

Colorado State University

Department of Construction Management

**Report on 2022 Two-year
Complete SLO Review**

January 2022

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Summary of the ACCE Assessment of the Construction Management Undergraduate Program

The Assessment Plan of the Bachelors of Science (B.S.) in Construction Management program at Colorado State University ensures continuous improvement of the program and its effectiveness in preparing students for the employment within the construction industry. Our program uses the following American Council for Construction Education (ACCE) Student Learning Outcomes (SLOs) to assess student learning.

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.

Assessment Tools for Measuring SLOs

Each SLO is assessed by at least one Direct Assessment tool and at least one Indirect Assessment tool. Direct Assessment is conducted via the assessments tools such as exams, assignments, presentations, and quizzes used in the specific required courses in which particular SLOs are assessed. For the Indirect Assessment, we use the Senior Exit Survey and Employer Survey. Senior Exit survey is conducted at the end of semester while the Employer Survey is distributed at the Fall and Spring Career Fairs. Data collection for both the Direct and Indirect assessments is conducted on a semester-basis, that is, in the fall and spring semesters. The collected data are evaluated by the Assessment Committee at the end of each collections cycle, while the complete review of the SLOs occurs every two years for all 20 SLOs.

Curriculum Mapping of 20 ACCE SLOs in the required CM courses (DA) and Indirect Assessment Tools (IA)

ACCE Student Learning Outcome (SLO) Matrix - Colorado State University - Department of Construction Management - Undergraduate Program
as of February 2022 (after two year review)

No.	Course Title	SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 6	SLO 7	SLO 8	SLO 9	SLO 10	SLO 11	SLO 12	SLO 13	SLO 14	SLO 15	SLO 16	SLO 17	SLO 18	SLO 19	SLO 20
		written	oral	essay	exam.	sketch	photos	design	math/graph	exam	IT	survey	delivery	role	exam	QA/QC	control	contract	submittal	structure	MEP
101	Introduction to Construction Management												DA						DA		
131	Graphic Communications for Construction																				
151	Construction Materials and Methods	DA							DA												
192	Construction Management Seminar																				
211	Materials, Testing and Processing																				
215	Surveying and Construction Layout											IA									
265	Plan Reading and Quantity Survey																				
267	Construction Management Pre-sternship																				
317	Safety Management			DA														DA			
353	Field Management for Construction																				
358	Structural Systems for Construction I																				DA
360	Electrical Systems in Construction																				DA
361	Construction Estimating		IA																		
366	Construction Equipment and Methods		IA																		
367	Construction Contracts & Project Administration		IA																		
371	Mechanical and Plumbing Systems																				DA
459	Structures II																				
458	Structural Systems for Construction II																				DA
461	Construction Scheduling and Cost Control																				
462	Industrial Management for Construction																				
465	Construction Management Professional Practice	DA	DA																		
469	Soil Mechanics for Construction																				
487	Surveying																				
	TOTAL	3	7	2	1	2	2	2	2	1	1	2	2	2	1	1	1	1	1	2	2
	Senior Exit Survey	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
	Employer Survey	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA
	Alumni Survey	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA

DA = Direct Assessment IA = Indirect Assessment

DA = Implemented in Spring 2022

IA = Starting in Fall 2022

Performance Criteria for Student Learning Outcomes (SLOs)

We established performance criteria (targets) for each assessment tool that is used to assess specific SLOs. For the Direct Assessment tools (e.g. exams, assignments, quizzes, presentations) used to measure 20 SLOs the performance criteria differ for each assessment tool. They are expressed in a format of 'percent of students meeting the specific target' (e.g. "80% of students will earn 80% or higher"). For the Indirect Assessment tools, the following targets are used for Senior Exit Survey (80% of students thought they were moderately, very or extremely prepared for a specific SLO) and for Employer Survey (80% of the employers thought our students that they hired in last two years were moderately, very or extremely prepared for a specific SLO).

Evaluation Methodology for Direct Assessment SLO Data

Direct Assessment SLO data are reviewed by the Assessment Committee at the end of Fall and Spring semesters for the completion of the data and identification of the SLOs for which the targets (performance criteria) are not met. The Assessment Committee keeps track of these notes and then reviews them at the end of the two-year period during the complete review of SLOs. The two-semester SLO data (e.g. Spring and Fall in a calendar year) are presented in an annual report that is posted on the Department website and shared with other stakeholders (e.g. students, Professional Advisory Development Board (PADB), public) and also discussed with the faculty in the Department's regular meetings in Spring. A complete assessment review of SLO data is performed every two years when we analyze the courses in general, SLOs assessed in courses, assessment tools used to measure SLOs achievement (such as assignments, quizzes, exams, etc.), the expected SLO performance criteria (targets), and determine action items to address SLOs as needed and how a particular course could be improved. If corrective action is needed based on the complete review, changes are made at the two-year time interval.

