

2018-2019: Civil and Environmental Engineering BS

Definition of Unit:

Providing Department:

Civil Engineering BS

Department/Unit Contact:

Ben Mohr

Mission/Vision Statement:

The mission of the civil engineering program is to offer the strong academic content necessary to produce well-educated graduates who become innovative and productive members of society. Graduates will possess both the problem solving skills and the fundamentals of critical thinking and analysis that are crucial for success within the framework of the civil and environmental engineering profession.

Student Outcomes

Define Goal:

Program Educational Objectives:

1. Graduates should demonstrate the ability for early career professional growth based on their grasp of fundamental concepts in civil engineering.
2. Graduates should utilize knowledge and skills to participate in civil engineering design and/or management processes.
3. Graduates should develop professionally through a commitment to life-long learning.

Intended Outcomes / Objectives:

Students should demonstrate...

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.

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
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

Attainment of PEO 1 is supported by Student Outcomes: 1,2,4,6

Attainment of PEO 2 is supported by Student Outcomes: 3,4,5

Attainment of PEO 3 is supported by Student Outcome: 7

DRILL DOWN----- RELATED ITEM LEVEL 1

Assessment Methods

Frequency of Assessment:

All assessments are completed on a semester or annual basis, unless otherwise noted in the description of a tool. The assessment schedule is attached.

Rationale:

CEE the assessment metrics are as follows:

1. Course Components are grades on a specific, recurring assignment or collection of assignments in a specific The assignment must be common to all faculty who teach the course.
2. FE Exam provides a measure of Civil Engineering content knowledge. The FE Exam topic area ratio scores provided to CEE by the National Council of Examiners for Engineering and Surveying. CEE requires all students to take the FE exam, so our scores are representative of all students.
3. Final Course Grades are accumulated across a graduating class. That is, the average grade in a specific course for all the students who graduated in a given term.
4. Course Instructional Outcome Surveys and Senior Exit Surveys are Likert scale survey questions. All have 4 answers: Strongly Disagree, Disagree, Agree, and Strongly Agree. CEE is experimenting with annual alumni surveys due to low response rates.

Expected Levels of Attainment:

Because of scale differences between metrics, CEE has implemented color-coding to aid in the review process. The color coding and the criteria used in its application are found below:

SO Attainment Color Coding Criteria

| Color Code | | | |
|--|--------------------|--------------------|--------------------|
| Attainment Level | Unacceptable | Acceptable | Excellent |
| Metric | Criteria | | |
| Course Components (Out of 100) | Average < 70 | Average ≥ 70 | Average ≥ 80 |
| FE Exam Ratio Scores (CEE Performance Index / Comparator) | Ratio Score < 0.80 | Ratio Score ≥ 0.80 | Ratio Score ≥ 0.90 |
| Final Course Grades (4-Point Grading Scale) | Average < 2.50 | Average ≥ 2.50 | Average ≥ 2.75 |
| Course Instructional Outcome Surveys (Out of 4) | Average < 2.50 | Average ≥ 2.50 | Average ≥ 2.75 |
| Senior Exit Surveys (Out of 4) | Average < 2.50 | Average ≥ 2.50 | Average ≥ 2.75 |

The faculty chose to include multiple metrics for each SLO. Multiple metrics help the faculty to avoid unneeded reactions to statistical outliers that occur during any evaluation. As such, the occurrence of a single Low or Unsatisfactory rating will not necessarily require a response.

The thresholds for a required response are:

- Multiple metrics in the red in a single academic year for a given outcome
- Single metrics in the red in consecutive academic years for a given outcome
- Multiple metrics that remain “in the yellow” (i.e., satisfactory) in multiple academic years for a given outcome. Yellow followed by red and vice versa are considered multiple “satisfactory” years as well as single years in the red.

In addition to these required responses, there are three additional ways in which responses may be initiated. During their reviews of the metrics, the Chair, the Faculty, or the Advisory Board can request action or further investigation even if all the metrics are Excellent. This flexibility allows the opportunity to begin investigations before they are required, hopefully reducing our response time in applying improvements. It also allows for improvements even when there are no issues.

