

**2021 Annual Performance Report  
Undergraduate Programs**

**Department/Program:** Construction Department/School of Engineering

**Date submitted:** 10/11/2021

**Person(s) submitting report:** John Cabage

**This program:<sup>1</sup>**

is taught entirely online

utilizes distance education

does not have any online courses

(Distance education is defined by the Higher Learning Commission as: “education that uses one or more of the technologies...to deliver instruction to students who are separated from the instructor and to support regular and substantive interaction between the students and the instructor, either synchronously or asynchronously” <https://www.hlcommission.org/General/glossary.html>).

**STUDENT LEARNING (Questions 1 – 6)**

1. Please copy and paste the table from your [assessment plan](#) here that provides student learning outcomes, measures, and targets. The program student learning outcomes should align with SIUE's [Objectives for the Baccalaureate Degree](#).

a. . Has the program changed

No

*If yes, provide a summary of the changes and attach the program's revised assessment plan.*

2. Please provide data from your assessment measures illustrating trends over the past 2 years. Include summarized data for all program assessments. This section should show results of student learning for each assessment included in the table above (data should be added for each learning objective and indicators)<sup>2</sup>. You may attach tables summarizing the data and provide a brief narrative describing the specific findings\*.

\*If there are any student learning outcomes that suggest potential concerns, please list these in the [Continuous Improvement Log](#) (question 6) and describe how these will be monitored.

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<sup>1</sup> When answering this question, refer to how the program is approved for delivery by the University, regardless of COVID modality shifts.

<sup>2</sup> Data should be aggregated. Do not include student identifiers.

SIUE's Objectives for the Baccalaureate Degree		Program Student Learning Outcomes*	Performance indicator or measure	When the measure is assessed	Program Target
Analytic, Problem Solving, and Decision Making Skills	Information Literacy	SLO#1 and #2	Senior Project	CNST 452 Senior Assignment	90%
	Quantitative Literacy	SLO#4 and #19	Exams	CNST 241, 451	90%
	Ability to understand and interpret written and oral text	SLO#12, 16, 17	Exams	CNST 411	80%
	Ability to recognize, develop, evaluate, and defend or attack hypotheses	SLO#1, 2, 6, 7	Exams and Senior Project	CNST 403 and 452 Senior Assignment	90%
Oral and Written Communication Skills	Written Communication	SLO#1	Senior Project	CNST 210/211 and CNST 452	90%
	Oral Communication	SLO#2	Senior Project	CNST 210/211 and CNST 452	90%
Foundation in Liberal Arts and Sciences		SLO#1 and #2	Senior Project	CNST 452 Senior Assignment	90%
Value of Diversity		SLO#9	Senior Project	CNST 452 Senior Assignment	90%
Scientific Literacy		SLO#19 and 20	Exams	CNST 321 and 332	80%
Ethics		SLO#6	Projects	CNST 351 and 452	85%
Preparation in an Academic Discipline		SLO#9	Senior Project	CNST 452	95%

*The Student Learning Outcomes Table is in Appendix A and the Assessment and Analysis Table is included in Appendix B. These tables are directly from the program assessment plan.*

*The table with this data is enclosed. A decline from 93% to 82% was noticed on SLO #7 in the CNST 341 class. The class will be modified to give more time towards meeting this objective. This 82% score does meet the learning objective of 70%.*

*CNST 241 is below performance objective but is improving. CNST 211, a prerequisite course, has been modified to introduce more topics pertaining to mechanics of materials to provide the students with additional background information to facilitate the student's base understanding before attempting the class.*

3. Please complete the following table with overall results from the Senior Assignment:

Semester	Number of Students Completing the Senior Assignment	# of students exceeding expectations	# of students meeting expectations	# of students NOT meeting expectations
Summer 2020	0	NA	NA	NA
Fall 2020	11	0	11	0
Spring 2021	14	6	7	1
<b>Total for AY 20-21</b>	25	6	18	1