Evaluation Methodology for Indirect SLO Assessment Data

The Indirect SLO Assessment data collected via Senior Exit Survey and Employer Survey are evaluated every semester by the Assessment Committee. If the expected targets are not met, the Committee discusses the potential reasons. The annual report prepared by the Assessment Committee Chair summarizes the two-semester Indirect SLO data (e.g. Spring and Fall in a calendar year) and is posted on the Department website and, therefore, shared with other stakeholders (e.g. students, Professional Advisory Development Board (PADB), public). Annual evaluation of the data is done by discussing the annual report with the faculty and staff in the Department's regular meetings in Spring. A complete review for SLO indirect assessment data is performed by the assessment committee every two years in January. If there is a need to complete an additional review (e.g. some targets are not met) the committee reaches out to industry (that is, the PADB or the Curriculum Committee of the PADB).

Executive Summary of Two-year Complete SLO Review January 13 and 14, 2022

Per Department of Construction Management Quality Improvement Plan (QIP) for the continuous improvement of our undergraduate program, a complete review of 20 Student Learning Outcomes (SLOs) is performed every two years (that is, four semesters) in order to evaluate collected SLO data.

We conducted the second two-year complete review on January 13 and 14, 2022 including the collected assessment data for the following four semesters: Spring 2020, Fall 2020, Spring 2021 and Fall 2021. The Assessment Committee met with the faculty that have previously taught, will be teaching, or potentially could teach the courses in which the 20 SLOs are assessed. The committee asked faculty to review the past, four-semester, SLO data collected for the courses before the meeting and then during the meeting discuss and provide feedback on the following questions:

1. Are there any concerns or issues with the current SLOs assigned to the course? If Yes – what and why?
2. Are the current SLO assignments working? If No – what should be changed and why?
3. Are the current SLO targets appropriate? If No – what should be changed and why?
4. Even if course targets are met how will faculty address and document continual course improvement?
5. Is there an existing assessment or could an individual assessment be added to the course that could address any of the followings SLOs:
 - a) SLO3: Create a construction project safety plan.
 - b) SLO 6: Analyze professional decisions based on ethical principles.
 - c) SLO14: Understand construction accounting and cost control.

The Assessment Committee reviewed 19 courses in which the SLOs are assessed and decided together with the faculty teaching these 19 courses:

- If the existing SLOs in a course should be kept or need to be removed (e.g. a course does not reflect or assess well this SLO or SLO is covered better in another course), or a new SLO needs to be added to a course.
- If the existing SLO assignment (i.e. assessment tool) needs to be modified or removed, or if a different existing assignment should be used to assess a specific SLO; if the existing assignment is at the level of Bloom Taxonomy required by an SLO; or if a new assignment needs to be created and added to assess either the existing SLO or the newly added SLO.
- If the existing SLO targets need to be modified and, if so, what the new targets should be.
- Even in the case the existing SLOs are appropriate for a course and the existing assignments are working, what additional improvements of the course could be made (such as keeping it up-to-date).

After the meeting, the meeting notes taken by the Assessment Committee member were posted on the Department's P: drive and faculty were asked to review these notes for accuracy.

This course review meeting provided an opportunity to analyze the courses in general, SLOs assessed in courses, assessment tools used to measure SLOs achievement (such as assignments, quizzes, exams, etc.) and the expected SLO performance criteria (targets). Based on this analysis, we also determined action items as needed to address any concerns related to SLOs.

In addition, the Assessment Committee reviewed the SLO Matrix to ensure that all the decisions made during the SLO review with faculty are reflected in the matrix (such as adding or removing SLOs from specific courses). During this review the committee also double checked that every SLO is assessed with at least one direct assessment tool.

In the 2022 complete SLO review meeting, it was decided to start using Alumni Survey as an indirect assessment tool too. Alumni survey is done every five years and their analysis will begin in Fall 2022.

The following pages show 20 SLO data, instructor rationale for targets not met, and action items.

SLO 1

Create Written Communications Appropriate to the Construction Discipline

This SLO is assessed with three direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 1		Create written communications appropriate to the construction discipline			2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 151	Construction Materials and Methods	Concrete Failures Assignment	80% of students will earn 70% or higher	90.5%	82.9%	92.38%	92.74%
	CON 465	Construction Management Professional Practice	Contract Type Proposal	80% of students will earn 80% or higher	88.6%	82.4%	96.97%	76.14%
	CON 469	Soil Mechanics for Construction	Geotechnical Report/Lab Report	80% of students will earn 80% or higher	Faculty retired and did not provide data, COVID	96.8%	91.44%	94.05%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	98.3%	99.1%	94.4%	96.5%	
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	96.7%	100.0%	94.1%	100.0%	

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 465, Fall 2021, Contract Type Proposal: Several students provided good work, however they exceeded the word count and/or page count which landed them with a 70% on the assignment.

