2017 - 2018
Annual Program Assessment Report

The Office of Academic Program Assessment
California State University, Sacramento

For more information visit our **website**
or **contact us** for more help.

Please begin by selecting your program name in the drop down.
If the program name is not listed, please enter it below:

BS Electrical and Electronic Engineering

OR enter program name:

Section 1: Report All of the Program Learning Outcomes Assessed

Question 1: Program Learning Outcomes

Q1.1.
Which of the following Program Learning Outcomes (PLOs), Sac State Baccalaureate Learning Goals (BLGs), and emboldened Graduate Learning Goals (GLGs) **did you assess?** [**Check all that apply**]

- ☐ 1. **Critical Thinking**
- ☑ 2. **Information Literacy**
- ☑ 3. **Written Communication**
- ☑ 4. **Oral Communication**
- ☐ 5. Quantitative Literacy
- ☑ 6. **Inquiry and Analysis**
- ☑ 7. Creative Thinking
- ☐ 8. Reading
- ☑ 9. Team Work
- ☑ 10. Problem Solving
- ☐ 11. Civic Knowledge and Engagement
- ☐ 12. **Intercultural Knowledge, Competency, and Perspectives**
- ☑ 13. Ethical Reasoning
- ☑ 14. Foundations and Skills for Lifelong Learning
- ☐ 15. **Global Learning and Perspectives**
- ☑ 16. Integrative and Applied Learning
- ☐ 17. Overall Competencies for GE Knowledge
- ☑ 18. **Overall Disciplinary Knowledge**
- ☑ 19. **Professionalism**
- ☐ 20A. Other, specify any assessed PLOs not included above:

a.

b.

c.

- ☐ 20B. **Check here if your program has not collected any data for any PLOs**. Please go directly to Q6 (skip Q1.2 to Q5.3.1.)

Q1.2.
Please provide more detailed background information about **EACH PLO** you checked above and other information including how your specific PLOs are **explicitly** linked to the Sac State **BLGs/GLGs**:

The EEE program has 11 learning outcomes. The program learning outcomes in question Q1.1 are related to the following ABET (and program) outcomes:

(c) an ability to design a system, component, or process to meet desired needs (related to PLOs 2, 6, 10, 16, 18)

(d) an ability to function on multidisciplinary teams(related to PLO 9)

(e) an ability to identify, formulate, and solve engineering problems (PLOs 6, 7, 10, 18)

(f) an understanding of professional and ethical responsibility (PLOs 13 and 19)

(g) an ability to communicate effectively (PLOs 3 and 4)

(i) a recognition of the need for, and an ability to engage in life-long learning (PLO 14)

(j) a knowledge of contemporary issues (PLO 2, 6)

(k) an ability to use the techniques, skills, and modern engineering tools (PLOs 2,6,14, 19).

The outcomes in questions Q1.1 are related to the following Sac State Baccalaureate Learning Goals:

- Competence in the Disciplines: Related to program outcomes (c), (e), (f), (g), (i), (j), (k).
- Intellectual and Practical Skills: Related to program outcomes (c), (d) (e), (f), (g), (i), (j), (k).
- Personal and Social Responsibility: Related to program outcomes (f) and (i).
- Integrative Learning: Related to program outcome (c)

Q1.2.1.
Do you have rubrics for your PLOs?
- ○ 1. Yes, for all PLOs
- ◉ 2. Yes, but for some PLOs
- ○ 3. No rubrics for PLOs
- ○ 4. N/A
- ○ 5. Other, specify:

Q1.3.
Are your PLOs closely aligned with the mission of the university?
- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know

Q1.4.
Is your program externally accredited (other than through WASC Senior College and University Commission (WSCUC))?
- ◉ 1. Yes
- ○ 2. No (skip to **Q1.5**)
- ○ 3. Don't know (skip to **Q1.5**)

Q1.4.1.

If the answer to Q1.4 is **yes**, are your PLOs closely aligned with the mission/goals/outcomes of the accreditation agency?

⚪ 1. Yes

⚪ 2. No

⚪ 3. Don't know

Q1.5.

Did your program use the **Degree Qualification Profile** ("DQP", see http://degreeprofile.org) to develop your PLO(s)?

⚪ 1. Yes

⚪ 2. No, but I know what the DQP is

⚪ 3. No, I don't know what the DQP is

🔵 4. Don't know

Q1.6.

Did you use action verbs to make each PLO measurable?

🔵 1. Yes

⚪ 2. No

⚪ 3. Don't know

(Remember: Save your progress)

Section 2: Report One Learning Outcome in Detail

Question 2: Standard of Performance for the Selected PLO

Q2.1.

Select **OR** type in **ONE(1)** PLO here as an example to illustrate how you conducted assessment (be sure you *checked the* **correct box** for this PLO in Q1.1):

Oral Communication

If your PLO is **not listed, please enter it here**:

Q2.1.1.

Please provide more background information about the **specific PLO** you've chosen in Q2.1.

Oral communication corresponds to outcome g). The EEE program understands the importance of oral communication and performs assessment of the outcome regularly in several courses including the culminating experience. The learning outcome presented here (oral communication) is directly and explicitly related to the third Sac State baccalaureate learning goal: "Intellectual and Practical Skills", which also includes written communication and teamwork.

Q2.2.

Has the program developed or adopted **explicit program standards of performance/expectations** for this PLO? (e.g. "We expect 70% of our students to achieve at least a score of 3 or higher in all dimensions of the Written Communication VALUE rubric.")

     ● 1. Yes
     ○ 2. No
     ○ 3. Don't know
     ○ 4. N/A

Q2.3.
Please **1) provide and/or attach the rubric(s) AND 2) the standards of performance/expectations** that you have developed for *the selected PLO* here:

The program has adopted a rubric for the assessment of oral presentations by the students. The rubric is given to the students in hard copies and posted on the senior design website.

The rubric (attached) uses a scale 1 to 7 and has five items: Organization, originality, significance, discussion and summary, and delivery. Therefore, ythe maximum number of points is 35. The presentations are scored based om the rubric as follows:

- Exceed expectations: Total of 32 points or more.
- Meet expectations: Total between 25 and 31 points
- Below expectation: total of 24 points or less.

We expect 70% of the students to meet or exceed the expectations.

