2016-2017
Annual Assessment Report Template

For instructions and guidelines 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

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**
- [x] 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 assessed PLOs not included above:

a.
b.
c.

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 outcomes, which are directly linked to the ABET a) though k) outcomes. Written communication is presented in outcome g). The EEE program understands the importance of both written and oral communication and performs assessment of both outcomes regularly in several courses including the culminating experience. The learning outcome presented here is related to the third Sac State baccalaureate learning goal: “Intellectual and Practical Skills”.

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)

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):

Written 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.

Written communication corresponds to ABET's outcome g). The EEE program understands the importance of both written and oral communication and performs assessment of both outcomes regularly in several courses including the culminating experience. A rubric (assessment scoring sheet) has been developed to assess written communication based on student written reports. The rubric is currently in use in several courses including senior design. The students' attainment is divided into three levels: below, meet and exceed expectations.

Q2.2.
Has the program developed or adopted **explicit** standards of performance for this PLO?

- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know

- ○ 4. N/A

Q2.3.
Please **provide the rubric(s)** and **standards of performance** that you have developed for this PLO here or in the appendix.

Q2.3_ rubric.pdf
13.37 KB

Q2.3_ standard.pdf
39.49 KB

Q2.4. PLO	Q2.5. Stdrd	Q2.6. Rubric	Please indicate where you have published the **PLO**, the **standard** 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 PLO is assessed using a key specific assignment in senior design projects (EEE 193B). The assignment is called feature report. This assignment takes place in the second semester of senior design and therefore reelects students' ability to communicate effectively. The students write and submit a report detailing the societal problem they are addressing, their design idea and constraints, as well as the impact of the project on society.

(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**]

- [x] 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 **provide** the direct measure (key assignments, projects, portfolios, course work, student tests, etc.) you used to collect data, THEN **explain** how it assesses the PLO:

This assignment is very well aligned with the PLO being assessed. The assessment is performed according to the rubric provided in Q23, where the student's attainment is divided into three categories: below/meet/exceed expectations. The total number of items in the rubric is ten. Exceeding expectations correspond to a score of 5 on the rubric. Meeting expectations corresponds to a score of 3 or 4, and below expectations corresponds to a score of 1 or 2. Please refer to the rubric for more details.

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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.
How many faculty members participated in planning the assessment data **collection** of the selected PLO?

two

Q3.5.1.
How many faculty members participated in the **evaluation** of the assessment data for the selected PLO?

two

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.)?

No sample was selected, entire class was assessed.

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

No sample was selected, entire class was assessed.

Q3.6.2.
How many students were in the class or program?
16

Q3.6.3.
How many samples of student work did you evaluated?
16

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)
- [x] 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 method consists of an exit survey performed in senior design II (EEE 193B). The survey question related to this outcome is attached.

Q3.7.1.1_SurveyQuestion.pdf
24.91 KB

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

Entire class

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

Entire class

Q3.7.4.
If surveys were used, what was the response rate?

100%

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:

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(Remember: Save your progress)

Question 4: Data, Findings, and Conclusions

Q4.1.
Please provide simple tables and/or graphs to summarize the assessment data, findings, and conclusions for the selected PLO in **Q2.1**:

Q4.1_Assessment Results.pdf
60.2 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 percentage of students who met the expectations is 87.5% according to the indirect method and 81.25% according to the director method. The assessment results obtained from the direct and indirect methods are very close, which indicates the reliability and validity of our approach.

Based on the evaluation of the results, it was decided that the assessment results for written communication are in general satisfactory and therefore, no urgent or immediate action is needed at this time.

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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. Include a description of how you plan to assess the impact of these changes.

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

- ○ 1. Yes
- ○ 2. No
- ○ 3. Don't know

Q5.2.

Since your last assessment report, **how have the assessment data from then been used** so far?	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:

We are in the process of thinking how to use it.

Q5.3. To what extent did you apply **last year's 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 **last year's feedback** from the Office of Academic Program Assessment in any of the areas above:

(Remember: Save your progress)

Additional Assessment Activities

Q6.
Many academic units have collected assessment data on aspect of their program *that are not related to the PLOs* (i.e. impacts of an advising center, etc.). **If** your program/academic unit has collected data on program *elements*, please briefly report your results here:

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Q7.
What PLO(s) do you plan to assess next year? [**Check all that apply**]

- ☐ 1. **Critical Thinking**
- ☐ 2. **Information Literacy**

- [ ] 3. **Written Communication**
- [x] 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 attach any additional files here:

No file attached | No file attached | No file attached | No file attached

Q8.1.
Have you attached any files to this form? If yes, please list every attached file here:

2016.pdf Q2.3_ rubric.pdf Q2.3_ standard.pdf Q3.3.2.pdf Q3.7.1.1_SurveyQuestion.pdf

Q4.1_Assessment Results.pdf Q19.2_EEE_Assessment_Plan_APPROVED_2013-04-03.pdf

Q20.1_flowchartprerequisties.pdf

Program Information (**Required**)

Program:

(If you typed your program name at the beginning, please skip to Q10)

Q9.
Program/Concentration Name: [skip if program name appears above]
BS Electrical and Electronic Engineering

Q10.
Report Author(s):
Thomas Matthews, Fethi Belkhouche

Q10.1.
Department Chair/Program Director:
Thomas Matthews

Q10.2.
Assessment Coordinator:
Fethi Belkhouche

Q11.
Department/Division/Program of Academic Unit
Electrical & Electr. Eng.

