

California State University, Fresno

Lyles College of Engineering

Department of Construction Management

Department Assessment Coordinator: Dr. Wei Wu

Student Outcomes Assessment Plan (SOAP)

I. Mission Statement

Our mission is to develop professionals, build leaders, sustain learners for the AEC industry.

II. Institutional Learning Outcomes, Program Learning Outcomes/Goals, and SLO's [a,b,c]

A. Institutional Learning Outcomes. Student who graduate from California State University, Fresno will demonstrate the importance of discovery, diversity, and distinction by:

1. **developing a foundational, broad and integrative knowledge** of the humanities, the arts, the sciences, and social sciences, and their integration with their major field of study. Students will consolidate learning from different fields and explore the concepts and questions that bridge those essential areas of learning. Graduate students will articulate the significance, implications and challenges within their field in a societal and global context. In fields in which interdisciplinarity is fundamental, graduate students will further draw from the perspectives of other domains of inquiry/practice so as to assess a problem better and offer solutions to it.

2. **acquiring specialized knowledge** as identified by program learning outcomes in their major field. Students will demonstrate expertise in a specialized area of study, including integration of ideas, methods, theory and practice. Graduate students will demonstrate further mastery of the field's theories, research methods, and approaches to inquiry. They will also show the ability to assess major contributions to the field, as well as expand on those contributions through empirical research or aesthetic exploration.

3. **improving intellectual skills** including critical thinking, effective oral and written communication, information literacy and quantitative reasoning. Students will demonstrate fluency via application of these skills to everyday problems and complex challenges. Graduate students will hone these skills further, demonstrating coherent arguments, analysis, insight, creativity, and acumen as they address local, regional, and global issues in their respective fields of study.

4. **applying knowledge** by integrating theory, practice, and problem solving to address real world issues using both individual and team approaches. Students will apply their knowledge in a project, paper, exhibit, performance, or other appropriate demonstration that links knowledge and skills acquired at the university with those from other areas of their lives. Graduate students will integrate knowledge and skills from coursework, practicum, and research to address critical

issues in their field and demonstrate advanced application of knowledge through a culminating experience that validates, challenges, and/or expands the profession's body of knowledge.

5. **exemplifying equity, ethics, and engagement.** Students will form and effectively communicate their own evidence-based and reasoned views on public issues, interact with others to address social, environmental and economic challenges, apply knowledge of diversity and cultural competencies to promote equity and social justice in the classroom and the community, value the complexity of ethical decision making in a diverse society, acknowledge the importance of standards in academic and professional integrity, and demonstrate honesty, tolerance, and civility in social and academic interactions. Building upon this at the graduate level, students will apply these values in the creation of scholarly and/or aesthetic works that enrich the human experience.

- B. **Program Learning Outcomes.** The Construction Management educational degree's program goals meet and exceed the student learning outcomes required by ACCE. In addition to the program objectives and strategic initiatives listed above, the CM program has adopted the 20 SLOs from ACCE as our Program Learning Outcomes. Student Learning Outcomes (SLOs) will be assessed, reviewed, and results acted on annually. Student work will be assessed for a minimum level of conformance and to the standard of the program's performance criteria.

New PLOs/ACCE SLOs

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.

GE-E Lifelong Learning

GE-IB Integration

GE-ID Integration

III. Curriculum Map: Courses in which SLO's are addressed and evaluated

To ensure all ACCE SLOs will be assessed, the Department mapped all 20 ACCE SLOs to specific CLOs to hold assigned course instructors accountable for assessment and data collection. In the meantime, to meet ACCE accreditation standard, each SLOs will also be indirectly assessed via senior exit survey.

INSERT MAP WITH NEW COURSES

CM Courses	ACCE Student Learning Outcomes/CM Curriculum Mapping																			
	Create					Analyze			Apply			Understand								
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
CM1			I ¹		I	I, DA ⁴							I, DA					I		
CM7S			T					I				I						T ² , DA		
CM18		I, DA					I		I, DA	I										I
CM20	I			I			I		I	I, DA		I, DA						I		
CM107																			T, DA	
CM107L	T, DA								T						I				T	
CM110				T, DA			T	T, DA	T	T										
CM116	T	T			T, DA		T, DA			T			T			I				
CM122	U ³					T												T, DA		
CM127			T			T		T							T, DA					
CM140								T										T		T, DA
CM170			U	U	U		U		U	U				T, DA		T, DA				
CM180A	U		U	U	U				U											

CM180B	U, DA	U, DA	U, DA	U	U				U, DA					U	U	U				
CM193		U										U								
GME 15L											T, DA									
Senior Exit Survey	IA ⁵	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA	IA

1, 2, 3 The Department sets 3 levels of Student Learning Outcome progression, including **I = Introduced**, **T = Taught** (equivalent to **D = Developed**), and **U = Utilized** (equivalent to **M = Mastered**);

4, 5 **DA = Direct Assessment; IA = Indirect Assessment**

IV. SLO's Mapped to Assessment Measures and Methods

The following table list the specific assessment measures used to evaluate each ACCE SLO, indicated as Direct Assessment Measures (DM) or Indirect Assessment Measures (IM).