4. Please complete the following table with Senior Assignment results related to the Objectives for the Baccalaureate degree. Please include data for all students completing the Senior Assignment in your program in AY 20-21 (e.g. Summer 2020– Spring 2021)

Objective	Number of students where this objective was measured	% of students exceeding expectations	% of students meeting expectations	% of students NOT meeting expectations
Analytic, Problem Solving, and Decision-Making Skills	25	25	0	0
Written Communication	25	6	19	0
Oral Communication	25	12	13	0
Foundation in Liberal Arts and Sciences	25	25	0	0
Value of Diversity	25	25	0	0
Scientific Literacy	25	17	8	0
Ethics	25	6	17	0
Preparation in an Academic Discipline	25	10	15	0

5. After reviewing the assessment results the department has decided to: (check one)
- Stay the course and continue to monitor; we're satisfied that the program is preparing students to meet the benchmarks/ outcomes/goals.
  - Monitor the results and investigate causes; we may need to make changes but need more information to make that decision. List below what you plan to investigate.
  - Make changes. List changes below.

Comments:

*After reviewing the information, I recommend staying the course. The department will be examining the course curriculum as compared with curricula offered by other institutions and the needs of our industry. Coursework and objectives for individual classes will be reexamined as part of a continuous improvement process. The assessment and mapping portions may be slightly changed based upon the results of the work. The current objectives both from an accreditation and university perspective will remain unchanged.*

6. Please complete the [Continuous Improvement Log](#) regarding the program's continuous improvement activities. Write a brief summary of continuous improvement efforts undertaken by the program in last fiscal year.

**Continuous Improvement Log**

<b>What have you identified in your assessment data or other information that you are looking into further?</b>	<b>What specific data or evidence was used to identify the problem?</b>	<b>What is the source of the evidence or data?</b>	<b>What action(s) have been taken or solutions identified to promote improvement?</b>	<b>When did the action(s) occur?</b>	<b>What are the results of the change(s) or improvement(s)? Provide evidence demonstrating the outcome. If there is not yet evidence to demonstrate change, what anticipated outcomes do you expect?</b>
<i>As stated above, the faculty is in the process of refreshing the curriculum to better align with technologic improvements within the industry.</i>	<i>Survey of other schools and comments from industry partners.</i>	<i>Internet website searches.</i>	<i>Hiring of new faculty with specific expertise in advanced materials and graphical information construction communication.</i>	<i>Fall 2021</i>	<i>Better job placement opportunities throughout the State of Illinois and the Region.</i>
<i>Need students to develop a safety plan earlier in the program</i>	<i>Faculty Assessment Review</i>	<i>Assessment Data for 2019-20</i>	<i>As part of curriculum refreshment, a recommendation by faculty to include OSHA 10 training in the CNST 120 Intro class has been recommended</i>	<i>Fall 2021 with implementation Fall 2022</i>	<i>More competitive students in the marketplace.</i>
<i>CNST 451 needs updating</i>	<i>Faculty Assessment Review</i>	<i>Assessment Data for 2019-20</i>	<i>Again, as part of refreshment, faculty has recommended the additional of an advanced estimating class—two three-hour classes—instead of the current four-hour class.</i>	<i>Fall 2021 with implementation Fall 2022</i>	<i>Classwork more inline with industry practices.</i>

**ONLINE ASSESSMENT – (Question 7) Complete this section if you have at least one online course in your program; if you only have traditional or hybrid courses, please move to Enrollment and Completion**

7. Complete the table below for all online courses in your program offered during this academic year. If there is no similar traditional course to the online course, include ‘NA’ in the appropriate cells. **If there are substantial differences between online and traditional courses, please include comments and/or plans for resolution.**

Course number	Are the course objectives the same as the traditional format course? (Y, N, NA)	Of the students that enrolled, what percent completed the online course with a C or better?	Of the students that enrolled in the same course but in traditional format, what percent of students completed the traditional course with a C or better?	How do you ensure that this course is coherent, cohesive, and comparable in academic rigor to the traditional format course?	Were there any difficulties experienced in offering this course online?

