



## Engineering [BS] [ENGR]

### **Cycles included in this report:**

Jun 1, 2020 to May 31, 2021

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## Program Name: Engineering [BS] [ENGR]

Reporting Cycle: Jun 1, 2020 to May 31, 2021

### 1 Is this program offered via Distance Learning?

100% Traditional or less than 50% Distance/Traditional

### 2 Is this program offered at an off-site location?

No

### 2.1 If yes to previous, provide addresses for each location where 50% or more of program credits may be earned.

### 3 Example of Program Improvement

2016-2017:

Implementing SLO assessments using the ABET rubrics. Examples are assessments for selected engineering courses in various concentrations such as CHEN, CIEN, ELEN, ENGR, and MEEN. The College of Engineering & Computer Science developed rubrics to measure Student Learning Outcomes (SLOs) and to evaluate the performance of the program. The capability of the program at delivering SLOs is assessed by a cross-section of program stakeholders. Faculty utilized assessment rubrics to quantify the SLOs. Based on the data collected, faculty identified and implemented adjustments to the delivery of course content.

2017-2018:

-Improved course assessment processes and surveys.

2018-2019:

-The ABET assessment data and recommendation from faculty resulted in improving the 4-year degree plan to satisfy the requirement of ABET format.

ie: ENGR-110 is now a lab and applied Engineering foundation course.

ie: Added an option for Phil-254 - Professional Ethics to cover one of the ABET requirements.

2019-2020:

Data from all courses can show the viability of offering engineering courses in an online format.

2020-2021:

Data shows the value from all courses in engineering being offered in a face-to-face environment that is better for both students and faculty.

### 4 Program Highlights from the Reporting Year

2016-2017:

- Implemented continuous improvement as requested by ABET evaluators.
- Successful Accreditation Board for Engineering and Technology (ABET) accreditation review of BS Engineering program in fall 2015.
- Success in obtaining external funds and awards.
- Commissioned power generator turbines and control switches in power engineering lab.
- Equipped the newly established construction lab.
- Program achieved national ranking in return on investment (ROI) for graduating students.

2017-2018:

- Added Solar synthesizer for smart power grid and control switches in power engineering lab.
- Upgraded Computer Labs with new PCs and software Kirk-123
- Program achieved national ranking in return on investment (ROI) for graduating students.

2018-2019:

- Successful Accreditation for CS program (ABET) accreditation review Fall 2018
- Success in obtaining external funds and awards.

- Upgraded Computer Labs with new PCs and software Kirk-124
- Upgraded Computer Labs with new PCs and software Drew-229
- Program achieved national ranking in return on investment (ROI) for graduating students.

#### 2019-2020:

- The department teamed up with the department of chemistry and physics to work together to make test kits for the COVID-19 tests.
- The department worked together with the college of nursing to get testing cubes created for COVID-19 testing.
- The department added a new course in the catalog CHEN 307 to address the knowledge of safety, that industry mentioned was needed.
- Successful execution of engineering week, during the national engineering week, with a large amount of attendance from local high schools from the 5 parish area.
- Ground broken for student study center.

#### 2020-2021:

- The LNG center for excellence received funding and construction will begin soon.
- Grant funding secured to help with power engineering curriculum.
- Grant funding secured to help update ETL and increase enrollment through updated facilities.
- Student study center nearing completion.

## 5 Program Mission

The Departments of Civil, Chemical, and Mechanical Engineering and Electrical Engineering and Computer Science provide an education in chemical, civil, electrical, and mechanical engineering that is professionally focused and practice-oriented within a student friendly environment. The departments prepare our students to practice engineering, focusing on the industrial needs of the region by meeting the needs of traditional and non-traditional students through close contact with the faculty, the staff, and local industrial engineers and managers. The departments maintain an up-to-date curriculum that fosters inter-disciplinary teamwork, scholarly development, cooperation with regional industry, and engineering ethics.

## 6 Institutional Mission Reference

The program mission supports the University mission by fostering student success, academic excellence, and University-community alliances. In the program mission, student success and academic excellence are promoted by a professionally focused and practice-oriented student friendly environment, and by maintaining an up-to-date curriculum. The University mission is also accomplished by the close cooperation with regional industry.