RELATED ITEM LEVEL 2

Results: SO 1

Results:

SO 1. An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics

In order to capture all parts of an engineering problem (and identify any potential issues) as indicated in SO1, the outcome was broken up into three parts:

1. "Identify" – the CEE 4950 Interim 1 Technical Report grade was used as it would be expected that students have successfully identified the engineering problem
2. "Formulate" – the CEE 4950 Interim 2 Technical Report grade was used as, at this point, students would have devised a methodology for solving the engineering problem
3. "Solve" – the CEE 4950 Final Report grade should give an indication regarding the students' ability to solve the engineering problem

All metrics for this outcome are shown in the table below:

| ABET 1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics | | | | | | | | | | | |
|---|--|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
| | | Fall | Spr |
| CEE 4950 Senior Design Course Components | | | | | | | | | | | |
| | Mentor (Technical) Grade on Interim Report 1 - Identify | | 85.0 | | 81.0 | 86.8 | 84.1 | 86.8 | 86.6 | 83.4 | 81.6 |
| | Mentor (Technical) Grade on Interim Report 2 - Formulate | | 83.0 | | 83.3 | 88.7 | 86.0 | 88.6 | 88.0 | 91.7 | 85.6 |
| | Mentor (Technical) Grade on Final Report - Solve | 88.8 | 89.0 | 88.6 | 86.0 | 76.4 | 87.0 | 90.2 | 89.6 | 93.5 | 88.5 |
| Senior Exit Surveys | | | | | | | | | | | |
| | Survey question - (1a) Identify | | | | | | | | | | 3.64 |
| | Survey question - (1b) Formulate | | | | | | | | | | 3.54 |
| | Survey question - (1c) Solve | | | | | | | | | | 3.62 |
| | Survey Question - Combined | | | | | | | 3.74 | 3.55 | 3.57 | |
| FE Exam Ratio Scores | | | | | | | | | | | |
| | Engineering Mechanics (Statics) | 0.92 | 0.98 | 0.91 | 0.80 | 0.83 | 0.97 | 1.10 | 0.98 | 0.98 | 0.95 |
| | Environmental Engineering | 1.00 | 1.05 | 0.94 | 1.02 | 0.92 | 0.93 | 1.80 | 1.00 | 1.02 | 1.07 |
| | Soil Mechanics & Foundations (Geotechnical) | 0.90 | 1.00 | 0.87 | 0.85 | 0.92 | 0.96 | 0.99 | 0.98 | 0.96 | 1.13 |
| | Hydraulics & Hydrologic Systems | 0.93 | 1.03 | 1.01 | 0.93 | 0.95 | 0.98 | 0.99 | 0.96 | 1.01 | 0.93 |
| | Transportation Engineering | 0.99 | 1.09 | 1.02 | 1.08 | 0.89 | 1.03 | 1.02 | 1.07 | 1.08 | 1.04 |
| | Structural Analysis | 0.83 | 1.00 | 0.95 | 0.90 | 0.87 | 0.99 | 1.10 | 1.02 | 1.01 | 1.02 |
| | Structural Design | 0.99 | 1.02 | 0.96 | 0.99 | 1.01 | 1.07 | 1.11 | 0.99 | 1.07 | 1.00 |
| | Materials | 1.07 | 1.13 | 0.86 | 1.01 | 1.01 | 1.04 | 0.91 | 1.03 | 0.97 | 0.96 |
| Final Course Grades | | | | | | | | | | | |
| | CEE 2110 Statics | 2.56 | 2.58 | 2.61 | 2.13 | 2.93 | 2.96 | 2.95 | 3.31 | 3.07 | 3.33 |
| | CEE 3020 Surveying | 3.25 | 3.40 | 3.11 | 2.95 | 3.20 | 3.30 | 2.91 | 3.45 | 3.33 | 3.46 |
| | CEE 3413 Environmental Engineering | 2.90 | 3.00 | 2.68 | 2.85 | 2.75 | 2.96 | 2.86 | 3.17 | 2.89 | 3.23 |
| | CEE 4310 Steel Design | 2.85 | 2.96 | 2.80 | 2.95 | 3.27 | 3.00 | 2.91 | 3.15 | 2.39 | 2.15 |
| | CEE 4320 Concrete Design | 2.85 | 2.73 | 2.84 | 2.55 | 2.44 | 2.64 | 2.10 | 2.72 | 2.50 | 2.15 |
| | CEE 4630 Traffic Engineering | 3.20 | 3.33 | 2.57 | 3.00 | 3.00 | 2.75 | 3.60 | 3.17 | 2.67 | 3.33 |
| | CEE 4800 Geotechnical Engineering | 2.65 | 3.12 | 3.20 | 2.70 | 3.00 | 2.81 | 3.09 | 2.97 | 2.72 | 2.77 |
| | ENGR 1110 Engineering Graphics | 3.19 | 3.52 | 3.31 | 2.63 | 3.17 | 3.15 | 3.19 | 3.27 | 3.25 | 3.23 |
| | ENGR 1120 Programming | 2.87 | 3.00 | 2.59 | 2.71 | 2.67 | 2.84 | 2.81 | 2.89 | 2.61 | 3.42 |
| Course Instructional Outcome Surveys | | | | | | | | | | | |
| | CEE 2110 Statics | 3.45 | 3.29 | 2.70 | | 3.18 | 3.73 | 3.46 | 3.52 | 3.57 | 3.28 |
| | CEE 3413 Environmental Engineering | | 3.11 | 3.49 | 3.49 | 3.59 | 3.24 | 3.47 | 2.70 | 3.33 | 3.35 |
| | CEE 4800 Geotechnical Engineering | 3.04 | | 3.65 | 3.64 | 3.67 | 3.52 | 3.84 | 3.80 | 3.67 | 3.72 |
| | CEE 4950 Senior Design | | 3.78 | 3.77 | 3.80 | 3.60 | 3.77 | 3.54 | 3.88 | 3.40 | 3.69 |
| | CEE 3020 Surveying | 3.60 | | 3.39 | | 3.51 | 3.61 | 3.52 | 3.45 | 3.57 | 3.49 |
| | CEE 4310 Steel Design | 3.33 | 3.58 | 3.06 | 3.83 | 3.66 | 3.76 | 3.75 | 3.52 | 3.66 | 3.68 |
| | CEE 4320 Concrete Design | 3.75 | 2.60 | 2.69 | 3.60 | 3.68 | 3.78 | 3.67 | 3.54 | 2.34 | 3.07 |
| | CEE 4630 Traffic Engineering | | | 3.22 | | 3.01 | | 3.82 | | 3.32 | |

