learning-centered environment where student success is highly valued, supported, and assessed.

Please describe how your program supports the college's mission and discuss how your program evaluates its effectiveness in meeting the college mission:
Engineering supports the college mission through course offerings, community involvement, and access. Courses are offered day and night. Engineering currently has 1 faculty and 1 adjunct. Currently one faculty has is the head of department. Introduction to Engineering ENGIN 11 and Engineering Statics ENGIN 30 are offered every fall. Engineering Digital Computation ENGIN 30 and Engineering Dynamics 52 are offered every spring. However, because of budged cut we are offering two courses in fall and one course in spring.

Review Team Response
The Engineering Program supports the college mission through course offerings that will lead to either transfer to a four-year institute or employment. Courses are offered at various times of day and night to appeal to a wide variety of students - both those working during the day and those attending school during traditional classroom hours.

PROGRAM DATA
Enrollment
Enrollment by Day, Evening, Online, Arranged (ENGIN)

<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Enrollment</td>
<td>12.63%</td>
<td>-8.41%</td>
</tr>
<tr>
<td>Day</td>
<td>-22.22%</td>
<td>12.24%</td>
</tr>
<tr>
<td>Evening</td>
<td>81.25%</td>
<td>-25.86%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in enrollment patterns? Identify any important trends and explain them.

Introduction to Engineering is the only course offered during day. The other engineering courses are typically offered evening. The reason being that so students can simultaneously take Physics, Math, and Chemistry. So it is a challenge. I usually take a survey to figure out when to offer engineering course. It mainly depends in when students are taking Physics and math courses.

Retention
Retention Rate by Day, Evening, Online, Arranged (ENGIN)

<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Retention</td>
<td>-7.65%</td>
<td>1.47%</td>
</tr>
<tr>
<td>Day</td>
<td>-6.64%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Evening</td>
<td>-9.36%</td>
<td>-0.3%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Arranged</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in retention patterns? Identify any important trends and explain them.

Statistics for retention have virtually plateaued with a slight dip within the past 1-2 years. The program had the benefit of SI - supplemental instruction - until 2009 - and the dip could be attributed to the discontinuation of SI. In addition, ENG 52 has just been offered for the first time in Spring 2010, and the normal fine-tuning of this course is still occurring, like with any new course. In addition, the overall ENGIN program was revised recently, and the slight dip in retention could be due to the new curriculum.

Success
<table>
<thead>
<tr>
<th>Measure</th>
<th>2008-09 to 2009-10</th>
<th>2009-10 to 2010-11</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Census Success</td>
<td>-0.49%</td>
<td>2.28%</td>
</tr>
<tr>
<td>Day</td>
<td>0.21%</td>
<td>16.08%</td>
</tr>
<tr>
<td>Evening</td>
<td>-9.36%</td>
<td>-9.1%</td>
</tr>
<tr>
<td>Online</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Given the data, what changes can be identified in student success patterns? Identify any important trends and explain them.

The student’s success rate is very good, but there is more to do in term of reaching out so students can be successful. More group and board work has been very successful. UPDATED AND REVISED 8/31/2011: One explanation for the dip in evening success rates could be due to the hiring of a new adjunct for the evening class ENGIN 30. This was a new digital computation class that had never been taught before and the curriculum was challenging for the students. To target more females to enroll in our courses we are now including female guest speakers in our ENGIN 11 course.

Review Team Response
Any idea why daytime enrollment is slightly dipping? All trends started off strong in 2007-2008. You mentioned you are offering most courses at night. Could this be a reason behind the dip in daytime enrollment? Any plans on targeting more female students? African-American students? If you think the discontinuation of SI is responsible for the dip in student success in the evening, are there any plans to re-offer? What other issues might you think is behind the dip in evening success rates? Can you point to any specifics in the new curriculum which might be giving the students a problem? These might be good areas to target for SI, no?

DEGREE/CERTIFICATE DATA
<table>
<thead>
<tr>
<th>Term</th>
<th>Degrees</th>
<th>Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>07/08</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>08/09</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>09/10</td>
<td>0</td>
<td></td>
</tr>
</tbody>
</table>

Given the data, is the number of majors and certificates what you would expect? Please comment. Has the number of majors and certificates increased or decreased over time? Why?

We just modified the A.S. in Engineering program last year, so it gives the students more flexibility and options for graduation. UPDATED/REVISION 8/31/2011: Most students are transfer students and take ENGIN courses as a pre-requisite and not to earn a certificate or degree.