Action Items:

CON 151, January 2022 two-year review: SLO assessment tools were reviewed in the January 2022 two-year review meeting and it was decided to use new assignment (Concrete Forensics Scenario) instead of Concrete Failures Assignment to assess SLO 1. Target for this assignment will be determined based on the students' performance in Spring 2022 since this is the first time this new assignment will be used for assessing SLO 1 in CON 151.

CON 465, January 2022 two-year review: No action was made in Fall 2021, targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The target was not met only in Fall 2021.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 2

Create Oral Presentations Appropriate to the Construction Discipline

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 2		Create oral presentations appropriate to the construction discipline		2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 317	Safety Management	Safety Moment (Briefings) 80% of students receive 90% or better (from SP 18 - Fall 19) 80% of students will earn 80% or higher (since SP 20)	100.0%	92.4%	71.86%	91.00%
	CON 465	Construction Management Professional Practice	RFP Proposal presentation 80% of students will earn 80% or higher	Not measured, the assessment tool added in FA 20	98.2%	97.30%	89.91%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO 80% of students thought they were moderately, very or extremely prepared	98.3%	98.2%	91.7%	98.8%
	Employer Survey		Question on how employer perceive students being prepared for this SLO 80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	86.2%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 317, Spring 2021, Safety Moment (Briefings): CON 317: Just a very challenging semester for student engagement. Poor attendance, poor participation, generally there were more students who struggled with the material, even though material delivery had been proven in prior semester, even with Covid requirements for hybrid delivery.

Action Items:

CON 317, January 2022 two-year review: No action was made in Fall 2021. Instructor does not feel this assignment best fits purpose of SLO, difficult having enough time for all students, does not have enough room in the class to make this work the way it should. It was decided to remove SLO 2 and, therefore, not use Safety Moment assignment to assess SLO 2 in CON 317.

CON 365, January 2022 two-year review: We will explore if SLO 2 could be assessed in CON 365, effective Fall 2022. It is currently also assessed in CON 465 but we would like to assess it in at least one more course.

CON 367, January 2022 two-year review: Instructors of CON 367 agreed to explore if SLO 2 could be assessed in CON 367, effective Fall 2022. It is currently also assessed in CON 465 but we would like to assess it in at least one more course.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 3

Create a Construction Project Safety Plan

This SLO is assessed with one direct assessment (DA) measure and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 3		Create a construction project safety plan		2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 317 Safety Management	Individual Project Safety Plan	80% of students receive 90% or better (from SP 18 - Fall 19)	84.2%	86.1%	79.17%	75.72%
			80% of students will earn 80% or higher (since SP 20)				
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	93.2%	96.5%	90.3%	96.5%
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	82.6%	100.0%	100.0%	92.3%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 317, Spring 2021, Individual Project Safety Plan: Just a very challenging semester for student engagement. Poor attendance, poor participation, generally there were more students who struggled with the material, even though material delivery had been proven in prior semester, even with Covid requirements for hybrid delivery.

CON 317, Fall 2021, Individual Project Safety Plan: Poor attendance and engagement.

Action Items:

CON 317, January 2022 two-year review: No action was made in Spring 2021 and Fall 2021. Targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The actual values were slightly below the target in Spring 2021, and within 5% of the target in Fall 2021.

CON 366, January 2022 two-year review: SLO 3 assessment process/tools were reviewed during the January 2022 two-year review meeting and it was decided to develop a new assessment tool (Crane Safety Plan) to assess SLO 3 in CON 366 in addition to assessing it in CON 317, effective Spring 2022.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 4

Create Construction Project Cost Estimates

This SLO is assessed with three direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 4		Create construction project cost estimates			2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 360	Electrical Systems in Construction	Electrical Project #2 CHS (Estimate)	80% of students will earn 80% or higher	94.5%	New faculty, COVID semester, no data submitted	100.00%	86.56%
	CON 365	Construction Estimating	Project #2 Change Order Estimate	80% of students will earn 80% or higher	71.5%	73.8%	85.14%	89.17%
	CON 366	Construction Equipment and Methods	Dozer-Scraper Production	85% of students will earn 80% or higher	100.0%	88.2%	94.92%	91.07%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	100.0%	93.9%	88.9%	92.9%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	80.0%	82.6%	100.0%	86.7%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 365, Spring 2020, Project #2 Change Order Estimate: Some students were confused due to the online instruction (COVID).