📎 Q2.3 rubric.pdf
46.99 KB
    📎 Q2.3 standards of performance.pdf
34.69 KB

Q2.4. PLO	Q2.5. Stdrd	Q2.6. Rubric	Please indicate where you have published the **PLO**, the **standard (stdrd)** of performance, and the **rubric** that was used to measure the PLO:
☑	☐	☑	1. In **SOME** course syllabi/assignments in the program that address the PLO
☐	☐	☐	2. In **ALL** course syllabi/assignments in the program that address the PLO
☐	☐	☐	3. In the student handbook/advising handbook
☐	☐	☐	4. In the university catalogue
☑	☐	☐	5. On the academic unit website or in newsletters
☑	☐	☐	6. In the assessment or program review reports, plans, resources, or activities
☐	☐	☐	7. In new course proposal forms in the department/college/university
☐	☐	☐	8. In the department/college/university's strategic plans and other planning documents
☐	☐	☐	9. In the department/college/university's budget plans and other resource allocation documents
☐	☐	☐	10. Other, specify:

Question 3: Data Collection Methods and Evaluation of Data Quality for the Selected PLO

Q3.1.
Was assessment data/evidence **collected** for the selected PLO?
     ● 1. Yes
     ○ 2. No (skip to **Q6**)
     ○ 3. Don't know (skip to **Q6**)
     ○ 4. N/A (skip to **Q6**)

Q3.1.1.
How many assessment tools/methods/measures **in total** did you use to assess this PLO?

2

Q3.2.
Was the data **scored/evaluated** for this PLO?
- ● 1. Yes
- ○ 2. No (skip to **Q6**)
- ○ 3. Don't know (skip to **Q6**)
- ○ 4. N/A (skip to **Q6**)

Q3.2.1.
Please describe how you collected the assessment data for the selected PLO. For example, in what course(s) or by what means were data collected:

The assessment data were collected for student's presentations in senior design (EEE 193B) where a specific assignment was used. Senior design is a two semester course. The assignment was given in the second semester. The instructors teaching the course attend the presentations aby the students and scores the students' performance based on the rubric. The rubric has items as follows:

- Organization
- Originality
- Significance
- Discussion and summary
- Delivery.

(Remember: Save your progress)

Question 3A: Direct Measures (key assignments, projects, portfolios, etc.)

Q3.3.
Were direct measures (key assignments, projects, portfolios, course work, student tests, etc.) used to assess this PLO?
- ● 1. Yes
- ○ 2. No (skip to **Q3.7**)
- ○ 3. Don't know (skip to **Q3.7**)

Q3.3.1.
Which of the following direct measures (key assignments, projects, portfolios, course work, student tests, etc.) were used? [**Check all that apply**]
- ☑ 1. Capstone project (e.g. theses, senior theses), courses, or experiences
- ☑ 2. Key assignments from required classes in the program
- ☐ 3. Key assignments from elective classes
- ☐ 4. Classroom based performance assessment such as simulations, comprehensive exams, or critiques
- ☐ 5. External performance assessments such as internships or other community-based projects
- ☐ 6. E-Portfolios
- ☐ 7. Other Portfolios
- ☐ 8. Other, specify:

Q3.3.2.
Please **1) provide and/or attach the direct measure** (key assignments, projects, portfolios, course work, student tests, etc.) you used to collect data, **THEN** **2) explain here** how it assesses the PLO:

The assignment where the PLO is assessed is called feature report and presentation and is given in EEE 193B. Note that this assignment also includes written communication, which is assessed separately based on the reports (not discussed here).

The assignment is explicitly and directly related to the PLO. The student oral presentations are assessed.

📎 **Q3.3.2 assignment.pdf**
44.41 KB   📎 **No file attached**

Q3.4.
What tool was used to evaluate the data?
- ◯ 1. **No** rubric is used to interpret the evidence (skip to **Q3.4.4.**)
- ◯ 2. Used rubric developed/modified by the faculty who teaches the class (skip to **Q3.4.2.**)
- 🔘 3. Used rubric developed/modified by a group of faculty (skip to **Q3.4.2.**)
- ◯ 4. Used rubric pilot-tested and refined by a group of faculty (skip to **Q3.4.2.**)
- ◯ 5. The VALUE rubric(s) (skip to **Q3.4.2.**)
- ◯ 6. Modified VALUE rubric(s) (skip to **Q3.4.2.**)
- ◯ 7. Used other means (Answer **Q3.4.1.**)

Q3.4.1.
If you used other means, which of the following measures was used? [**Check all that apply**]
- ☐ 1. National disciplinary exams or state/professional licensure exams (skip to **Q3.4.4.**)
- ☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.) (skip to **Q3.4.4.**)
- ☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.) (skip to **Q3.4.4.**)
- ☐ 4. Other, specify:

(skip to **Q3.4.4.**)

Q3.4.2.
Was the **rubric** aligned directly and explicitly **with the PLO**?
- 🔘 1. Yes
- ◯ 2. No
- ◯ 3. Don't know
- ◯ 4. N/A

Q3.4.3.
Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the rubric**?
- 🔘 1. Yes
- ◯ 2. No
- ◯ 3. Don't know
- ◯ 4. N/A

Q3.4.4.
Was the **direct measure** (e.g. assignment, thesis, etc.) aligned directly and explicitly **with the PLO**?
- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know
- ○ 4. N/A

Q3.5.
Please enter the number (#) of faculty members who participated in planning the assessment data **collection** of the selected PLO?

> 2

Q3.5.1.
Please enter the number (#) of faculty members who participated in the **evaluation** of the assessment data for the selected PLO?

> The result will be discussed and evaluated by ass…

Q3.5.2.
If the data was evaluated by multiple scorers, was there a norming process (a procedure to make sure everyone was scoring similarly)?
- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know
- ○ 4. N/A

Q3.6.
How did you **select** the sample of student work (papers, projects, portfolios, etc.)?

> The sample consisted of students in senior design. Senior design (EEE 193B) is chosen because it represents the culminating experience. EEE 193B is taken in the last semester by the vast majority of students. Therefore, it presents a reliable tool for assessment purposes.

Q3.6.1.
How did you **decide** how many samples of student work to review?

> All presentations in EEE 193B for the specific assignment were assessed

Q3.6.2.
Please enter the number (#) of students that were in the class or program?

14

Q3.6.3.
Please enter the number (#) of samples of student work that you evaluated?

14

Q3.6.4.
Was the sample size of student work for the direct measure adequate?

- 🔘 1. Yes
- ⚪ 2. No
- ⚪ 3. Don't know

(Remember: Save your progress)

Question 3B: Indirect Measures (surveys, focus groups, interviews, etc.)

Q3.7.
Were indirect measures used to assess the PLO?

- 🔘 1. Yes
- ⚪ 2. No (skip to **Q3.8**)
- ⚪ 3. Don't Know (skip to **Q3.8**)

Q3.7.1.
Which of the following indirect measures were used? [**Check all that apply**]

- ☐ 1. National student surveys (e.g. NSSE)
- ☐ 2. University conducted student surveys (e.g. OIR)
- ☑ 3. College/department/program student surveys or focus groups
- ☐ 4. Alumni surveys, focus groups, or interviews
- ☐ 5. Employer surveys, focus groups, or interviews
- ☐ 6. Advisory board surveys, focus groups, or interviews
- ☐ 7. Other, specify:

Q3.7.1.1.
Please explain and attach the indirect measure you used to collect data:

The indirect measure consisted of an exit survey performed at the end of the semester in EEE 193B. There was one question related to the PLO. Participation was not mandatory but most students participated since it was a paper survey.