Review Team Response
We see your comment about revising the A.S. degree, but it appears as though there have not been any certificates or degrees awarded in Engineering. Is this true? Why might this be? Are students not persisting through the entire program of study? Are they transferring before that get a certificate or degree? Any plans to look at the Transfer Model Curriculum aligned degree in Engineering which is a part of the SB1440 state legislature?

STUDENT LEARNING OUTCOMES
Students examine and study the various engineering fields.

- Graphics as a fundamental means of thought process in drawing and design.
- Student will learn in how to write a program.
- Student will increase their problem solving skills in engineering.

Discuss how the number, type, depth, and breadth of the courses support program SLO's.
Introduction to Engineering ENGIN 11 helps the students to get good feel for the overall picture. ENGIN 30 help the students to learn how to write program. ENGIN 50 is a basic course for Mechanical Engineering and Civil Engineering Majors. ENGIN 52 is sophomore level course for Mechanical Engineering and Civil Engineering majors. I am hoping we can offer ENGIN 71, which is the basic course for Electrical Engineering majors. These statements regarding individual Engineering courses support each of the four program SLOs from a course level. The program SLOs, in turn, support the four Core Competencies.

Discuss how courses in the program articulate with or complement each other.
ENGIN 11 general is a door to the other engineering courses. ENGIN 52 is the sequential course to ENGIN 50. ENGIN 30 is an independent course for all the majors. ENGIN 50 or 52 are not prerequisite for ENGIN 71.

Discuss how courses in the program interact with other programs on campus (for example: cross-listing, overlapping content, or shared resources). Engineering courses are parts of the following programs of study or certificate programs: Engineering Tech; Mathematics University Studies Physical Science Drafting Technician certificate Engineering Technology and Drafting are very useful for the Engineering course work.

How and when has your department assessed Program SLO's' and how have you responded to the results? In Spring 2009, as a part of PSR that year, all Engineering program SLOs were included in our PSR. In Spring 2010, the Engineering Dept. evaluated the course and program SLO's. Once the Program SLO's were written, individual course SLO's were developed for each Program SLO. Selected course SLO's were evaluated to determine the effectiveness of the chosen evaluation tool. This is an on-going project.

What program or course changes have been made based on the result of the assessed outcome? The questions have been more geared to the nationwide Examination certification: Fundamental Engineering or Engineering in Training. This way our students can get well-prepared once they transfer and later passing Fundamental Engineering Exam. The Engineering Dept. will begin course level SLO assessments in Fall 2011.

Review Team Response Overall Program Level Implementation of SLOs is Developmental. Due to a lack of space in the team response box, the SLO Rubric and a detailed reader's report will be emailed to you and your dean. Basically, the first step we could help you with is the creation of your chronological assessment plan for Engineering, so you know which SLO and which course are going to be assessed during each semester for the next few years.

Discuss how your services help maintain a high level of student satisfaction.

Discuss how you evaluate your effectiveness in meeting students' needs.

How and when has your service reviewed or revised SLO?s and/or AUO?s. How has your program utilized SLO/AUO assessment results for program improvement?

Review Team Response

CURRICULUM UPDATE

<table>
<thead>
<tr>
<th>Courses</th>
<th>Last Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGIN 11 Introduction to Engineering - Active</td>
<td>02/13/2008</td>
</tr>
<tr>
<td>ENGIN 50 Engineering Statics - Active</td>
<td>10/24/2007</td>
</tr>
</tbody>
</table>
**Programs** | **Last Modified**
--- | ---
ENGIN Engineering - Active | 09/17/2009

Courses should be updated every six years; if course updates are due, please describe your plan and timeline for updating courses:
ENGIN 26 has been updated in Curricunet.

**What steps has your program taken to proactively respond to changing and emerging student and community needs?**
Advisory Committees
Develop New Courses/Programs

**Briefly explain:**
I have been diligently communicating with local companies and have been inviting the guest speakers from local four-year college and local companies. Curriculum has been aligned with transfer insitutions. Engineering 11 has taken off in a different due to the changing student demographic. As a result, I have been networking with English faculty to raise the writing standard. I will review the COR for this course to assess whether a course modification will be necessary. UPDATED/REVISION 8/31/11: We developed a new course ENGIN 30 (digital computation) in response to a need for students to be able to do basic computer programming in coursework and in the field. This course also articulates to Cal Poly and UC and Cal States.

