2018 - 2019
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.

This year OAPA has refined the annual assessment reporting process to make it simple, clear, and of high quality at the same time.

IMPORTANT REMINDER:
Please use the "Guidelines" and "Examples for Answering Open-Ended Questions" to answer each question in the template as you complete the report. Please provide and attach the following information:
1. PLO Assessed **(Q1.1, Q2.1)**
2. Definition of the PLO(s) **(Q2.1.1)**
3. Rubrics and Explicit Program (not class) Standards of Performance/Expectations **(Q2.3)**
4. Direct Measures **(Q3.3.2)**
5. Data Table(s) **(Q4.1)**
6. Curriculum Map **(Q21.1)**
7. Most Updated Assessment Plan **(Q20.2)**

Please provide only relevant information and limit all of your attachments to 30 pages.

Please save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.

DEADLINE TO SUBMIT: JULY 1, 2019.

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: All the Program Learning Outcomes Assessed

Q1.1.
Which of the following Program Learning Outcomes (PLOs) including Sac State Baccalaureate Learning Goals (BLGs)or 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**
☐ 20. **Research**
☐ 21A. Other, specify any assessed PLOs not included above:

a. [   ]

b. [   ]

c. [   ]

☐ 21B. **Check here if your program has not collected any data for any PLOs**. Please go directly to Q6 (skip Q1.3.a. to Q5.3.1.)

Q1.3.a.
Are your PLOs closely aligned with the mission and/or the strategic plan of the university?
◉ 1. Yes
○ 2. No
○ 3. Don't know
[Undo]

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

Section 2: Report One Learning Outcome in Detail

Question 2: Detailed Information 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):

Ethical Reasoning

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

[   ]

Q2.1.1.
Please provide the definition for this PLO (**See Appendix 15 Sample Answer to Q2.1.1**).

Student will demonstrate an understanding of ethical and professional issues. The outcome has four dimensions:

1. Discuss the fundamentals of moral and ethical theories
2. Analyze situations for potential ethical issues
3. Discuss the codes of ethics of professional engineering societies such as the IEEE (Institute of Electrical and Electronics Engineers) and the NSPE (National Society of Professional Engineers)
4. Discuss the ethical and professional responsibilities of engineers

Q2.2.

Has the program developed or adopted **_explicit program standards of performance/expectations_** for this PLO? (e.g. "We expect 80% 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

Undo

Q2.2.a.
Please provide the standards of performance/expectations for this PLO:

We expect 70% of the students to answer 70% of the questions correctly. The questions combined the four dim...

Q2.3.
Please **provide and/or attach the rubric(s)** that you used to evaluate your assignment**(
See Appendix 15 Sample Answer to Q2.3):**

Assessment Rubric: Ethic reasoning and professionalism			
Dimension	**Below expectations**	**Meets expectations**	**Above expectations**
1. Discuss the fundamentals of moral and ethical theories	Student is unable to identify and discuss major moral and ethical theories	Student is able to discuss major moral and ethical theories.	Student is able to discuss moral and ethical theories and outline the differences in the theories and the outcomes
2. Analyze situations for potential ethical issues	Student is unable to identify ethical issues and fails to analyze simple scenarios	Student is able to recognize and discuss ethical issues, construct ethical argument, analyze the situation, and identify the appropriate moral and ethical principles to solve the problem.	Student is able to identify the appropriate moral and ethical principles and apply them to analyze and solve more complex and multilayer ethical issues.
3. Discuss the codes of ethics of professional engineering societies such as the IEEE (Institute of Electrical and Electronics Engineers) and the NSPE (National Society of Professional Engineers)	Student is unable to discuss/recognize the codes of ethics of the major professional engineering societies	Student is able to discuss the codes of ethics of major professional engineering societies	Student is able to discuss and effectively use the codes of ethics of the major engineering societies and make the link with moral and ethical theories
4. Discuss the ethical and professional responsibilities of engineers	Student fails to cite/recognize the main ethical and professional responsibilities of engineers	Student is able to describe the codes of ethics and standards of professional practice within the discipline.	Student can articulate the primary tenets of the profession's code of ethical conduct and discuss the application of the code of ethics in the practice of the profession.