## 7 Assessment and Benchmark CHEN 409, CIEN 402, ELEN 341, and MEEN 321 Coursework [Approved]

Assessment: Students' work (tests, homework, quizzes, or projects) taken from CHEN 409, CIEN 402, MEEN 321, and ELEN 341. ABET 3a rubric is used to evaluate SLOs.

Students should have an ability to apply knowledge of mathematics, science, and engineering (ABET 3a)

1. Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.
2. Identify the engineering principles that govern operations of components or systems /processes.
3. Apply the scientific/engineering principles that govern operations of components or systems /processes.

Benchmark: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.30/5.00 is the desired achievement level.

Prior to 2017-2018, the benchmark was 3.00/5.00.

[Outcome Links](#)

**3A-PC1 [Program]**

Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.

**3A-PC2 [Program]**

Identify the engineering principles that govern operations of components or systems/processes.

**3A-PC3 [Program]**

Apply the scientific/engineering principles that govern operations of components or systems/processes.

**ABET EAC [External]****A**

an ability to apply knowledge of mathematics, science, and engineering

**7.1 Data**

3(a) PC1: Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.

Academic Year	Average score on PC1
2013-2014	2.47/3.00 (4.12/5.00*)
2014-2015	2.39/3.00 (3.98/5.00*)
2015-2016	3.48/5.00
2016-2017	3.34/5.00
2017-2018	3.70/5.00
2018-2019	3.47/5.00
2019-2020**	3.89/5.00
2020-2021	3.83/5.00

\*Converted.

\*\* Pending data from one course.

**Outcome Links****3A-PC1 [Program]**

Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.

**7.1.1 Analysis of Data and Plan for Continuous Improvement**

2016-2017:

Data indicated the benchmark was met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC1 from SLO 3.1 (a).

2019-2020:

The benchmark was met, however some of the data is not currently present, for example CHEN 409 data is still be recovered from COVID-19 shutdown. Also CPEN 310 had no students. Will look to getting better more accurate ways of collecting data.

2020-2021:

The benchmark was met, however due to courses being taught primarily online during this academic year the increase could be due to that factor. The next academic year will show more realistic data.

## 7.2 Data

3(a)-PC2: Identify the engineering principles that govern operations of components or systems /processes.

Academic Year	Average score on PC2
2013-2014	2.44/3.00 (4.07/5.00*)
2014-2015	2.49/3.00 (4.15/5.00*)
2015-2016	3.66/5.00
2016-2017	3.47/5.00
2017-2018	3.76/5.00
2018-2019	3.90/5.00
2019-2020**	4.33/5.00
2020-2021	3.79/5.00

\*Converted.

\*\* Pending data from one course.

### 7.2.1 Analysis of Data and Plan for Continuous Improvement [Approved]

2016-2017:

Data indicated the benchmark was met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC2 from SLO 3.1 (a)

2019-2020:

The data shows another increase in the benchmark, however the data from CHEN 409 is not present and no students enrolled in CPEN 310. Will evaluate the assessment to see if there is a quicker way to get all data needed.

2020-2021:

The benchmark was met, however due to courses being taught primarily online during this academic year the decrease could be due to that factor. The next academic year will show more realistic data.

## 7.3 Data

3.(a) PC3: Apply the scientific/engineering principles that govern operations of components or systems/processes.

Academic Year	Average score on PC3
2013-2014	2.16/3.00 (3.60/5.00*)
2014-2015	2.32/3.00 (3.86/5.00*)
2015-2016	3.29/5.00
2016-2017	3.57/5.00

2017-2018	3.76/5.00
2018-2019	3.75/5.00
2019-2020**	3.72/5.00
2020-2021	3.89/5.00

\*Converted.

\*\* Course Data Pending

### 7.3.1 Analysis of Data and Plan for Continuous Improvement [Approved]

2016-2017:

Data indicated the benchmark was met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC3 from SLO 3.1 (a).

2019-2020:

The data dipped a little bit lower than in previous years, however it could move back to the normal based on CHEN 409 data that is being collected.

2020-2021:

The benchmark was met, however due to courses being taught primarily online during this academic year the increase could be due to that factor. The next academic year will show more realistic data.

## 8 Assessment and Benchmark CHEN 411, CIEN 403, ELEN 341L, and MEEN 415

Coursework [Approved]

Assessment: Students work (tests, homework, quizzes, or projects) taken from CHEN 411, CIEN 403, MEEN 415, and ELEN 341L. ABET 3b rubric is used to evaluate SLOs.

Students should have an ability to design and conduct experiments, as well as to analyze and interpret data (ABET 3b)

1. Demonstrate knowledge of safety considerations and run the experiment in a safe manner.
2. Apply measurement techniques to the experiment.
3. Analyze the data using the experimental and engineering tools and/or methods.
4. Interpret how results relate to or are different from theory, appropriate models, or previous results.

Benchmark: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.30/5.00 is the desired achievement level.

Prior to 2017-2018, the benchmark was 3.00/5.00.

### Outcome Links

#### 3B-PC1 [Program]

Demonstrate knowledge of safety considerations and run the experiment in a safe manner.

#### 3B-PC2 [Program]

Apply measurement techniques to the experiment.

#### 3B-PC3 [Program]

Analyze the data using the experimental and engineering tools and/or methods.

#### 3B-PC4 [Program]

Interpret how results relate to or are different from theory, appropriate models, or previous results.

#### ABET EAC [External]

**B**

an ability to design and conduct experiments, as well as to analyze and interpret data

**8.1 Data**

3(b)-PC1: Demonstrate knowledge of safety considerations and run the experiment in a safe manner.

Academic Year	Average score on PC1
2013-2014	2.43/3.00 (4.05/5.00*)
2014-2015	2.57/3.00 (4.28/5.00*)
2015-2016	3.89/5.00
2016-2017	3.45/5.00
2017-2018	3.36/5.00
2018-2019	3.74/5.00
2019-2020**	3.67/5.00
2020-2021	4.22/5.00

\*Converted.

\*\* Data not complete, missing two courses.

**8.1.1 Analysis of Data and Plan for Continuous Improvement**

2016-2017:

Data indicated the benchmark was met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC1 from SLO 3.2.

2019-2020:

The benchmark was meant but is lower than the previous year. The number could become closer when the data from ELEN 341 and the lab for the course get turned in.

2020-2021:

The benchmark was met, however for this performance criteria had no data gathered for chemical engineering students. This would explain the increase of the average, since the weight of chemical engineering students is the second largest in ENGR.

**8.2 Data**

3(b) PC2: Apply measurement techniques to the experiment.

Academic Year	Average score on PC2
2013-2014	2.71/3.00 (4.52/5.00*)
2014-2015	2.48/3.00 (4.73/5.00*)
2015-2016	4.03/5.00

2016-2017	4.18/5.00
2017-2018	3.79/5.00
2018-2019	3.99/5.00
2019-2020**	4.11/5.00
2020-2021	4.54/5.00

\*Converted.

\*\* Data not complete, missing two courses.

### 8.2.1 Analysis of Data and Plan for Continuous Improvement [Approved]

2016-2017:

Data indicated the benchmark was met or exceeded. Data will be monitored for adjusting the benchmark in next cycle. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark was met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC2 from SLO 3.2.

2019-2020:

The benchmark was met, with a higher average than the previous few years. The number could become closer when the data from ELEN 341 and the lab for the course get turned in.

2020-2021:

The benchmark was met, however for this performance criteria had no data gathered for chemical engineering students. This would explain the increase of the average, since the weight of chemical engineering students is the second largest in ENGR.

### 8.3 Data

3(b) PC3: Analyze the data using the experimental and engineering tools and/or methods.

Academic Year	Average score on PC3
2013-2014	2.52/3.00 (4.20/5.00*)
2014-2015	2.51/3.00 (4.18/5.00*)
2015-2016	3.34/5.00
2016-2017	4.15/5.00
2017-2018	3.44/5.00
2018-2019	4.18/5.00
2019-2020**	3.55/5.00
2020-2021	4.05/5.00

\*Converted.

\*\* Data not complete, missing two courses.

### 8.3.1 Analysis of Data and Plan for Continuous Improvement [Approved]

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The current benchmark will be monitored for one more year. The benchmark will be raised for 2017-2018 to 3.30 on a 5-point scale.



2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC3 from SLO 3.2.

2019-2020:

The benchmark was met and the data seems to be following a pattern of raising and falling, this could be due to the calculation of the average. The number could become more of an outlier when the data from ELEN 341 and the lab for the course gets turned in.