📎 **Q3.7.1.1 survey question.pdf**
24.91 KB   📎 **No file attached**

Q3.7.2.
If surveys were used, how was the sample size **decided**?

The sample size was decided based on the students who are graduating.

Q3.7.3.
If surveys were used, how did you **select** your sample:

This was an exit survey. It was given to graduating seniors. The survey was administered in senior design in paper format.

Q3.7.4.
If surveys were used, please enter the response rate:

13 out of 14 students took the survey (92.86%)

Question 3C: Other Measures
(external benchmarking, licensing exams, standardized tests, etc.)

Q3.8.
Were external benchmarking data, such as licensing exams or standardized tests, used to assess the PLO?

- ○ 1. Yes
- ● 2. No (skip to **Q3.8.2**)
- ○ 3. Don't Know (skip to **Q3.8.2**)

Q3.8.1.
Which of the following measures was used? [**Check all that apply**]

- ☐ 1. National disciplinary exams or state/professional licensure exams
- ☐ 2. General knowledge and skills measures (e.g. CLA, ETS PP, etc.)
- ☐ 3. Other standardized knowledge and skill exams (e.g. ETC, GRE, etc.)
- ☐ 4. Other, specify:

Q3.8.2.
Were other measures used to assess the PLO?

- ○ 1. Yes
- ● 2. No (skip to **Q4.1**)
- ○ 3. Don't know (skip to **Q4.1**)

Q3.8.3.
If other measures were used, please specify:

🔗 No file attached	🔗 No file attached

(Remember: Save your progress)

Question 4: Data, Findings, and Conclusions

Q4.1.
Please provide tables and/or graphs to summarize the assessment data, findings, and conclusions for the selected
PLO in **Q2.1** (see Appendix 12 in our Feedback Packet Example):

> Both direct and indirect methods are presented in the attachment. The main conclusions are:
>
> - Using the direct method, we note that about 85% of the students met the expectations (the threshold is
>   70%). These are satisfactory results.
> - Using the direct method, we note that about 92% of the students met the expectations, which again shows
>   satisfactory results.
>
> Note that while there is a difference between the direct and the indirect method, the difference is relatively small,
> which indicates the reliability of the results.

📎 Q4.1 assessment results.pdf 78.93 KB	🔗 No file attached

Q4.2.
Are students doing well and meeting the program standard? **If not**, how will the program work to improve student
performance of the selected PLO?

> The assessment results are satisfactory for the PLO being assessed. The students are meeting program standard for oral communication.

🔗 No file attached	🔗 No file attached

Q4.3.
For the selected PLO, the student performance:
   1. **Exceeded** expectation/standard
   2. ● **Met** expectation/standard

⚪ 3. **Partially** met expectation/standard
⚪ 4. Did not meet expectation/standard
⚪ 5. No expectation/standard has been specified
⚪ 6. Don't know

Question 4A: Alignment and Quality

Q4.4.
Did the data, including the direct measures, from all the different assessment tools/measures/methods directly align with the PLO?

🔘 1. Yes
⚪ 2. No
⚪ 3. Don't know

Q4.5.
Were **all** the assessment tools/measures/methods that were used good measures of the PLO?

🔘 1. Yes
⚪ 2. No
⚪ 3. Don't know

Question 5: Use of Assessment Data (Closing the Loop)

Q5.1.
As a result of the assessment effort and based on prior feedback from OAPA, do you anticipate **making any changes** for your program (e.g. course structure, course content, or modification of PLOs)?

⚪ 1. Yes
🔘 2. No (skip to **Q5.2**)
⚪ 3. Don't know (skip to **Q5.2**)

Q5.1.1.
Please describe **what changes** you plan to make in your program as a result of your assessment of this PLO.

Q5.1.2.
Do you have a plan to assess the **impact of the changes** that you anticipate making?

⚪ 1. Yes, describe your plan:

○ 2. No
○ 3. Don't know

Q5.2.

To what extent did you apply **previous assessment results** collected through your program in the following areas?	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improving specific courses	○	●	○	○	○
2. Modifying curriculum	○	●	○	○	○
3. Improving advising and mentoring	○	○	●	○	○
4. Revising learning outcomes/goals	○	○	●	○	○
5. Revising rubrics and/or expectations	○	○	●	○	○
6. Developing/updating assessment plan	○	●	○	○	○
7. Annual assessment reports	○	○	●	○	○
8. Program review	○	○	○	○	○
9. Prospective student and family information	○	○	○	○	○
10. Alumni communication	○	●	○	○	○
11. WSCUC accreditation (regional accreditation)	○	○	○	○	○
12. Program accreditation	●	○	○	○	○
13. External accountability reporting requirement	○	○	○	○	○
14. Trustee/Governing Board deliberations	○	○	○	○	○
15. Strategic planning	○	○	○	○	○
16. Institutional benchmarking	○	○	○	○	○
17. Academic policy development or modifications	○	○	●	○	○
18. Institutional improvement	○	○	○	○	○
19. Resource allocation and budgeting	○	○	○	○	○
20. New faculty hiring	○	○	○	○	○
21. Professional development for faculty and staff	○	○	●	○	○
22. Recruitment of new students	○	○	○	○	○
23. Other, specify:	○	○	○	○	○

Q5.2.1.
Please provide a detailed example of how you used the assessment data above:

In a previous assessment year, the assessment results for team work (PLO 9) were not satisfactory. The assessment results were presented and discussed in the assessment committee and department meetings. It was decided that one way to improve the outcome and the student ability to work with other students was to introduce the students to team work earlier in the curriculum. Therefore, changes were made to ENGR 1 (Freshman course) where team work assignments were given to the students. The early introduction of team work has resulted in improved results of the teamwork outcome in the subsequent courses.

Q5.3.

To what extent did you apply **previous assessment feedback** from the Office of Academic Program Assessment in the following areas?

	1. Very Much	2. Quite a bit	3. Some	4. Not at All	5. N/A
1. Program Learning Outcomes	○	○	●	○	○
2. Standards of Performance	○	○	●	○	○
3. Measures	○	○	●	○	○
4. Rubrics	○	○	●	○	○
5. Alignment	○	○	●	○	○
6. Data Collection	○	○	●	○	○
7. Data Analysis and Presentation	○	○	●	○	○
8. Use of Assessment Data	○	○	●	○	○
9. Other, please specify:	○	○	○	○	○

Q5.3.1.

Please share with us an example of how you applied **previous feedback** from the Office of Academic Program Assessment in any of the areas above:

Discussions and feedback from the Office of Academic Program Assessment were very helpful.

(Remember: Save your progress)

Section 3: Report Other Assessment Activities

Other Assessment Activities

Q6.