📎 Assessment Rubric.docx
14.4 KB   📎 Click here to attach a file

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**)

Undo

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**)

Undo

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:

Two different tests were administered in ENGR 1, EEE 192B and EEE 193B.

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

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**)

Undo

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 **attach the assignment instructions that the students received to complete the assignment (
See Appendix 1 Sample Answer to Q3.3.2)**:

Two different direct measures are used to assess this outcome:

The ENGR 1 test includes the following tasks:

- Problem 1: 13 questions that are related to dimensions 1-4 in the rubric
- Problem 2: 12 questions that are related to dimensions 3 and 4 in the rubric
- Problem 3: Related to dimension 2 in the rubric

The senior design test includes the following tasks:

- 20 questions that are related to dimensions 1-4 in the rubric.

A mapping of the questions with the dimensions is attached.

📎 **Mapping Ethics Test to the Rubric Ddimension.docx
13.54 KB**   📎 **Click here to attach a file**

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.**)

Undo

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

Undo

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

Undo

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

Undo

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

4

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

3

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

Undo

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

Entire class took the test.

Q3.6.1.

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

na

Q3.6.2a.
Please enter the number (#) of students *__from ONLY your program__* that were assessed for this program learning outcome (not all students in the class).

57

Q3.6.3a.
Please enter the number (#) of samples of student work *__from ONLY your program__* that were evaluated for this program learning outcome.

57

Q3.6.4.
Was the sample size of student work for this program assessment adequate for assessing this program learning outcome?

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

Undo

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

> # 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**)

Undo

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:

📎 **Click here to attach a file**　📎 **Click here to attach a file**

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

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

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

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**)

Undo

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**)

Undo

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

📎 Click here to attach a file   📎 Click here to attach a file

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

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.) Please do **NOT** include student names and other confidential information. This is going to be a **PUBLIC** document:

Assessment results for Ethical reasoning and professionalism

Academic year 2019-2020

EEE 192B						
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	0	20	4	0	83.33	16.67

Table 1: Assessment results for EEE 192B (Electrical Power Design Project II)

EEE 193B						
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	1	14	0	6.67	93.33	0

Table 2: Assessment results for EEE 192B (Product Design Project II)

ENGR 1						
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	2	12	2	12.5	75	12.50

Table 3: Assessment results for ENGR 1 (Introduction to Engineering)

📎 Assessment results for Ethical reasoning and professionalism.docx
12.62 KB   📎 Click here to attach a file

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 (**See Appendix 15 Sample Answers to Q4.1-Q4.3**)?

Overall, the assessment results for this outcome are satisfactory. No immediate action is needed.

📎 Click here to attach a file   📎 Click here to attach a file

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

Undo

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

Undo

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

Undo

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**)

Undo

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:

Currently, we don't have any planned changes. But if we have changes, the assessment and evaluation processes will be carried out again to assess the impact of the changes.

○ 2. No
○ 3. Don't know

Undo

Q5.2.

To what extent did you apply **previous assessment results** collected through your program in the following areas? Undo 1-12 Undo 12-23	1. Very Much	2. Quite a Bit	3. Some	4. Not at All	5. N/A
1. Improved specific courses	○	○	⦿	○	○
2. Modified curriculum	○	○	⦿	○	○
3. Improved advising and mentoring	○	○	⦿	○	○
4. Revised learning outcomes/goals	○	○	⦿	○	○
5. Revised rubrics and/or expectations	○	○	⦿	○	○
6. Developed/updated 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	○	○	○	○	⦿

	1.	2.	3.	4.	5.
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:

This is not for the outcome being assessed this year. It is for a previous outcome.

There was a problem with team work in the capstone course. Assessment results showed that this outcome did not meet the standards. In order to close the loop we incorporated more team work in prior required courses and we assessed them rigorously.

