2023 Annual Performance Report Undergraduate Programs

Department/Program: Construction

Date submitted: October 16, 2023

Person(s) submitting report: John Cabage and CNST Department Faculty

This program:

is taught entirely online

utilizes distance education*

X does not have any online courses

STUDENT LEARNING (Questions 1 – 6)

1. Please copy and paste the table from your <u>assessment plan</u> here that provides student learning outcomes, measures, and targets. The program student learning outcomes should align with SIUE's <u>Objectives for the Baccalaureate Degree</u>.

| SIUE's Objectives for the Baccalaureate Degree | | Program Studies Learning Objective | Performance Indicator or Measure | When the Measure is Assessed? | Program Target |
|--|---|------------------------------------|--|---------------------------------------|-------------------|
| | Information Literacy | SLO #1 and 2 | Senior Project | CNST 452 Senior Assignment | 90% |
| Apolytic | Qualitative Literacy | SLO #4 and 19 | Exams | CNST 241, 451 | 90% |
| Analytic, Problem Solving, and Decision | Abilitity to Understand and SLO #12, Interpret Written 16, 17 and Oral Text SLO #12, Exams CNST 411 | | CNST 411 | 80% | |
| Making Skills | 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 | Written Communications | SLO #1 | Senior Project | CNST 210/211 and CNST 452 | 90% |
| Communica tion Skills | Oral Communications | 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% |

^{*(}Distance education is defined by the Higher Learning Commission here https://www.hlcommission.org/General/glossary.html).

| Scientific Literacy | SLO #19 and 20 | Exams | CNST 321 and 332 | 80% |
|--|-------------------|----------------|---------------------------------------|-----|
| Ethics | SLO #6 | Projects | CNST 351 and 452 Senior Assignment | 85% |
| Preparation in an Academic Discipline | SLO #9 | Senior Project | CNST 452 Senior Assignment | 90% |

a. . Has the program changed its assessment plan and process?

□ Yes

If yes, provide a summary of the changes and attach the program's revised assessment plan. Note: The curricula have been refreshed and are in the process of being approved. Upon approval, the assessment plan will be updated. These updates will likely occur next semester or into the summer.

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)¹. You may attach tables summarizing the data and provide a brief narrative describing the specific findings*.

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

Appendix C includes the table labeled SLO's, CLO Assessment Tools, Targets and Data. At the end of Spring 2023, all assessment tools indicate student attainment of the faculty expectations at this point. The faculty over the next year will develop new assessment tools and processes based upon the curricular refresh began last year and update our assessment plan. In the new plan we will increase our student expectations as part of the continuous improvement process.

*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.

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

| Semester | Number of Students Completing the Senior Assignment | Number of students exceeding expectations | Number of students meeting expectations | Number of students NOT meeting expectations |
|--------------------|---|---|---|--|
| Summer 2022 | 0 | NA | NA | NA |
| Fall 2022 | 14 | 6 | 8 | 0 |
| Spring 2023 | 10 | 9 | 1 | 0 |
| Total for AY 22-23 | 24 | 15 | 9 | 0 |

¹ Data should be aggregated. Do not include student identifiers.

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 22-23 (e.g. Summer 2022– Spring 2023)

| Objective | Number of students where this objective was measured* | Percentage of students exceeding expectations | Percentage of students meeting expectations | Percentage of students NOT meeting expectations |
|--|--|--|---|--|
| Analytic, Problem Solving, and Decision-Making Skills | 23 | 43.5 30.4 | | 26.1 |
| Written Communication | 23 | 21.7 | 60.9 | 17.4 |
| Oral Communication | 23 | 30.4 | 56.5 | 13.1 |
| Foundation in Liberal Arts and Sciences | 23 | 26.1 | 52.2 | 21.7 |
| Value of Diversity | 23 | 100 | 0 | 0 |
| Scientific Literacy | 23 | 34.8 | 30.4 | 34.8 |
| Ethics | 23 | 13.0 | 47.8 | 39.1 |
| Preparation in an Academic Discipline | 23 | 60.9 | 39.1 | 0 |

^{*}Please, provide exact headcount.

Some of the higher percentages in the far right column may be due in part to a small sampling size where one or two students can drastically influence the reported data.

- 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. Lis below what you plan to investigate.
 - Make changes. List changes below.

Comments:

The department had a 16.25% growth in enrollment over last year. This is part due to the anticipated changes in the program which are in the final stages of the approval process and the initiation of the Land Surveying & Geomatics program. Four official students are declared with two additional students in the wings.

The surveying minor is being prepared and the department hopes to be forwarding this for approval in the Spring semester. These changes will better enable the department to meet the needs of the region's construction community.

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

| | | | iprovement Log | | What are the results |
|--|--|--|--|---|--|
| What have you identified in your assessment data or other information that you are looking into further? | What specific data or evidence was used to identify the problem? | What is the source of the evidence or data? | What action(s) have been taken or solutions identified to promote improvement? | When did the action(s) occur? | 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? |
| | | Items Prev | iously Identified | | |
| Curriculum Refresh | Survey of other school and comments from industry partners | Internal website searches | The refresh has been developed and has been in academic review since June 29, 2022. | Currently, the refresh is at the Provost 1 level for review and approval. | While we hoped that the refresh was approved by now. It does appear that approval will occur this semester. |
| Safety Instruction Enhancements | Accreditor Recommendation | Accreditors | Faculty is adding OSHA 30 as a prerequisite for the CNST/SURV 470 internship class.to be enacted Fall 2024 | Began Fall 2023 | Improvement in SLO 3 |
| CNST 451 | Faculty Assessment Review | Assessment Data | Incorporated in Curricula Refresh. Awaiting Approval | | |
| Risk Management to be better emphasized in curriculum (SLO 13) | Faculty Assessment Review | Employer survey and exam questions in CNST 452 | Include more lectures about risk management in CNST 452 until the curriculum refresh is adopted in which Risk Management is a complete course | Ongoing | Improvement to acceptable in SLO 13 |
| Construction project controls needs emphasis. (SLO 14) | Faculty Assessment Review | Exam questions in CNST 452 | Currently, project controls is an elective. The plan is to encourage more students to enroll in this course and to introduce project controls topics in CNST 452 | Ongoing | Improvement to acceptable in SLO 14 |

| More emphasis on Project Delivery (SLO 12) | Faculty Assessment Review | Exam questions in CNST 452 | Project delivery is addressed in multiple courses. Faculty will be stressing the importance of these topics through more assignments especially in CNST 451 and 403. | Ongoing | Improvement to acceptable in SLO 12 |
|---|---|--|--|-----------------------------|---|
| Structural Behavior needs more emphasis. (SLO 19) | Faculty Assessment Review | Exam questions in CNST 452 | The curriculum refresh will address this issue. Until the refresh is adopted, tutoring or extra exercise sessions could help address this issue. | Ongoing | Improvement to acceptable in SLO 19 |
| Coop and work- study experiences to be formalized. | Faculty Assessment Review | COVID limited this type of event | Work with Industry Advisory Board to make plans. | Ongoing | Little Progress on this activity. |
| Study Abroad reinstated. | Faculty Assessment Review | COVID cancelled this type of event | Faculty to make plans to reinstate | Ongoing | Work was initiated with Nursing and Dentistry with Doctors beyond Borders. Exploratory trip to Guatemala canceled to political unrest in Guatemala. |
| Emphasis on student competitions. | Faculty Assessment Review | COVID limited this type of event | Student Competitions encouraged | Ongoing | Last year students were sent to two ACI national competitions and one Surveying national competition. Next week a team is going to the ASC Regional Competition. |
| Undergraduate research opportunities emphasized | Faculty Assessment Review | Two URCA Students were funded, one grant initiated. | One position was filled. Will continue to promote. | Ongoing | Progress was made with this endeavor. |
| Development of a Surveying Minor | Request from Civil Engineering and Illinois Professional | Request from Civil Engineering | In progress. | To be submitted Spring 2024 | None yet. |

| | Land Surveyor's Association | | | | |
|--|--------------------------------|--------------------------|--|---|---|
| | | Cur | rent Items | | |
| Website updates with survey program and refresh | Faculty Review | Students and Faculty | In Progress. Rollout at Christmas break with course approvals | Majority of work submitted to Marketing at Present | Increased Enrollment |
| Development / Redevelopment of two Curricular Assessment Plans | New Program Startups | Approval of new Programs | Plans initiated but not yet completed | Ongoing | Better student outcomes and job placement |
| Strategic Plan Update | ACCE Visiting Team | Six-year Review | Templates received from two other universities to achieve standard | December 31, 2023 | Elimination of evaluation weakness. |

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.

