

Clemson University Construction Science & Management (CSM) - Undergraduate Program

2025-2026 Quality/Outcome Assessment Plan

The Construction Science and Management (CSM) faculty and staff use information from program- and course-level assessment mechanisms and perception surveys to continuously evaluate and improve the quality of the program curriculum and operations. Modifications are made only after careful consideration of data obtained from all constituencies, including students, employers, alumni, advisory board members, and faculty. The continuous improvement plan for the CSM undergraduate degree program is outlined in Figure 1 below.

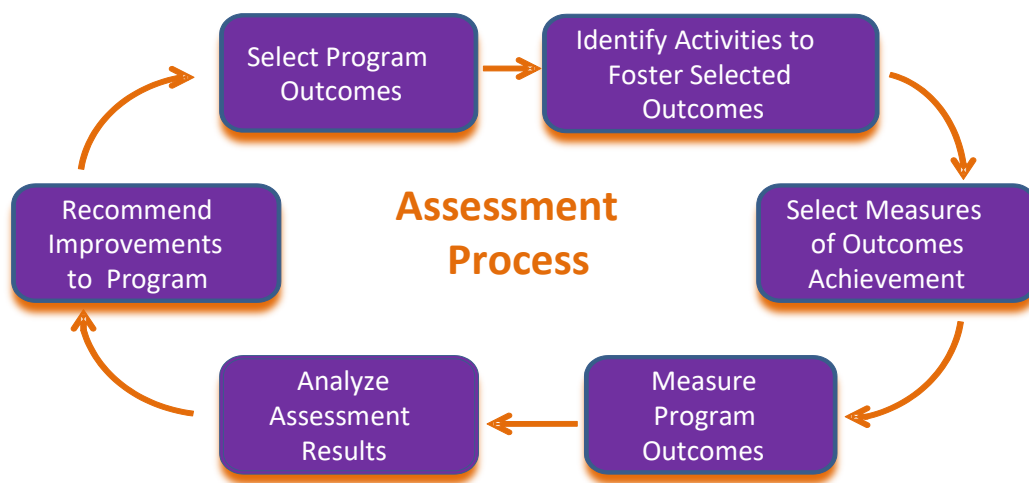


Figure 1. CSM Undergraduate Degree Program Quality/Outcome Assessment Process

CSM Undergraduate Degree Program Mission/Purpose - The mission of the Construction Science and Management undergraduate CSM degree program is to offer a comprehensive program of education, scholarly and service activities, consistent with the Mission of Clemson University and the College of Architecture, Arts and Humanities, for the purpose of improving the quality of the construction industry and thus the built environment.

CSM Undergraduate Degree Program Goals (G's)

G1: Excel in the education of undergraduate CSM majors through a vigorous program of academic learning designed to produce motivated, well-educated, responsible citizens with the management and technical skills requisite for leadership positions in the construction industry.

G2: Foster Clemson University's service mission by providing outreach activities for the construction industry and the public, both nationally and internationally.

G3: Assist in attaining Clemson University's funded research goals by conducting and disseminating the results of research and development, and/or conducting educational courses for the construction industry.

CSM Undergraduate Degree Program Objectives/Outcomes (PO's)

PO1: Oral and written communication skills - Upon graduation, students will be able to demonstrate the ability to effectively communicate orally and in writing (G1).

PO2: Practices of effective management - Upon graduation, students shall be able to describe practices of effective management of personnel, materials, equipment, costs and time (G1).

PO3: Facilitate Advancement of Knowledge - Upon graduation, students will facilitate advancement within the field of the management of construction processes by demonstrating the ability to define problems and recognize solutions; further, students will demonstrate an ability to apply creativity, teamwork and evaluation in their work (G1).

PO4: Professional Ethics - Upon graduation, students will demonstrate an understanding of professional ethics (G1).

PO5: The undergraduate program will retain its accreditation by the American Council for Construction Education (G1 & G2).

PO6: Faculty will have papers published in peer-reviewed publications (G2 & G3).