Based on the thresholds for a required response, there are apparent issues with CEE 4310 Steel Design and 4320 Concrete Design final course grades as both metrics have multiple reds for the given academic year. Two structural faculty who taught those courses departed CEE in 2016-17, with a one-year gap before new adjunct/faculty arrived. Recent faculty hires and time for those new hires to acclimate should reverse the trend. We will monitor progress for the next year to see if further actions are required.

Attachments:

ABET SO Tables 2019.xlsx

RELATED ITEM LEVEL 2

Results: SO 2

Results:

SLO 2. An ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors

All metrics for this outcome are shown in the table below:

| ABET 2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors | | | | | | | | | | | |
|--|--|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
| | | Fall | Spr |
| CEE 4950 Senior Design Course Components | | | | | | | | | | | |
| | Mentor (Technical) Grade on Final Report - Solve | 88.8 | 89.0 | 88.6 | 86.0 | 76.4 | 87.0 | 90.2 | 89.2 | 93.5 | 86.0 |
| Senior Exit Surveys | | | | | | | | | | | |
| | Single survey question covers "Apply engineering design" | | | | | | | | | | 3.50 |
| | Single survey question covers "consideration of..." | | | | | | | | | | 3.50 |
| | Single survey question covers "...factors" | | | | | | | | | | 3.31 |
| Average Grades on Course Components | | | | | | | | | | | |
| | CEE 4380 Bridge Design Project | 84.7 | | 90.6 | | 87.6 | | | | | |
| | CEE 4640 Highway Design Project* | | | | | 80.3 | | 86.1 | | | |
| | CEE 4950 Senior Design Project Technical | 88.8 | 89.0 | 88.6 | 86.0 | 76.4 | 87.0 | 90.2 | 89.6 | 93.5 | 88.5 |
| Final Course Grades | | | | | | | | | | | |
| | CEE 3020 Surveying | 3.71 | 3.69 | 3.18 | 3.42 | 3.40 | 3.47 | 3.63 | 3.21 | 3.57 | 3.30 |
| | CEE 4310 Steel Design | 2.85 | 2.96 | 2.80 | 2.95 | 3.27 | 3.00 | 2.91 | 3.15 | 2.39 | 2.15 |
| | CEE 4320 Concrete Design | 2.85 | 2.73 | 2.84 | 2.55 | 2.44 | 2.64 | 2.10 | 2.72 | 2.50 | 2.15 |
| | CEE 4630 Traffic Engineering | 3.20 | 3.33 | 2.57 | 3.00 | 3.00 | 2.75 | 3.60 | 3.17 | 2.67 | 3.33 |
| | ENGR 1110 Engineering Graphics | 3.19 | 3.52 | 3.31 | 2.63 | 3.17 | 3.15 | 3.19 | 3.27 | 3.25 | 3.23 |
| | ENGR 1120 Programming | 2.87 | 3.00 | 2.59 | 2.71 | 2.67 | 2.84 | 2.81 | 2.89 | 2.61 | 3.42 |
| Course Instructional Outcome Surveys | | | | | | | | | | | |
| | CEE 4380 Bridge Design | 3.74 | | 3.63 | | 3.65 | | 3.68 | | 3.69 | |
| | CEE 4640 Highway Design | | | | 3.88 | | 3.16 | | 3.70 | | |
| | CEE 4950 Senior Design | | 3.78 | 3.77 | 3.80 | 3.60 | 3.77 | 2.68 | 3.89 | 3.40 | 3.69 |
| | CEE 3020 Surveying | 3.60 | | 3.39 | | 3.51 | 3.61 | 3.52 | 3.37 | 3.57 | 3.49 |
| | CEE 4310 Steel Design | 3.33 | 3.58 | 3.06 | 3.83 | 3.66 | 3.76 | 3.75 | 3.52 | 3.66 | 3.68 |
| | CEE 4320 Concrete Design | 3.75 | 2.60 | 2.69 | 3.60 | 3.68 | 3.78 | 3.69 | 3.54 | 2.34 | 3.07 |
| | CEE 4630 Traffic Engineering | | | 3.22 | | 3.01 | | 3.82 | | 3.32 | |
| * This course is typically offered only during spring semesters. First, data were not tabulated prior to spring 2017. Second, the course was not offered in 2019 due to faculty medical | | | | | | | | | | | |