- a. Where applicable, what strategies did you use to improve courses offered in online formats?

*The program did not offer any online courses during the 2020 – 2021 academic year.*

**ENROLLMENT AND COMPLETION – (Questions 8 – 11)**

8. If applicable, please describe the Department’s contributions to:
- General Education
  - Other Programs
  - Other

*The department contributes to other programs by allowing various professors to teach courses within the Civil, Mechanical, and Industrial Engineering Departments in the School of Engineering. Our curriculum has interwoven the SIUe objectives for Analytics, Communication, Liberal Arts, Diversity, and Ethics. Our coursework has an appropriate amount of rigor, but the faculty is in the process of further emphasizing rigor particularly as it relates to scholar-learner topics within the profession.*

*Based upon exit interviews, all students have received job offers with pay above the average for university graduates.*

9. Please complete the enrollment table and describe how the program is addressing these trends. The response should outline any curricular decisions or external factors that have led to changes in enrollment. If the change in enrollment potentially affects student learning, please describe the issues at stake. Use this link to find degrees granted and enrollment: <http://www.siu.edu/inrs/factbook/annex.shtml>

	FY 17	FY 18	FY 19	FY 20	FY 21
# degrees granted	27	20	21	25	
# of students enrolled (Fall)	48	57	51	44	59
	+35 Pre/CM	+44 Pre/CM	+48 Pre/CM	+48 Pre/CM	+32 Pre/CM
Optimal enrollment				130	130

Description of enrollment and retention trends:

10. Describe what support the program might need to reach its optimal enrollment.

*We have the current staffing for the optimal enrollment. The department is looking at laboratory upgrades particularly within the simulated construction environment classes. We will be presenting proposals to our industry partners this semester as a part of a fundraising effort.*

11. Please comment on graduation and retention rates. Describe whether the program has any concerns about retaining students in the program and discuss whether there are any potential barriers to completion that might need to be addressed.

*Enrollment and graduation rates remain relatively steady. The program's greatest retention concerns continue to be student performance in Math 152 and Physics 141/151 classes. However, performance by students in both of these subjects has greatly improved due to efforts by the School and both the Math and Physics departments.*

*As part of the refreshment process, the faculty has recommended revision of math and physics requirements for the program. These recommendations are being considered for Fall 2022 or 2023 implementation.*

## EXPERIENTIAL EDUCATION – (Question 12)

12. Experiential learning entails learning by doing, reflecting upon the learning, and feedback. Please complete the following table with information about any of the listed activities where students participate in experiences that allow for structured practice with real world problems or scenarios, they reflect on their practice, and they receive feedback. Please include activities only once in the table if they meet multiple categories. For example, if a practicum includes simulation, include the activity only under practicum or simulation, but not both. Please, report this data based on FY 21.

Activity	List the course or courses where this activity occurred if applicable – does not have to be part of a course* and the term	Brief description of the activity	Number of students that participated	Number of hours spent on the activity per student	Note if this is required or elective in the program (R or E)
Case studies	<i>CNST 415</i>	<i>Development Plan for Real Property</i>	<i>15</i>	<i>40</i>	<i>E</i>
Client-based projects	<i>CNST 452</i>	<i>Benld Preconstruction Project</i>  <i>Multiple Community Service Projects</i>	<i>About 25</i>	<i>50</i>	<i>R</i>
Clinical experiences					
Competition/Exhibition	<i>ASC Regional Competition</i>	<i>Regional Competition for CNST MGMT</i>	<i>11</i>	<i>200</i>	<i>NA</i>
Co-ops					
Fellowships					
Field trips	<i>Constructor's Club</i>	<i>Plocher Construction Projects</i>	<i>20</i>	<i>3</i>	<i>E</i>
Field work					
Graduate research projects					
Internships for credit	<i>CNST 470 &amp; SURV 470</i>	<i>Internship</i>	<i>37</i>	<i>300</i>	<i>R</i>
Internships not for credit					
Laboratory work	<i>CNST 211</i>	<i>ASTM Testing</i>	<i>25</i>	<i>3</i>	<i>R</i>
	<i>SURV 264</i>	<i>Surveying Labs</i>	<i>54</i>		<i>R</i>
	<i>CNST 301</i>	<i>Soil Testing</i>	<i>36</i>		<i>R</i>
	<i>CNST 451</i>	<i>Estimation Labs</i>	<i>20</i>		<i>R</i>

<b>Activity</b>	<b>List the course or courses where this activity occurred if applicable – does not have to be part of a course* and the term</b>	<b>Brief description of the activity</b>	<b>Number of students that participated</b>	<b>Number of hours spent on the activity per student</b>	<b>Note if this is required or elective in the program (R or E)</b>
Performances					
Practicums					
Service Learning /Community Service					
Simulations	<i>CNST 211</i>	<i>Crane &amp; Excavators</i>	<i>34</i>	<i>0.5</i>	<i>R</i>
Student teaching					
Study Abroad					
Supervised training					
Undergraduate Research	<i>URCA F20, S21</i>	<i>Pervious Mortar Experiments</i>	<i>1</i>	<i>180</i>	<i>NA</i>
Volunteer experiences					

\*This may include department/school/student organization activities as well.

Appendix A – Student Learning Outcomes Table

<b>Learning Outcomes</b>
Students will:
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.
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 a member of a multi-disciplinary team.
10. Apply electronic-based technology to manage the construction process.
11. Apply basic surveying techniques for construction layout and control.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
13. Understand construction risk management.
14. Understand construction accounting and cost control.
15. Understand construction quality assurance and control.
16. Understand construction project control processes.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.
18. Understand the basic principles of sustainable construction.
19. Understand the basic principles of structural behavior.
20. Understand the basic principles of mechanical, electrical and piping systems.

## Appendix B – Assessment and Analysis Table

Outcome	Outcome will be assessed by:
1. Create written communications appropriate to the construction discipline.	Written reports submitted in CNST 211 and senior project documentation in CNST 452.
2. Create oral presentations appropriate to the construction discipline.	Project presentation in CNST 210 and senior project presentation in CNST 452.
3. Create a construction project safety plan.	Assignment in CNST 470.
4. Create construction project cost estimates.	Assignment in CNST 451.
5. Create construction project schedules.	Assignment in CNST 403.
6. Analyze professional decisions based on ethical principles.	Assignment in CNST 351.
7. Analyze construction documents for planning and management of construction processes.	Assignment in CNST 341.
8. Analyze methods, materials, and equipment used to construct projects.	Assignments in CNST 210 and 301.
9. Apply construction management skills as a member of a multi-disciplinary team.	Senior assignment in CNST 452.
10. Apply electronic-based technology to manage the construction process.	Exam in CNST 353.
11. Apply basic surveying techniques for construction layout and control.	Performance in CNST 264.
12. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	Performance in CNST 452.
13. Understand construction risk management.	Performance in CNST 452.
14. Understand construction accounting and cost control.	Performance in CNST 452.
15. Understand construction quality assurance and control.	Assignments in CNST 210 and 301.
16. Understand construction project control processes.	Exam in CNST 403.
17. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	Exam in CNST 411.
18. Understand the basic principles of sustainable construction.	Assignment in CNST 210.
19. Understand the basic principles of structural behavior.	Performance in CNST 351.
20. Understand the basic principles of mechanical, electrical and piping systems.	Exams in CNST 321 and 332.
All learning outcomes.	Capstone course, senior exam, AIC exam, exit interviews, employer survey, and alumni survey.