2020-2021:

The benchmark was met. However, the data was obtained during an academic year that students had primarily online courses, in courses that are normally offered in a face-to-face environment. The benchmark/assessment needs to be looked at closely in 2021-2022.

## 8.4 Data

3(b)PC4: Interpret how results relate to or are different from theory, appropriate models, or previous results.

New 3.6-PC4

Academic Year	Average score on PC4
2013-2014	2.29/3.00 (3.82/5.00*)
2014-2015	2.50/3.00 (4.17/5.00*)
2015-2016	3.53/5.00
2016-2017	4.10/5.00
2017-2018	3.82/5.00
2018-2019	4.24/5.00
2019-2020**	3.99/5.00
2020-2021	4.05/5.00

\*Converted.

\*\* Data not complete, missing two courses.

### 8.4.1 Analysis of Data and Plan for Continuous Improvement [Approved]

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC4 from SLO 3.6.

2019-2020:

The benchmark was met and looks the data is beginning to stabilize. The number could become closer or further away from stabilization when the data from ELEN 341 and the lab for the course get turned in.

2020-2021:

The benchmark was met. However, the data was obtained during an academic year that students had primarily online courses, in courses that are normally offered in a face-to-face environment. The benchmark/assessment needs to be looked at closely in 2021-2022.

## 9 Assessment and Benchmark ENGR 491 Project and Team Survey [Approved]

Assessment: Students work (Project and Team Survey) taken from ENGR 491. ABET 3d rubric is used to evaluate SLOs.

\* New SLO 3.5 PC1-3 for 2019-20

Students should have an ability to function on multi-disciplinary teams (ABET 3d)

1. Contribute to team objectives through active participation in team activities.
2. Contribute to team objectives through performance of individual assigned tasks.
3. Contribute to team objectives through productive interdisciplinary activities.

Benchmark for PC1: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.50/5.00 is the desired achievement level.

Benchmark for PC2: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 4.00/5.00 is the desired achievement level.

Benchmark for PC3: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.50/5.00 is the desired achievement level.

Prior to 2017-2018, the benchmarks were 3.00/5.00.

### Outcome Links

#### 3D-PC1 [Program]

Contribute to team objectives through active participation in team activities.

#### 3D-PC2 [Program]

Contribute to team objectives through performance of individual assigned tasks.

#### 3D-PC3 [Program]

Contribute to team objectives through productive interdisciplinary activities.

#### ABET EAC [External]

**D**

an ability to function on multidisciplinary teams

## 9.1 Data

3(d) PC1: Contribute to team objectives through active participation in team activities.

Academic Year	Average score on PC1
2013-2014	2.71/3.00 (4.52/5.00*)
2014-2015	2.87/3.00 (4.78/5.00*)
2015-2016	3.97/5.00
2016-2017	4.58/5.00
2017-2018	4.69/5.00
2018-2019	4.61/5.00
2019-2020**	4.51/5.00
2020-2021	4.44/5.00

\*Converted.

\*\* Missing 491 (Electrical Data)

### 9.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.50 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC1 from SLO 3.5.

2019-2020:

Spring 2020 ENGR 491 decreased it's average due to the nationwide shutdown from COVID-19. Also, with missing data the number could be skewed slightly.

2020-2021:

The benchmark was met, however the decrease could be due to the senior research project being completely online versus face-to-face group meetings.

## 9.2 Data

3(d) PC2: Contribute to team objectives through performance of individual assigned tasks.

Academic Year	Average score on PC2
2013-2014	2.67/3.00 (4.45/5.00*)
2014-2015	2.85/3.00 (4.75/5.00*)
2015-2016	4.09/5.00
2016-2017	4.58/5.00
2017-2018	4.50/5.00
2018-2019	4.62/5.00
2019-2020**	4.56/5.00
2020-2021	4.47/5.00

\*Converted.

\*\* Missing 491 (Electrical Data)

### 9.2.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 4.00 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 4.00 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 4.00 on a 5-point scale. This PC will be replaced with new PC2 from SLO 3.5.

2019-2020:

Spring 2020 ENGR 491 decreased it's average due to the nationwide shutdown from COVID-19. Also, with missing data the number could be skewed slightly.