Based on the thresholds for a required response, we see as we did in SO 1 the issues with CEE 4310 Steel Design and 4320 Concrete Design final course grades as both metrics has multiple reds for the given academic year. As referenced in SO 1, two structural faculty who taught those courses departed CEE in 2016-17, with a one-year gap before new adjunct/faculty arrived. Recent faculty hires and time for those new hires to acclimate should reverse the trend. We will monitor progress for the next year to see if further actions are required.

Attachments:

RELATED ITEM LEVEL 2

Results: SO 3

Results:

SO 3. An ability to communicate effectively with a range of audiences

Communication skills are assessed separately for both oral and written in CEE 4950. Written communication skills are directly measured for both the technical report and poster presentation. The oral presentation component has been separated out as “Presentation Skills”. The “Quality of Slides” component functions as a measure of both written and oral communication skills.

All metrics for this outcome are shown in the table below:

| ABET 3. an ability to communicate effectively with a range of audiences [G] | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
|---|--|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | Fall | Spr |
| CEE 4950 Senior Design Course Components | | | | | | | | | | | |
| | CEE 4950 Senior Design - Written Report (Technical Writing) | 83.7 | 85.0 | 81.4 | 83.0 | 74.8 | 86.0 | 80.1 | 87.4 | 86.5 | 84.4 |
| | CEE 4950 Senior Design - Oral Presentation (Presentation Skills) | | | | | 89.9 | | 93.0 | | 90.0 | |
| | CEE 4950 Senior Design - Oral Presentation (Quality of Slides) | | | | | 91.9 | | 93.8 | | 89.3 | |
| | CEE 4950 Senior Design - Poster Presentation | | 91.4 | | 91.0 | 92.4 | 88.2 | 93.2 | 90.2 | 91.6 | 90.7 |
| Senior Exit Surveys | | | | | | | | | | | |
| | Single survey question covers (3) - Writing | | | | | | | | | | 3.35 |
| | Single survey question covers (3) - Oral | | | | | | | | | | 3.29 |
| Course Instructional Outcome Surveys | | | | | | | | | | | |
| | CEE 4950 Senior Design - Oral Communication | | 3.78 | 3.82 | 3.72 | 3.70 | 3.81 | 3.69 | 3.90 | 3.38 | 3.82 |
| | CEE 4950 Senior Design - Written Communication | | 3.78 | 3.82 | 3.90 | 3.43 | 3.78 | 3.61 | 3.90 | 2.88 | 3.59 |
| Final Course Grades | | | | | | | | | | | |
| | PC 2500 - Oral Communication | 4.00 | 3.67 | 4.00 | 3.86 | 4.00 | 3.82 | 4.00 | 4.00 | 4.00 | 4.00 |
| | SPCH 2410 - Oral Communication | 4.00 | 2.73 | 3.50 | 3.20 | 3.20 | 3.14 | 2.89 | 3.23 | 3.00 | 3.50 |

There are no metrics in red and only one metric in yellow for the current year with no past trend of yellow. Hence no response is currently required. Students continue to perform at a high level indicating excellent performance.