CSM Undergraduate Degree Program Student Learning Outcomes (17 ACCE SLOs):

SLO1: Create written communications appropriate to the construction discipline;

SLO2: Create oral presentations appropriate to the construction discipline;

SLO3: Create a construction project safety plan;

SLO4: Create construction project cost estimates;

SLO5: Create construction project schedules;

SLO6: Analyze professional decisions based on ethical principles;

SLO7: Analyze methods, materials and equipment used to construct projects;

SLO8: Apply electronic-based technology to manage construction projects;

SLO9: Apply basic surveying techniques for construction layout and control;

SLO10: Understand different methods of project delivery and the roles and responsibilities of all constituents involved in the design and construction process;

SLO11: Understand construction accounting and cost control;

SLO12: Understand construction quality assurance and control;

SLO13: Understand construction project control processes;

SLO14: Understand the legal implications of contract, common and regulatory law to manage a construction project;

SLO15: Understand the basic principles of sustainable construction;

SLO16: Understand the basic principles of structural behavior;

SLO17: Understand the basic principles of mechanical, electrical and plumbing systems.

Table 1 Correlations between CSM Goals, Program Outcomes, and Student Learning Outcomes

CSM Undergraduate Degree Program Goals (G 1-G 3)	CSM Undergraduate Degree Program Objectives/Outcomes (PO 1- PO 6)	CSM Undergraduate Degree Program Student Learning Outcomes (SLO 1-SLO 17)	Other CSM Undergraduate Degree Program Requirements/ Activities
G 1 – Excellent Undergraduate CSM Education	PO 1 – Effective Communication Skills	SLO 1 & SLO 2	1) Required 800 hours of Construction Industry Internship/Experiential Learning.
	PO 2 – Effective Construction Management Skills	SLO 10-SLO 17	
	PO 3 – Facilitate Advancement of Construction Management Knowledge	SLO 3-5 & SLO 7-9	
	PO 4 – Professional Ethics	SLO 6	
G 1, G 2 & G 3	PO 5 – Maintain Program National Accreditation	SLO 1-SLO 17	ACCE Accreditation
G 2 - Industry Outreach & G 3 - Research	PO 6 – Faculty Publications & Presentations		1) Annual Clemson Construction Symposium; 2) Annual CSM Alumni Golf Tournament; and 3) Faculty Publications.

Constituencies:

CSM Students, Faculty, Industry Advisory Board Members, Alumni and Employers.

Assessment Targets:

For all SLO direct measures, at least 70% of the students achieve/respond > 80% on noted assessments.
For all SLO indirect measures, through a self-reflection survey, at least 70% of students will respond with a 70% (7 out of 10) level of agreement on a Likert-based scale.

Frequency of Data Collection:

Student performance data from CSM department courses are collected and assessed annually.
CSM Alumni and Employer survey data are collected every three years (at a minimum).

Frequency of Comprehensive Program Assessment:

Comprehensive CSM Program Assessment is conducted on a three-year cycle using a minimum of three years' worth of data.

Measures:

See Figure 2 and the following pages for specific ACCE Student Learning Outcomes (SLO's), as measured and assessed annually with the prior three years of measures included.

BCSM 2025-2026 Outcome Assessment Plan

Courses / ACCE SLO's																	
	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 methods, materials, and equipment used to construct projects.	8. Apply electronic-based technology to manage the construction process.	9. Apply basic surveying techniques for construction layout and control.	10. Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	11. Understand construction accounting and cost control.	12. Understand construction quality assurance and control.	13. Understand construction project control processes.	14. Understand the legal implications of contract, common, and regulatory law to manage a construction project.	15. Understand the basic principles of sustainable construction.	16. Understand the basic principles of structural behavior.	17. Understand the basic principles of mechanical, electrical and plumbing systems.
CSM 1000			I	I	I	I				I	I	I					
CSM 2010							I									D	
CSM 2030							R					R					
CSM 2040														I			
CSM 2050							R					R			I		
CSM 2060									D							R	
CSM 2070						R				R	R			R			
CSM 3040														R			D
CSM 3050														R	R		D
CSM 3060								D									
CSM 3070															D		
CSM 3510					R	R	R	I									
CSM 3520					D	R		R									
CSM 3530				D		R	R				R						
CSM 4110			R, D														
CSM 4500	D	D	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	D	IA	IA	IA
	IA	IA												IA			
CSM 4530			R			R	D	R		D	R	D	D	R	R		
CSM 4540	R	R	R	R	R		R						R		R		
CSM 4610						D					D						

Direct Assessment: D Indirect Assessment: IA Introduce I Reinforced R

Figure 2. 2026 ACCE Student Learning Outcomes and Associated Assessment Measures

General Notes:

Assessment data for the years before the 2024-2025 assessment period showed very high results. In response to this, the faculty raised the target for all SLOs from 70% of students achieving 70% or better on the assessment to 70% of students achieving 80% or better. This change reflects the decrease in assessment results starting in the 2024-25 cycle.