There were no online courses offered during this term.

| Course | 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? |
|--------|---|---|---|--|---|
| NA | NA | NA | NA | NA | NA |

⁷a. Where applicable, what strategies did you use to improve courses offered in online formats?

Not Applicable.

ENROLLMENT AND COMPLETION – (Questions 8 – 11)

- 8. If applicable, please describe the Department's contributions to:
 - General Education
 - Other Programs (Honors, CODES, FST, etc)
 - Other

The department contributes to other programs by allowing various instructors to teach courses within Civil, Mechanical, and Industrial Engineering. Our curriculum has interwoven the SIUE objective for analytics, communication, liberal arts, diversity, and ethics. Our coursework has an appropriate amount of rigor based upon the results of our employer's survey, but with technology and industrial emphasis shifts, the faculty has responded by creating the curriculum refresh which is in the approval process. This should enhance learning as it relates to the scholar-learner model.

Our program partners with the School of Business by folding into the curriculum a business minor. We have rolled out the Land Surveying and Geomatics Major which combines surveying classes within the department and classes within geography to create a new degree for professional land surveyors and geospatial partners.

In addition, we collaborate with liberal studies and the sustainable community's collaborative so that the students apply their learning towards improving equity in our Metro East community.

About 35% of the students in our classrooms are listed as other majors. Because of this the impact of our program relative to the economic and academic health of the university is underestimated.

9. Please complete the enrollment table and describe how the program is addressing enrollment 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 data: http://www.siue.edu/inrs/factbook/annex.shtml

| | | FY 19 | FY 20 | FY 21 | FY 22 | FY23 |
|-------------------------------|---|-------|-------|-------|-------|------|
| # degrees granted | From Fact Book | 21 | 25 | 27 | 26 | 23 |
| | In Major from Fact Book/Enrollment Dashboard CNST | 58 | 59 | 48 | 50 | 55 |
| | LS&G | | | | | 1 |
| | Pre ENGR CNST | 48 | 48 | 43 | 30 | 34 |
| # of students enrolled (Fall) | Pre ENGR LS&G | | | | | 3 |
| , , | Total From Factbook | 106 | 107 | 91 | 80 | 93 |
| | Other ENGR | | | 19 | 24 | 10 |
| | CAS | | | 22 | 28 | 39 |
| | Total Taught in Program | | | 121 | 132 | 142 |
| Optimal enrollment | | | 130 | 130 | 120 | 120 |

10. Discuss program retention rates. Please pay particular attention to specific successes and areas of concerns and any potential barriers to completion that might need to be addressed. Use the following link to get your program data: https://www.siue.edu/inrs/factbook/Program_rates.shtml

Students are continuously monitored by the Chair and department faculty. Students with identified problems within the class are first contacted by the faculty and if this does not work, then by the Chair and they are reported to counselors through Starfish.

Not sure how the numbers on the factbook link are generated so it is difficult to address them. There has been no training at the department level. The department persistence rate of 93.8 to 100% since 2017 – 2018 appears to be good. And the program graduation rate from 25.0 in 2018 – 2019 t 50% in 2020 – 2021 appears to trending in the correct direction.

11. Please, include a discussion of any <u>high impact practices</u> with a specific lens on serving underrepresented minority students.

The department is steeped in Collaborative assignments, participates in Undergraduate Research, is adept in generating community impact projects that stimulate diversity and global learning. In addition, students can impact community through service to the community, internships, and capstones that are actual community impact projects. In all these forms a learning community with common intellectual experiences that is mentored by faculty and industry professionals. Our introductory students participate with faculty and guest alumni in class and at networking events regularly. Of the ten High Impact Practices, the department fully engages the students in nine of them.

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 23.

| 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 | Number of students that participated | Number of hours spent on the activity per student. | Note if this is required or an elective in the program (R or E) |
|------------------------|--|--|--------------------------------------|--|--|
| | CNST 451L | Estimating the cost of an airport building addition | 20 | 20 | R |
| Case Studies | CNST 451L | Full construction cost estimate for a residential duplex house | 7 | 15 | R |
| | | Full construction cost estimate for a High School Classroom Building Addition | 7 | 30 | R |
| Client-based projects | CNST 452 | Proposals for the revitalization of the Fuller Dome, SIUE Campus | 10 | 40 | R |
| | | Feasibility study for Economic Development of the City of Brooklyn | 14 | 40 | R |
| Clinical experiences | None | | | | |
| Competition/Exhibition | Engineering Atrium | Capstone Project Exhibition associated with engineering showcase. | 17 | 4 | R |

| | ACI, Dallas | Pervious Concrete National Competition | 5 | 6 | E |
|--|----------------------------------|---|----|-----|-----|
| | ACI, San Francisco | Bowling Ball Competition | 5 | 10 | E |
| | University Showcase | Capstone Project, Fuller Dome | 4 | 4 | R |
| Co-ops | None | | | | |
| Fellowships | None | | | | |
| renovempo | Construction Club | Barnes Jewish Hospital Addition, Alberici Construction, St. Louis | 7 | 4 | E |
| Field Trips | Construction Club | Wood Frame Construction Tour, Impact Strategies, St. Louis | 10 | 3 | E |
| | Construction Club | Senior Care Center Construction, Holland Construction, Glen Carbon | 8 | 4 | E |
| | CNST 452/Constructors Club | Brooklyn Senior Citizens Center Rehabilitation | 50 | 6 | R/E |
| Field Work | Constructors Club | Brooklyn City Hall Renovation | 20 | 6 | E |
| | CNST 452/Constructors Club | Katherine Dunham Dance Studio Renovation | 35 | 6 | R/E |
| Internships for Credit | CNST/SURV 470 | Internship | 24 | 300 | R |
| | CNST 210 | ASTM Testing Labs | 25 | 6 | R |
| Laboratory Work | CNST 211 | ASTM Testing Labs | 26 | 8 | R |
| The state of the s | SURV 264 | Multiple Surveying Labs | 43 | 30 | R |

| | CNST 301 | ASTM testing labs to determine unit weight, specific gravity, gradation, Atterberg limits, permeability, and compaction properties of a soil sample. 5 activities total. | 26 | 20 | R |
|--|------------------------|--|----|----|---|
| | CNST 353 (Spring 2022) | Computer Labs in AutoCAD, Excel, Bluebeam, Procore | 28 | 40 | R |
| | SURV 482 | Surveying Equipment Laboratory Systems | 9 | 40 | R |
| | SURV 484 | Surveying Equipment Laboratory Systems | 6 | 40 | R |
| | CNST 451L | 15 Estimation Labs geared towards solving estimating problems and learning software tools | 32 | 27 | R |
| | CNCT 452 | Proposals for the revitalization of the Fuller Dome, SIUE Campus | 10 | 40 | R |
| Learning Communities | CNST 452 | Feasibility study for Economic Development of Brooklyn, IL | 14 | 40 | R |
| Performances | None | | | | |
| Practicums | None | | | | |
| Service Learning/Community Service | CNST 452 | Proposals for the revitalization of the Fuller Dome, SIUE Campus | 10 | 40 | R |
| | | Feasibility study for Economic Development of Brooklyn, IL | 14 | 40 | R |

| | CNST 495 | 5 | 45 | E | |
|------------------------------|-------------------------|---|----|----|---|
| Simulations | CNST 403 | Develop scheduling simulations to monitor project progress | 32 | 25 | R |
| | CNST 442 (Fall 2021) | Work on a student dorm BIM building model by running clash detection and estimations. | 13 | 40 | E |
| Student Teaching | None | | | | |
| Study Abroad | None | | | | |
| Supervised Training | None | | | | |
| Undergraduate Research | URCA | Examination of Mortar Specimens | 1 | 60 | Е |
| Volunteer Experiences | Constructor's Club | Work as noted above | 30 | 29 | E |
| Writing Intensive Courses | None | | | | |

^{*}This may include department/school/student organization activities as well.