CON 365, Fall 2020, Project #2 Change Order Estimate: We were virtual by this point and several students seemed disengaged (COVID).

Action Items:

CON 365, January 2022 two-year review: No action was made in Spring 2020 and Fall 2020, targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 5

Create Construction Project Schedules

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 5 Create construction project schedules				2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)		Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 366	Construction Equipment and Methods	Equipment cycle times	85% of students will earn 80% or higher	100.0%	93.4%	96.61%	96.65%
	CON 461	Construction Scheduling	Exam 1	80% of students will earn 80% or higher	88.2%	54.0%	70.45%	76.17%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	94.9%	88.6%	80.6%	91.8%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	66.7%	87.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 461, Fall 2020, Exam 1: COVID. The exam was set up to be taken online in Canvas, which was difficult to set up in a similar fashion to an in-person exam. Also, exam was open book and open note, but seemed like students did not study and only took a portion of the allotted time to complete the exam. Different situation than previous in-person semesters.

CON 461, Spring 2021, Exam 1: Online exam due to COVID-19. Students did not use the entire time allotted.

CON 461, Fall 2021, Exam 1: COVID and hybrid delivery of the course.

Action Items:

CON 461, January 2022 two-year review: No action was made in Fall 2020, Spring 2021, Fall 2021. Targets were reviewed in the January 2022 two-year review meeting. It was concluded that target for Exam 1 was set too high (80% of students receive 80% or better) and was not reflective of student

performance. Target was changed to: 75% of students receive 80% or better, effective Spring 2022. Regarding the assessment tool, CPM schedule was included in Exam 1.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data meet the expected targets. There are no concerns, and thus, no action items at this time. For the Employer Survey, the target was not met in Spring 2020 when we assessed it for the first time, but after that we noticed upward trends of the values.

SLO 6

Analyze Professional Decisions Based on Ethical Principles

This SLO is assessed with one direct assessment (DA) measure and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 6		Analyze professional decisions based on ethical principles			2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 367 Construction Contracts/Project Administration	Ethical Dilemma Homework Assignment	90% of students will earn 80% or higher	100.0%	100.0%	98.96%	96.43%	
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	97.4%	95.8%	95.2%	
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	92.6%	100.0%	100.0%	100.0%	

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Action Items:

CON 367, January 2022 two-year review: SLO 6 assessment tool and targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same assignment and targets.

CON 465, January 2022 two-year review: Instructor of CON 465 agreed to explore if SLO 6 could be assessed in CON 465, effective Fall 2022. It is currently assessed in CON 367 but we would like to assess it in at least one more course.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 7

Analyze Construction Documents for Planning and Management of Construction Processes

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 7		Analyze construction documents for planning and management of construction processes		2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 265	Plan Reading and Quantity Survey	Final Comprehensive Exam (subset of documents related questions)	80% of students will earn 80% or higher	97.9%	94.9%	97.17%	76.25%
	CON 351/353	Construction Field Management / Field Management for Construction	Site Logistics Plan (Since SP20)	75% of students will earn 80% or higher	65.8%	77.9%	81.65%	75.31%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	98.2%	98.6%	100.0%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	88.5%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 351/353, Spring 2020, Site Logistics Plan: Some students experienced issues with software due to virtual teaching.

CON 265, Fall 2021, Final Comprehensive Exam (subset of documents related questions): This course was a new prep for the instructor, and that certainly may have contributed to the outcome. Additionally, the instructor has attempted to create a new exam, which is disconnected with the set of drawings that may soon be archived. At the same time, the instructor worked to raise the level of rigor in this course. As such, a new, harder exam will certainly create need for refinement of that assessment method, the questions, and the instruction. Finally, the instructor feels strongly that many students have come into this course unprepared for the rigors expected of a college sophomore.

Action Items:

CON 265, January 2022 two-year review: No action was made in the Fall 2021 semester. Targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 351/353, January 2022 two-year review: Assessment tool and targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The Site Logistics Plan assignment was first used for SLO 7 assessment in Spring 2020 when targets were not met but student performance improved starting Fall 2020.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 8

Analyze Methods, Materials, and Equipment Used to Construct Projects

This SLO is assessed with three direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 8		Analyze methods, materials, and equipment used to construct projects			2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 151	Construction Materials and Methods	Concrete Failures Assignment	80% of students will earn 70% or higher	90.5%	81.0%	92.38%	93.40%
	CON 251	Materials Testing and Processing	Materials - Concrete Slump & Compression Test Lab	80% of students will earn 80% or higher	93.4%	95.4%	87.63%	96.04%
	CON 371	Mechanical and Plumbing Systems	Plans & Specification Assignment	80% of students will earn 80% or higher	82.2%	93.3%	88.45%	76.58%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	96.5%	94.4%	95.3%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	85.2%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 371, Fall 2021, Plan and Specifications Assignment: Many students missed class were not afforded content knowledge required for this assignment.