SLO's, CLO Assessment Tools,  
Targets and Data

#	ACCE Student Learning Outcome (SLO)	Course CLO			Data								
					<i>Percentage exceeding threshold</i>								
		Course	CLO Assessment Tool	Threshold	Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	Comments
1	Create written communications appropriate to the construction discipline.												
		CNST 211	Project Report	80	100	-	79	-					Fall '20 new written assignment - erosion control plan
		CNST 351	Project Report	80	100	-	100	-					Fall '20 written assignment, not project report
		CNST 452	Senior Project Report	90	100	100	73	100					
2	Create oral presentations appropriate to the construction discipline.												
		CNST 210	Project Presentation	80	-	100	-	97					
		CNST 351	Project Presentation	80	100	-	91	-					
		CNST 452	Senior Project Report	95	100	100	100	100					

3	Create a construction project safety plan.												
		CNST 452	Senior Project Report	95	100	100	100						
4	Create construction project cost estimates.												
		CNST 451	Class Project	85	100	100	100						
5	Create construction project schedules.												
		CNST 403	Class Project	70	100	100	100						
6	Analyze professional decisions based on ethical principles.												
		CNST 351	Project Presentations	70	100	-	91	-					
		CNST 452	Assignment	85	100	100	100	100					
7	Analyze construction documents for planning and management of construction processes.												
		CNST 341	Exam Questions	80	100	100	100	82					
		CNST 403	Class Project	70	100	100	61	-					

8	Analyze methods, materials, and equipment used to construct projects.												
		CNST 211	Exam Questions	80		62	86	-					
		CNST 351	Exam Questions	70	100	-	97	-					
		CNST 301	Exam Questions	70	-	88	-	81					
9	Apply construction management skills as a member of a multi-disciplinary team.												
		CNST 452	Senior Project Report	95	100	100	73	100					
10	Apply electronic-based technology to manage the construction process.												
		CNST 353	Exam Questions	80	-	75	-	85					

#	ACCE Student Learning Outcome (SLO)	Course CLO		Threshold	Data								Comments
					<i>Percentage exceeding threshold</i>								
		Course	CLO Assessment Tool		Fall 2019	Spring 2020	Fall 2020	Spring 2021	Fall 2021	Spring 2022	Fall 2022	Spring 2023	
11	Apply basic surveying techniques for construction layout and control.												
		CNST 264	Assignment	70	100	100	93	-					Fall 2020 - 77% were above 80
12	Understand different methods of project delivery and roles and responsibilities.												
		CNST 452	Exam Questions	80	100	100	100						
13	Understand construction risk management.												
		CNST 451	Exam Questions	70	-	-		100					
		CNST 452	Exam Questions	80	100	100	100						

1 4	Understand construction accounting and cost control.												
		CNST 452	Assignment	80	100	100	80	81.8					
1 5	Understand construction quality assurance and control.												
		CNST 210	Exam Questions	80	-	78	-	100					
		CNST 301	Exam Questions	70	-	88	-	81					
1 6	Understand construction project control processes.												
		CNST 403	Exam Questions	70	65	100	89	-					
1 7	Understand legal impl of contract, common, and regulatory law to manage a const project.												
		CNST 411	Exam Questions	80	-	-	-						
1 8	Understand the basic principles of sustainable construction.												
		CNST 210	Exam Questions	70	-	100	-	85					

19	Understand the basic principles of structural behavior.												
		CNST 241	Exam Questions	70	30	50	47	62					
		CNST 351	Exam Questions	70	100	-	97	-					
20	Understand the basic principles of mechanical, electrical and piping systems.												
		CNST 321	Exam Questions	80	-	73	-	-					
		CNST 332	Exam Questions	80	100	-	46	-					SLO #20, Fall 2020, 28/35 students scored at least a 70% on the CNST 332 exam.