Q5.3. To what extent did you apply **previous assessment feedback** from the Office of Academic Program Assessment in the following areas? [Undo 1-9]	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:

na

(Remember: Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.)

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:

📎 Click here to attach a file   📎 Click here to attach a file

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. **Research**
☐ 21. 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?

It is very helpful to perform annual assessment of a specific outcome. The goal is to assess all outcomes at least twice every six years. So this activity is definitely helpful.

Q9. Please attach any additional files here:

📎 Click here to attach a file   📎 Click here to attach a file

📎 Click here to attach a file   📎 Click here to attach a file

Q9.1.

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

Assessment Rubric

Assessment results for Ethical reasoning and professionalism

Direct measures

Curriculum map

Assessment plan

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):

Fethi Belkhouche

Q11.1.
Department Chair/Program Director:

Fethi Belkhouche

Q11.2.
Assessment Coordinator:

Atousa Yazdani

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):

1038

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:

[ ]

Undo

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

2

Q16.1. List all the names:

Electrical and Electronic Engineering

Computer Engineering (shared with Computer

Science)

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

N/A

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

2

Q17.1. List all the names:

Electrical and Electronic Engineering

Computer Engineering (shared with Computer

Science)

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

N/A

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

N/A

Q18.1. List all the names:

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

N/A

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
Undo								
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? Please note: A curriculum map is not a roadmap. A roadmap is a graphical representation of the courses students must take to graduate. A curriculum map is the matrix that represents in which course a certain program learning outcome (PLO), student learning outcome (SLO), or course learning outcome (CLO) was introduced, developed, and/or mastered.**

◉ 1. Yes
○ 2. No
○ 3. Don't know

Undo

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

📎 Map.docx
16.96 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

Undo

Q23.
Does your program have a capstone class?
◉ 1. Yes, specify:

EEE 192A/B, EEE 193A/B

○ 2. No
○ 3. Don't know
Undo

Q23.1.
Does your program have a capstone project(s)?
◉ 1. Yes
○ 2. No
○ 3. Don't know
Undo

Q24.
BEFORE YOU SUBMIT: Please **check** that you have included all of the following key evidences:
☑ 1. PLO Assessed **(Q1.1, Q2.1)**
☑ 2. Definition of the PLO(s) **(Q2.1.1)**
☑ 3. Rubrics and Explicit Program (not class) Standards of Performance/Expectations **(Q2.3)**
☑ 4. Direct Measures **(Q3.3.2)**
☑ 5. Data Table(s) **(Q4.1)**
☑ 6. Curriculum Map **(Q21.1)**
☑ 7. The Most Updated Assessment Plan **(Q20.2)**

Please do **NOT** include student names and other confidential information. This is going to be a **PUBLIC** document.

Save When Completed!
(**Remember**: **Save your progress. There is NO "submit" button. After July 1, 2019, the saved report will be considered the final submission.**)

DEADLINE: July 1, 2019.

Thank you and have a great summer!

ver. 03.**11**.19

Assessment Rubric: Ethic reasoning and professionalism

Dimension	Below expectations	Meets expectations	Above expectations
1. Discuss the fundamentals of moral and ethical theories	Student is unable to identify and discuss major moral and ethical theories	Student is able to discuss major moral and ethical theories.	Student is able to discuss moral and ethical theories and outline the differences in the theories and the outcomes
2. Analyze situations for potential ethical issues	Student is unable to identify ethical issues and fails to analyze simple scenarios	Student is able to recognize and discuss ethical issues, construct ethical argument, analyze the situation, and identify the appropriate moral and ethical principles to solve the problem.	Student is able to identify the appropriate moral and ethical principles and apply them to analyze and solve more complex and multilayer ethical issues.
3. Discuss the codes of ethics of professional engineering societies such as the IEEE (Institute of Electrical and Electronics Engineers) and the NSPE (National Society of Professional Engineers)	Student is unable to discuss/recognize the codes of ethics of the major professional engineering societies	Student is able to discuss the codes of ethics of major professional engineering societies	Student is able to discuss and effectively use the codes of ethics of the major engineering societies and make the link with moral and ethical theories
4. Discuss the ethical and professional responsibilities of engineers	Student fails to cite/recognize the main ethical and professional responsibilities of engineers	Student is able to describe the codes of ethics and standards of professional practice within the discipline.	Student can articulate the primary tenets of the profession's code of ethical conduct and discuss the application of the code of ethics in the practice of the profession.

Mapping Ethics Test to the Rubric Ddimension

The tables below have the mapping between the rubrics and the test questions

- **ENGR 1 Ethics test**

Problem 1												
Question	1	2	3	4	5	6	7	8	9	10	11	12	13
Dimension	2	1	1	1	1	1	1	1	2	3 and 4	3 and 4	3	4

Problem 2	
Question	1-12
Dimension	3 and 4

Problem 3	
Question	1
Dimension	2

- **Senior Design Ethics test**

Question	1	2	3	4	5	6	7	8	9	10
Dimension	2	1	1	2	2	2	2	2	1	1
Question	11	12	13	14	15	16	17	18	19	20
Dimension	1	1	1	4	3 and 4	3 and 4	3 and 4	2 and 4	2 and 4	4

ASSESSMENT RESULTS FOR ETHICAL REASONING AND PROFESSIONALISM

ACADEMIC YEAR 2019-2020

EEE 192B					
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	0	20	4	0	83.33	16.67

Table 1: Assessment results for EEE 192B (Electrical Power Design Project II)

EEE 193B					
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	1	14	0	6.67	93.33	0

Table 2: Assessment results for EEE 192B (Product Design Project II)

ENGR 1					
	Results (number)			Results (percentage)		
Expectation	Exceed expectations	Meets expectations	Below expectations	Exceed expectations	Meets expectations	Below expectations
Students	2	12	2	12.5	75	12.50

Table 3: Assessment results for ENGR 1 (Introduction to Engineering)