Action Items:

CON 151, January 2022 two-year review: SLO assessment tools were reviewed in the January 2022 two-year review meeting and it was decided to use new assignment (Concrete Forensics Scenario) instead of Concrete Failures Assignment to assess SLO 8. Target for this assignment will be determined based on the students' performance in Spring 2022 since this is the first time this new assignment will be used for assessing SLO 8 in CON 151.

CON 251, January 2022 two-year review: SLO assessment tools were reviewed in the January 2022 two-year review meeting and it was decided to change the language of the assignment but assignment is still

assessing knowledge/understanding of the same content. This assignment is the most construction material related. Additionally, it was decided to change targets for "Materials - Concrete Slump & Compression Test Lab Report" from "80% of students will earn 80% or higher" to "85% of students will earn 80% or higher", effective Spring 2022.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey data and Employer Survey Data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 9

Understand the Role of the Construction Manager as a Member of Different Multi-Disciplinary Project Teams

This SLO is assessed with one direct assessment (DA) measure and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 9		Understand the role of the construction manager as a member of different multi-disciplinary project teams		2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 465 Construction Management Professional Practice	Contract Type Proposal	80% of students will earn 80% or higher	68.4%	77.8%	87.6%	80.69%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	98.2%	97.2%	97.7%
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	92.9%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 465, Spring 2020, Contract Type Proposal: In lecture the instructor briefly reviewed contracts with the students prior to the assignment but reading their papers, it seems as though they don't have a firm grasp on the differences in risk vs. reward, amongst the differing parties in the fixed, GMP and cost + contract scenarios. Given this info, the instructor believes he would need to allocate more lecture time to this subject if we are going to meet the SLO goals and or lower expectations of students meeting the goals.

CON 465, Fall 2020, Contract Type Proposal: Several students put minimal effort into the assignment and did not receive a passing grade.

Action Items:

CON 465, January 2022 two-year review: No action was made in the Spring 2020 and Fall 2020 semesters. The assessment tool was used for the first time in Spring 2020, while in Fall 2020, actual performance was 2.2% below the expected target (80%). Targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 101, January 2022 two-year review: In the January 2022 two-year review meeting, instructors of CON 101 agreed to add SLO 9 in CON 101 and develop a new assignment to assess SLO 9 in Spring 2022.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.





SLO 10

Apply Electronic-based Technology to Manage the Construction Process

This SLO is assessed with three direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 10		Apply electronic-based technology to manage the construction process		2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 131	Graphic Communications for Construction	Revit Project 1 (AutoCAD Draw Assignment only in SP20 due to COVID)	70% of students will earn 85% or higher	89.1%	85.4%	91.69%	72.34%
	CON 365	Construction Estimating	Lab Exercise #3 - On-screen takeoff exercise	80% of students will earn 80% or higher	90.8%	95.7%	86.62%	79.06%
	CON 461	Construction Scheduling	Lab Assignment (Asta or Microsoft Project)	80% of students will earn 80% or higher	87.6%	91.1%	89.53%	100.00%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	98.3%	96.5%	91.7%	87.2%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	96.6%	100.0%	100.0%	94.1%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 365, Fall 2021, Lab Exercise #3, On-screen takeoff exercise: The instructor believes we are seeing a significant disengagement of students from their coursework. And since this is a lab course that requires their in-person attendance, students are not used to this attendance requirement.

Action Items:

CON 365, January 2022 two-year review: No action was made in Fall 2021, targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The target was not met only in Fall 2021 and its actual value was within 1%.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.





SLO 11

Apply Basic Surveying Techniques for Construction Layout and Control

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (DA) measures as shown in the table below. The table shows two-year data.

SLO 11		Apply basic surveying techniques for construction layout and control		2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 261/253	Construction Surveying / Surveying and Construction Layout	Field Final Exam (full exam) (Assessment changed to Traverse Computation Assignment for FA20 only due to move to online instruction for COVID-19)	75% of students will earn 80% or higher	81.3%	70.0%	93.79%	97.22%
	CON 351/353	Construction Field Management / Field Management for Construction	New assignment to be implemented in CON353 in SP22	TBD	New assignment to be implemented in CON353 in SP22			
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	64.4%	76.3%	65.3%	69.0%	
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	77.8%	94.7%	100.0%	92.9%	

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 261/253, Fall 2020, Assessment changed to Traverse Computation Assignment for FA20 only due to move to online instruction for COVID-19. Result is for hardest lab, and not field final exam that could not be administered due to COVID pandemic.