Q12.
College:
College of Engineering and Computer Science

Q13.
Total enrollment for Academic Unit during assessment semester (see Departmental Fact Book):

Q14.
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:

Q15. Number of **undergraduate degree programs** the academic unit has?
1

Q15.1. List all the names:
Bachelor of Scinece in Electrical and Electronic Engineering

Q15.2. How many concentrations appear on the diploma for this undergraduate program?
0

Q16. Number of **master's degree programs** the academic unit has?
1

Q16.1. List all the names:
Master of Scinece in Electrical and Electronic Engineering

Q16.2. How many concentrations appear on the diploma for this master's program?
0

Q17. Number of **credential programs** the academic unit has?
0

Q17.1. List all the names:

Q18. Number of **doctorate degree programs** the academic unit has?
0

Q18.1. List all the names:

When was your **assessment plan**...	1. Before 2011-12	2. 2012-13	3. 2013-14	4. 2014-15	5. 2015-16	6. 2016-17	7. No Plan	8. Don't know
Q19. developed?	○	◉	○	○	○	○	○	○
Q19.1. last updated?	○	○	◉	○	○	○	○	○

Q19.2. (REQUIRED)
Please **obtain** and **attach** your latest **assessment plan**:

Q19.2_EEE_Assessment_Plan_APPROVED_2013-04-03.pdf
369.67 KB

Q20.
Has your program developed a **curriculum map?**

- ○ 1. Yes
- ○ 2. No
- ○ 3. Don't know

Q20.1.
Please **obtain** and **attach** your latest **curriculum map**:

120 Units Curriculum Map CSUS EE.xlsx
21.81 KB

Q21.
Has your program indicated in the curriculum map where assessment **of student learning** occurs?

- ○ 1. Yes
- ◉ 2. No
- ○ 3. Don't know

Q22.
Does your program have a capstone class?

- ◉ 1. Yes, indicate: EEE192A/B sequence OR EEE193A/B sequence
- ○ 2. No
- ○ 3. Don't know

Q22.1.
Does your program have **any** capstone project?

- ◉ 1. Yes
- ○ 2. No
- ○ 3. Don't know

(**Remember**: **Save your progress**)

Assessment Standard based on written communication rubric

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

An outcome is considered for further discussions and monitoring if:

- Its average is below the threshold.
- One or more significant components are below the threshold. The assessment committee/assessment coordinator decides about what constitutes a significant component.

The rubric has 10 items as follows:

- Abstract
- Formatting
- Organization
- Content
- Grammar, spelling, punctuation
- Use of figures, graphs and tables
- Language
- Conclusion
- References
- Appendix

Each item is given a score between 1 and 5. The standard for meeting expectations are as follows:

Exceeds expectations	Meet expectations	Below expectations
Total score on the rubric is greater than or equal to 46.	Total score on the rubric is between 35 and 46.	Total score on the rubric is less than 35

Written communication rubric

	1 = Below expectation	2 = Meets expectation	3 = Exceeds expectation
Content	The report does not adequately respond to the assignment. The purpose and motivation are not clear. The primary ideas are unclear and the assertions are not supported.	The report clearly and adequately covers the assignment. The purpose and motivation are addressed. The primary ideas are clear and supported by evidence.	The report clearly and thoroughly covers the assignment. The purpose and motivation are clear and persuasive, and the main points are addressed. The primary ideas are clear, fully developed and effectively supported by evidence.
Organization	The paper lacks the logical sequence, the connection between ideas is not clear and transitions are inadequate. There is no apparent ordering of paragraphs and sections.	The report is well structured with proper paragraphing and sections. The report follows a logical sequence with clear introduction, development and conclusion.	Report is well structured and flows very well. Sections and paragraph structure are effective with clear introduction, development and conclusion. The overall organization helps the reader grasp the information quickly.
Grammar, spelling, punctuation	There are significant errors in spelling, grammar and punctuation. Errors affect the readability of the paper.	May have a small number of spelling, grammatical, or punctuation errors.	Almost entirely free of spelling, grammatical, and punctuation errors.
Use of figures, graphs and tables	Figures, graphs, charts, and tables are of poor quality or nonexistent. Titles and labels are missing or inaccurate. No explanation or discussion of the figures, graphs, charts, or tables is given in the text.	Most figures, graphs, chart, and tables are of good quality and used in an effective way. They are correctly labeled and referred to in the text.	All figures, graphs, chart, and tables are of good quality and used in an effective way. They are correctly labeled and referred to in the text.
References	Fail to cite sources or acknowledge prior work. References are inaccurate or incorrect	Prior work is acknowledged by referring to sources and citing them in text. Almost all references are adequate and correct.	Prior work is acknowledged by referring to sources and citing them in text. All references are adequate and correct.
Language	There are errors in sentence structure, words and sentences are repeated multiple times. Numerous errors in using Engineering terms	For most part, sentences are complete and focused and words are chosen carefully. Engineering terms are correctly used and defined when necessary.	Sentences are complete and concise, and words are chosen for their precise meaning. Engineering terms are correctly used and defined when necessary.
	Formatting standards are not followed. Font is illegible or	Formatting standards are carefully followed. For most	The document is formatted in a professional fashion,