During the Fall 2025 semester, a subcommittee of the constituency reviewed the assessment tools used to measure each SLO. Several suggestions for stronger measures were identified. The faculty reviewed and approved these suggestions, and they were implemented for the Spring 2026 semester. For SLOs with a change in the assessment measure, the data are presented by semester rather than a weighted average for the year. The revised SLO measures include: 7, 15, and 16. Additionally, several SLOs were previously measured in multiple classes. These redundancies have been removed. The only exception is SLO 17, where MEP systems are split and taught in two different classes, and no single assessment alternative could be identified.

Based on the prior cycle (2024-2025) assessment of indirect measures, students were provided with a brief explanation of the Bloom's taxonomy verbs used within the SLO descriptions to help them understand how "deep" they are expected to know any specific topic.

Assessed Measures, by SLO

1. Create written communications appropriate to the construction discipline.

(ACCE SLO #1/PO 1)

Direct Measure: Student performance on specific written assignments in CSM 4500 using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4500 - Construction Internship - Direct Measure	94%	93%	71%	92%
CSM 4500 - Construction Internship - Indirect Measure	82%	92%	89%	88%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

2. Create oral presentations appropriate to the construction discipline.

(ACCE SLO #2/PO 1)

Direct Measures: Student performance on oral presentations in CSM 4500 using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4500 - Construction Internship - Direct Measure	96%	79%	87%	100%
CSM 4500 - Construction Internship - Indirect Measure	85%	92%	70%	88%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

3. Create a construction project safety plan.

(ACCE SLO #3/PO 3)

Direct Measure: Student performance on specific course assignments in CSM 4110 using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4110 - Safety in Construction - Direct Measure	97%	94%	90%	87%
CSM 4500 - Construction Internship - Indirect Measure	85%	89%	62%	83%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

4. Create construction project cost estimates.

(ACCE SLO #4/PO 3)

Direct Measure: Student performance on specific course assignments in CSM 3530 using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 3530 - Construction Estimating II - Direct Measure	92%	100%	91%	92%
CSM 4500 - Construction Internship - Indirect Measure	81%	81%	50%	83%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

5. Create construction project schedules.

(ACCE SLO #5/PO 3)

Direct Measure: Student performance on specific course assignments in CSM 3520 using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 3520 - Construction Scheduling - Direct Measure	87%	96%	85%	76%
CSM 4500 - Construction Internship - Indirect Measure	78%	69%	45%	67%

Notes: Direct Assessment target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. The indirect assessment target was not met and will continue to be evaluated; however, it has increased over the prior year. At this time, the target measurement will remain the same. If the trend continues, the department plans to survey the students to better understand why they perceive their abilities to be lower than what their actual performance in the direct measure indicates.

6. Analyze professional decisions based on ethical principles.

(ACCE SLO #6/PO 4)

Direct Measure: Student performance on a specific course assignment in CSM 4610 using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4610 - Construction Economics Seminar - Direct	97%	98%	100%	88%
CSM 4500 - Construction Internship - Indirect Measure	85%	97%	74%	95%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

7. Analyze methods, materials and equipment used to construct projects.

(ACCE SLO #7/PO 3)

Direct Measure: Student performance on a specific assignment in CSM 4530 using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	Fall 2025	Spring 26
CSM 2030 - Materials & Methods I - Direct Measure	65%	93%	80%	100%	--
CSM 2050 - Materials & Methods II - Direct Measure	67%	98%	71%	100%	--
CSM 4530 – Project Management – Direct Measure	--	--	--	--	77%
CSM 4500 - Construction Internship - Indirect Measure	81%	93%	66%	84%	

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same. The SLO 7 Assessment was moved from CSM 2030 and 2050 to CSM 4530 as part of the review conducted during the Fall 2025 semester and adopted by the faculty to begin in Spring of 2026.

