Engineering [BS] [ENGR]

Cycles included in this report:
Jun 1, 2022 to May 31, 2023

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Program Name: Engineering [BS] [ENGR]

Reporting Cycle: Jun 1, 2022 to May 31, 2023

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

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.

2021-2022:
Data shows that students had some issues with transitioning back to face-to-face courses but overall is better for students and faculty.

2022-2023:
New faculty hired to help enhance the power engineering side of the electrical engineering concentration, as well as a new faculty member hired to help with the structural side of civil engineering program. Plan to add Cybersecurity Minor.

4 Program Highlights from the Reporting Year

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.

2021-2022:

- Grant funding secured to help with engineering measurements lab and strength of materials lab.
- Construction nearing completion of hacker space
- Student study center completed and being used successfully for students and during engineering week.
- Chemical engineering students competed in the chemE car race for the first time in many years and came in second, while coming in first in the safety category.

2022-2023:

- Board of Regents grant secured for next year to help enhance the civil engineering labs and curriculum.
- Received TASC grant to upgrade surveying and materials of constructions labs.
- Network and Security Lab is completed well as industrial process controls lab.
- Civil Engineering student chapter of ASCE presented at PCI conference, attended the Waste Water conference, secured 3rd place in NPCA Competition and came in 2nd in concrete canoe contest.
- Electrical and Computer engineering students continue working on robotics team with computer science students.
- Several electrical, computer, and civil engineering students are taking the upcoming semester to intern in a wide variety of companies throughout the area.
- Several electrical, computer, and civil engineering students are taking the upcoming FE Prep courses in Summer.
- Drew 126 has been updated as an ancillary classroom to teach computer based courses.
- Drew 228 has been updated with 20 Computers to be used as computer based courses.
- LaSpace Senior Design undergraduate research project comprising of Electrical and Computer Engineering students secured second place in LSU Discovery Day.
- Civil Engineering students had two site visits including Dunham Price plant and Alfred Miller Facility.
- Four Guest speakers attended to talk in CIEN 403 and CIEN 419.
- Eight students in Computer Engineering successfully completed professional certifications in Linux pro, Ethical hacking and routing & switching.
- During E-Week a new activity was included to invite industry experts to give presentation to Civil, Electrical and Computer engineering students.

5 Program Mission

The Department of Engineering and Computer Science provides an education in chemical, civil, electrical, and mechanical engineering that is professionally focused and practice-oriented within a student friendly environment. The department prepares 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 department maintains an up-to-date curriculum that fosters interdisciplinary 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 CIEN 419, CPEN 310, and ELEN 455 Coursework [Approved]

Assessment: Students' work (tests, homework, quizzes, or projects) taken from CIEN 419, CPEN 310, and ELEN 455. ABET 3.1 rubric is used to evaluate SLOs.

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

3.1-PC1 [Program]
Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.

3.1-PC2 [Program]
Identify the engineering principles that govern operations of components or systems/processes.

3.1-PC3 [Program]
Apply the scientific/engineering principles that govern operations of components or systems/processes.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

7.1 Data

Academic Year	Average score on PC1
2017-2018	3.70/5.00
2018-2019	3.47/5.00
2019-2020	3.89/5.00
2020-2021	3.83/5.00
2021-2022	3.67/5.00
2022-2023	4.15/5.00

Outcome Links

3.1-PC1 [Program]
Apply mathematics to obtain analytical or numerical solutions to engineering equations or models.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

7.1.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met, however it is trending on a downward slope. The department will keep an eye on this trend to see if the assessment needs to be redone or if the benchmark needs to be adjusted.

2022-2023:
The benchmark was met; however, it is no longer on a downward slope.

7.2 Data

Academic Year	Average score on PC2
2017-2018	3.76/5.00
2018-2019	3.90/5.00
2019-2020	4.33/5.00
2020-2021	3.79/5.00
2021-2022	3.58/5.00
2022-2023	4.00/5.00

Outcome Links

3.1-PC2 [Program]
Identify the engineering principles that govern operations of components or systems/processes.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

7.2.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met, however it's trending in a downward direction and needs to be monitored to see if it's going to rebound or stay on its current pathway.

2022-2023:
The benchmark was met, and it is no longer trending in a downward direction. The lower numbers could have been due to virtual education.

7.3 Data

Academic Year	Average score on PC3
2017-2018	3.76/5.00
2018-2019	3.75/5.00
2019-2020	3.72/5.00
2020-2021	3.89/5.00
2021-2022	3.74/5.00
2022-2023	3.51/5.00

Outcome Links

3.1-PC3 [Program]
Apply the scientific/engineering principles that govern operations of components or systems/processes.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

7.3.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met, and unlike other assessments in its group this assessment has seemed to normalize. Will discuss with department and see if update is needed.

2022-2023:
The benchmark was met, but the results were lower, primarily due to the civil results from CIEN419. Students had trouble with unit conversions and some had issues completing the test used for the assessment.

