

Student Learning Summary Form AY2015-16

Due to your dean by June 1

Due from dean to assessment office by June 15

Degree Program Name: Construction Management

Contact Name and Email Lee.Ellingson@indstate.edu

Before you complete the form below, review your outcomes library and curriculum map to ensure that they are accurate and up to date. If not, you may submit a new version along with this summary.

Part One

a. What learning outcomes did you assess this year?	b. (1) What method(s) did you use to determine how well your students attained the outcome? (2) In what course or other required experience did the assessment occur?	c. What expectations did you establish for achievement of the outcome?	d. What were the actual results?	e. (1) Who was responsible for collecting and analyzing the results? (2) How were they shared with the program's faculty?
11. Apply basic surveying techniques for construction layout and control.	CNST 420, Construction Surveying: J. Eckerle provided two student field books and five examples of student homework. The grading scale was 0-100.	The average score must exceed 75/100.	The average of the samples was 82.	The instructor of CNST 420: Joe Eckerle. The construction faculty reviewed the student work on November 3, 2015 and the results were recorded in Minutes 6.
11. Apply basic surveying techniques for construction layout and control.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.46. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	CNST 480, Construction Capstone: D. McNabb provided two student capstone projects.	Expectations need to be established.	Faculty agreed that CNST 480 is not the appropriate course to assess this outcome.	The instructor of CNST 201, Contract Documents, will be responsible for collecting student data in future.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.54. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty

design and construction process.				on January 7 and recorded in Minutes 10.
13. Understand construction risk management.	CNST 485, Government Contracting: W. Baker provided Student HW. The grading scale was 0-100.	The average score must exceed 75/100.	The average score was 86/100. Outcome achieved.	The instructor of CNST 485: W. Baker. The construction faculty reviewed the student work on November 10, 2015 and the results were recorded in Minutes 7. Baker is creating new assignments that will better address the outcome.
13. Understand construction risk management.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.46. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
14. Understand construction accounting and cost control.	CNST 330, Construction Accounting, Finance and Safety: L. Ellingson provided tests and HW. The grading scale was 0-100.	The average score must exceed 75/100.	The average score was 78/100. Outcome achieved.	The instructor of CNST 330: L. Ellingson. The construction faculty reviewed the student work on November 3, 2015 and the results were recorded in Minutes 6.
14. Understand construction accounting and cost control.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.08. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
15. Understand construction quality assurance and control.	CNST 450, Construction Project Management: W. Baker said he has been lecturing about the outcome but has not been formally assessing it.	No documents were available.	Formal assessment was postponed to the next semester.	The instructor of CNST 450: W. Baker. Baker is creating assignments that will directly assess the outcome. (See Minutes 7)
15. Understand construction quality assurance and control.	A Senior Survey was administered to seniors in the Senior Seminar course asking	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.23. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results

	how well they learned each outcome.			were discussed among faculty on January 7 and recorded in Minutes 10.
16. Understand construction project control processes.	CNST 480, Construction Capstone: D. McNabb did not understand exactly what "project control processes" meant. No data was provided.	Establishing expectations was postponed.	It was agreed that CNST 330, 304, and 314 would better address the outcome.	Ellingson, Baker, and McNabb will investigate what other CM programs are using for the evidence. Ellingson will update the Map accordingly.
16. Understand construction project control processes.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.31. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	CNST 485, Government Contracting: W. Baker provided student quizzes about construction law.	The average score must exceed 75/100.	The average score was 81/100. It was agreed that more student data is needed. Baker will create more assignments in CNST 485 addressing this outcome.	The instructor of CNST 485: W. Baker. The construction faculty reviewed the student work on March 30, 2016 and the results were recorded in Minutes 15.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.23. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
18. Understand the basic principles of sustainable construction.	CNST 306, Commercial Design and Construction: L. Ellingson Provided student examples of one quiz and a major test	The average score must exceed 75/100.	The average score was 75/100. The outcome was barely achieved.	The instructor of CNST 306: L. Ellingson. The construction faculty reviewed the student work on March 30, 2016 and the results were recorded in Minutes 15.
18. Understand the basic principles of sustainable construction.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.54. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty

				on January 7 and recorded in Minutes 10.
19. Understand the principles of structural behavior.	CNST 318, Statics and Strength of Materials, and CNST 418, Temporary Structures: J. Eckerle provided student work from many tests and assignments. However, class average scores were not provided.	The average score must exceed 75/100.	Average scores exceeded 75/100. However, it was agreed that in future, average scores for the entire class must be provided for each assignment.	The instructor of CNST 306: L. Ellingson. The construction faculty reviewed the student work on March 30, 2016 and the results were recorded in Minutes 15.
19. Understand the principles of structural behavior.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.31. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.
20. Understand the basic principles of mechanical, electrical and plumbing systems.	CNST 213, Environmental Control Systems: L. Ellingson provided examples of student work and grade statistics for all assignments and test for the course.	The average score must exceed 75/100.	The average score was 77/100. The outcome was achieved.	The instructor of CNST 330: L. Ellingson. The construction faculty reviewed the student work on March 30, 2016 and the results were recorded in Minutes 15.
20. Understand the basic principles of mechanical, electrical and plumbing systems.	ECT 369: Electrical Construction: D. Malooley provided examples of tests.	The average score must exceed 75/100.	Average scores were 74, 83, 87, and 78. Outcome achieved. However, it was agreed that in future D. Malooley must provide more statistics about class averages.	The instructor of ECT 369: D. Malooley. The construction faculty reviewed the student work on March 30, 2016 and the results were recorded in Minutes 15.
20. Understand the basic principles of mechanical, electrical and plumbing systems.	A Senior Survey was administered to seniors in the Senior Seminar course asking how well they learned each outcome.	The Survey used a Likert scale of 1-4 (4 is high). An average score of 3.00 or greater indicates achievement.	The average score was 3.54. Outcome achieved.	The instructor for the Senior Seminar course collected the data and Lee Ellingson analyzed the data. Results were discussed among faculty on January 7 and recorded in Minutes 10.

* See <https://www2.indstate.edu/graduate/forms/review.pdf>.

If you would like to report on more than three outcomes, place the cursor in the last cell on the right and hit "tab" to add a new row.

Notes

- a. Use your outcomes library as a reference.
- b. Each outcome must be assessed by at least one direct measure (project, practica, exam, performance, etc.). If students are required to pass an examination to practice in the field, this exam must be included as one of the measures. At least one of the outcomes must use an indirect measure (exit interview, focus group, survey, etc.). Use your curriculum map to correlate outcomes to courses.
- c. Identify the score or rating required to demonstrate proficiency (e.g., Students must attain a score of “3” to be deemed proficient; at least 80% of students in the program will attain this benchmark.”
- d. Note what the aggregate level of proficiency actually was and the number of students included in the cohort or sample (e.g., “85% of the 25 students whose portfolios were reviewed met the established benchmark).
- e. This may be a specific individual, a position (e.g., assessment coordinator), or a group such as the department assessment committee. Minutes should reflect that results are shared with members of the department at least annually.

Part Two

In no more than one page, summarize 1) the discoveries assessment has enabled you to make about your students’ learning, the curriculum, departmental processes, and/or the assessment plan itself; 2) the changes and improvements you have made or will make in response to these discoveries and/or the coordinator’s feedback on the previous summary; and 3) what your assessment plan will focus on in the coming year.

If you would like to reference any supporting materials (departmental meeting minutes, detailed assessment results, etc.), please provide the URL at which they can be found.

Discoveries

Students *believe* they are learning the twenty outcomes. This statement is based on the Senior Survey that students submitted. The survey was a required component of the Senior Seminar course, so all 13 construction students submitted the survey in fall 2015. The survey was based on a Likert scale with the following values: Strongly Agree (4), Agree (3), Disagree (2), and Strongly Disagree (1). The average score for all 20 outcomes was 3.40, which is between agree and strongly agree. The lowest score was 3.08 for “Understand construction accounting and cost control.” The highest score was 3.62 for “Create construction project cost estimates.”

