School of Engineering
Annual Program Report of Assessment of Student Learning Outcomes

Part I: Cover Page

Title of Degree or Certificate Program	**Degree Level** *(Certificate, Associate, Bachelors, Master's, etc.)*
Construction Management	Bachelors

Name of Academic Department: Civil, Construction & Environmental Engineering

Name of College/School/Branch: School of Engineering

Academic Year/Assessment Period: 2018-2019

Submitted By (include email address): Susan Bogus Halter, sbogus@unm.edu

Date Submitted to College/School/Branch for Review: December 2, 2019

Date Reviewed by College Assessment and Review Committee (CARC) or the equivalent:

State whether ALL of the program's student learning outcomes (SLOs) are targeted/assessed/measured within one year, two years, OR three years:

Each SLO is assessed annually

If the program's SLO's are targeted/assessed/measured within two years or three years, please state whether this assessment record focuses on SLOs from the first year, second year, or third year:

N/A

Part II: Assessment Report

What Student Learning Outcomes were assessed during this reporting period? List in the table below.

For each SLO, indicate in the table how the SLO was assessed, briefly indicate what results were obtained, what analysis of the data indicated with regard to student learning, and what recommendations have been made regarding the program curriculum.

Student Learning Outcome		**Assessment Measures incl. Measure Type (Direct or Indirect)**	**Performance Benchmark**	**Results**	**Analysis**	**Recommendations for Improvement/ Changes from Instructors**
1. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.		Course work - Direct	All course-related assessments use a three-scale rubric as follows: 3 (Exemplary), 2 (Satisfactory), 1 (Unsatisfactory). Target levels for outcomes attainment have been established as 75% of students assessed as 2 or better	The results of the assessment in CE 371 indicate that 89% of students (16/18) were assessed as "2" or better. The results of the assessment in CE 376 indicate that 91% of students (10/11) were assessed as "2" or better.	This outcome was attained	(CE 376) Add additional objective assessments
2. An ability to formulate or design a system, process, procedure or program to meet desired needs.		Course work - Direct	(see above)	The results of the assessment in CE 377 indicate that 91% of students (10/11) were assessed as "2" or better. The results of the assessment in CE 497L (Fall 2018) indicate that 100% of students (12/12) were assessed as "2" or better. The results of the assessment in CE 497L (Spring 2019) indicate that 91% of students (10/11) were assessed as "2" or better.	This outcome was attained	(CE 377) Add additional objective assessment tool(s)

3. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.		Course work - Direct	(see above)	The results of the assessment in CE 305 indicate that 80% of students (12/15) were assessed as "2" or better. The results of the assessment in CE 370 indicate that 100% of students (11/11) were assessed as "2" or better.	This outcome was attained	(CE 370) Add additional objective assessment tool(s)

4. An ability to communicate effectively with a range of audiences.		Course work - Direct	(see above)	The results of the assessment in CE 370 indicate 100% of students (11/11) were assessed as “2” or better. The results of the assessment in CE 497L (Fall 2018) indicate that 100% of students (12/12) were assessed as “2” or better. The results of the assessment in CE 497L (Spring 2019) indicate that 91% of students (10/11) were assessed as “2” or better.	This outcome was attained	(CE 370) Begin writing project earlier in semester and provide additional instruction/resources on technical writing and oral presentations. Provide numeric grades for oral safety briefs. Distribute rubric for evaluating written report and oral presentation. (CE 497L) As has generally been the case, it would be beneficial to improve students’ writing skills. An additional course where students can focus on basic grammar and composition, or better incorporation of writing in existing courses, would be beneficial. (CE 497L) A continuing need is to help the students improve their writing skills. Perhaps we could integrate better the use of writing

						skills in existing engineering and non-engineering courses.
5. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.		Course work - Direct	(see above)	The results of the assessment in CE 377 indicate that 100% of students (11/11) were assessed as "2" or better. The results of the assessment in CE 350 (Fall 2018) indicate that 100% of students (7/7) were assessed as "2" or better. The results of the assessment in CE 350 (Spring 2019) indicate that 100% of students (5/5) were assessed as "2" or better.	This outcome was attained	(CE 377) Give a homework assignment specifically addressing the global, economic, and societal impacts of technical and/or scientific solutions and their ethical impacts. Add objective assessment tool(s). (CE 350) Specifically tie ethical and professional behavior to considering the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts. Add objective assessment(s).

6. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.		Course work - Direct	(see above)	The results of the assessment in CE 160 (Fall 2018) indicate that 100% of students (7/7) were assessed as “2” or better. The results of the assessment in CE 160 (Spring 2019) indicate that 100% of students (10/10) were assessed as “2” or better. The results of the assessment in CE 497L (Fall 2018) indicate that 92% of students (11/12) were assessed as “2” or better. The results of the assessment in CE 497L (Spring 2019) indicate that 91% of students (10/11) were assessed as “2” or better.	This outcome was attained	None at this time

Indicate where your assessment plan and the full set of assessment data from this year for this program can be accessed.

The assessment plan and data are currently stored on the Civil Engineering Department server.

Based on the results and analysis provided for the student learning outcome(s) listed in the table above, for EACH student learning outcome, please state if the outcome was met, partially met, or not met. Briefly explain why:

Student Learning Outcome		**Results**
1. An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.		Outcome met
2. An ability to formulate or design a system, process, procedure or program to meet desired needs.		Outcome met
3. An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.		Outcome met
4. An ability to communicate effectively with a range of audiences.		Outcome met
5. An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.		Outcome met
6. An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.		Outcome met

Based on this year's assessment, what suggestions do you have for changes to the assessment process or the SLOs for your program?

- Faculty teaching courses with outcomes assessment responsibilities should review the outcome(s) and design assessment tool(s) before the course begins
- Provide regular reminders to faculty about assessment responsibilities (e.g., annual retreat in fall semester; monthly faculty meetings)
- To strengthen compliance with Outcome 4, ask Advisory Board members and other industry professional for a variety of professional writing examples that we can share with students; also inform students of writing assistance available at CAPS
- To strengthen compliance with Outcome 4, start writing assignments early in the course
- Move assessment of Outcome 5 from CE 377 to CE 478 (Ken Cooper will make this change in Fall 2019) to provide better alignment of outcome with course material

- Move coverage of soils for construction to CE 370 from CE 478 to provide earlier presentation of this material in the curriculum

Describe any changes to the assessment plan or the SLOs that are in progress based on this year's or previous year's assessment.

- Move assessment of Outcome 5 from CE 377 to CE 478 (Ken Cooper will make this change in Fall 2019) to provide better alignment of outcome with course material

List what groups (committees, faculty meetings, department leadership, etc.) within your program reviewed the assessment results either from the current year, or from previous years, during the current academic year.

Civil Engineering Undergraduate Committee: reviewed 2018-2019 results and developed recommendations for changes based on assessment results at December 2, 2019 meeting

Civil Engineering Faculty: 2018-2019 assessment results reviewed by faculty and recommendations discussed and approved December 4, 2019

Civil Engineering Department Advisory Board: 2017-2018 assessment report and 2018-2019 assessment plan were presented to the advisory board in December 2018 and April 2019, respectively; the 2018-2018 assessment report will be presented to the advisory board December 2019

Describe any curricular or course changes that are currently in progress based either on this year's assessment, or on previous year's assessment results.

- We are in the process of revising the BSCM curriculum based on several factors, including UNM's changes to the General Education Curriculum requirements, the State of New Mexico's move to a common course numbering system, and the program's shift from ACCE accreditation to ABET-ANSAC accreditation.

- Consider offering alternative lab session for CM students focused on construction materials and soils testing. The 2016-2017 and 2017-2018 assessment reports indicated that BSCM students were not meeting assessment expectations related to former outcome b (An ability to design and conduct experiments, as well as to analyze and interpret data.). Faculty discussed adding a separate lab section for CM students in CE 305; however, that was not deemed possible given resources and student schedules. Instead we determined that some concepts needed to be emphasized more in CE 371 (a prerequisite to CE 305) such as Mohr's Circle, so that students could perform better on their laboratory reports.

- Starting in Fall 2019, CE 478 will contain new content specifically related to materials and soils testing. (Note: based on initial offering in Fall 2019, the instructor recommended that the soils material be moved to CE 370 from CE 478)

Describe your plans for assessment of student learning during the upcoming academic year.

Continue to collect data from courses using current SLOs and AIC exam results.