Attachments:

RELATED ITEM LEVEL 2

Results: SO 4

Results:

SO 4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts

The CEE 4920 Professionalism and Ethics course final grade is the primary metric for this SO. New questions on the senior exit survey provide a new metric for this SO.

All metrics for this outcome are shown in the table below:

| ABET 4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
|--|--|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | Fall | Spr |
| FE Exam Ratio Scores | | | | | | | | | | | |
| | Ethics & Business Practices | 0.94 | 1.03 | 1.06 | 0.96 | 0.81 | 1.01 | 1.01 | 0.96 | 1.01 | 1.06 |
| Instructional Outcome Survey Question(s) | | | | | | | | | | | |
| | CEE 4920 Professionalism and Ethics | 3.81 | 3.64 | 3.77 | 3.71 | 3.67 | 3.74 | 3.79 | 3.62 | 3.62 | 3.79 |
| Senior Exit Surveys | | | | | | | | | | | |
| | Single survey question covers "ethical and professional responsibilities..." | | | | | | | | | | 3.57 |
| | Single survey question covers "make informed judgments..." | | | | | | | | | | 3.50 |
| Final Course Grades | | | | | | | | | | | |
| | CEE 4920 Professionalism and Ethics | 3.90 | 3.69 | 3.95 | 4.00 | 3.88 | 3.92 | 3.68 | 3.90 | 3.61 | 3.69 |
| Course Instructional Outcome Surveys | | | | | | | | | | | |
| | CEE 4950 Senior Design | | 3.78 | 3.77 | 3.80 | 3.60 | 3.77 | 3.54 | 3.88 | 3.40 | 3.69 |

There are no metrics in red or yellow for the 2018-2019. Hence no response is currently required. Students continue to perform at a high level of performance on all metrics including the new survey questions.

Attachments:

Results: SO 5

Results:

SO 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

SO 5 is broken into three parts for assessment.

1. "an ability to function effectively on a team whose members together provide leadership..." – CEE 4950 Senior Design focuses on leadership.
2. "...create a collaborative and inclusive environment..." – Peer evaluations are a part of our CEE 4950 Senior Design grading scheme. Students directly assess each other regarding their group.
3. "...establish goals, plan tasks, and meet objectives..." – Students are assessed on management principles in CEE 4950 Senior Design, which will continue under the new student outcomes.

| ABET 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 [D] | | | | | | | | | | | |
|--|--|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
| | | Fall | Spr |
| CEE 4950 Senior Design Course Components | | | | | | | | | | | |
| CEE 4950 Senior Design - Leadership paper | | | 85.0 | | 82.0 | 73.6 | 85.0 | 79.7 | 77.0 | 92.6 | 75.0 |
| CEE 4950 Senior Design - Management paper | | | 91.0 | | 75.0 | 72.8 | 91.0 | 85.7 | 79.0 | 77.0 | 88.0 |
| CEE 4950 Senior Design Project (Peer Eval) | | 87.5 | 97.0 | 87.4 | 88.0 | 88.0 | 91.0 | 77.3 | 92.0 | 81.6 | 95.0 |
| Instructional Outcome Survey Question(s) | | | | | | | | | | | |
| CEE 4950 Senior Design ⁴ | | | 3.78 | 3.77 | 3.80 | 3.60 | 3.77 | 3.54 | 3.88 | 3.40 | 3.69 |
| Senior Exit Surveys | | | | | | | | | | | |
| Single survey question covers leadership | | | | | | | | | | | 3.36 |
| Single survey question covers collaborative and inclusive environment | | | | | | | | | | | 3.46 |
| Single survey question covers "establish goals, plan tasks, and meet objectives" | | | | | | | | | | | 3.50 |

While two metrics appear in yellow, these metrics have not remained in yellow for multiple academic years. No response is required at this time, but we will continue to monitor progress on the CEE 4950 Senior Design paper.

