



**School of Civil and Environmental Engineering / College of  
Engineering, Architecture, and Technology**  
Masters of Science in Environmental Engineering  
*Assessment Plan Form*

**Date Plan was Approved by Department: 5/9/2017**

**Name of Person Submitting Plan: Norb Delatte**

**A. Program Information:**

**Assessment Coordinator's Name: Gregory G. Wilber**

**Assessment Coordinator's Email Address: gregory.wilber@okstate.edu**

**B. Program Mission Statement**

**In the box below, provide the mission statement for the program.**

*The mission statement, educational objectives, and goals for program should guide the assessment process. The mission statement should align with department, college, and institutional mission statements.*

The School of Civil and Environmental Engineering educates civil and environmental engineers with knowledge and skills for life-long careers; conducts research and scholarly activities; and shares knowledge through outreach activities.

**C. Student Learning Outcomes**

On the pages that follow, list the Student Learning Outcomes associated with the program identified in this assessment form.

- *Graduates of the program will demonstrate an appropriate depth of knowledge in their chosen area of specialization in environmental engineering.*
- *Graduates of the program will have the ability to conduct independent study in their area of specialization, demonstrated either through thesis research or a creative component project.*
- *Graduates of the program will have the ability to communicate effectively the results of their work.*

**C1) Student Learning Outcome #1:** *Graduates of the program will demonstrate an appropriate depth of knowledge in their chosen area of specialization in civil engineering.*

**Identify opportunities for students to learn this outcome during the academic program:**

Students in this degree program take either 24 or 30 hours of coursework (for thesis or non-thesis option, respectively). Courses are selected with their primary advisor and with input and approval from their examining committee. These courses will provide depth in the student's area of specialization as well as, where deemed appropriate, breadth in additional areas.

**How will students be selected to participate in the assessment of this outcome?**

All students in the degree program will be assessed.

**Assessment Methods**

*Identify the method(s) used to assess this learning outcome. Check all that apply.*

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Survey  | <input type="checkbox"/> Benchmarking   | <input type="checkbox"/> Performance or jury                      |
| <input checked="" type="checkbox"/> Rating of skills (e.g., rubrics)           | <input type="checkbox"/> Measuring effectiveness relative to professional standards   | <input type="checkbox"/> Visual collection (photos, videos, etc.) |
| <input checked="" type="checkbox"/> Analysis of written artifacts              | <input checked="" type="checkbox"/> Review of thesis/dissertation/ creative component | <input type="checkbox"/> Review of student research               |
| <input type="checkbox"/> Comprehensive, certification, or professional exam(s) | <input type="checkbox"/> Capstone project   | <input type="checkbox"/> Other (please specify):                  |
| <input checked="" type="checkbox"/> Oral presentation                          | <input type="checkbox"/> Internship   | <a href="#">Click here to specify.</a>                            |
| <input type="checkbox"/> Course project  | <input type="checkbox"/> Interviews   |   |
| <input type="checkbox"/> Satisfaction Survey                                   |   |   |

**Describe the how the assessment method will be implemented, administered, and/or conducted.**

The assessment process varies for students in the thesis option versus those in the non-thesis option.

Students in both options are assessed by their graduate committee to ensure that they are making adequate progress in their plans of study. Their plans of study are approved by the committee to ensure that their coursework provides an appropriate depth in their area of specialization.

Students in both options are also assessed based on a review of the written product of their independent research (thesis or creative component report). Either the examining committee (for thesis students) or the primary advisor alone (for non-thesis option students) review the written product and ensure it demonstrates the students' achievement of this outcome. The level of achievement is rated in the rubric applied to the student, which includes questions regarding the student's demonstration of depth of knowledge in the area of specialization.

Students in the thesis option are assessed further during the review of the thesis and during the defense. Committee members ask questions regarding the thesis work and, in doing so, can assess the student's depth of knowledge. The committee members then rate the student's success in demonstrating this knowledge on the rubric.

**Does your department/program faculty have a goal set for this learning outcome?**     Yes     No

Students must demonstrate achievement of this outcome in order to be approved for graduation. As such, 100% of students must meet the basic requirements of the outcome. With respect to the thesis/creative component review, it is expected that 100% of the student evaluations will be at least a '3' on the rubric scale (1 -5). That is, every student will be required to at least 'meet expectations' of their examining committee with respect to this outcome.

**Timeline for Planned Assessment**

*Indicate the timeline for the assessment of this learning outcome.*

- Each Semester                       Yearly                       Every other year
- Other (please specify): If the assessment of Learning Outcome 1 occurs on a cycle or rotation, click here to describe and provide the rationale.

**C2) Student Learning Outcome #2:** *Graduates of the program will have the ability to conduct independent study in their area of specialization, demonstrated either through thesis research or a creative component project.*

**Identify opportunities for students to learn this outcome during the academic program:**

Students pursuing this degree work with his or her primary advisor to identify a topic for independent research. Thesis students enroll in up to 6 hours of independent study hours, for which they conduct their research under the supervision of their advisor. Non-thesis students enroll in up to 2 hours of independent study and likewise work with their primary advisor to identify a topic and plan the independent study work. The work is then carried out and the results are presented and summarized in either a thesis or non-thesis report.

**How will students be selected to participate in the assessment of this outcome?**

All students in the degree program will be assessed.