2020-2021:

The benchmark was met, however the decrease could be due to the senior research project being completely online versus face-to-face group meetings.

### 9.3 Data

3(d) PC3: Contribute to team objectives through productive interdisciplinary activities.

Academic Year	Average score on PC3
2013-2014	2.68/3.00 (4.67/5.00*)
2014-2015	2.88/3.00 (4.80/5.00*)
2015-2016	3.93/5.00
2016-2017	4.72/5.00
2017-2018	4.56/5.00
2018-2019	4.64/5.00
2019-2020**	4.55/5.00
2020-2021	4.49/5.00

\*Converted.

\*\* Missing 491 (Electrical Data)

#### 9.3.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.50 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC3 from SLO 3.5.

2019-2020:

Spring 2020 ENGR 491 decreased it's average due to the nationwide shutdown from COVID-19. Also, with missing data the number could be skewed slightly.

2020-2021:

The benchmark was met, however the decrease could be due to the senior research project being completely online versus face-to-face group meetings.

### 10 Assessment and Benchmark CHEN 409, CIEN 416, ENGR 430, and MEEN 409 Coursework [Approved]

Assessment: Students work (tests, homework, quizzes, or projects) taken from CHEN 409, CIEN 416, MEEN 409, and ENGR 430. ABET 3e rubric is used to evaluate SLOs.

Student should have an ability to identify, formulate, and solve engineering problems (ABET 3e)

1. Recognize nature of and determine steps to the solution of engineering problems.
2. Solve engineering problems requiring the use of "external" tables, charts, data, or models.

Benchmark for PC1: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.50/5.00 is the desired achievement level.

Benchmark for PC2: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.30/5.00 is the desired achievement level.

Prior to 2017-2018, the benchmarks were 3.00/5.00.

### Outcome Links

#### 3E-PC1 [Program]

Recognize nature of and determine steps to the solution of engineering problems.

#### 3E-PC2 [Program]

Solve engineering problems requiring the use of "external" tables, charts, data, or models.

#### ABET EAC [External]

##### E

an ability to identify, formulate, and solve engineering problems

## 10.1 Data

3(e) PC1: Recognize nature of and determine steps to the solution of engineering problems.

\*\*New 3.1e PC1 & PC2

Academic Year	Average score on PC1
2013-2014	2.18/3.00 (3.63/5.00*)
2014-2015	2.35/3.00 (3.92/5.00*)
2015-2016	4.01/5.00
2016-2017	4.00/5.00
2017-2018	4.05/5.00
2018-2019	4.09/5.00
2019-2020**	3.93/5.00
2020-2021	4.83/5.00

\*Converted.

\*\* Some course data not obtained yet.

### 10.1.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.50 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC1 from SLO 3.1e.

2019-2020:

Data shows a small decrease in performance, however not all data has been gathered and entered. Still missing CPEN 462 and CHEN 409, which could swing the data in either direction.

2020-2021:

The benchmark was met with the average being far above the normal average for this performance criteria. This is most likely due to the online learning mode that came about due to COVID-19 and the multiple hurricanes in the area.

## 10.2 Data

3(e) PC2: Solve engineering problems requiring the use of "external" tables, charts, data, or models.

Academic Year	Average score on PC2
2013-2014	2.53/3.00 (4.22/5.00*)
2014-2015	2.69/3.00 (4.48/5.00*)
2015-2016	3.41/5.00
2016-2017	3.67/5.00
2017-2018	4.00/5.00
2018-2019	4.01/5.00
2019-2020**	4.00/5.00
2020-2021	4.52/5.00

\*Converted.

\*\* Data from two course not yet entered into average.

### 10.2.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.30 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.30 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.30 on a 5-point scale. This PC will be replaced with new PC2 from SLO 3.1e.

2019-2020:

Data is just below the past several years. This could change depending on the data obtained from CPEN 462 and CHEN 409.

2020-2021:

The benchmark was met with the average being far above the normal average for this performance criteria. This is most likely due to the online learning mode that came about due to COVID-19 and the multiple hurricanes in the area.

## 11 Assessment and Benchmark ENGR 491 Project and Monthly Reports

Assessment: Students work (Project and Monthly reports) taken from ENGR 491. ABET 3g rubric is used to evaluate SLOs.