Formatting	inconsistent; formatting is poor and detracts from the paper. The reader has difficulties navigating the paper.	part, the document is visually appealing and easily navigated.	visually appealing and easily navigated. Formatting aspects enhance the repot.
Abstract	The abstract does not reflect the paper and fails to provide an adequate summary of the problem statement, the motivation, the approach used in the paper and the results.	The abstract concisely and clearly summarizes the problem statement, the motivation, the approach used in the paper and the results.	The abstract gives a clear, complete and concise summary of the problem statement, the motivation, the approach used in the paper and the results.
Conclusion	The conclusion fails to recap the main ideas; there is no clear take home message.	The conclusion stresses the importance and effectively recaps the most important main ideas in a clear and concise manner. The take home message is clear and leaves a final impression on the reader but a few elements may be missing	The conclusion stresses the importance and effectively recaps the main ideas in a clear and concise manner. The take home message is clear and leaves a final impression on the reader.
Appendix (if required)	Appendix lacks organization and is difficult to navigate. Important information is missing.	Appendix is well organized and easily navigated, and contains the necessary information.	Appendix is complete, well organized, and easily navigated.

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

Spring 2017

Direct method

	Exceeds	Meets	Below
Number of Students	1	12	3
Percentage of Students	6.25%	75%	18.75%

Indirect method (survey results)

	Exceeds	Meets	Below		
	Extremely well	Very well	Moderately	Slightly	Poorly
Number of Students	7	7	1	1	0
Percentage of Students	43.75%	43.75%	6.25%	6.25%	0%
Total	43.75%	43.75%	12.5%		

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

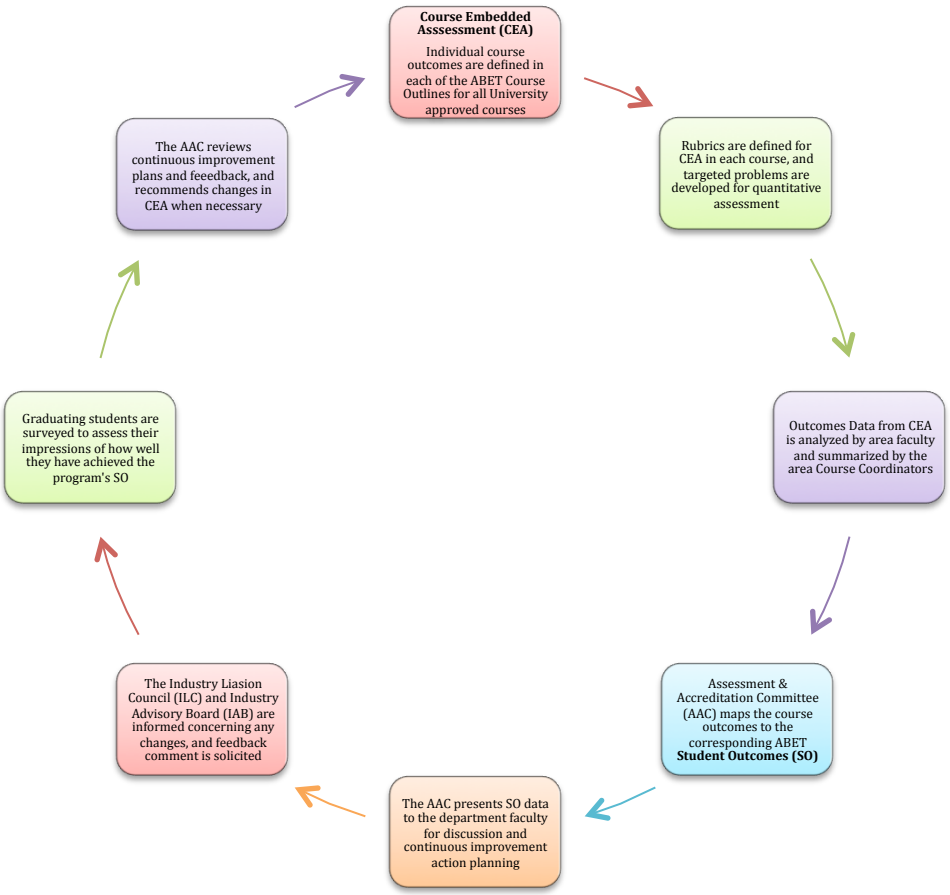

Figure 1: Flowchart of Student Outcomes assessment in Electrical & Electronic Engineering