**Assessment Methods**

*Identify the method(s) used to assess this learning outcome. Check all that apply.*

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Survey  | <input type="checkbox"/> Benchmarking   | <input type="checkbox"/> Performance or jury   |
| <input checked="" type="checkbox"/> Rating of skills (e.g., rubrics)           | <input type="checkbox"/> Measuring effectiveness relative to professional standards   | <input type="checkbox"/> Visual collection (photos, videos, etc.)                          |
| <input checked="" type="checkbox"/> Analysis of written artifacts              | <input checked="" type="checkbox"/> Review of thesis/dissertation/ creative component | <input type="checkbox"/> Review of student research  |
| <input type="checkbox"/> Comprehensive, certification, or professional exam(s) | <input type="checkbox"/> Capstone project   | <input type="checkbox"/> Other (please specify):<br><a href="#">Click here to specify.</a> |
| <input type="checkbox"/> Oral presentation                                     | <input type="checkbox"/> Internship   |  |
| <input type="checkbox"/> Course project  | <input type="checkbox"/> Interviews   |  |
| <input type="checkbox"/> Satisfaction Survey                                   |   |  |

**Describe the how the assessment method will be implemented, administered, and/or conducted.**

The assessment process varies for students in the thesis option versus those in the non-thesis option.

Students in both options are assessed based on a review of the written product of their independent research (thesis or creative component report). Either the examining committee (for thesis students) or the primary advisor alone (for non-thesis option students) review the written product and ensure it demonstrates the students' achievement of this outcome. The level of achievement is rated in the rubric applied to the student, which includes questions regarding the student's demonstration of depth of knowledge in the area of specialization.

Students in the thesis option are assessed further during the review of the thesis and during the defense. Committee members ask questions regarding the thesis work and, in doing so, can assess the student's ability to conduct independent research. The committee members then rate the student's success in demonstrating this ability on the rubric.

**Does your department/program faculty have a goal set for this learning outcome?**     Yes     No

Students must demonstrate achievement of this outcome in order to be approved for graduation. As such, 100% of students must meet the basic requirements of the outcome. With respect to the thesis/creative component review, it is expected that 100% of the student evaluations will be at least a '3' on the rubric scale (1 -5). That is, every student will be required to at least 'meet expectations' of their examining committee with respect to this outcome.

**Timeline for Planned Assessment**

*Indicate the timeline for the assessment of this learning outcome.*

- Each Semester                       Yearly                       Every other year

**Other (please specify):** If the assessment of Learning Outcome 2 occurs on a cycle or rotation, click here to describe and provide the rationale.

### C3) Student Learning Outcome #3: *Graduates of the program will have the ability to communicate effectively the results of their work.*

#### Identify opportunities for students to learn this outcome during the academic program:

Students in this degree program take either 24 or 30 hours of coursework (for thesis or non-thesis option, respectively). Many of these graduate-level engineering courses will include assignments that require students to write. Some also require oral presentations. Some also require students to use graphical representations of data. All of these require communication skills. In addition, the product of the independent study requires, at a minimum, a written document presenting, explaining, and summarizing the student's work. Thesis students have the additional requirement of an oral defense of their work, requiring an oral presentation, which also generally always includes graphical representations of their research results.

#### How will students be selected to participate in the assessment of this outcome?

All students in the degree program will be assessed.

#### Assessment Methods

Identify the method(s) used to assess this learning outcome. Check all that apply.

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Survey  | <input type="checkbox"/> Benchmarking   | <input type="checkbox"/> Performance or jury                      |
| <input checked="" type="checkbox"/> Rating of skills (e.g., rubrics)           | <input type="checkbox"/> Measuring effectiveness relative to professional standards   | <input type="checkbox"/> Visual collection (photos, videos, etc.) |
| <input checked="" type="checkbox"/> Analysis of written artifacts              | <input checked="" type="checkbox"/> Review of thesis/dissertation/ creative component | <input type="checkbox"/> Review of student research               |
| <input type="checkbox"/> Comprehensive, certification, or professional exam(s) | <input type="checkbox"/> Capstone project   | <input type="checkbox"/> Other (please specify):                  |
| <input checked="" type="checkbox"/> Oral presentation                          | <input type="checkbox"/> Internship   | <a href="#">Click here to specify.</a>                            |
| <input type="checkbox"/> Course project  | <input type="checkbox"/> Interviews   |   |
| <input type="checkbox"/> Satisfaction Survey                                   |   |   |

#### Describe the how the assessment method will be implemented, administered, and/or conducted.

The assessment process varies for students in the thesis option versus those in the non-thesis option.

Students in both options are also assessed based on a review of the written product of their independent research (thesis or creative component report). Either the examining committee (for thesis students) or the primary advisor alone (for non-thesis option students) review the written product and ensure it demonstrates the students' achievement of this outcome. The level of achievement is rated in the rubric applied to the student, which includes questions regarding the student's demonstration of effective communication, both in writing and graphical representation of data.

Students in the thesis option are assessed further during the review of the thesis and during the defense. The student gives an oral presentation, including, generally, presentation software requiring graphical presentation of data. The committee members then assess the student's success in demonstrating these communication skills with the rubric.

#### Does your department/program faculty have a goal set for this learning outcome? Yes No

Students must demonstrate achievement of this outcome in order to be approved for graduation. As such, 100% of students must meet the basic requirements of the outcome. With respect to the thesis/creative component review, it is expected that 100% of the student evaluations will be at least a '3' on the rubric scale (1 -5). That is, every student will be required to at least 'meet expectations' of their examining committee with respect to this outcome.

#### Timeline for Planned Assessment

Indicate the timeline for the assessment of this learning outcome.

- |   |                                 |   |
|---|---------------------------------|---|
| <input checked="" type="checkbox"/> Each Semester | <input type="checkbox"/> Yearly | <input type="checkbox"/> Every other year |
|---|---------------------------------|---|

**Other (please specify):** If the assessment of Learning Outcome 3 occurs on a cycle or rotation, click here to describe and provide the rationale.