Action Items:

CON 261/253, January 2022 two-year review: The assessment tools were reviewed in the January 2022 two-year review meeting. It was decided to assess SLO 11 in CON 253 in Fall 2022 using two new

assessment tools: 1) a new assessment tool instead of the Final Field Exam, and 2) an additional assessment tool.

CON 353, January 2022 two-year review: SLO 11 assessment process/tools were reviewed during the January 2022 two-year review meeting and it was decided to develop a new assignment (Layout Lab Quiz) to assess SLO 11 in CON 353, effective Spring 2022.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data did not meet the expected targets. The reason for this might be that students preferred more building construction-oriented surveying course. We are going to continue monitoring the data. For the Employer Survey, the target was not met in Spring 2020, when we assessed it for the first time. However, the actual values were at 77.8%, that is, within 3% of target. After Spring 2020, we noticed upward trends of the values.

SLO 12

Understand Different Methods of Project Delivery and the Roles and Responsibilities of All Constituencies Involved in the Design and Construction Process

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 12		Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process		2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 101	Introduction to Construction Management	Final Exam (subset of delivery related questions)	70% of students will earn 80% or higher	69.9%	72.0%	75.0%	83.27%
	CON 367	Construction Contracts/Project Administration	Post-Case Study Analysis	75% of students will earn 80% or higher	98.2%	100.0%	97.9%	95.24%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	98.3%	99.1%	98.6%	98.8%	
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	72.0%	100.0%	100.0%	100.0%	

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 101, Spring 2020, Final Exam (subset of delivery related questions): Topic covered in first weeks of semester, assessed at end of semester. Exam review was not well attended since moving to online format.

Action Items:

CON 101, January 2022 two-year review: No action was made in Spring 2020 semester. The actual values were slightly below the expected values in Spring 2020 and above the expected values in the following semesters indicating improvement. Assessment tool and targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same assessment tool and targets.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data meet the expected targets. There are no concerns, and thus, no action items at this time. For the Employer Survey, the target was not met in Spring 2020 when we assessed it for the first time, but after that we noticed upward trends of the values.

SLO 13

Understand Construction Risk Management

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 13 Understand construction risk management				2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 317	Safety Management	Safety Risk Assessment/Job Hazard Analysis (JHA)	80% of students will earn 80% or higher	95.4%	93.4%	83.5%	76.01%
	CON 462	Financial Management for Construction	Final Exam (risk questions)	80% of students will earn 80% or higher	94.4%	85.9%	76.56%	90.06%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	100.0%	95.6%	90.3%	96.5%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	69.2%	95.5%	93.8%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 462, Spring 2021, Final Exam (risk questions): The lectures on Risk were delivered asynchronous, near the end of the semester, post spring break. This format, and the COVID conditions were not conducive to effective teaching and learning.

CON 317, Fall 2021, Safety Risk Assessment/Hazard Analysis (JHA): Poor attendance and engagement.

Action Items:

CON 317, January 2022 two-year review: No action was made in Fall 2021 semester. The actual values were 4% below the targets only in Fall 2021. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 462, January 2022 two-year review: No action was made in Spring 2021 semester. The actual values were 3.5% below the targets only in Spring 2021. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data meet the expected targets. There are no concerns, and thus, no action items at this time. For the Employer Survey the target was not met in Spring 2020 when we assessed it for the first time, but after that we noticed upward trends of the values.

SLO 14

Understand Construction Accounting and Cost Control

This SLO is assessed with one direct assessment (DA) measure and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 14 Understand construction accounting and cost control				2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 462 Financial Management for Construction	Final Exam (accounting and EVA questions)	80% of students will earn 80% or higher	88.8%	84.0%	76.6%	86.08%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	93.2%	86.8%	80.6%	88.2%
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	59.3%	91.3%	100.0%	92.9%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 462, Spring 2021, Final Exam (accounting and EVA questions): The lectures on accounting were delivered in the first few weeks of the semester in an asynchronous format. The instructor does not believe that this format is effective for engaging students who are accustomed to in-person learning.

Action Items:

CON 462, January 2022 two-year review: No action was made in Spring 2021 semester. The actual values were 3.5% below the targets only in Spring 2021. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data meet the expected targets. There are no concerns, and thus, no action items at this time. For the Employer Survey, the target was not met in Spring 2020 when we assessed it for the first time, but after that we noticed upward trends of the values.

SLO 15

Understand Construction Quality Assurance and Control

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 15 Understand construction quality assurance and control				2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)		Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 371	Mechanical and Plumbing Systems	Final Exam (QC Testing Questions)	80% of students will earn 80% or higher	89.5%	100.0%	91.1%	69.97%
	CON 469	Soil Mechanics for Construction	Lab: Sand Cone Test	80% of students will earn 80% or higher	Missing data, COVID, and the faculty retired	82.8%	89.13%	98.61%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	93.9%	91.5%	97.7%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	84.6%	100.0%	100.0%	92.9%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 371, Fall 2021 (QC Testing Questions): Six students failed to turn in Assignment.