Attachments:

Results: SO 6

Results:

SO 6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions

| ABET 6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions | | | | | | | | | | | |
|---|---|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
| | | Fall | Spr |
| Senior Exit Surveys | | | | | | | | | | | |
| | Single survey question covers "develop and conduct" | | | | | | | | | | 3.14 |
| | Single survey question covers "analyze and interpret" | | | | | | | | | | 3.50 |
| | Single survey question covers "draw conclusions" | | | | | | | | | | 3.21 |
| Average Grades on Course Components | | | | | | | | | | | |
| | CEE 3030 Civil Engineering Materials | 92.2 | 87.2 | 88.0 | 86.5 | 90.4 | 81.7 | 81.8 | 84.3 | 86.9 | 91.8 |
| Final Course Grades | | | | | | | | | | | |
| | CEE 3020 Surveying | 3.25 | 3.40 | 3.11 | 2.95 | 3.20 | 3.30 | 2.91 | 3.45 | 3.33 | 3.46 |
| | CEE 3040 Geotechnical Engineering Lab | 3.17 | 3.71 | 3.33 | 3.13 | 2.88 | 3.29 | 3.10 | 3.00 | 2.40 | 3.00 |
| | CEE 3120 Mechanics of Materials Lab | 3.71 | 3.69 | 3.18 | 3.42 | 3.40 | 3.47 | 3.63 | 3.21 | 3.57 | 3.30 |
| | CEE 3430 Environmental Engineering Lab | 4.00 | 4.00 | 3.93 | 3.45 | 2.71 | 3.00 | 3.22 | 3.50 | 3.65 | 3.69 |
| | ENGR 1110 Engineering Graphics | 3.19 | 3.52 | 3.31 | 2.63 | 3.17 | 3.15 | 3.19 | 3.27 | 3.25 | 3.23 |
| | ENGR 1120 Programming | 2.87 | 3.00 | 2.59 | 2.71 | 2.67 | 2.84 | 2.81 | 2.89 | 2.61 | 3.42 |
| Course Instructional Outcome Surveys | | | | | | | | | | | |
| | CEE 3020 Surveying | 3.60 | | 3.39 | | 3.51 | 3.61 | 3.52 | 3.45 | 3.57 | 3.49 |
| | CEE 3030 Civil Engineering Materials | 3.09 | 3.03 | 3.23 | 2.67 | 3.51 | 3.16 | 3.27 | 3.47 | 2.69 | 3.37 |
| | CEE 3040 Geotechnical Engineering Lab | 3.54 | 3.71 | 3.18 | 3.62 | 3.66 | 3.58 | 3.68 | 3.70 | 3.61 | 3.67 |
| | CEE 3120 Mechanics of Materials Lab | 3.68 | 3.41 | 3.66 | 3.58 | 3.58 | 3.44 | 3.42 | 3.45 | | 3.14 |
| | CEE 3430 Environmental Engineering Lab | 3.74 | 3.50 | 3.61 | 3.74 | 3.84 | 3.52 | 3.91 | 3.66 | | 3.73 |

While the Geotechnical Engr lab report fell into the unacceptable threshold for a semester, there is no trend of consecutive years of red. As a single occurrence, no actions are currently warranted. Students continue to perform well on all other metrics.

Attachments:

Results: SO 7

Results:

SO 7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

| ABET 7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies [1] | | 2014-15 | | 2015-16 | | 2016-17 | | 2017-18 | | 2018-19 | |
|--|---|---------|------|---------|------|---------|------|---------|------|---------|------|
| | | Fall | Spr |
| CEE 4950 Senior Design Course Components | | | | | | | | | | | |
| | CEE 4950 Mentor final technical grade - "Acquire and Apply" | 88.8 | 89.0 | 88.6 | 86.0 | 76.4 | 87.0 | 90.2 | 89.6 | 93.5 | 88.5 |
| Senior Exit Surveys | | | | | | | | | | | |
| | Single survey question covers "acquire" | | | | | | | | | | 3.64 |
| | Single survey question covers "apply" | | | | | | | | | | 3.64 |
| FE Exam Ratio Scores | | | | | | | | | | | |
| | Overall FE Exam Pass Rate | 0.77 | 1.07 | 0.66 | 0.58 | 0.42 | 0.84 | 1.01 | 0.90 | 1.00 | 0.94 |

The Overall FE Exam pass rate continues to improve since moving CEE 4940 FE Review from the last semester to the penultimate semester and reformatting the course from an independent study to an in-person review class. The in-person review class seems to have had a large impact on the pass rate.

All other metrics including the new Senior Exit Survey questions indicate an excellent level of process for students.

Attachments:

RELATED ITEM LEVEL 3

Modifications and Continuous Improvement Program Changes and Actions due to Results:

Link to Assessment: