

Haskell & Irene Lemon Construction Science Division
SLO Assessment Outcomes & Strategic Plan Progress
2020-2021 academic year

This document serves as the assessment report for the Bachelor of Science – Construction Science program for the 2019/2020 school year. This report is based on the undergraduate assessment and academic quality plan for the Construction Science Division, as approved by the CNS faculty in February 2018.

This document contains seven sections as follows:

1. **Student Learning Outcomes Summary** – a summary of the results of the 20 ACCE SLOs assessed in the program.
2. **Faculty involved with the Program** – A listing of all courses taught, faculty teaching each course, and SLOs assessed in the courses
3. **Course Notebooks** – A listing of notebooks collected for the year and expected contents
4. **Direct Assessment of Student Learning Outcomes and Course Summaries** – A listing by course of grade distribution, SLOs assessed, the results of assessment, and any instructor anticipated changes or suggestions.
5. **Indirect Assessment of Student Learning Outcomes Via Student Exit Surveys** – Results of student exit surveys regarding SLOs.
6. **Indirect Assessment of Student Learning Outcomes Via Industry/Alumni Surveys** – Results of industry/alumni surveys regarding student competence with SLOs.
7. **Strategic Plan Progress** – Summary of progress towards strategic plan goals and objectives.

1. Student Learning Outcomes Summary

Instructors were asked to submit what they used to assess SLOs and the outcomes of that assessment. The Division of Construction Science Undergraduate Assessment and Academic Quality Plan (approved by faculty 2/2018) establishes a target of 70% or higher for all SLO assessments. The following are the direct and indirect assessment data for each SLO.

SLO #1: Create written communications appropriate to the construction discipline

- In CNS 4993, the instructor uses a portion of the final project to assess SLO #1. Out of 32 students the average grade on that portion of the project was 72%,
- An average score of 3.43 (85.75%) resulted from indirect assessment of students.
- An average score of 3.33 (83.25%) resulted from indirect assessment of industry professionals.

SLO#2: Create oral presentations appropriate to the construction discipline

- In CNS 3412, the instructor uses an oral presentation from project #2 to assess SLO #2. Out of 41 students the average grade on the presentation was 91%.
- An average score of 3.32 (83%) resulted from indirect assessment of students.
- An average score of 3.07 (76.75%) resulted from indirect assessment of industry professionals.

SLO#3: Create a construction project safety plan

- In CNS 3883, the instructor uses the final project to assess SLO #3. Out of 41 students the average score on the project was 94.6%.
- An average score of 3.36 (84%) resulted from indirect assessment of students.
- An average score of 2.73 (68.25%) resulted from indirect assessment of industry professionals.

SLO#4: Create construction project cost estimates

- In CNS 3512, the instructor uses questions #16-18 on the final exam to assess SLO #4. Out of 43 students the average score on these questions was 74%.
- In CNS 4993, the instructor uses the estimate portion final project to assess SLO #4. Out of 32 students the average grade for that portion of the project was 93%.
- An average score of 2.82 (70.5%) resulted from indirect assessment of students.
- An average score of 2.73 (68.25%) resulted from indirect assessment of industry professionals.

SLO #5: Create construction project schedules

- In CNS 3812, the instructor uses question #16 on the final exam to assess SLO #5. Out of 43 students the average grade on that question was 81%.
- In CNS 4993, the instructor uses the schedule portion of the final project to assess SLO #5. Out of 32 students the average grade for that portion of the project was 83%.
- An average score of 3.04 (76%) resulted from indirect assessment of students.
- An average score of 2.53 (63.25%) resulted from indirect assessment of industry professionals.

SLO#6: Analyze professional decisions based on ethical principles

- In CNS 3512, the instructor uses a homework assignment and a quiz to assess SLO #6. Out of 43 students the average grades were 95% & 87% respectively, resulting in an average score of 91%.
- An average score of 3.43 (85.75%) resulted from indirect assessment of students.
- An average score of 3.33 (83.25%) resulted from indirect assessment of industry professionals.

SLO#7 Analyze construction documents for planning and management of construction processes

- In CNS 2912 The instructor uses two exams (exam 1 and the final exam) to assess SLO #7. Out of 47 students, the average grade on the two exams was 76%, and 86% respectively.
- An average score of 3.34 (83.5%) resulted from indirect assessment of students.
- An average score of 3.33 (83.25%) resulted from indirect assessment of industry professionals.

SLO#8 Analyze methods, material and equipment used to construct projects

- In CNS 2911, The instructor uses the entire lab where students construct various mock-ups to assess SLO #8. Out of 45 students enrolled in the course the average grade was 95%.
- In CNS 3412, the instructor uses the final written exam to assess SLO #8. Out of 41 students the average score was 93%.
- An average score of 3.29 (82.25%) resulted from indirect assessment of students.
- An average score of 3.00 (75%) resulted from indirect assessment of industry professionals.

SLO#9 Understand the role of the construction manager as a member of different multidisciplinary project teams

- In CNS 4523, each student works with an Architecture student to provide them with a feasibility estimate of their semester design project. Out of 37 students, the average grade on this collaboration exercise was 83.8%.
- An average score of 3.25 (81.25%) resulted from indirect assessment of students.
- An average score of 3.13 (78.25%) resulted from indirect assessment of industry professionals.

SLO #10 Apply electronic-based technology to manage the construction process

- In CNS 4133, the instructor uses in class activities, homework, and the final project to assess SLO #10. Out of 32 students the average score on the class activities was 89%, the average score on homework was 100%, and the average score on the project was 85%. The overall average was 91.3%.
- An average score of 3.29 (82.25%) resulted from indirect assessment of students.
- An average score of 3.33 (83.25%) resulted from indirect assessment of industry professionals.

SLO #11 Apply basic surveying techniques for construction layout and control

- In CNS 3101, the instructor uses a combination of lab assignments and two exams to assess SLO #11. Out of 42 students the average score on lab assignments was 95% the average exam score was 90%. The overall average of these labs and exams was 90.67%.
- An average score of 3.07 (76.75%) resulted from indirect assessment of students.
- An average score of 2.60 (65%) resulted from indirect assessment of industry professionals.

SLO #12 Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.

- In CNS 1111, the instructor uses quizzes 1, 5, and 12 to assess SLO #12. Out of 73 students, the average grade on the quizzes were: 70%, 73%, and 78% respectively (73.7% average).

- In CNS 4523, the instructor uses the first exam and a collaboration exercise to assess SLO #12. Out of 37 students the average mid-term grade was 83%, the average collaboration exercise grade was 83.8%. the overall average of these assignments was 83.4%.
- An average score of 3.43 (85.75%) resulted from indirect assessment of students.
- An average score of 3.07 (76.75%) resulted from indirect assessment of industry professionals.

SLO #13 Understand construction risk management

- In CNS 4523, the instructor uses exam #2 to assess SLO #13 Out of 37 students the average grade was 84%.
- An average score of 3.29 (82.25%) resulted from indirect assessment of students.
- An average score of 2.73 (68.25%) resulted from indirect assessment of industry professionals.

SLO #14 Understand construction accounting and cost control

- In CNS 3823 The instructor uses a combination of homework and two exams to assess SLO #14. Out of 40 students the average grade on these materials was 88.6%
- An average score of 2.93 (73.25%) resulted from indirect assessment of students.
- An average score of 2.47 (61.75%) resulted from indirect assessment of industry professionals.

SLO #15 Understand construction quality assurance and control

- In CNS 2911, the instructor uses a daily log assignment following each lab to assess SLO #15. Out of 45 students the average grade was 96%.
- In CNS 4523, the instructor uses exam 2 and a project to assess SLO #15 Out of 37 students the average grade on exam 2 was 84%, the average grade on the project was 87.3%. The overall average was 85.6%
- An average score of 3.25 (81.25%) resulted from indirect assessment of students.
- An average score of 2.73 (68.25%) resulted from indirect assessment of industry professionals.

SLO #16 Understand construction project control processes

- In CNS 3823, the instructor uses exam #1 and four homework assignment to assess SLO #16. Out of 40 students the average grade on these were 84.28%, 91.78%, 89.18%, 92.9%, and 91.8%. The overall average score was 89.99%.
- An average score of 3.07 (76.75%) resulted from indirect assessment of students.
- An average score of 2.87 (71.75%) resulted from indirect assessment of industry professionals.

SLO #17 Understand the legal implications of contract, common and regulatory law to manage a construction project

- In CNS 4153, the instructor uses a combination of two exams (a midterm and a final) to assess SLO #17. Out of 35 students the average score on the two exams was 83.3%.
- An average score of 3.00 (75%) resulted from indirect assessment of students.
- An average score of 2.60 (65%) resulted from indirect assessment of industry professionals.

SLO #18 Understand the basic principles of sustainable construction

- In CNS 2363, the instructor uses exam #1 to assess SLO #18. Out of 22 students the average grade on the exam was 84%.
- An average score of 3.04 (76%) resulted from indirect assessment of students.
- An average score of 3.20 (80%) resulted from indirect assessment of industry professionals.

SLO #19 Understand the basic principles of structural behavior

- In CNS 4193, the instructor uses all graded assignments in the course to assess SLO #19. Out of 30 students enrolled the average grade was 79.3%.
- In CNS 4233, the instructor uses all graded assignments in the course to assess SLO #19. Out of 30 students enrolled the average grade was 80.6%.
- In CNS 4512, the instructor uses all graded assignments in the course to assess SLO #19. Out of 41 students enrolled the average grade was 90.5%.
- An average score of 2.93 (73.25%) resulted from indirect assessment of students.
- An average score of 2.93 (73.25%) resulted from indirect assessment of industry professionals.

SLO #20 Understand the basic principles of mechanical, electrical, and piping systems

- In CNS 2432 the instructor uses exam #1 & #2 to assess electrical and plumbing system knowledge under SLO #20. Out of 46 exams taken, the average grade on exam 1 was 99% and the average grade on exam #2 was 96.
- In CNS 3443, the instructor uses the mid-term and final exams to assess mechanical system knowledge under SLO #20. Out of 40 students the average grade on the mid-term was 89% the average grade on the final exam was 99%, and overall average of 94%.
- An average score of 3.07 (76.75%) resulted from indirect assessment of students.
- An average score of 2.73 (68.25%) resulted from indirect assessment of industry professionals.

Of the assessment data collected, all SLO assessment by direct methods met the benchmarks established. However, SLO assessment by indirect methods resulted in nine SLO's falling below the benchmark. While student survey results were all above the benchmark, industry professional survey results account for the nine SLOS that did not meet the benchmark and include:

- SLO #3: Create a construction project safety plan, survey score was 68.25%.
- SLO #4: Create construction project cost estimates, survey score was 68.25%
- SLO #5: Create construction project schedules, survey score was 63.25%
- SLO #11 Apply basic surveying techniques for construction layout and control, survey score was 65%
- SLO #13 Understand construction risk management, survey score was 68.25%
- SLO #14 Understand construction accounting and cost control, survey score was 61.75%
- SLO #15 Understand construction quality assurance and control, survey score was 68.25%
- SLO #17 Understand the legal implications of contract, common and regulatory law to manage a construction project, survey score was 65%
- SLO #20 Understand the basic principles of mechanical, electrical, and piping systems, survey score was 68.25%

It appears that the industry professionals were just hard in their evaluation of specific skills and abilities because a subsequent question on the survey asked: "In general I am satisfied with the graduates my company has hired from the Construction Science program at the University of Oklahoma" and 14/15 indicated they "strongly agree". Further the respondent that was gave the lowest scores told us that: *"Many of my comments here are very subject to individuals. I have had interns and new hires that I could have given high marks to every question in this survey. And I have had those that could have been the opposite. I think that on average the program does as good of a job as it can given the complexity and diversity of the industry we work in."* Based on a holistic evaluation of the survey, these result that are slightly below the benchmark are less concerning, however they will be a subject of discussion in faculty meetings in the Fall 2021 semester.

2. Faculty Involved with the Program

The following table lists the faculty teaching in the program in the 2020/2021 academic year, as well as the SLOs assessed in their courses.

Course	Name	Instructor	SLO assessed/Notes
Fall 2020			
CNS 1111	Introduction to Construction Mgmt.	Bigelow	12
CNS 1312	Computers in Construction	Gransberg	No SLO assessed
CNS 2363	Materials and Forms	Bloom	9
CNS 3103	Construction Surveying	Reyes	11
CNS 3442	MEP 2	Gaffney	20
CNS 3512	Cost Estimating	Ghosh	4,6
CNS 3612	Project Controls Lab	Ghosh	No SLO assessed
CNS 3812	Project Planning & Scheduling	Ghosh	5
CNS 3883	Construction Safety	Reyes	3
CNS 4133	BIM for Constructors	McCuen	10
CNS 4213	Design Build Principles	McCuen	No SLO assessed
CNS 4223	Structures II	Shadravan	19

CNS 4053	Residential Construction	Bloom	No SLO assessed
CNS 4512	Soils & Foundations	Marakah	No SLO assessed
CNS 4523	Pre-Construction Services	Perrenoud	9, 12,13,15
Spring 2021			
CNS 2133	Introduction to Housing	Bigelow	No SLO assessed
CNS 2432	Mechanical Systems	Gaffney	20
CNS 2833	Materials & Methods II	Bloom	8, 18
CNS 2911	Construction Fundamentals Lab	Clinefelter	15
CNS 2912	Construction Docs & Quantity Survey	Ghosh	7
CNS 3412	Construction Communication	McCuen	2, 8
CNS 3823	Project Controls Management	Reyes	14,16
CNS 4153	Legal Issues in Construction	Laws	17
CNS 4193	Structures I	Shadravan	19
CNS 4303	Lean Construction Management	Ghosh	No SLO assessed
CNS 4403	Leadership	Perrenoud	No SLO assessed
CNS 4970	Design + Build	Bloom	No SLO assessed
CNS 4993	Construction Science Capstone	McCuen	1,4,5
Summer 2021			
CNS 2133	Introduction to Housing	Bigelow	No SLO assessed
CNS 3943	Field Work	Ghosh	No SLO assessed
CNS 4943	Field Work	Ghosh	No SLO assessed

3. Course Notebooks

A sample of course notebooks were collected in the 2020/21 academic year. Following is a summary of the notebooks collected.

- i. Total number of course notebooks collected for the 2020/21 academic year: 22. Following is the list of courses for which course notebooks were collected:
 - (1) Fall 2020: CNS 1111, CNS 2363, CNS 3103, CNS 3442, CNS 3512, CNS 3612, CNS 3812, CNS 3883, CNS 4053, CNS 4133, CNS 4213, CNS 4523 (12 courses).
 - (2) Spring 2020: CNS 2911, CNS 2912, CNS 2432, CNS 2833, CNS 3412, CNS 3823, CNS 4303, CNS 4403, CNS 4970, CNS 4993, (10 courses).
- ii. Total number of courses for which course notebooks were not collected for the 2020/2021 academic year: 5. The following is the list of courses:
 - (1) Fall 2019: CNS 1312, CNS 4233, CNS 4512
 - (2) Spring 2020: CNS 4153, CNS 4193
- iii. All course notebooks are available in electronic format.

(2) Each course notebook was expected to consist of the following materials:

- i. ACCE SLO Summary Form
- ii. CNS Division Course Summary Form
- iii. Course Syllabus (following University of Oklahoma requirements)
- iv. Course lectures or other presentation materials
- v. Course assignments and tests with grading rubrics or keys
- vi. 1 example of student work for each assignment (student names removed)
- vii. Any other materials the instructor deems appropriate to include

4. Direct Assessment of Student Learning Outcomes and Course Summaries

Instructors were asked to submit information to evaluate their courses and collect assessment data for SLOs. The following are the responses collected, organized by the course (Assessment information organized by SLO is provided in section 5):

- (1) CNS 1111 – The instructor uses quizzes 1, 5, and 12 to assess SLO #12. Out of 73 students, the average grade on the quizzes was: 73.7%. The grade distribution in the course was: A – 29, B – 27, C – 10, D – 4, F – 3.
No suggestions for improvement were provided.
- (2) CNS 1213 – SLOs are not assessed in this course. Out of 30 students enrolled, the grade distribution in the course was: A – 12, B – 8, C – 5, D – 0, F – 2, W – 3.
No suggestions for improvement were provided.
- (3) CNS 2133 – No SLOs are assessed in CNS-2133. Out of 72 students, the grade distribution in the course was: A – 27, B – 33, C – 5, D – 2, F – 5.
No suggestions for improvement were provided.
- (4) CNS 2363 – No SLOs are assessed in CNS-2363. Out of 22 students, the grade distribution in the course was: A – 18, B – 3, C – 1, D – 0, F – 0.
No suggestions for improvement were provided.
- (5) CNS 2433 – For SLO #20, the instructor uses the midterm and final exams to assess electrical and plumbing system knowledge. Out of 46 exams taken, the average grade was 97.5%. The grade distribution in the course was: A – 40, B – 4, C – 1, D – 0, F – 1.
The instructor suggested the following improvement for next year: Continue to engage electrical and plumbing systems professionals to gather information and modify the course to reflect the industry.
- (6) CNS 2911 – The instructor uses the entire lab where students construct various mock-ups to assess SLO #8. Out of 45 students in the course the average grade was 95%. The instructor uses a daily log assignment to assess SLO #15. Out of 45 students the average grade was 96%. The grade distribution in the course was: A – 44, B – 0, C – 0, D – 0, F – 1.
The instructor suggested the following improvement for next year: If possible, the course should be delivered closer to the Norman main campus if correct facilities could be had, additional trips to the current construction site would all for students to get a firsthand understanding of how the materials they are working with are used on a much larger scale, and also show the pace for construction in terms of their speed in working with the material.
- (7) CNS 2912 – The instructor uses two exams (exam 1 and the final exam) to assess SLO #7. Out of 47 students, the average grade on the two exams was 81%. The grade distribution in the course was: A – 10, B – 25, C – 10, D – 1, F – 1.
The instructor suggested the following improvement for next year:
Coordinate more with the Fundamentals Lab and have some of the QTO assignments tie with the lab assignments.
- (8) CNS 2833 – No SLOs are assessed in CNS 2833. The grade distribution in the course was: A – 26, B – 24, C – 7, D – 1, F – 1,
No suggestions for improvement were provided.
- (9) CNS 3103 – The instructor uses a combination of lab assignments and two exams to assess SLO #11. Out of 42 students the average score from these labs and exams was 94.2%. The grade distribution in the course was: A – 36, B – 5, C – 1, D – 0, F – 0.
The instructor suggested the following improvement for next year: The more intense schedule revealed some opportunities for engaging real-world connections. I will incorporate those into the course more frequently next year.

- (10) CNS 3412 – The instructor uses the individual oral presentation from project #2 to assess SLO #2. Out of 41 students the average grade on the presentation was 91%. The instructor uses the final exam to assess SLO #8. The average grade on the exam was 93%. The grade distribution in the course was: A – 26, B – 15, C – 0, D – 0, F – 0.
The instructor suggested the following improvement for next year: Students should be informed in the Materials and Methods courses to retain course slides, reading material, assignments, etc. so they will have them available for reference in this class. I was challenged by students publicly in class who did not believe I should include the topic in the class or on the final exam and that they did not keep their materials from the previous courses. Most students do not connect one course to another as building knowledge of the construction industry and the interconnectedness of content across courses.
- (11) CNS 3442 – The instructor uses the mid-term and final exam to assess student's mechanical system knowledge for SLO #20. Out of 40 students the average grade on the mid-term was 94%. The grade distribution in the course was: A – 18, B – 19, C – 3, D – 0, F – 0.
The instructor suggested the following improvement for next year: Continue to engage mechanical systems professionals and leverage the information gathered to modify course to reflect industry position(s).
- (12) CNS 3512 – The instructor uses questions #16-18 on the final exam to assess SLO #4. Out of 43 students the average score was 74%. The instructor uses a homework assignment and a quiz to assess SLO #6. Out of 43 students, the average grade on these assignment was 91%. The grade distribution in the course was: A – 8, B – 22, C – 12, D – 1, F – 0.
The instructor suggested the following improvement for next year: Doing more in-class activities is always helpful. This is more so as some of the concepts are completely new to them. So, working on them before being assigned homeworks are helpful. However, there is a limit to how much of activities can be fitted in the scheduled times. Offering the class online due to COVID was a challenge.
If I have to offer this course online again, I will use a project of smaller scale for the assignments.
- (13) CNS 3612 - SLOs are not assessed in this course. Out of 43 students enrolled, the grade distribution in the course was: A – 30, B – 13, C – 0, D – 0, F – 0.
The instructor suggested the following improvement for next year: I could not do the mock bid day before the final bid day simulation this year due to online delivery of the course due to COVID. I will like to keep the mock bid day before the final Bid Day simulation so that the students can get more familiar with the Bid Day simulation.
- (14) CNS 3812 - The instructor uses the final exam question #16 to assess SLO #5. Out of 43 students the average grade on the final exam was 81%. The grade distribution in the course was: A – 17, B – 22, C – 4, D – 0, F – 0.
The instructor suggested the following improvement for next year: Doing more in-class activities is always helpful. This is more so as some of the concepts are completely new to them. So, working on them before being assigned homework is helpful. However, there is a limit to how many activities can be fitted in the scheduled times.
I will prefer teaching MS Project (which is about 6 weeks) in the Gould Hall Lab to reduce the distraction due to students not being able to install the application on their personal laptops.
- (15) CNS 3823 – The instructor uses a combination of homework and two exams to assess SLO #14. Out of 40 students the average grade on these materials was 88.7%.
For SLO #16 the instructor uses a homework and exam #1 to assess SLO #16. Out of 40 students the average grade was 88.6%. The grade distribution in the course was: A – 17, B – 19, C – 4, D – 0, F – 0. The instructor suggested the following improvement for next year: Expanded use of digital document and cost control tools (such as Procore)
- (16) CNS 3883 – The instructor uses the final project to assess SLO #3. Out of 41 students the average score on the project was 94.6%. The grade distribution in the course was: A – 37, B – 4, C – 0, D – 0, F – 0.
The instructor suggested the following improvement for next year: More group activities during

class – when social distancing requirements are relaxed, this will be easier.

- (17) CNS 4053 (Residential)- This course is an elective, as such SLOs are not assessed in this course. Out of 22 students enrolled, the grade distribution in the course was: A – 18, B – 3, C – 1, D – 0, F – 0.
The instructor did not have suggestions for improvement for next year.
- (18) CNS 4133 – The instructor uses in class activities, homework, and the final project to assess SLO #10. Out of 32 students the average score on these was 91.3%. The grade distribution in the course was: A – 3, B – 20, C – 9, D – 0, F – 0.
The instructor suggested the following improvement for next year:
1-Increase student's knowledge about conceptual estimating
2-Increase emphasis on construction phasing and work sequencing
- (19) CNS 4153 –The instructor uses a combination of two exams (a midterm and a final) to assess SLO #17. Out of 35 students the average score on the two exams was 83.3%. The grade distribution in the course was: A – 5, B – 19, C – 11, D – 0, F – 0.
The instructor did not have suggestions for improvement for next year.
- (20) CNS 4193 – The instructor uses all graded assignments in the course to assess SLO 19. Out of 30 students enrolled the average grade was 79.3%. The grade distribution in the course was: A – 10 B –15, C – 14, D – 0, F – 1.
The instructor did not have suggestions for improvement for next year.
- (21) CNS 4213 - This course is an elective, as such SLOs are not assessed in this course. Out of 3 CNS students enrolled, the grade distribution in the course was: A – 0, B –2, C – 1, D – 0, F – 0.
The instructor suggested the following improvement for next year: Standardize the term Design-Build in the College to reflect its use by professionals in the industry. Students receive mixed messages from faculty who use the term Design-Build as a description of informal communication and a 'collaborative' approach to projects that includes designers and builders. It's very confusing for students who have had this experience in prior course.
- (22) CNS 4233 – The instructor uses all graded assignments in the course to assess SLO 19. Out of 30 students enrolled the average grade was 80.6%. The grade distribution in the course was: A – 5, B – 6 C – 3, D – 0, F – 0, W - 1.
The instructor did not have suggestions for the course next year.
- (23) CNS 4303 – This course is an elective, as such SLOs are not assessed in this course. Out of 17 students enrolled, the grade distribution in the course was: A – 10, B – 7, C – 0, D – 0, F – 0.
The instructor suggested the following improvement for next year: This course has been evolving over the past few years and I have been consistently making changes every year. This year I did not make major changes from last year and only made minor changes on few topics. Couple reasons to not make many changes were consistent class sizes for the past few years and the positive feedback I received about this course last year. After experimenting a lot, I feel I have found a nice balance of reading assignments, discussions, hands-on simulations, and short projects that help me convey the content of this course.
1. I covered the lean tools in detail with examples and practical applications than just going over theoretical materials. I used hands-on simulation to explain the concepts behind each tool.
 2. Assigned readings were tied to the contents of the in-class topics and I spent time summarizing the readings and answering any questions from the reading assignments.
 3. I continued with the small group projects instead of individual homework so that the students could learn from each other while working in group.
 4. Invited three industry guest speakers to discuss their personal experiences of implementing three different lean tools. All the three speakers were from out of state and having the option of zoom allowed me to have them present to the students.