Appendix A - Student Learning Outcomes Table

Learning Outcomes

Students Will:

- 1. Create written communications appropriate to the construction discipline.
- 2. Create oral presentations appropriate to the construction discipline.
- Create a construction safety plan.
- Create construction project cost estimates.
- Create construction project schedules.
- 6. Analyze professional decisions based upon ethical principles.
- 7. Analyze construction documents for planning and management of construction processes.
- 8. Analyze methods, materials, and equipment used for construction 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 control processes.
- 17. Understand the legal implications of contracts, common, and regulatory law to manage a construction project.
- 18. Understand the principle 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: | | | | | | |
|--|--|--|--|--|--|--|--|
| Create written communications appropriate to the construction discipline. | Written reports submitted in CNST 211 and senior project documentation in CNST 452. | | | | | | |
| Create oral presentations appropriate to the construction discipline. | Project presentation in CNST 210 and senior project presentation in CNST 452. | | | | | | |
| Create a construction safety plan. | Assignment in CNST 470. | | | | | | |
| Create construction project cost estimates. | Assignment in CNST 451. | | | | | | |
| Create construction project schedules. | Assignment in CNST 403. | | | | | | |
| Analyze professional decisions based upon ethical principles. | Assignment in CNST 351. | | | | | | |
| Analyze construction documents for planning and management of construction processes. | Assignment in CNST 341. | | | | | | |
| Analyze methods, materials, and equipment used for construction projects. | Assignments in CNST 210 and 301. | | | | | | |
| 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 SURV 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 control processes. | Exam in CNST 403. | | | | | | |
| 17. Understand the legal implications of contracts, common, and regulatory law to manage a construction project. | Exam in CNST 411. | | | | | | |
| 18. Understand the principle 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. | | | | | | |

Appendix C – CLO Assessment Tools Targets and Data

| # | ACCE Student | | | | | | | | | | | | |
|---|---|-------------|---------------------------|------------------|------|----------------|-------|----------------|--------|----------------|-----|------|--|
| | Learning Outcomes | Course | CLO | | Data | Percer | ntage | Exceed | ing Th | reshol | d) | 1 | |
| | | Course | CLO Assessment Tool | Threshold (%) | | Spring 2020 | | Spring 2021 | | Spring 2022 | | 2023 | Comments |
| | Create written | CNST 211 | Project Report | 80 | 100 | | 79 | | 100 | | 80 | 81 | |
| 1 | communications appropriate to the construction discipline. | CNST 351 | Project Report | 80 | 100 | | 100 | | 61 | | 100 | | |
| | | CNST 452 | Senior Project Report | 90 | 100 | 100 | 73 | 100 | 100 | 100 | 100 | 100 | |
| | Create Oral Presentations appropriate to the construction discipline. | CNST 210 | Project Report | 80 | 100 | | 91 | | | 88 | 100 | 100 | |
| 2 | | CNST 351 | Project Report | 80 | 100 | | 91 | | 96 | | 100 | | |
| | | CNST 452 | Senior Project Report | 95 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | 100 | |
| 3 | Create a construction project safety plan. | CNST 452 | Senior Project Report | 95 | 100 | 100 | 100 | 100 | 64 | | 100 | 100 | Measured Spring 2022 by Exam Questions and project reports. The new curriculum refresh will emphasize safety in the workplace to a larger degree. When the program assessment plan is updated testing and project reporting will be used to evaluate this SLO. |