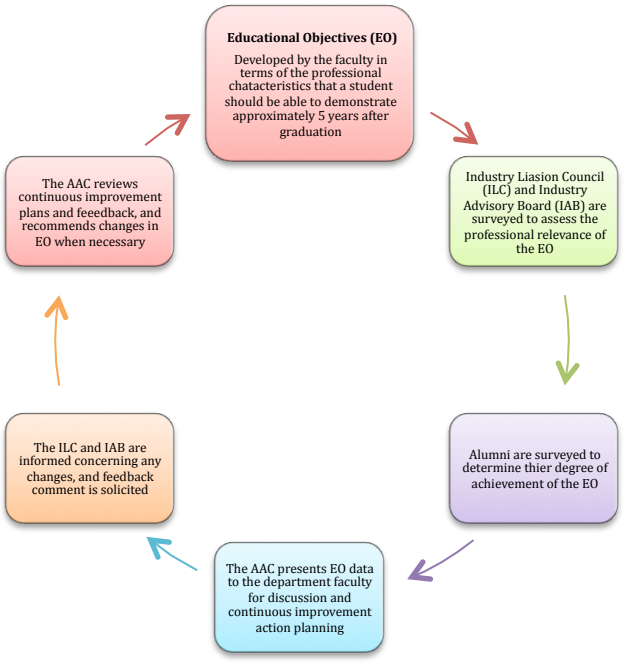

Figure 2: Flowchart of Educational Objectives assessment in Electrical & Electronic Engineering

CSU 120/180 Units Curriculum Map

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 A3, E, C,D

Please attach sheet detailing exceptions requested.

			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	EEE64 - Intro to Logic Design	Math 32 - Calculus III	Phys 11C - Gen Phys - Elec & Mag	Engr 17 - Circuit Analysis	Math 45 - Differntial Equations	EEE117 - Network Analysis (Circuits II)	EEE130 - Electromechanical Conversion	EEE161 - Applied Electromagnetics	EEE 180 - Signals and Systems	EEE108 - Electronics I	EEE174 - Introduction to Microprocessors	EEE184 -Introduction to Feedback Systems	EEE109 - Electronics II OR EEE141 +EEE143	EEE185 - Modern communication systems	Engr120 - Probability and Random Signals	ENGR140 - Engineering Economics	EEE192A&B OR EEE193A&B Senior Design	Electives
		All courses required for graduation →																								
		Number of Units →	1	4	4	3	4	4	4	4	4	3	3	4	3	4	3	4	4	4	3	4	3	3	2	4	13
Student Learning Outcomes (identify all required for accreditation, certification, or licensure)	**Accreditation Student Outcome A** Apply math, sci and engineering knowledge	Content Level → (Introduced, developed, mastered)		I	I		I	D	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	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	D	M	M		M		M	
Program Outcomes	**Program Outcome 1** Enter professional employment or graduate study in electrical and electronic engineering											I		D	D	D	D	D	D	M	M	M	M	D	M	
	Program Outcome 2 Ause 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 multidiscplinary 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	**GE Area A1--Oral Communication** 3 units																									
	GE Area A2--Written Communication 3 units																									
	GE Area A3--Critical Thinking 3units			**I**	**I**		**I**	**D**			**D**	D				D		**D**		**M**	**M**	**M**				
CSU GE Area B	**GE Area B1--Physical Science** 3units																									
	GE Area B2 --Life Science 3units																									
	GE Area B3--Laboratory Science (with B1 or B2 course) 3units																									
	GE Area B4--Math/Quantitative Reasoning 3units																									
CSU GE Area C	**GE Area C1--Arts, Cinema, Dance, Music, Theater** 3units																									
	GE Area C2--Lit, Phil, Language (not English) 3units																									
	GE Area C 3units																									
	GE Area C 3units																									
CSU GE Area D	**GE Area D** (Must be taken in more than one area) 3units																									
	GE Area D (Must be taken in more than one area) 3units																									
	GE Area D (Must be taken in more than one area) 3units																									
	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																									
American Institutions	**American Institutions: US History Constitution** Varying units																									
	American Institutions: California and local gov. Varying units																									