- (24) CNS 4403 – This course is an elective, as such SLOs are not assessed in this course. Out of 25 students enrolled, the grade distribution in the course was: A – 23, B – 0, C – 1, D – 0, F – 1. The instructor suggested the following improvement for next year. Continue to research leadership and leverage the information gathered to modify course to reflect industry position(s).
- (25) CNS 4523 – The instructor uses the first exam and a collaboration exercise to assess SLO #12. Out of 37 students the average grade on these activities was 83.4%. The instructor uses the exam 2 to assess SLO #13 Out of 37 students the average grade on the exam was 84%. The instructor used exam 2 and the final project to assess SLO #15. Out of 37 students, the average grade on the final exam was 85.6%. The grade distribution in the course was: A – 25, B – 11, C – 1, D – 0, F – 0.
The instructor suggested the following for next year: Being the my first time teaching this course, there are several topics and assignments I would like to develop further.
- (26) CNS 4512 – The instructor uses all graded assignments in the course to assess SLO #19. Out of 41 students enrolled the average grade was 90.5%. The grade distribution in the course was: A – 18, B – 12, C – 1, D – 0, F – 0.
The instructor did not have suggestions for improvement for next year.
- (27) CNS 4970 (Design + Build) - This course is an elective, as such SLOs are not assessed in this course. Out of 22 students enrolled, the grade distribution in the course was: A – 20, B – 2, C – 0, D – 0, F – 0.
The instructor did not have suggestions for improvement for next year.
- (28) CNS 4993 – The instructor uses portions of the final project to assess SLOs #1, #4, & #5. For SLO #1, out of 32 students the average grade was 72%. For SLO #4 the average grade was 93%. For SLO #5 the average grade was 83%. The grade distribution in the course was: A – 6, B – 20, C – 6, D – 0, F – 0.
The instructor suggested the following for the course: As recommended in 2020, students need a better understanding of the connection between the site logistics, project phase planning, and construction schedule. If you look at the students' performance in each of these areas as separate topics, their performance is good. However, the majority (95%) cannot connect the three topics together in a comprehensive and realistic manner. They schedule work in a linear fashion without considering their phase plan and site logistics for the project. It would help if students were aware of the connection and evaluated on putting it all together in courses prior to Capstone.

5. Indirect Assessment of Student Learning Outcomes Via Student Exit Surveys

Each graduating student was given a departmental exit survey, and was asked to fill it out online. Out of the 32 students who graduated in May 2021, 28 responses were collected. Accounting for a 88% response rate. Students were asked how confident they are in their ability to apply each SLO on a 4-point scale. The table below summarizes the student responses regarding each SLO. An average score out of 5 is provided as well as the number of responses for each level of confidence ("Very Confident", "Confident", "Somewhat Confident", and "Not Confident")

SLO	Average	Very Confident	Confident	Somewhat Confident	Not Confident
#1 Written Communication	3.43	12	16	0	0
#2 Oral Presentations	3.32	11	15	2	0
#3 Safety Plan	3.36	12	14	2	0
#4 Cost Estimates	2.82	4	16	7	1
#5 Project Schedules	3.04	8	13	7	0
#6 Ethics	3.43	14	12	2	0
#7 Documents	3.43	14	12	2	0

#8 Materials & Methods	3.29	10	16	2	0
#9 Multi-Disciplinary Team	3.25	10	15	3	0
#10 Electronic Technology	3.29	10	16	2	0
#11 Surveying	3.07	8	15	4	1
#12 Project Delivery	3.43	13	14	1	0
#13 Risk Management	3.29	10	16	2	0
#14 Acct. & Cost Control	2.93	6	14	8	0
#15 QA/QC	3.25	10	15	3	0
#16 Project Control	3.07	5	20	3	0
#17 Legal	3	7	14	7	0
#18 Sustainable	3.04	8	13	7	0
#19 Structural Principles	2.93	9	9	9	1
#20 MEP	3.07	8	14	6	0

6. Indirect Assessment of Student Learning Outcomes via Industry/Alumni Surveys

A sample of 15 industry representatives were surveyed. Representatives were asked to rate the performance of graduates they had hired on each of the 20 student learning outcomes. The table below summarizes the responses collected. An average score out of 4 is provided as well as the number of responses for each option ("Very good", "Good", "Poor", "Very Poor"). To avoid fatigue, the employer survey is conducted every 3 years. This data was collected in 2018.

SLO	Average	4- Very Good	3- Good	2- Poor	1- Very Poor
#1 Written Communication	3.33	5	10	0	0
#2 Oral Presentations	3.07	3	10	2	0
#3 Safety Plan	2.73	0	11	4	0
#4 Cost Estimates	2.73	1	9	5	0
#5 Project Schedules	2.53	0	9	5	1
#6 Ethics	3.33	6	8	1	0
#7 Documents	3.33	6	8	1	0
#8 Materials & Methods	3.00	3	9	3	0
#9 Multi-Disciplinary Team	3.13	4	9	2	0
#10 Electronic Technology	3.33	5	10	0	0
#11 Surveying	2.60	1	8	5	1
#12 Project Delivery	3.07	4	8	3	0
#13 Risk Management	2.73	1	10	3	1
#14 Acct. & Cost Control	2.47	0	8	6	1
#15 QA/QC	2.73	1	10	3	1
#16 Project Control	2.87	2	9	4	0
#17 Legal	2.60	0	9	6	0
#18 Sustainability	3.20	4	10	1	0
#19 Structural Principles	2.93	1	12	2	0
#20 MEP	2.73	0	4	11	0

7. Strategic Plan Progress

In May 2019 the Division approved a strategic plan, this summarizes the progress towards those efforts in the 2020/2021 year.

Division

Goal 1: We will focus on construction industry relevance and strong relationships, producing a diverse group of graduates that add value to their employers. (3 Objectives)

Objective 1: Ensure the long-term strength of the division through endowments that facilitate faculty and student success.

Strategy: The Division Director with the Dean's office will facilitate the administration of a fund raising program that meets the operational needs of the division, faculty, and students.

1. Fall 2019 - Create an inventory of operational and academic needs
2. Fall 2019 – Set goals for new and existing endowments
3. Spring & Summer 2020 - Identify potential contributors to endowments
4. Fall 2020 - Publish the operational needs of the department to the slate of potential contributors.

Metrics: By Spring 2025 the strategy items have been accomplished.

This objective has only partially been met. The College has not had an advancement (development) officer for more than a year now. The vacancy in that position has paused most fund raising. Advancement has continued as a new scholarship (Haywood) was endowed this year, A VDC endowment was created to support the BIM+Viz lab, and another endowed scholarship (Goldsby) agreement has been reached and will fully fund in 3 years. Securing the last of the funds for the MEP Fellowship continues linger, a verbal agreement was given in Spring 2019 but with the onset of COVID the donor went silent.

Objective 2: Maintain an effective online presence to market our brand to current, former, and prospective students as well as construction companies and the public at large about the division.

Strategy: The Division faculty, will facilitate and maintain an effective and up to date web-based presence for the department via the website and social media.

1. At the beginning of each semester faculty will review the website for accuracy and necessary updates.
2. Fall 2019 – All faculty will be given administrative access to division social media accounts so updates can be made by any faculty member.
3. Spring 2020 – Faculty will determine if additional social media accounts should be established.

Metrics: By Summer 2021 the department will be consistently evaluating the website, and making weekly social media posts.

This objective is ongoing, and has partially been met.

The Faculty has reviewed the website for updates as planned, and faculty with social media accounts have access to the division accounts. The faculty investigated adding additional social media accounts (Instagram, twitter, etc.) and decided our presences would be limited to facebook and LinkedIn. Weekly posts have been inconsistent as activities have been limited due to the pandemic.

Objective 3: Facilitate opportunities for students to interact with construction industry professionals, especially Professional Advisory Board (PAB) member companies.

Strategy: The Director and faculty will plan and execute opportunities to engage construction industry professionals within the program.

1. Continue hosting summer luncheons for PAB members in OKC and DFW.
2. Continue hosting annual golf tournament in Norman & TopGolf in DFW for any construction industry professional.
3. Continue hosting career fairs each semester.
4. Include at least one guest speaker from the construction industry in 50% of CNS course each semester.

Metrics: The PAB consistently has 20 dues-paying members. Every student will have at least 6 opportunities to interact with industry professionals each year.

This objective was met.

The PAB has 27 members and while they have not always been in person, students have had 6 opportunities to interact with industry.

Summer luncheons for the PAB were held in the summer of 2021. The Annual golf tournament and TopGolf events were canceled due to COVID this year, we hope to host them in 21-22. Career fairs were held virtually this year. More than 50% of classes had guest speakers from the construction industry.

Objective 4: Advance Diversity Equity and Inclusion in the construction industry.

Strategy: The Director and faculty will incorporate materials focused on DEI in CNS courses

1. Introduce all students to the AGC Culture of Care Pledge.
2. Use the AGC's Culture of Care Toolbox series in multiple classes.
3. Produce "spotlights" on individuals from underrepresented groups in construction leadership positions to be displayed around Gould Hall.
4. At least 25% of guest speakers in CNS classes will be from underrepresented groups or Disadvantaged Business Enterprise (DBE) designated firms.

Metrics: All upper level CNS students are exposed to 3 modules of Diversity Equity and Inclusion instruction and/or discussion related to the construction industry in class as well as informally.

This objective has been partially met.

The faculty added this objective to our strategic plan and created a plan for implementation in the Spring of 2021. The DEI modules have been identified and are in process of inclusion in classes.

Undergraduate

Goal 2: We will provide an educational experience for students to develop the knowledge and skills to be a contributing construction professional. (4 Objectives)

Objective 1: Maintain consistent teaching assignments for faculty

Strategy: The Division Director will keep faculty teaching assignments consistent to facilitate the continued development and improvement of courses by faculty. Any changes in teaching assignments will include feedback from the faculty involved.

1. Changes in teaching assignments will originate with discussion between all faculty affected
2. The director will include discussion about teaching assignments in annual evaluation meetings

Metrics: By Spring 2020 the division will have made any necessary curricular changes and teaching assignments made will be held consistent through 2024.

Overall this objective has been met.

With the departure of Dr. Perrenoud in 2019, and subsequent restructuring of Bryan Bloom as a RRT Assistant Professor and Johnny Gaffney as a Lecturer in Spring of 2021, some teaching assignments changed in 2020-2021 however they were made with faculty input and should remain consistent through 2024

Objective 2: Maintain accreditation, and submit annual OU assessment materials.

Strategy: The Division Director will oversee the collection of assessment material to ensure appropriate data is available for the accreditation process.

1. Spring 2019 – submit reaccreditation self-study.
2. In Fall 2019 – reaccreditation visit.
3. In 2020 curricular changes will be assessed by the faculty and decisions made regarding changes deemed necessary.
4. Every Fall semester – Submit OU assessment report.
5. Respond with Interim Reports as required by accreditation body.

Metrics: Accreditation is maintained and OU assessment metrics meet or exceed expectations in all categories.

To date this objective has been met.

Ongoing assessment reports to OU and ACCE are in process yearly.

Objective 3: Introduce and apply currently used technology in the construction industry to our students.

Strategy: The faculty will facilitate the integration of technology in their courses.

1. Ongoing - Facilitate professional development and provide technology support to faculty to ensure a baseline proficiency in technology.
2. 2020 - Each faculty will identify opportunities for technology integration and implementation in their courses.

Metrics: Faculty will report back in subsequent faculty meetings what they did and their perception of the outcome.

This objective is in process.

In 2020 faculty reported back on their technology usage in class. In Summer of 21, Adjunct Faculty Nils Gransberg attended a VDC bootcamp hosted by Cal Poly San Luis Obispo which is triggering a course by course discussion of technology usage and integration in their classes in the Fall 2021 Faculty meetings.

Objective 4: Continue to provide project-based courses within the curriculum, and encourage interdisciplinary collaboration.

Strategy: An environment conducive to interdisciplinary collaboration and project-based courses will be maintained with the Director following up with faculty regarding collaboration and projects in their individual courses.

1. 3000 level and above CNS courses will be limited to 40 students.
2. GA/TA support will continue to be provided.
3. Faculty will maintain Industry involvement to secure projects

Metrics: Students will have at least 6 project-based CNS courses.
Students will have multiple points of interdisciplinary collaboration.

This objective is in process and is being met.

Research and Scholarly Activity

Goal 3: We will advance the body of knowledge related to the AEC industry. (2 Objectives)

Objective 1: Improve the scholarly output of graduate students.

Strategy: An elevation of expectation for graduate student productivity will be prioritized.

1. Each Fall – New students will complete a research methods course and identify a potential topic for their thesis or special study project that is aligned with a faculty member's research interest.
2. Ongoing – Graduate student projects and/or thesis will be submitted to a peer reviewed publication.

Metrics: Faculty meet at least half of their annual research expectations through their graduate student advising.

This objective is being met and is ongoing.

Objective 2: Continue production of publications in peer-reviewed venues and regular submissions of proposals for external funding.

Strategy: The Director will facilitate the administration of a more productive scholarship environment.

1. 2020 – Establish an incentive program for increased research productivity.
2. Yearly – The Director will meet with faculty to discuss their personal scholarship goals.

Metrics: Tenure/tenure-track faculty shall publish in peer reviewed journals on an annual basis. Division will secure at least \$100k/year in external funding.

This objective is being met, and is ongoing.

IN 2020-2021, the incentive program was established and approved and will be implemented in the 2021 annual review process.

Service

Goal 4: We will engage with regional and national professional and academic organizations related to the construction industry. (1 Objectives)

Objective 1: Faculty will serve in leadership positions with professional and/or external academic organizations.

Strategy: Identify organizations with which to engage

1. Ongoing – Faculty engage with organizations through meeting and conference attendance
2. Ongoing – faculty serve on committees
3. Ongoing – faculty seek leadership roles on the committees in which they serve
4. Yearly – The director will meet with faculty to discuss their progress towards this goal

Metrics: Each year, at least one faculty member is serving in a leadership role on a committee or with an organization.

This objective has been met, and is ongoing.

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