It is important for faculty to bring grade statistics for the entire class when reviewing learning outcomes. Samples of student work are necessary, but they typically provide too small a sample to make accurate inferences.

A direct measure for the entire program would be helpful. A test similar to the American Institute of Constructors (AIC) Associate Constructor exam could be created by the CM Program.

A focus group of the CM Advisory Board identified the following common themes:

- Members of the Advisory Board are concerned that new construction management graduates in general lack skills in writing, oral communication, relationship building, and to a lesser extent, applying mathematical skills to real work projects. They are equally concerned that new employees lack character traits they believe are essential—e.g., persistence, honesty, motivation, and humility.
- The Board recognizes and laments external constraints that appear to limit the Program’s ability to expand the curriculum to provide students with greater depth of study in construction management and work against the Program’s ability to hire faculty members who have extensive experience in the field but have not earned a PhD.
- The Board praised the Program’s faculty for continuously striving to improve the Program.

CNST 480, Construction Capstone, is not the best course to assess Outcome 12, *Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process*. CNST 201, Construction Documents, would be better.

CNST 450, Construction Project Management, is not the best course to assess Outcome 13, *Understand construction risk management*. CNST 485, Government Contracting, would be better.

It is not clear to the CM faculty what student assignments best assess project control processes. (Outcome 16)

More assignments are needed to properly assess Outcome 17, *Understand the legal implications of contract, common, and regulatory law to manage a construction project.*

Improvements

Faculty will bring grade statistics for the entire class to the assessment review meeting as well as examples of student work.

Faculty will create a senior exit exam, which addresses all twenty learning outcomes. The test will be required in the capstone course.

CNST 201, Construction Documents, will be used to assess Outcome 12, *Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.*

CNST 485, Government Contracting, will be used to assess Outcome 13, *Understand construction risk management.* The instructor will provide more assignments addressing this outcome.

Ellingson and McNabb will attend the mid-year meeting of the American Council of Construction Education in Atlanta in July. They will verify what other CM programs use to assess Outcome 16, *Understand construction project control processes.*

W. Baker will provide more assignments to CNST 485 that address Outcome 17, *Understand construction risk management.*

W. Baker will provide more assignments to CNST 450 that address Outcome 15, *Understand construction quality assurance and control.*

W. Baker will provide quizzes to CNST 450 that address Outcome 13, *Understand construction risk management.*

Looking Ahead

Fall 2016

1. Create written communications appropriate to the construction discipline.
2. Create oral presentations appropriate to the construction discipline.
3. Create a construction project safety plan.
4. Create construction project cost estimates.
5. Create construction project schedules.

Spring 2017

6. Analyze professional decisions based on ethical principles.
7. Analyze construction documents for planning and management of construction processes.
8. Analyze methods, materials, and equipment used to construct projects.
9. Apply construction management skills as an effective member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.

Dear Lee,

Thank you so much for sharing your assessment process and findings for AY 2018-19 with the Assessment Council. You will find feedback and ratings on the rubric below. It is understood that some of the feedback might encompass practices that you already engage in but were not documented in this report. As the purpose of this evaluation is focused on recognizing great work and helping faculty improve assessment practice, it is not necessary to retroactively add documentation. Please feel free to let me know if you have any questions or if there is any way I can assist you in further developing assessment in your program.

This report will be shared with the Associate Dean(s) and Dean of your college and summarized findings will be shared as composite college/institutional data with the President's Office and the Provost's team.