\*\*New 3w PC1-3

Students should have an ability to communicate effectively (ABET 3g)

1. Demonstrate proper English composition, grammar, and spelling.
2. Demonstrate logical organization and document formatting.
3. Demonstrate originality of content as well as effective integration of secondary sources.

Benchmark: Data will be evaluated on a 5-tier scale with 1.00 being low achievement and 5.00 being high. An average score of 3.50/5.00 is the desired achievement level.

Prior to 2017-2018, the benchmark was 3.00/5.00.

[Outcome Links](#)

**3G-PC1 [Program]**

Demonstrate proper English composition, grammar, and spelling.

**3G-PC2 [Program]**

Demonstrate logical organization and document formatting.

**3G-PC3 [Program]**

Demonstrate originality of content as well as effective integration of secondary courses.

**ABET EAC [External]**

**G**

an ability to communicate effectively

**11.1 Data**

3(g) PC1: Demonstrate proper English composition, grammar, and spelling.

\*\*New 3.3w PC1

Academic Year	Average score on PC1
2013-2014	2.56/3.00 (4.27/5.00*)
2014-2015	2.54/3.00 (4.23/5.00*)
2015-2016	3.39/5.00
2016-2017	4.06/5.00
2017-2018	3.93/5.00
2018-2019	4.10/5.00
2019-2020**	4.15/5.00
2020-2021	4.41/5.00

\*Converted.

\*\* Data missing from ENGR 491 (Electrical)

**11.1.1 Analysis of Data and Plan for Continuous Improvement**

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.5 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC1 from SLO 3.3w.

2019-2020:

The benchmark was met and had a small increase from the previous semester's average. This could be increased or decreased based on the outstanding data.

2020-2021:

The benchmark was met and exceeded by a large margin, however this could be due to the course being delivered in an online format and students not having the same amount of experience when presentation online.

**11.2 Data**

3(g) PC2: Demonstrate logical organization and document formatting.

\*\*3.3w PC2

Academic Year	Average score on PC2
	2.53/3.00

2013-2014	(4.22/5.00*)
2014-2015	2.52/3.00 (4.20/5.00*)
2015-2016	3.87/5.00
2016-2017	3.97/5.00
2017-2018	4.22/5.00
2018-2019	4.03/5.00
2019-2020**	4.12/5.00
2020-2021	4.51/5.00

\*Converted.

\*\* Data missing from ENGR 491 (Electrical)

### 11.2.1 Analysis of Data and Plan for Continuous Improvement

2016-2017:

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.50 on a 5-point scale.

2017-2018:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

2018-2019:

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC2 from SLO 3.3w.

2019-2020:

The benchmark was met and had a small increase from the previous semester's average. This could be increased or decreased based on the outstanding data.

2020-2021:

The benchmark was met and exceeded by a large margin, however this could be due to the course being delivered in an online format and students not having the same amount of experience when presentation online.

### 11.3 Data

3(g) PC3: Demonstrate originality of content as well as effective integration of secondary sources.

\*\*New 3.3w PC3

Academic Year	Average score on PC3
2013-2014	2.39/3.00 (3.98/5.00*)
2014-2015	2.39/3.00 (3.98/5.00*)
2015-2016	3.68/5.00
2016-2017	3.93/5.00
2017-2018	4.07/5.00
2018-2019	4.12/5.00
2019-2020**	4.21/5.00
2020-2021	4.35/5.00

\*Converted.

\*\* Data missing from ENGR 491 (Electrical)

### 11.3.1 Analysis of Data and Plan for Continuous Improvement



**2016-2017:**

Data indicated the benchmark is met or exceeded. No action needed. The benchmark will be raised in 2017-2018 to 3.50 on a 5-point scale.

**2017-2018:**

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2018-2019 at 3.50 on a 5-point scale.

**2018-2019:**

Data indicated the benchmark is met or exceeded. The benchmark remains the same in 2019-2020 at 3.50 on a 5-point scale. This PC will be replaced with new PC3 from SLO 3.3w.

**2019-2020:**

The benchmark was met and had a small increase from the previous semester's average. This could be increased or decreased based on the outstanding data.

**2020-2021:**

The benchmark was met and exceeded by a large margin, however this could be due to the course being delivered in an online format and students not having the same amount of experience when presentation online.

End of report