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

<u>Introduction</u>

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
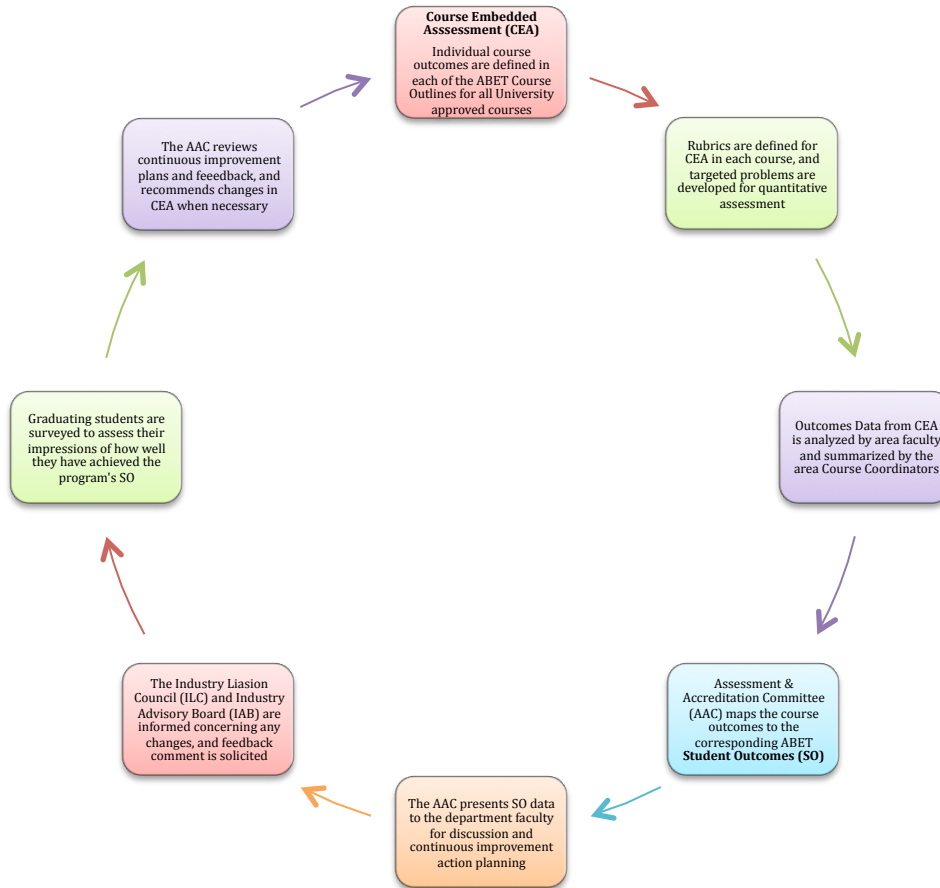
Figure 1: Flowchart of Student Outcomes assessment in Electrical & Electronic Engineering
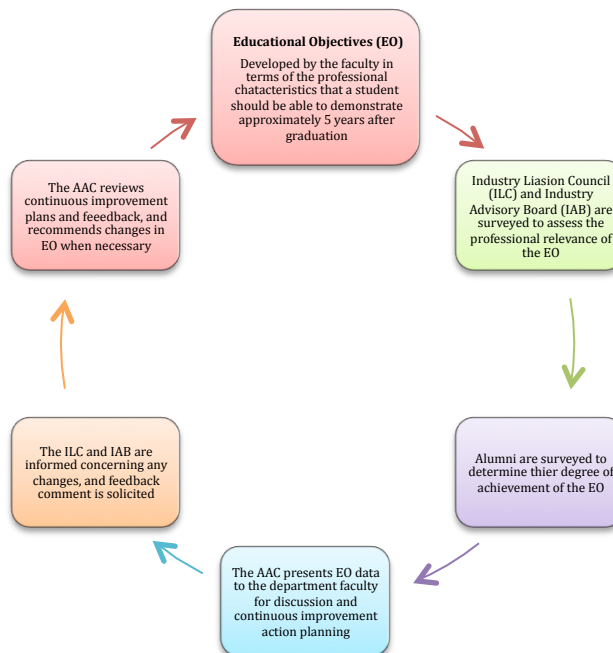
Figure 2: Flowchart of Educational Objectives assessment in Electrical & Electronic Engineering

Student outcomes

a) ability to apply knowledge of mathematics, science, and engineering.
b) 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) ability to function on a multi-disciplinary team.
e) ability to identify, formulate, and solve engineering problems.
f) understanding of professional and ethical responsibility.
g) 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) recognition of the need for, and be able to engage in, life-long   learning.
j) knowledge of contemporary issues.
k) ability to use the techniques, skills, and modern engineering tools necessary for engineering practice

Core courses	Student outcomes										
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	(k)
EEE 064	I	I									I
EEE 117	I				I						
EEE 117L		D		D			D				D
EEE 108	D			D							
EEE 108L		D	D				D				D
EEE 109	M	M	M		M		M				M
EEE 130	D				D						D
EEE 141	D		D		D						D
EEE 142	M				M						M

Course											
EEE 143	M	M			M						M
EEE 161	D		D		D						D
EEE 174	D	D	D		D						D
EEE 180	D				D		D				D
EEE 184	D		D		D						D
EEE 185	D	D	D		D		D				D
EEE 192A	M	M	M	M	M		M	M	M	M	M
EEE 192B	M	M	M	M	M	M	M	M	M	M	M
EEE 193A	M		M	M	M		M	M		M	M
EEE 193B	M	M	M	M	M	M	M	M	M	M	M
ENGR 120	D	D	D		D						D
ENGR 1				I		I	I	I		I	
ENGR 17	I				I						
ENGR 50	I										I
ENGR 140	I			I	I	I	I	I	I	I	I

Table: Mapping of the student outcomes and the core courses

Note:

- I: introduced
- D: Developed
- M: Mastered

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