8. Apply electronic-based technology to manage construction projects.

(ACCE SLO #8/PO 3)

Direct Measures: Student performance on specific course assignments in CSM 3060, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 3060 - Emerging Technologies - Direct Measure	100%	99%	93%	91%
CSM 4500 - Construction Internship - Indirect Measure	68%	74%	51%	92%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

9. Apply basic surveying techniques for construction layout and control.

(ACCE SLO #9/PO 3)

Direct Measures: Student performance on specific course assignments in CSM 2060 using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 2060 - Construction Science Workshop - Direct	76%	89%	86%	83%
CSM 4500 - Construction Internship - Indirect Measure	69%	77%	55%	80%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

10. Understand different methods of project delivery and the roles and responsibilities of all constituents involved in the design and construction process.

(ACCE SLO #10 /PO 2)

Direct Measures: Student performance on specific course assignments in CSM 4530, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4530 - Project Management - Direct Measure	96%	87%	92%	86%
CSM 4500 - Construction Internship - Indirect Measure	74%	97%	76%	95%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

11. Understand construction accounting and cost control.

(ACCE SLO #11/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 4610, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4610 - Construction Economics Seminar - Direct	91%	91%	96%	97%
CSM 4500 - Construction Internship - Indirect Measure	76%	79%	45%	83%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

12. Understand construction quality assurance and control.

(ACCE SLO #12/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 4530, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4530 - Project Management - Direct Measure	95%	84%	96%	96%
CSM 4500 - Construction Internship - Indirect Measure	78%	95%	63%	86%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

13. Understand construction project control processes.

(ACCE SLO #13/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 4530, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4530 - Project Management - Direct Measure	97%	92%	93%	88%
CSM 4500 - Construction Internship - Indirect Measure	75%	92%	55%	86%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

14. Understand the legal implications of contract, common and regulatory law to manage a construction project.

(ACCE SLO #14/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 4500, using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measure: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 4500 - Construction Internship - Direct Measure	93%	85%	92%	89%
CSM 4500 - Construction Internship - Indirect (Post)	69%	76%	41%	80%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

15. Understand the basic principles of sustainable construction.

(ACCE SLO #15/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 3070, using a standard grading rubric. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measures: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	Fall 25	Spring 26
CSM 4500 - Construction Internship - Direct	92%	85%	99%	92%	--
CSM 3070 – Sustainable Practices – Direct	--	--	--	--	94%
CSM 4500 - Internship - Indirect Measure	74%	94%	64%	86%	

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

16. Understand the basic principles of structural behavior.

(ACCE SLO #16/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 2010, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment.

Indirect Measures: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	Fall 25	Spring 26
CSM 2060 - Construction Workshop - Direct	82%	98%	99%	96%	--
CSM 4500 - Construction Internship - Direct	94%	96%	95%	94%	--
CSM 2010 – Structures – Direct Measure	--	--	--	--	80%
CSM 4500 - Internship - Indirect	74%	77%	51%	80%	

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

17. Understand the basic principles of mechanical, electrical and plumbing systems.

(ACCE SLO #17/PO 2)

Direct Measures: Student performance on specific course assignments in CSM 3040 and CSM 3050, using standard grading rubrics. Assessment target, 70% of the students achieve 80% or higher on the assessment

Indirect Measures: Student perception survey in CSM 4500. Assessment target, 70% of the students report a 70% or higher agreement on the survey.

Courses/Measures:	2022-23	2023-24	2024-25	2025-26
CSM 3040 - Environmental Systems I -Direct Measure	95%	100%	92%	93%
CSM 3050 - Environmental Systems II -Direct Measure	100%	70%	83%	85%
CSM 4500 - Construction Internship - Indirect Measure	88%	92%	70%	76%

Notes: Target met for the assessment period. Going forward, faculty will continue to monitor assessment and student performance trends and revise as appropriate. At this time, the target measure will be kept the same.

CSM Program Learning Outcomes (PO 1-4)

Indirect Measures: Alumni, Employer and Graduating Senior Perception Surveys.

Program Measures:	20-21	21-22	22-23	23-24	24-25	25-26
Alumni Survey - Indirect Measure	89%	---	---	---	82%	---
Employer Survey – Indirect Measure	100%	---	---	---	83%	---
Senior Exit Survey – Indirect Measure	95%	89%	88%	95%	73%	82%

Notes: Target met for most recent assessment period of 2024-2025. The department went through a leadership change and distribution of the alumni and employee surveys was an oversight and data was not collected on time for the 2023-2024 cycle.

Targets for Senior Exit Interview Survey measures met for the past 6 years.

Assessment review and targets were reviewed and approved by the constituents at the May 8, 2026 Department meeting.

Rev. 5/20/2026