**Review Team Response**
Again, I would ask if you have participated in the state-wide conversations for TMC degrees in Engineering. If not - I'd be happy to assist oyu Mo. You have a given a good analysis of how each courses fits with the others; Are there any specific steps you can list telling how Engineering has proactively responded to changing and emerging student and commuity needs? Are there any changing and emerging student and community needs within the Engineering program of study? Any new technology trends for students?

**Review Team Response**

**NON-INSTRUCTIONAL PROGRAM INFORMATION**

How does your program improve, expand, or support student learning? How do you know?
Describe staff functions and services (these can include diversity, specialties, staff preparation and
How does your program evaluate its effectiveness? 

Review Team Response

### STUDENT SUPPORT - ACCESS

How do the services you provide to students facilitate **access** to learning? (e.g. admissions applications, payment processing, pre-requisite clearances, assessment testing, adaptive technology, program applications, healthcare, student activities, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>Description of Service</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>08-09</td>
<td>09-10</td>
</tr>
</tbody>
</table>

Additional information:

Review Team Response

### STUDENT SUPPORT - SUPPORT

How do the services you provide to students **support** student learning? (e.g. counseling, orientations, workshops, financial assistance (scholarships, grants, etc'), career assessments, health education, service learning, advisory committees, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>What knowledge, skills, and/or abilities are learned?</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>08-09</td>
<td>09-10</td>
</tr>
</tbody>
</table>

Additional information:

Review Team Response

### STUDENT SUPPORT - OTHER

How do the services you provide to students **promote** transfer, completion, specialized services, and/or future success? (e.g. graduation ceremony, CSU/IGETC certifications, university transfer, securing employment, transcript requests, enrollment verification, conferring of degrees/certificates, scanning/imaging documents, phone calls received, face-to-face contacts, refunds granted, and other specialized services.)

<table>
<thead>
<tr>
<th>Type of Service</th>
<th>How does this contribute to student success?</th>
<th>How many students received this service?</th>
<th>Measured with?</th>
</tr>
</thead>
</table>
Additional information:

Review Team Response

VISIONARY IMPROVEMENT PLAN (VIP)

Please identify 1-3 program improvement goals for the next three years. Goals should state 'what' you plan to achieve and the rationale 'why' for doing so. 'How' you achieve your goals will be entered under Steps to Success. Keep in mind that your VIP should be SMART:

- Specific
- Measurable
- Action-oriented
- Realistic
- Time-bound

All plans should improve or expand student learning.

Year Three Goal:
Implement lab requirement for ENGIN 71 to give students hands on experience.

To which planning direction does this goal apply?
Excellence in teaching and learning
Flexible and continuous student support
CTE pathway development

Year 1 Steps to Success (activities) and VIP Assessment:
Gather/create all course materials (notes, lab manual etc.) in preparation for the class. Lab instruments are purchased and all course materials are put together

Year 2 Steps to Success (activities) and VIP Assessment:
Write a manual to help aid lab assistants so they know how to guide and supervise students. Lab manual is created with guidelines for lab assistants

Year Three Goal:
Increase critical thinking skills in ENGIN 11 by requiring oral presentations so students have better communication skills on the job.

To which planning direction does this goal apply?
Excellence in teaching and learning
Flexible and continuous student support
CTE pathway development
**Year 1 Steps to Success (activities) and VIP Assessment:**
Create a step by step protocol (write guidelines) for oral presentations in all ENGIN 11 classes to give students more structure and help them become better critical thinkers. Include this protocol in all ENGIN 11 syllabi.
New protocol is written and included in all syllabi.

**Year 2 Steps to Success (activities) and VIP Assessment:**
Refine the protocol and reorganize if necessary.
Critical thinking skills in ENGIN 11 increase based on SLO results.

**Review Team Response**
I think the creation of that chronological assessment plan might help you track what SLO activity and improvements you have made or are planning to make. You are on the right track here though.

**PROFESSIONAL DEVELOPMENT ACTIVITIES THAT SUPPORT STUDENT LEARNING OR IMPROVE YOUR PROGRAM**

List Recent departmental professional development activities connected to student learning.