| 4 | Create a construction project cost estimate | CNST 451 | Class Project | 85 | 83 | 100 | 75 | 100 | 100 | 100 | 100 | | About 90% of our surveyed employers state that our students entered the workplace with appropriate estimating skills. The curriculum refresh adds a second core estimating class to further improve this SLO. |
|---|---|-------------|--------------------------|----|-----|-----|-----|-----|------|-----|------|------|---|
| 5 | Create construction project schedules. | CNST 403 | Class Project | 70 | 100 | 60 | 72 | 100 | 80 | | 100 | 100 | |
| | | CNST 351 | Project Presentations | 70 | 100 | | 91 | | 61* | | 100 | | |
| 6 | Analyze professional decisions based upon ethical principles. | CNST 452 | Assignment | 85 | 100 | 80 | 100 | 100 | 71.4 | 75 | 92.3 | 100 | *COVID-related |
| 7 | Analyze construction documents for planning and | CNST 341 | Exam Questions | 80 | 67 | 94 | 93 | 82 | 87.5 | 100 | | 100 | |
| | management of construction processes. | CNST 403 | Class Project | 70 | 100 | 60 | 61 | | 91 | | 100 | | |
| 8 | Analyze methods, materials, and equipment used to | CNST 211 | Exam Questions | 80 | | 62 | 86 | | 93.3 | | 90.0 | 93.8 | *Offered online due to COVID. Class better taught as |
| | construct projects. | CNST 351 | Exam Questions | 70 | 100 | | 97 | | 54* | | 96.0 | | F2F. |

| | | CNST 301 | Exam Questions | 70 | | 88 | | 81 | | 70 | | 72 | |
|----|--|-------------|--------------------------|----|-----|-----|-----|------|-----|------|------|-------|---|
| 9 | Apply (understand) construction management skills as a member of a multidisciplinary team. | CNST 452 | Senior Project Report | 95 | 100 | 100 | 73 | 100 | 100 | 100 | 100 | 100 | |
| 10 | Apply electronic - based technology to manage the construction process. | CNST 353 | Exam Questions | 80 | | 75 | | 85 | | 87.5 | 60 | 70.6 | |
| 11 | Apply basic surveying techniques for construction layout and control. | SURV 264 | Assignment | 70 | 100 | 100 | 93 | 1 | 88 | 84 | 90 | 90 | |
| 12 | Understand different methods of project delivery and roles and responsibilities | CNST 452 | Exam Questions | 80 | 100 | 100 | 100 | 100 | 75 | 61 | 84.6 | 100 | |
| | | CNST 451 | Exam Questions | 70 | | | | 100 | * | * | NA | NA | * Not Measured. This requirement will be removed |
| 13 | management. | CNST 452 | Exam Questions | 80 | 100 | 100 | 100 | 100 | 15 | 15 | 69.2 | 100.0 | from this class with the updated assessment plan necessitated by the curriculum refresh. This SLO was measured by exam questions and identified as a problem area by our industry partners. |
| 14 | Understand construction accounting and cost control. | CNST 452 | Exam Questions | 80 | 100 | 100 | 80 | 81.8 | 14 | 14 | 46 | 90 | The refresh will divide estimating into two classes to further emphasize these concepts. |

| 15 | Understand construction quality | CNST 210 | Exam Questions | 80 | | 78 | | 100 | | 100 | 100 | 70 | |
|----|---|-------------|-------------------|----|-----|-----|----|-----|-----|------|-----|-----|---|
| | assurance and quality control. | CNST 301 | Exam Questions | 70 | | 88 | | 81 | | 80 | | 82 | |
| 16 | Understand construction project control processes. | CNST 403 | Exam Questions | 70 | 63 | 100 | 89 | | 91 | | 100 | | |
| 17 | Understand legal implications of contract, common, and regulatory law to manage a construction project. | CNST 411 | Exam Questions | 80 | | | | | | * | 1 | 95 | * Not Measured |
| 18 | Understand the basic principles of sustainable construction | CNST 210 | Exam Questions | 70 | | 100 | | 85 | | 71 | 100 | 100 | |
| | | CNST 241 | Exam Questions | 70 | 33 | 52 | 40 | 62 | 50 | 46 | 50 | 50 | Most of the poor performing students did not attend regularly |
| 19 | Structural Denavior. | CNST 351 | Exam Questions | 70 | 100 | | 97 | | 58 | | 96 | | and did not submit assignments. We think that this is related to COVID complications related to masking and online instruction. |
| 20 | Understand the basic principles of mechanical, | CNST 321 | Exam Questions | 80 | | 73 | | - | - | 87.5 | 1 | 96 | |
| | electrical, and piping systems. | CNST 332 | Exam Questions | 80 | | | | | 100 | | 100 | | |