Action Items:

CON 371, January 2022 two-year review: SLO assessment tools were reviewed in the January 2022 two-year review meeting and it was decided to use new assignment (Plumbing Systems Quality Control assignment) instead of Final Exam (QC testing questions) to assess SLO 15 starting Spring 2022. Regarding Fall 2021 data that were below targets, no action was made in Fall 2021 semester. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 469, January 2022 two-year review: Targets were reviewed in the January 2022 two-year review meeting and it was decided that targets for SLO 15 (Lab: Sand Cone Test) would be changed to "80% of

students will earn 85% or higher” instead of “80% of students will earn 80% or higher”. The new target is effective Spring 2022.

CON 251, January 2022 two-year review: Assessment of SLO 15 was evaluated during 2022 two-year review meetings and it was decided to assess SLO 15 in CON 251, too. The existing “Materials - Concrete Slump & Compression Test Lab Report” assignment will be used to assess SLO 15 starting Spring 2022. Target for this assignment will be determined based on the students’ performance in Spring 2022 since this is the first time the assignment will be used for assessing SLO 15 in CON 251.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 16

Understand Construction Project Control Processes

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 16 Understand construction project control processes				2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 461 Construction Scheduling	Schedule Update & Project Controls Assignment	80% of students will earn 80% or higher	81.1%	67.7%	75.71%	75.33%
	CON 462 Financial Management for Construction	Final Exam (EVA questions)	80% of students will earn 80% or higher	84.3%	92.1%	77.81%	90.77%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	96.6%	97.3%	93.0%	95.3%
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	83.3%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 461, Fall 2020, Schedule Update & Project Controls Assignment: COVID. Difficult to teach updating in a shortened in-person class when only 60% of the students attend in person.

CON 461, Spring 2021, Schedule Update & Project Controls Assignment: Some students did not complete the Asta portion of the assignment, which is worth 20% of this assignment meaning the best they can score then is an 80%.

CON 462, Spring 2021, Final Exam (EVA questions): The instructor believes that this is an anomaly. He has to attribute this poor performance to the teaching and learning conditions of COVID.

CON 461, Fall 2021, Schedule Update & Project Controls Assignment: COVID and hybrid delivery of the course.

Action Items:

CON 461, January 2022 two-year review: No action was made in Fall 2020, Spring 2021, and Fall 2021 semesters. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 462, January 2022 two-year review: No action was made in Spring 2021 semester. The actual values were 2% below the targets only in Spring 2021. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 17

Understand the Legal Implications of Contract, Common, and Regulatory Law to Manage a Construction Project

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 17 Understand the legal implications of contract, common, and regulatory law to manage a construction project				2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 317	Safety Management	OSHA Regulatory Law Quiz 80% of students will earn 90% or higher (Fall 2018-Fall 2019) 80% of students will earn 80% or higher (since Spring 2020)	91.7%	91.5%	78.25%	76.96%
	CON 367	Construction Contracts/Project Administration	AIA Contracts Homework Assignment 85% of students will earn 85% or higher	92.6%	94.6%	98.0%	73.92%
IA	Senior Student Exit Survey	Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	94.9%	93.0%	93.1%	87.2%
	Employer Survey	Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	61.5%	85.0%	93.3%	92.9%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 317, Spring 2021, OSHA Regulatory Law Quiz: Just a very challenging semester for student engagement. Poor attendance, poor participation, generally there were more students who struggled with the material, even though material delivery had been proven in prior semester, even with Covid requirements for hybrid delivery.

CON 317, Fall 2021, OSHA Regulatory Law Quiz: Poor attendance and engagement.

CON 367, Fall 2021, AIA Contracts Homework Assignment: A few students missed this assignment and a few did not complete some parts.

Action Items:

CON 317, January 2022 two-year review: No action was made in Spring 2021, and Fall 2021 semesters since the actual values were 2-3% below the targets. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

CON 367, January 2022 two-year review: No action was made in Fall 2021 semester since the actual values were below the targets only in Fall 2021. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data meet the expected targets. There are no concerns, and thus, no action items at this time. For the Employer Survey, the target was not met in Spring 2020 when we assessed it for the first time, but after that we noticed upward trends of the values.