If your program/academic unit conducted assessment activities that are **not directly related to the PLOs** for this year (i.e. impacts of an advising center, etc.), please provide those activities and results here:

☐ No file attached   ☐ No file attached

Q6.1.
Please explain how the assessment activities reported in **Q6** will be linked to any of your PLOs and/or PLO assessment in the future and to the mission, vision, and the strategic planning for the program and the university:

Q7.
What PLO(s) do you plan to assess next year? [**Check all that apply**]
- ☐ 1. **Critical Thinking**
- ☐ 2. **Information Literacy**
- ☐ 3. **Written Communication**
- ☐ 4. **Oral Communication**
- ☐ 5. Quantitative Literacy
- ☐ 6. **Inquiry and Analysis**
- ☐ 7. Creative Thinking
- ☐ 8. Reading
- ☐ 9. Team Work
- ☐ 10. Problem Solving
- ☐ 11. Civic Knowledge and Engagement
- ☐ 12. **Intercultural Knowledge, Competency, and Perspectives**
- ☑ 13. Ethical Reasoning
- ☐ 14. Foundations and Skills for Lifelong Learning
- ☐ 15. **Global Learning and Perspectives**
- ☐ 16. Integrative and Applied Learning
- ☐ 17. Overall Competencies for GE Knowledge
- ☐ 18. **Overall Disciplinary Knowledge**
- ☐ 19. **Professionalism**
- ☐ 20. Other, specify any PLOs not included above:

a. _____
b. _____
c. _____

Q8.
Please explain how this year's assessment activities help you address recommendations from your department's last program review?

> We believe that assessment is all about continuous improvement. We strive to take the limitations in the assessment process and the results to improve the assessment process the student learning.

Q9. Please attach any additional files here:

🗞 No file attached	🗞 No file attached
🗞 No file attached	🗞 No file attached

Q9.1.
If you have attached **any** files to this form, please list **every** attached file here:

> Yes. The list of attachments is as follows:
>
> Q2.3 Rubric
>
> Q2.3 standards of performance
>
> Q3.3.2 assignment
>
> Q3.7.1.1 survey question
>
> Q4.1 assessment results
>
> Q20.2 EEE_Assessment_Plan_APPROVED_2013-04-03
>
> Q21.1 Curriculum Map CSUS EEE_2.pdf

Section 4: Background Information about the Program

Program Information (**Required**)

Program:

[   ]

(If you typed in your program name at the beginning, please skip to **Q11**)

Q10.
Program/Concentration Name: [skip if program name is already selected or appears above]

BS Electrical and Electronic Engineering

Q11.
Report Author(s):

Tom Matthews and Fethi Belkhouche

Q11.1.
Department Chair/Program Director:

Tom Matthews

Q11.2.
Assessment Coordinator:

Fethi Belkhouche

Q12.
Department/Division/Program of Academic Unit (select):

Electrical & Electr. Eng.

Q13.
College:

College of Engineering and Computer Science

Q14.
What is the total enrollment (#) for Academic Unit during assessment (see Departmental Fact Book):

871 undergraduate+136 graduate students. Note…

Q15.
Program Type:
- ⚪ 1. Undergraduate baccalaureate major
- ⚪ 2. Credential
- 🔵 3. Master's Degree
- ⚪ 4. Doctorate (Ph.D./Ed.D./Ed.S./D.P.T./etc.)
- ⚪ 5. Other, specify:

Q16. Number of **undergraduate degree programs** the academic unit has?

Don't know

Q16.1. List all the names:

Electrical and Electronic Engineering

Q16.2. How many concentrations appear on the diploma for this undergraduate program?

0

Q17. Number of **master's degree programs** the academic unit has?

1

Q17.1. List all the names:

BS Electrical and Electronic Engineering

MS Electrical and Electronic Engineering

Q17.2. How many concentrations appear on the diploma for this master's program?

0

Q18. Number of **credential programs** the academic unit has?

0

Q18.1. List all the names:

Q19. Number of **doctorate degree programs** the academic unit has?

0

Q19.1. List all the names:

When was your **Assessment Plan**...	1. Before 2012-13	2. 2013-14	3. 2014-15	4. 2015-16	5. 2016-17	6. 2017-18	7. No Plan	8. Don't know
Q20. Developed?	●	○	○	○	○	○	○	○
Q20.1. Last updated?	○	●	○	○	○	○	○	○

Q20.2. (Required)
Please **obtain** and **attach** your latest **assessment plan**:

📎 **EEE_Assessment_Plan_APPROVED_2013-04-03.pdf**
369.67 KB

Q21.
Has your program developed a **curriculum map?**
- ○ 1. Yes
- ○ 2. No
- ○ 3. Don't know

Q21.1.
Please **obtain** and **attach** your latest **curriculum map**:

📎 Curriculum Map CSUS EEE_2.pdf
107.77 KB

Q22.
Has your program indicated explicitly in the curriculum map where assessment **of student learning** occurs?
- ○ 1. Yes
- ● 2. No
- ○ 3. Don't know

Q23.

Does your program have a capstone class?

🔵 1. Yes, specify:

EEE 192 A/B EEE 193 A/B

⚪ 2. No

⚪ 3. Don't know

Q23.1.

Does your program have a capstone project(s)?

🔵 1. Yes

⚪ 2. No

⚪ 3. Don't know

(**Remember**: **Save your progress**)
Save When Completed!

ver. 10.**31**.17

Rubric provided by San Diego State University

Oral Presentation Rubric

Spring 2018   Student Name:
College of Engineering and Computer Science
CpE 190/191 and EEEE 193A/B

	1	2	3	4	5	6	7	Total
Organization	Poor sequence or illogical presentation of information. Some relevant information not presented. Presentation not well timed.		Some information presented out of sequence. Had some pacing and timing problems.		Information presented nearly complete and relevant and presented in logical sequence. Pacing and timing appropriate		Information presented was completed and in logical order. Easy to follow. Very well-timed and well-paced.	
Originality	Problem/purpose limited in originality and creativity. Design/approach only marginally appropriate or innovative.		Problem/purpose moderately original or creative. Design/approach moderately appropriate or innovative		Problem/purpose fairly original or creative. Design/approach appropriate or innovative.		Problem/purpose very creative or original with new and innovative ideas. Explored original topic and discovered new outcomes. Design/approach introduced new or expanded on established ideas.	
Significance	Project has little relevance or significance to field and will make little contribution.		Project has only moderate relevance or significance to field and will make a nominal contribution		Project has fair relevance or significance to field and will make good contribution		Project extremely relevant or has significant importance to field and will make an important contribution.	
Discussion and summary	Major topics or concepts inaccurately described. Considerable relevant discussion missing. Conclusions/summary not entirely supported by findings/outcomes.		Few inaccuracies and omissions. Conclusions/summary generally supported by findings/outcomes.		Discussion sufficient and with few errors. Greater foundation needed from past work in area. Conclusions/summary based on outcomes and were appropriate.		Discussion was superior, accurate, and thought-provoking. Conclusions/summaries appropriate and clearly based on outcomes.	
Delivery	Presenter unenthused, monotonous and relied extensively on notes. Voice mannerisms, body language, and communication skills sometimes inappropriate. Poor quality of slides, presentation, performance.		Displayed interest and enthusiasm. Limited engagement with audience. Occasionally struggled to find words. Generally appropriate voice mannerisms, body language, and communication skills. Moderate quality of slides/presentation materials.		Engaged audience. Displayed interest and enthusiasm. Good voice mannerisms, body language, and communication skills. Good quality of slides/presentation materials; enhanced presentation/performance.		Very engaging. Expressed ideas fluently in own words. Genuinely interested and enthusiastic. Exceptional voice mannerisms, body language, and communication skills. Exceptional slides/presentation quality materials; greatly enhanced presentation/performance.	