Sincerely,

Kelley (x7975)

Program: B.S. Construction Management	Overall Rating: Mature (2.38/3.00)
Strengths	Recommendations
<ul style="list-style-type: none">• Learning outcomes are clear, specific, and measureable.• Courses and assignments used as measures for assessment are clearly described.• Expected and actual student performance are clearly described.• Analysis of findings is thoughtful, including strategies to overcome limiting factors related to sampling/population data, missing assessments, and faculty understanding of specific outcomes. The plans you described to improve the assessment process and resulting data are all strong, and I think it will help you make more use of the findings you come up with.• It was fascinating to read how your indirect findings from the student self-report survey lined up with their performance on direct measures in class (especially on outcome 16). I think continuing your senior survey is a really useful way to obtain additional data from the indirect perspective.• Good information that shows how all faculty are truly involved in the entire assessment process. Good notes on upcoming assessment.	<ul style="list-style-type: none">• More information about how measures are evaluated would provide more context for findings (are rubrics involved, or are these typically right/wrong answers that are scored on a test or homework).• If there is interest in purchasing the AIC exam or securing funds to support the development of your own instrument, the Assessment Council awards (modest) grants to help advance such projects. The \$500 max award probably isn't enough to cover all expenses, but could be useful seed money that could get you started. See www.indstate.edu/assessment/resources/grants for more information.

Evaluation Criteria	Exemplary	Mature	Developing	Undeveloped
<p>Student Learning Outcomes</p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcome(s) is specific, measurable, and student-centered.</p> <p>Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)</p> <p>Learning outcome(s) directly link to college, institutional, and/or accreditor goals/standards.</p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcome(s) is specific, measurable, and student-centered.</p> <p>Rationale for assessment of this outcome(s) is made clear (ex: it is part of a standing assessment cycle, a need was identified, etc.)</p>	<p>At least one learning outcome that is aligned with program coursework is assessed this cycle.</p> <p>Learning outcomes(s) is measurable.</p>	<p>No learning outcomes are identified for assessment or the outcomes that are identified are not linked to program outcomes aligned with program coursework (e.g. – curriculum map) or are not measurable.</p>
<p>Performance Goals & Measures</p>	<p>Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.).</p> <p>Identified measures are designed to accurately reflect student learning, including at least one direct measure.</p> <p>Tools used to measure student performance are described and were reviewed for validity or trustworthiness prior to use (note this in the report; attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).</p>	<p>Performance goal identified for each learning outcome is clear and reasonable (ex: based on previous performance data, professional standards, etc.).</p> <p>Identified measures are designed to accurately reflect student learning, including at least one direct measure.</p> <p>Tools or processes for evaluating student performance on measures are described (attach tools if applicable – ex: rubrics, checklists, exam keys, etc.).</p>	<p>Performance goal(s) is identified for each learning outcome.</p> <p>Identified measures (ex: assignments, projects, tests, etc.) are poorly suited to performance goals or are solely indirect measures.</p> <p>Tools or processes for evaluating student performance on measures are not described.</p>	<p>No goals for student performance of learning outcomes is identified, and/or no measures are provided.</p>

Analysis & Results	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with clear description of quality analysis (e.g., analysis follows accepted statistical or qualitative procedures).</p> <p>Results are shared in relation to performance goals.</p> <p>Results are discussed in relation to college, institutional, and/or accretor goals/standards.</p>	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with clear description of analysis (e.g., analysis follows accepted statistical or qualitative procedures).</p> <p>Results are shared in relation to performance goals.</p>	<p>Data is collected using the measures and tools identified.</p> <p>Results are reported with little description of analysis.</p>	<p>No data is being collected.</p> <p>No results are provided.</p>
Sharing & Use of Results for Continuous Improvement	<p>Clear information is provided about sharing and using results to inform practice.</p> <p>Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.</p> <p>A plan for adjusting performance, goals, assessment, and/or program components based on results is outlined.</p>	<p>Clear information is provided about sharing and using results to inform practice.</p> <p>Discussion of what was learned from results is provided and connected to plans for sharing and using results to inform practice.</p>	<p>Limited information is provided about sharing or using results to inform practice.</p> <p>Some discussion of what was learned from results is provided.</p>	<p>No information is provided about sharing or using results to inform practice.</p> <p>No evidence of reflection on results is provided (ex: discussion, conclusions drawn)</p>
Overall Rating	<input type="checkbox"/> Exemplary	<input checked="" type="checkbox"/> Mature	<input type="checkbox"/> Developing	<input type="checkbox"/> Undeveloped