8 Assessment and Benchmark CIEN 419, CPEN 462, and ELEN 455 Coursework [Approved]

Assessment: Students work (tests, homework, quizzes, or projects) taken from CIEN 419, CPEN 462, and ELEN 455. ABET 3.1 rubric is used to evaluate SLOs.

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

3.1-PC4 [Program]
Recognize nature of and determine steps to the solution of engineering problems.

3.1-PC5 [Program]
Solve engineering problems requiring the use of "external" tables, charts, data, or models.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

8.1 Data

Academic Year	Average score on PC4
2017-2018	4.05/5.00
2018-2019	4.09/5.00
2019-2020	3.93/5.00
2020-2021	4.83/5.00
2021-2022	2.98/5.00
2022-2023	4.35/5.00

Outcome Links

3.1-PC4 [Program]
Recognize nature of and determine steps to the solution of engineering problems.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

8.1.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark wasn't met. To improve on this, the department wants one more year of data to see if this is a one time occurrence or the start of a trend.

2022-2023:
The benchmark was met and the number drastically increased, due to previous inclusion of low number from the CHEN and MEEN courses.

8.2 Data

Academic Year	Average score on PC5
2017-2018	4.00/5.00
2018-2019	4.01/5.00
2019-2020	4.00/5.00
2020-2021	4.52/5.00
2021-2022	3.05/5.00
2022-2023	3.67/5.00

Outcome Links

3.1-PC5 [Program]
Solve engineering problems requiring the use of "external" tables, charts, data, or models.

ABET EAC [External]

3.1

An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.

8.2.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was barely met. The department will monitor this assessment closely to see if it continues to go down and not reach the benchmark.

2022-2023:
Again the benchmark was met and the numbers went up, due to not having MEEN and CHEN courses included.

9 Assessment and Benchmark CIEN 403, CSCI 413, and ELEN 357 Coursework [Approved]

Assessment: Students' work taken from CIEN 403, CSCI 413, and ELEN 357. ABET 3.3 (W) rubric is used to evaluate SLOs.

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

3.3 (W)-PC1 [Program]
Demonstrate proper English composition, grammar, and spelling.

3.3 (W)-PC2 [Program]
Demonstrate logical organization and document formatting.

3.3 (W)-PC3 [Program]
Demonstrate originality of content as well as effective integration of secondary courses.

ABET EAC [External]

3.3

An ability to communicate effectively with a range of audiences.

9.1 Data

Academic Year	Average score on PC5
2017-2018	3.93/5.00
2018-2019	4.10/5.00
2019-2020	4.15/5.00
2020-2021	4.41/5.00
2021-2022	4.18/5.00
2022-2023	3.84/5.00

Outcome Links

3.3 (W)-PC1 [Program]
Demonstrate proper English composition, grammar, and spelling.

ABET EAC [External]

3.3

An ability to communicate effectively with a range of audiences.

9.1.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met and showed that the previous year was a spike. The department will monitor the assessment and see if it stays on this trend or if this is the start of a downward trend.

2022-2023:
The benchmark was met, but the numbers went down due to 3/5 values in ELEN357. We can look at the assessments for that course in the future.

9.2 Data

Academic Year	Average score on PC6
2017-2018	4.22/5.00
2018-2019	4.03/5.00
2019-2020	4.12/5.00
2020-2021	4.51/5.00
2021-2022	4.24/5.00
2022-2023	4.32/5.00

Outcome Links

3.3 (W)-PC2 [Program]
Demonstrate logical organization and document formatting.

ABET EAC [External]

3.3

An ability to communicate effectively with a range of audiences.

9.2.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met and will continue to be monitored to see if the assessment stays in the range or goes on a downward slope.

2022-2023:
The benchmark was met. Some assessments went up and removing CHEN classes also made a difference.

9.3 Data

Academic Year	Average score on PC7
2017-2018	4.07/5.00
2018-2019	4.12/5.00
2019-2020	4.21/5.00
2020-2021	4.35/5.00
2021-2022	4.15/5.00
2022-2023	3.84/5.00

Outcome Links

3.3 (W)-PC3 [Program]
Demonstrate originality of content as well as effective integration of secondary courses.

ABET EAC [External]

3.3

An ability to communicate effectively with a range of audiences.

9.3.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met and will continue to be monitored to see if it stays in the same range or takes a downward turn.

2022-2023:
The benchmark was met, but the numbers were down and down in ELEN357. We will evaluate the assessments in that course.

10 Assessment and Benchmark ENGR 491 Project and Team Survey [Approved]

Assessment: Students work (Project and Team Survey) taken from ENGR 491. ABET 3.5 rubric is used to evaluate SLOs.

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

3.5-PC1 [Program]
Contribute to team objectives through active participation in team activities.

3.5-PC2 [Program]
Contribute to team objectives through performance of individual assigned tasks to achieve goals and objectives.

3.5-PC3 [Program]
Contribute to team objectives through productive interdisciplinary activities.

ABET EAC [External]

3.5

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

10.1 Data

Academic Year	Average score on PC1
2017-2018	4.69/5.00
2018-2019	4.61/5.00
2019-2020	4.51/5.00
2020-2021	4.44/5.00
2021-2022	4.41/5.00
2022-2023	4.67/5.00

Outcome Links

3.5-PC1 [Program]
Contribute to team objectives through active participation in team activities.

ABET EAC [External]

3.5

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

10.1.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. There is a downward trend and the department may need to look into rewriting the assessment.

2022-2023:
The benchmark was met and the numbers went up this year, perhaps due to students being on campus the last few years.

10.2 Data

Academic Year	Average score on PC2
2017-2018	4.50/5.00
2018-2019	4.62/5.00
2019-2020	4.56/5.00
2020-2021	4.47/5.00
2021-2022	4.52/5.00
2022-2023	4.75/5.00

Outcome Links

3.5-PC2 [Program]
Contribute to team objectives through performance of individual assigned tasks to achieve goals and objectives.

ABET EAC [External]

3.5

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

10.2.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. The assessment has stayed in the same range for several years. A rewrite of the assessment may be needed.

2022-2023:
The benchmark was met and the numbers went up, primarily due to not including the CHEN section of ENGR491.

10.3 Data

Academic Year	Average score on PC3
2017-2018	4.56/5.00
2018-2019	4.64/5.00
2019-2020	4.55/5.00
2020-2021	4.49/5.00
2021-2022	4.51/5.00
2022-2023	4.71/5.00

Outcome Links

3.5-PC3 [Program]
Contribute to team objectives through productive interdisciplinary activities.

ABET EAC [External]

3.5

An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.

10.3.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. The numbers are in the same range as several of the past years. The department will need to look into rewriting the assessment.

2022-2023:
The benchmark was met and the numbers went up.

11 Assessment and Benchmark CIEN 403 and ELEN 341 Coursework [Approved]

Assessment: Students work (tests, homework, quizzes, or projects) taken from CIEN 403 and ELEN 341. ABET 3.6 rubric is used to evaluate SLOs.

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

3.6-PC1 [Program]
Demonstrate knowledge of safety considerations and run the experiment in a safe and appropriate manner.

3.6-PC2 [Program]
Apply measurement techniques to the experiment.

3.6-PC3 [Program]
Analyze the data using the experimental and engineering tools and/or methods.

3.6-PC4 [Program]
Use engineering judgement to draw conclusions on how results relate to or are different from theory, appropriate models, or previous results.

ABET EAC [External]

3.6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

11.1 Data

Academic Year	Average score on PC1
2017-2018	3.36/5.00
2018-2019	3.74/5.00
2019-2020	3.67/5.00
2020-2021	4.22/5.00
2021-2022	3.62/5.00
2022-2023	3.63/5.00

Outcome Links

3.6-PC1 [Program]
Demonstrate knowledge of safety considerations and run the experiment in a safe and appropriate manner.

ABET EAC [External]

3.6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

11.1.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022
The benchmark was met; however, it is trending downward. The department will need one more year of data since the 20-21 academic year was taught primarily online as well as missing some data.

2022-2023:
The benchmark was met and the numbers were about the same as in previous years.

11.2 Data

Academic Year	Average score on PC2
2017-2018	3.79/5.00
2018-2019	3.99/5.00
2019-2020	4.11/5.00
2020-2021	4.54/5.00
2021-2022	4.16/5.00
2022-2023	4.75/5.00

Outcome Links

3.6-PC2 [Program]
Apply measurement techniques to the experiment.

ABET EAC [External]

3.6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

11.2.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. The department would like one more year of data to see a more realistic trend since the 20-21 and 19-20 academic years had many factors that could impair the accuracy of the benchmark.

2022-2023:
The benchmark was met and the numbers were very strong. Students have improved lab skills with the return to campus.

11.3 Data

Academic Year	Average score on PC3
2017-2018	3.44/5.00
2018-2019	4.18/5.00
2019-2020	3.55/5.00
2020-2021	4.05/5.00
2021-2022	3.86/5.00
2022-2023	5.00/5.00

Outcome Links

3.6-PC3 [Program]
Analyze the data using the experimental and engineering tools and/or methods.

ABET EAC [External]

3.6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

11.3.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. For this assessment the department needs one more semester of data to see if any changes are needed, due to the "lurking variable" qualities of the 19-20 and 20-21 academic years.

2022-2023:
The benchmark was met and the numbers were very strong. Students have improved lab skills with the return to campus.

11.4 Data

Academic Year	Average score on PC4
2017-2018	3.82/5.00
2018-2019	4.24/5.00
2019-2020	3.99/5.00
2020-2021	4.05/5.00
2021-2022	4.17/5.00
2022-2023	4.28/5.00

Outcome Links

3.6-PC4 [Program]
Use engineering judgement to draw conclusions on how results relate to or are different from theory, appropriate models, or previous results.

ABET EAC [External]

3.6

An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.

11.4.1 Analysis of Data and Plan for Continuous Improvement

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.

2021-2022:
The benchmark was met. The department wants to see if the upward trend holds for the next academic year.

2022-2023:
The benchmark was met and the numbers continued to go up. This PC tends to be lower, since it involves lab analysis vs. measurement.

End of report