SLO 18

Understand the Basic Principles of Sustainable Construction

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 18 Understand the basic principles of sustainable construction				2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)		Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall
DA	CON 101	Introduction to Construction Management	Sustainability Quiz (full quiz)	70% of students will earn 80% or higher	89.7%	92.6%	96.0%	96.85%
	CON 371	Mechanical and Plumbing Systems	Sustainability assignment	80% of students will earn 80% or higher	75.1%	Not assessed - new faculty and COVID.	91.9%	98.96%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	84.7%	86.6%	87.5%	83.5%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	82.6%	94.7%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 371, Spring 2020, Sustainability Assignment: New assignment and online format did not help the topic and students understanding how important it is and will be in the future.

Action Items:

CON 371, January 2022 two-year review: No action was made in Spring 2020 semester since the actual values were below the targets only in Spring 2020 when the assignment was given for the first time. The targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 19

Understand the Basic Principles of Structural Behavior

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 19		Understand the basic principles of structural behavior			2020	2020	2021	2021
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 359/358	Structures I / Structural Systems for Construction I	Exam 3	70% of students will earn 80% or higher	87.4%	69.7%	63.2%	82.76%
	CON 459/458	Structures II / Structural Systems for Construction	Exam 3	70% of students will earn 80% or higher	70.4%	96.6%	62.7%	73.36%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	100.0%	96.5%	93.1%	96.5%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	95.7%	100.0%	100.0%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 359/358, Fall 2020, Exam 3: Long, hard exam.

CON 358, Spring 2021, Exam 3: Tests are very challenging

CON458, Spring 2021, Exam 3: Tests are very challenging

Action Items:

CON 359/358, January 2022 two-year review: No action was made in Fall 2020 and Spring 2021 semesters. Targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The target was not met in Spring 2021 while the actual values in Fall 2020 were 0.3% below the target.

CON 459/458, January 2022 two-year review: No action was made in Spring 2021 semester. Targets were reviewed in the January 2022 two-year review meeting and it was decided to keep the same targets. The target was not met only in Spring 2021.

Indirect Assessment, Semiannual Review in October 2021: Both Senior Exit Survey and Employer Survey data meet the expected targets. There are no concerns, and thus, no action items at this time.

SLO 20

Understand the Basic Principles of Mechanical, Electrical, and Piping Systems

This SLO is assessed with two direct assessment (DA) measures and two indirect assessment (IA) measures as shown in the table below. The table shows two-year data.

SLO 20		Understand the basic principles of mechanical, electrical, and piping systems		2020	2020	2021	2021	
Type	Course (DA) or Survey (IA)	Assessment Tool	Target (Performance Criteria)	Spring	Fall	Spring	Fall	
DA	CON 360	Electrical Systems in Construction	Exam 1	80% of students will earn 80% or higher	92.8%	100.0%	81.5%	82.56%
	CON 371	Mechanical and Plumbing Systems	Final Exam	80% of students will earn 80% or higher	51.9%	79.5%	59.78%	44.61%
IA	Senior Student Exit Survey		Question on how students feel prepared for this SLO	80% of students thought they were moderately, very or extremely prepared	83.1%	83.3%	79.2%	61.6%
	Employer Survey		Question on how employer perceive students being prepared for this SLO	80% of the employers thought students they hired in last two years were moderately, very or extremely prepared	68.0%	85.0%	73.3%	100.0%

COLOR LEGEND

	Not meeting the target
	Border line (within 2% of the target)
	Meeting the target (within the 7% of the target)
	High target values (within 8% and above of the target)

Rationale for targets not met:

CON 371, Spring 2020, Final Exam: Midterm was taken days before COVID-19 turn everything upside down, so instructor thinks students were not preparing for the exam well due to the dynamic and uncertain situation. Also, the final exam was taken online, which was a different situation for a final that students had to deal with, which impacted their performance.

CON 371, Fall 2020, Final Exam: First time faculty teaching the course.

CON 371, Spring 2021, Final Exam: Due to pandemic, classes were online which resulted in a lack of focus and comprehension of the material by students.

CON 371, Fall 2021, Final Exam: Poor class attendance by many students resulted in missed class lectures during semester.

Action Items:

CON 371, January 2022 two-year review: Targets were reviewed in the January 2022 two-year review meeting and it was decided that targets for SLO 20 (Final Exam) would be changed to “75% of students will earn 70% or higher” instead of “80% of students will earn 80% or higher”. We were not getting accurate reflection if students were not caring about final exam score. The new target is effective Spring 2022.

Indirect Assessment, Semiannual Review in October 2021: Senior Exit Survey data did not meet the expected targets in Spring 2021 (but the actual value was within 1% of the target) and in Fall 2021. We are going to continue monitoring this course. For the Employer Survey the target was not met in Spring 2020 and Spring 2021. Comments of the Assessment Committee: We struggle a lot with covering Mechanical class, we rotate instructors a lot. We are going to pay a lot of attention to this course.