Comments:

Total	
Exceed expectations (32 or more)	
Meet expectations (between 25 and 31)	
Below expectation (24 or less)	

The standards of performance/expectations

For course embedded and senior design assessment, the expected level of achievement is 70% of students *meeting expectations*.

The oral communication rubric has five items that are scored in seven categories (see rubric). Each item is given a score between 1 and 7. The standard for meeting expectations are as follows:

Exceed expectations	Meet expectations	Below expectations
Total score on the rubric is greater than or equal to 32.	Total score on the rubric is between 25 and 31.	Total score on the rubric is less than or equal to 24

Assignment 5

Feature Presentation and Report

CpE 191 and EEE 193B

Engineers usually work in teams to solve engineering problems and design new products. You are fortunate to be a member of an exceptional team of engineers. Your team has been working on designing an amazing product/system. You have been selected by your team to write a brief report and present your team's work at a professional meeting. This assignment puts you in a similar situation: you will write a brief report and present certain aspects of your project/system with specific personal technical aspects highlighted. The report and the presentation are meant to describe how you as an individual of the team completed specific technical tasks that helped complete one or more features/components of your project. You will discuss and present technical tasks/features/components of the system that you have developed or contributed in developing.

Required Elements: Written report

Prepare a written report that summarizes the aspects of that technical completion of a feature including:

Topics include (suggested, not limited to):
1. Start with a brief description of your societal problem.
2. Briefly outline the entire system/project and its complete feature set.
3. Detail your technical complete of your subset of features/components and their relationship with the system as a whole.
4. Your options and the solutions you implemented
5. White box testing and testing results of your technical work for the completed features/components.
6. Interdependence and integration with the other components of the project.
7. Include illustrations (required)
8. Be creative.

This individual report will be in the IEEE format with a cover page, abstract, keyword index, table of contents, table of figures, executive summary, introduction, main topics, conclusion, references and a glossary defining specialized terms or acronyms.   The cover page will include the Report Title, Project Title, Team member name, abstract and keyword index. Cover page format is at the discretion of the team member but should be clear and attractive.   Upload a PDF version of your report to the team's Hive site in the "5 – Feature Presentations and Reports" folder.

The report length is variable.

Single line spacing.　　　　　Two-Column format for the main body of the report.

Use a font size similar to Times New Roman 12 pitch.

Required Elements: Oral Presentation

Upload a PDF version of your presentation to the team's Hive site in the "5 – Feature Presentations and Reports" folder.

For the presentation, remember the characteristics of a good presentation:

1. Elevator Pitch
2. Introduction: you need catch the audience attention. The purpose and the necessary background must be clearly conveyed.
3. Organization/ Preparedness: you must be well-prepared. The presentation must be well-planned and effectively organized.
4. Visual Aids: use visual aids effectively. Your slides should be clear, easy to read, and well designed.
5. Delivery: speak clearly and at a good volume and pace, face the audience, make eye contact with the audience, use effective gestures, and be enthusiastic about your exceptional work.
6. Content: demonstrate excellent mastery of the content, no one knows it better than you do.
7. Conclusion: key points are reinforced, make the take-home message persistent and clear.

The following rule will be reinforced for the oral presentation:
- Aim for 6 minutes long. Presentation will be between 5:30 to 6:30 minutes long.
- You will receive -10 points for each additional minute (>6:30) and -10 points for each minute less than 5:30.

How well did the program enhance your ability to communicate effectively in written and oral forms?

a. Extremely well
b. Very well
c. Moderately
d. Slightly
e. Poorly

Assessment Results for Oral Communication
Spring 2018

Direct method: Based on student presentations.

	Exceed expectations	Meet expectations	Below expectations
Number of students	0	12	2
percentage	0	85.71%	14.29%

Indirect method: Based on exit survey

	Exceed expectations	Meet expectations	Below expectations		
	Extremely well	Very well	Moderately	Slightly	Poorly
Number of students	4	8	1	0	0
percentage	30.77%	61.54%	07.69%	0	0
Total	30.77%	61.54%	07.69%		
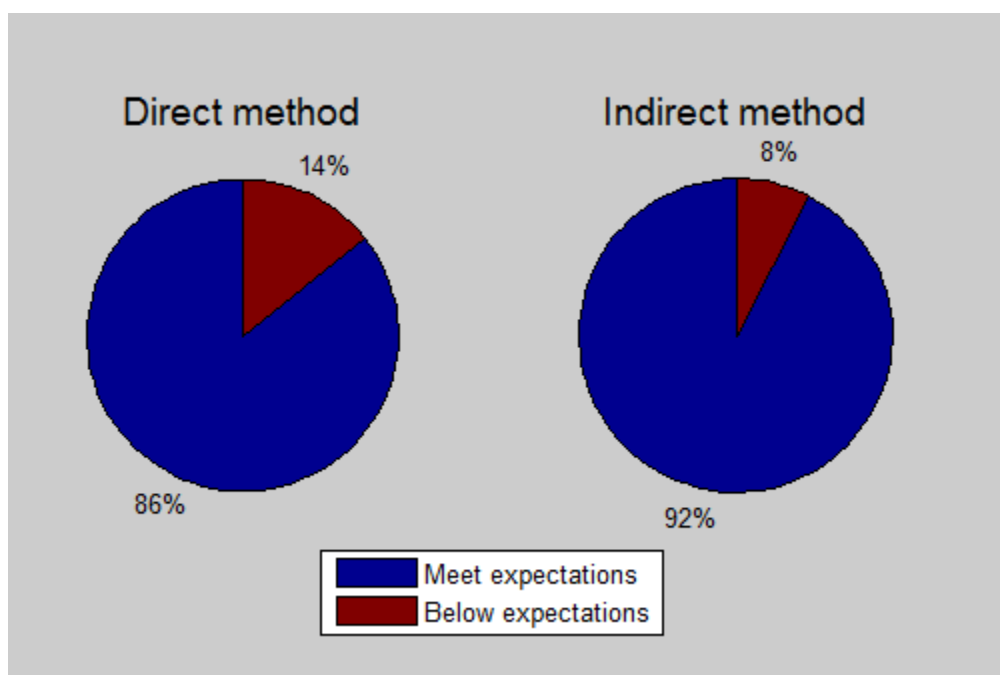
Assessment Plan

for
Electrical and Electronic Engineering

Approved by the EEE Faculty
on 4/3/2013

Processes Used by the EEE Department Faculty to Monitor and Assess the Achievement of Student Outcomes and Educational Objectives

Introduction

This report describes the processes now used by the EEE Department faculty to monitor and assess Student Outcomes (SO), and Educational Objectives (EO) – both of which have been established according to due process and the guidelines of ABET, the accrediting agency for our undergraduate programs. Student Outcomes are defined as that knowledge and those abilities that students should be able to demonstrate at the time of their graduation with the B.S. degree, and Educational Objectives are those professional characteristics that students should be able to demonstrate approximately 5 years after graduation. The processes are graphically summarized in Figure 1 (Student Outcomes) and Figure 2 (Educational Objectives) below.

Student Outcomes (SO)

Excerpted from ABET General Criteria 3 for Accreditation of Engineering Programs, 2013-2014

"The program must have documented student outcomes that prepare graduates to attain the program educational objectives. Student outcomes are outcomes (a) through (k) plus any additional outcomes that may be articulated by the program.

    (a) an ability to apply knowledge of mathematics, science, and engineering
    (b) an ability to design and conduct experiments, as well as to analyze and interpret data
    (c) an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
    (d) an ability to function on multidisciplinary teams
    (e) an ability to identify, formulate, and solve engineering problems
    (f) an understanding of professional and ethical responsibility
    (g) an ability to communicate effectively
    (h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
    (i) a recognition of the need for, and an ability to engage in life-long learning
    (j) a knowledge of contemporary issues
    (k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice."

Educational Objectives

The EEE Department Educational Objectives are:

I. Core Knowledge: Our graduates will have careers in electrical engineering, or be engaged in a related career path.
II. Application of Knowledge: Our graduates will apply their knowledge and skills to solve practical engineering problems.
III. Life-long Learning: Our graduates will continue to develop their skills and seek knowledge after graduation in order to adapt to advancing technology and the needs of society. This may be indicated by the graduate's pursuit of an advanced degree or other formal instruction, and/or that the graduate has developed a professional specialty.
IV. Professionalism: Our graduates will have the necessary professional skills, such as high ethical standards, effective oral and written communications, and teamwork, to be productive engineers and to advance in their careers.

Course Level Assessment

We have established a quantitative Course Embedded Assessment (CEA) process that encompasses all of our classes, required as well as elective, graduate as well as undergraduate, which are included in the degree programs of our major students. Each University approved course in our curricula has specific course outcomes listed on the official ABET outline for the course. On an annual basis, the designated faculty Course Coordinators each present a report to the department faculty reflecting on student achievement with regard to the specific course outcomes of the courses for which they are responsible, and suggest changes, if any, that they feel need to be made in order to improve the achievement of those outcomes.

This process is very useful because it enables faculty who may not be directly involved in specific courses to get a better understanding of those courses, and learn about best-practice adjustments that they may make. It allows new faculty and part-time faculty to acquire a better understanding of the curriculum and become familiar with the challenges that it faces. Also, the process ensures that faculty teaching related courses in each area of the curriculum will interact with each other on a regular basis when preparing the CEA report for a particular course. Equally important, the CEA reports provide the documentation necessary to illustrate how the faculty are using quantitative assessment results for continuous program improvement.

The CEA process also includes indirect (qualitative) measures of student satisfaction with the quality of instruction and their achievement of the course outcomes through Student Evaluations of Teaching (SET) surveys. These surveys are conducted for each course in each semester that the course is offered.

Program Level Assessment

Outcome and objective assessment at the program level is carried out by using a variety of assessment tools:

1. Direct measurement via course embedded assessment, with course outcomes mapped to student outcomes
2. Student and alumni surveys reflecting on ABET specific program outcomes
3. Site visits to industry reflecting on the ABET program educational objectives
4. Qualitative feedback on the achievement of program outcomes and educational objectives from the department-level Industry Liaison Council (ILC)
5. Qualitative feedback from College's Industry Advisory Board (IAB)
6. Faculty surveys

In general, both direct (quantitative) and indirect (qualitative) assessment methods are used to monitor student outcomes. However, in some instances it is appropriate to rely on qualitative indicators, rather than or in preference to quantitative ones, to assess the achievement of a particular outcome (e.g. qualitative feedback and specific action items resulting from discussions by the Department's Industry Liaison Council or the College's Industry Advisory Board). The assessment of objectives is done entirely using indirect (qualitative) methods.

Assessment Instruments

In order to meet current ABET Engineering Criteria for accreditation with respect to assessment, we use the following assessment instruments in our programs:

Focused Assignments and Examinations: Assignments and examinations including midterm and final exams are required in all courses. In addition, projects, computer aided design (CAD) and term papers are required in several classes as appropriate. These form the basis for quantitative evaluation of course outcomes. An example rubric for the evaluation of course outcomes from assignments and examinations is shown below. Each course outcome is then mapped into a relevant ABET educational outcome and becomes part of the quantitative base for the assessment of that SO.

EEE (course number) Rubric for the Direct Assessment of Course Outcomes

Course Outcome	Exceeds Expectations	Meets Expectations	Below Expectations
1) Enter the first Course Outcome here	Enter how a student will perform if they exceed expectations for this outcome	Enter how a student will perform if they meet expectations for this outcome	Enter how a student will perform if they are below expectations for this outcome
2) Enter the second Course Outcome here	Enter how a student will perform if they exceed expectations for this outcome	Enter how a student will perform if they meet expectations for this outcome	Enter how a student will perform if they are below expectations for this objective
3) Enter the third Course Outcome here	Enter how a student will perform if they exceed expectations for this outcome	Enter how a student will perform if they meet expectations for this outcome	Enter how a student will perform if they are below expectations for this outcome
4) Enter the fourth Course Outcome here	Enter how a student will perform if they exceed expectations for this outcome	Enter how a student will perform if they meet expectations for this outcome	Enter how a student will perform if they are below expectations for this outcome
5) Enter the fifth Course Outcome here **(It is advisable to limit the number of course outcomes to 5 or less to ease data collection)**	Enter how a student will perform if they exceed expectations for this outcome	Enter how a student will perform if they meet expectations for this outcome	Enter how a student will perform if they are below expectations for this outcome

Surveys of Graduating Students: Graduating students are surveyed at the time of graduation for their perceptions about the how well they have achieved the program's educational outcomes, our relative success in delivering those outcomes, and suggestions for program improvement.

Alumni Surveys: the Office of Institutional Research (OIR) surveys Alumni from our program every three years. The survey questions include several that are directly related to the achievement of our Educational Objectives.

Site Visits: At the end of each semester, faculty teams visit a company that employs several graduates from our program in order to meet directly with a group of our alumni and their managers. Typically the alumni include recent graduates (1-5 years out), as well as experienced engineers and managers (6-10 years out, 11 years and over). A set of open-ended questions is distributed to the site prior to the visit to provide a foundation for discussion with the participants. Specific questions related to the achievement of educational objectives are also given to the alumni. The interviews are recorded during the visit and placed on the Web for subsequent faculty review. A written transcript is also produced and shared with all faculty members. The Assessment and Accreditation Committee (AAC) of the department analyzes these results, and action items with appropriate timelines are developed for implementation.

Employer Surveys: The College's Career Planning and Placement Office periodically surveys regional employers and provides us with salary data and relevant information concerning the professional growth trends and employment opportunities in our disciplines.

Industry Liaison Council: This is a department level council made up of engineers from industry representing all major areas of emphasis in the EEE program. The ILC meets biannually and provides the faculty with independent feedback on its efforts to achieve the program Educational Objectives.

Industry Advisory Board: At the college level, the IAB receives reports from each program on a biannual basis and evaluates each program's success in implementing the strategic plan of the college. The IAB meets in executive session following the presentations and reports back to the Program Coordinators, Department Chairs and the Dean with specific recommendations for follow up and action.

Our ultimate goal is to utilize these various assessment instruments to make continuous improvements to our programs.

Course Embedded Assessment represents the "bricks and mortar" of our assessment program. Our experience shows that assignments and exams in individual courses provide immediate and valuable feedback to both the student and the faculty. Problems specifically designed to assess the achievement of particular course outcomes allow the faculty to identify potential problems the students may be having in achieving those outcomes. If the performance of a significant number of students on a targeted exam problem or assignment indicates that they have not achieved a desired course outcome, it immediately triggers discussion among the faculty in the area of how to improve students' achievement of that particular course outcome. If the problem is seen to require broader interaction among the faculty of the department, the findings and recommendations of the area faculty are summarized by the Course Coordinator and then presented to the entire department faculty for action.

Indirect program level assessment in general provides us with a supplemental view of our educational outcomes and objectives, and of how well they are being achieved, from several different perspectives – that of our graduating students, our alumni, our advisory boards, the managers in industries that employ our graduates, and the faculty. The survey data from these constituencies are collected by the AAC, which then provides a periodic report and recommendations for improvement to the entire department faculty.

Graduate Level Assessment

Although ABET does not accredit our graduate programs, we follow similar ABET guidelines in their assessment. The student outcomes of the graduate program, however, have been redefined to be appropriate for graduate-level education. Both student outcomes and educational objectives are evaluated at the graduate-level using the same types of instruments as described above for our undergraduate assessment.

The EEE Department has developed a detailed and clear assessment plan for the B.S. program. Our M.S. program assessment plan is modeled on our undergraduate assessment plan. The Department has the following student outcomes at the program level:

1) A knowledge of advanced mathematics
2) A knowledge of applied engineering
3) The ability to apply knowledge of mathematics, science and engineering to solve problems in E&EE
4) A knowledge of core and advanced E&EE topics
5) Depth in at least one area of E&EE out of Analog/Digital Electronics, Control Systems, Communications and Power
6) The ability to use contemporary engineering techniques and tools for analysis and design
7) The ability to work with modern instrumentation, software and hardware, design and perform experiments, and analyze and interpret the results
8) The ability to communicate effectively
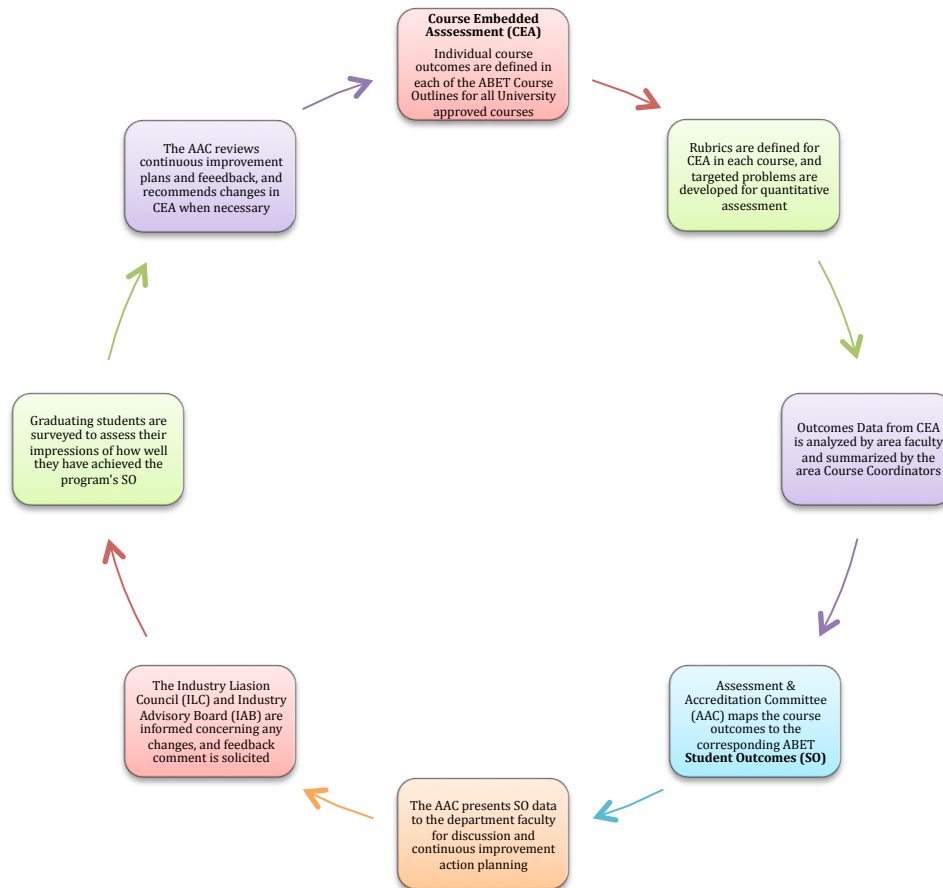
Figure 1: Flowchart of Student Outcomes assessment in Electrical & Electronic Engineering
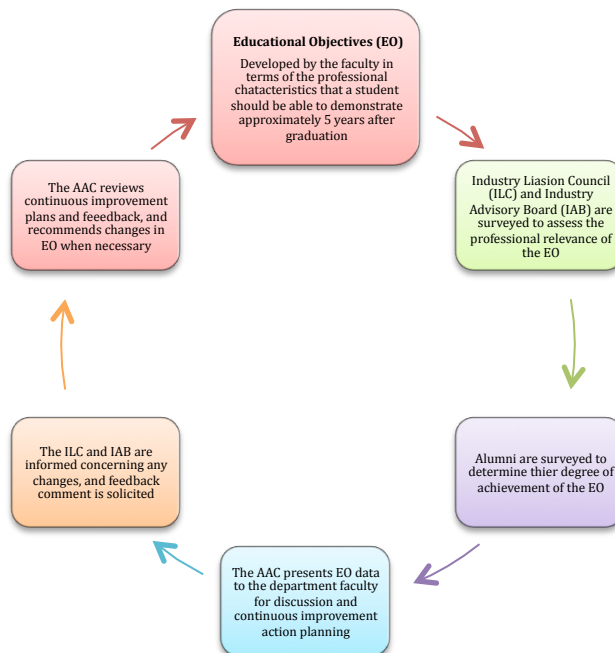
Figure 2: Flowchart of Educational Objectives assessment in Electrical & Electronic Engineering

csu 120/180 Units Curriculum Map   I, D, M = Content Level (introduced, developed, mastered)

Campus: Sacramento
Degree (BA, BS...): BS
Major: Electrical and Electronic Engineering
Concentration:
Total units: 122
GE Area requirements double counted with major or other requirement: 12 C,D
Please attach sheet detailing exceptions requested.

The following curriculum map lists courses along the top (column headers) and Student Learning Outcomes / Program Outcomes / GE Areas along the left side. Course columns:

Area A1, Area A2, Area B2 - Life Forms, Area C - Arts, Area C - Humanities, Area C - 2nd semester composition, Area C - other, Area D - US History, Area D - Government, Area D other, ENGR1 - Introduction to engineering, Math 30 - Calculus I, Chem 1E Chemistry for Engineers, Engr 50 - Comp methods and App, Math 31 - Calculus II, Phys 11A - Gen Phys - Mechanics, EEE 64 - Intro to Logic Design, Math 32 - Calculus III, Phys 11C - Gen Phys - Elec & Mag, Engr 17 - Circuit Analysis, Math 45 - Differential Equations, EEE 117 - Network Analysis (Circuits II), EEE 130 - Electromechanical Conversion, EEE 161 - Applied Electromagnetics, EEE 180 - Signals and Systems, EEE 108 - Electronics I, EEE 117A - Introduction to Microprocessors, EEE 184 -Introduction to Feedback Systems, EEE 109 - Electronics II OR EEE 141 +EEE143, EEE 185 - Modem communication systems, Engr120 - Probability and Random Signals, ENGR140 - Engineering Economics, EEE 192A&B OR EEE 193A&B Senior Design, Depth area electives, Open Electives, Total Major Units

All courses required for graduation →
Number of Units → 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 1 | 4 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 3 | 3 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 3 | 3 | 2 | 4 | 7 | 6 | 122

Student Learning Outcomes (identify all required for accreditation, certification, or licensure)

Outcome	ENGR1	Math30	Chem1E	Engr50	Math31	Phys11A	EEE64	Math32	Phys11C	Engr17	Math45	EEE117	EEE130	EEE161	EEE180	EEE108	EEE117A	EEE184	EEE109	EEE185	Engr120	ENGR140	Senior Design	Depth	Open	Total
Accreditation Student Outcome A Apply math, sci and engineering knowledge	I	I	I	I	D		D	D	D	D	D	D	D	D	D	M	M	M	M				M			
Accreditation Student Outcome B Experiments, analyze and interpret data			I		I	I		D		D		D		D	D		M		D				M			
Accreditation Student Outcome C Design to meet needs within constraints				I				D		D			D		D	D	M	M	M	D	D		M			
Accreditation Student Outcome D Work in multidisciplinary teams	I	I		D	D		D	D	D	D	D					D		M					M			
Accreditation Student Outcome E Identify, formulate, solve engineering problems	I					I				I		D	D	D	D	D	D	M	M	M	D		M			
Accreditation Student Outcome F Professional ethics	I																						M			
Accreditation Student Outcome G Communicate effectively	I	I	I			I	I					D		D	D	D		M					M			
Accreditation Student Outcome H Breadth for understanding engineering in many contexts	I											D	D		D	D	M						M			
Accreditation Student Outcome I Life long learning	I																						D	M		
Accreditation Student Outcome J Use modern engineering skills & tools for practice				I						D		D		D	D	D	M	M	M		M		M			

Program Outcomes

Outcome	ENGR1	Math30	Chem1E	Engr50	Math31	Phys11A	EEE64	Math32	Phys11C	Engr17	Math45	EEE117	EEE130	EEE161	EEE180	EEE108	EEE117A	EEE184	EEE109	EEE185	Engr120	ENGR140	Senior Design	Depth	Open	Total
Program Outcome 1 Enter professional employment or graduate study in electrical and electronic engineering							I		D	D	D	D	D	D	D	M	M	M	M	D			M			
Program Outcome 2 A use principles of science, math, and engineering to identify, formulate and solve electrical and electronic engineering problems				I	I		I	I	I		I	D	I	D	D	D		D	D	M	M	M	M		M	
Program Outcome 3 Apply creativity in design of systmens, components, processes, and/or experiments working in multidisciplinary teams							I			I						D	M	M					M			
Program Outcome 4 Communicate effectively through speaking, writing, and graphics using appropriate technology				I	I		I	I	I		D	D						D	M				M			
Program Outcome 5 Apply knowledge of professional, ethical, social responsibilities, diverse cultures and life long learning in professional career				I	I																		D	M		

CSU GE Area A

Area	ENGR1	Math30	Chem1E	Engr50	Math31	Phys11A	EEE64	Math32	Phys11C	Engr17	Math45	EEE117	EEE130	EEE161	EEE180	EEE108	EEE117A	EEE184	EEE109	EEE185	Engr120	ENGR140	Senior	Depth	Open	Total
GE Area A1--Oral Communication 3 units																										
GE Area A2--Written Communication 3 units																										
GE Area A3--Critical Thinking	I	I	I	I	D	D	D	D	D	D	D	D	M	D	M	M	M	M				M			

CSU GE Area B

Area	ENGR1	Math30	Chem1E	Engr50	Math31	Phys11A	EEE64	Math32	Phys11C	Engr17	...	Total
GE Area B1--Physical Science 3 units			I			D			M			
GE Area B2 --Life Science 3 units												
GE Area B3--Laboratory Science (with B1 or B2 course) 3 units			I			D			M			
GE Area B4--Math/Quantitative Reasoning 3 units		I			D			D			M	

CSU GE Area C

Area
GE Area C1--Arts, Cinema, Dance, Music, Theater 3 units
GE Area C2--Lit, Phil, Language (not English) 3 units
GE Area C 3 units
GE Area C 3 units

Area D

Area
GE Area D (Must be taken in more than one area) 3 units
GE Area D (Must be taken in more than one area) 3 units

CSU GE A	**GE Area D** (Must be taken in more than one area) 3units																												
	GE Area D (Must be taken in more than one area) 3units																												
CSU GE Area E	**GE Area E** 3units										I		I				I	D	D	D		D	D		D	D	M		M
American Institutions	**American Institutions: US History Constitution** Varying units																												
	American Institutions: California and local gov. Varying units																												