<table>
<thead>
<tr>
<th>Recent activities</th>
<th>Recent workshops/courses taken</th>
<th>Recent conferences/training</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>Revised, created, updated, and modified the engineering courses: Introduction to Engineering, Engine</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Worked closely with Curriculum Office to input the course information and SLO(s) in CurricucNET.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Co-Chair of the PLHS Student Award Committee, Fall 2002-present.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Communicating and planning with all the other Full-time faculties of California Community Colleges o</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Helped to establish and setup Wesley Tom College Algebra Award, This award was established to honor</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Helped to establish and setup THE ROBERT TOISTER AWARD FOR FUTURE TEACHERS, This award was establi</td>
</tr>
</tbody>
</table>

**Recent**
activities

**workshops/courses**
taken

**conferences/training**
How are student learning outcomes affected by these professional activities? What steps are recommended for improvement?

It gives student an appropriate perspective on how to become an engineer.

Discuss departmental engagement on campus in connection to student learning.

<table>
<thead>
<tr>
<th>Governance committees</th>
<th>Other college-related committees</th>
<th>Other campus participation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Engineering Technology Advisory Board</td>
<td>ASME (American Society of Mechanical Engineering)</td>
</tr>
</tbody>
</table>

How does your program benefit from your campus engagement?

Chaffey alumni who belong to ASME come back to Chaffey as guest speakers to share their experiences as engineers in the "real world" or as graduates. They share their experiences with school (academically) and then also professionally (how to write a resume etc.). Our department's engagement on these committees has a direct connection to students and their future careers and needs.
Teaching/Years of Service

<table>
<thead>
<tr>
<th>Engineering</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0-5 years</td>
<td>6-10 years</td>
<td>11-15 years</td>
<td>16-20 years</td>
<td>21+ years</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Given the data how has your program been impacted?
N/A

Does your program anticipate retirements within the next 3 years?
No.

Review Team Response
Can you list any specifics relating to how the involvement with professional engineers/engineering firms gives a student any idea about employment in this field? Take a cue from the Core Competences - communication, critical thinking, professional/career development, etc.? It does not appear as though the Engineering faculty have listed any campus committees or other involvement. Was this an oversight, or is there no committee involvement? Also, it appears as though the number of years of service is not listed for the Engineering faculty. This section may be incomplete.

PROJECTED NEEDS

Is any part of the program funded by sources other than the instructional budget (such as grants, partnerships, or other means)? If yes, please identify the source, amount, and length of funding.
No

After reviewing and analyzing the data and assessment results in this report, please describe and provide rationale for any projected resource needs required to accomplish your Visionary Improvement Plan using the boxes below. Your requests should be based on student need.

FT Faculty:

Year 1:

Hiring Criteria:

Institutional Level Considerations
Supports Chino expansion
Student need for courses or programs for transfer or vocational certificate
New and emerging curriculum is necessary for student success (e.g., in Success Centers)

Department Concerns
Separation of a FT faculty member that creates hardship on the department. Additional consideration needs to be given to replacing the position due to factors such faculty specialization (e.g., not all remaining faculty members can teach all of the classes), seniority
of remaining faculty members, etc. Department has no FT faculty. Department has one FT faculty and course load, outside reporting (e.g., advisory committees) & responsibilities, etc. requires another FT faculty member.

Year 2:

Hiring Criteria:

Year 3:

Hiring Criteria:

STAFF

Year 1

Year 2

Year 3

EQUIPMENT

Year 1

Everything is in place in terms of facility and equipment, we just need to get a chance to teach the class, and for that, we need extra instructor time.

Year 2

Year 3

TECHNOLOGY

Year 1

Year 2

Year 3

SOFTWARE

Year 1

Year 2

Year 3

OTHER
Year 1

Year 2

Year 3

Review Team Response
This section appears to be blank - was this left blank intentionally?

Review Team Response
Because there are a few pages that appear to be incomplete, we would rank this program at a level 1. We would like to commend the faculty for a terrific beginning, and we would like to remind the Engineering faculty that this is a new PSR process, and we are new PSR readers - both areas will need fine tuning - as does your PSR report, but this is a fine start to a new process. Thanks for your efforts Mo! Marie and Karen 05/04/11 - I worked with Mo to update and complete a few items on this PSR. The Projected needs has been completed. In addition, Mo will complete a chronological assessment plan for his SLO activity. As a result of this activity, and according to the rubric we were given for program review, I would now consider this program at a level of 2. When SLO evidence is entered and loops are closed, and the chronological assessment plan is in place, the projected needs/VIP is fleshed out, I would thing this program would be at a "3".