UPDATE TO REFLECT UPDATED CURRICULUM PATTERN

ACCE SLOs #	Assessment Measures	
	Direct Assessment Measure (DM)	Indirect Assessment Measure (IM)
1	CM107L – Lab Memo 1 CM180B – Individual Research Paper	Senior Exit Survey
2	CM18 – Final Presentation CM180B – Individual Research Video	Senior Exit Survey
3	CM180B – Capstone Project Safety Plan CM134 – RFQ Site Specific Safety Plan	Senior Exit Survey
4	CM110 – Final Exam	Senior Exit Survey
5	CM116 – Exam 2 CM116 – Lab 9	Senior Exit Survey
6	CM1 – Ethics Debate	Senior Exit Survey
7	CM116 – Module 3 Assessment CM116 – Lab 2	Senior Exit Survey
8	CM110 – Final Project	Senior Exit Survey
9	CM18 – \$300 House Challenge Project CM180B – Capstone Team Project	Senior Exit Survey
10	CM20 – Lab 07	CM170 – ProCore Training Certificate Senior Exit Survey
11	GME15L – Final Project	Senior Exit Survey
12	CM20 – Exam 2	Senior Exit Survey
13	CM1 – Risk Management Reflection Paper	Senior Exit Survey
14	CM170 – Module Assessment 7 CM170 – Exam 2	Senior Exit Survey
15	CM127 – Final Exam Problem 2 CM127 – Final Exam Problem 4	Senior Exit Survey
16	CM170 – Quiz 5 CM170 – Exam 1	Senior Exit Survey
17	CM122 – Midterm Exam	Senior Exit Survey
18	CM7S – Sustainability Paper	Senior Exit Survey
19	CM107 – Homework 4	Senior Exit Survey
20	CM140 – Exam 1.1, 3.1 & 4.1	Senior Exit Survey

V. Assessment Measures: Description of Assignment and Method (rubric, criteria, etc.) used to evaluate the assignment

For each of the 20 SLOs, detailed description of assignment and method used to evaluate the assignment is provided in [SOAP Appendix A – SLOs Assessment Details](#). A copy of the appendix is also attached at the end of the report.

VI. Assessment Schedule/Timeline

The table below presents the current and future Assessment Schedule/Timeline for the CM Program Assessment. Notice that the upper part of the table represents the assessment timeline within the current 6-year ACCE re-accreditation assessment effort. The lower part of the table depicts our continued planning of future assessment implementation based on lessons learned and assessment results as evidenced in major assessment report documents.

				Create					Analyze			Apply			Understand									
ACCE Visit	Report Due	Academic Year	Assess Cycle	Written	Oral	Safety	Cost	Sched.	Ethics	Plng	Mtds/Mt	Team	Tech	Survey	PDM	Risk	Acctng	QA/C	Control	Legal	Sust	Struct	MEP	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Current ACCE Reaccreditation		AY13-14	Cycle 1 (Pre-ACCE SLOs)																					
		AY14-15																						
		AY15-16																						
	Update SOAP	AY16-17	Cycle 2 (Current Self-Study)	CM 20* (CLO#3)	CM 4** (CLO#1)							CM 4** (CLO#5)			CM 20* (CLO#2)							CM 7S (CLO#5)		
		AY17-18		CM 107L (CLO#4)				CM 116 (CLO#2)	CM 1S (CLO#2)	CM 116 (CLO#1)	CM 110 (CLO#4)					CM 1S (CLO#3)	CM 170 (CLO#3)	CM 127 (CLO#2)	CM 170 (CLO#1)	CM 122 (CLO#2)			CM 107 (CLO#4)	
May-19	AY18-19	CM 180B (CLO#1)		CM 18 (CLO#1) & CM 180B (CLO#1)	CM 180B (CLO#2) & CM 134 (CLO#3)	CM 110 (CLO#4)					CM 18 (CLO#5) & CM 180B (CLO#2)	CM 20 (CLO#4) & CM 170 (CLO#4)	GME 15L (CLO#5)	CM 20 (CLO#2)									CM 140 (CLOs# 1,2,4)	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Future*** ACCE Reaccreditation	Update SOAP	AY19-20	Future: Cycle 1					CM 116	CM 107	CM 116	CM 110							CM 127			CM 162	CM 107	CM 162	
		AY20-21					CM 150 & CM 151	CM 150 & CM 151	CM 150 & CM 151				CM 20 & CM 170	CM 19L	CM 20		CM 170		CM 170	CM 122				CM 164
	Update SOAP	AY21-22		CM 107L & CM 180B	CM 110 & CM 193	CM 172	CM 110					CM 134 & CM 180B		CM 172L		CM 172		CM 172L						CM 160
		AY22-23					CM 116	CM 107	CM 116	CM 110								CM 127			CM 162	CM 107	CM 162	
	Update SOAP	AY23-24					CM 150 & CM 151	CM 150 & CM 151	CM 150 & CM 151				CM 20 & CM 170	CM 19L	CM 20		CM 170		CM 170	CM 122			CM 164	
May-25	AY24-25		Future: Cycle 2	CM 107L & CM 180B	CM 110 & CM 193	CM 172	CM 110					CM 134 & CM 180B		CM 172L		CM 172		CM 172L					CM 160	

Notes: * CM 20 was significantly revised after AY16-17, and was no longer used for SLO 1 assessment. For SLO 12, another round of assessment with CM20 was done in AY18-19. Thus, assessment data from CM 20 in AY16-17 were not included in this self-study.
 **CM 4 was renamed into CM 18 in AY18-19 and assessed for the 2nd time. Thus only AY18-19 assessment data from CM 18 for SLOs 2 & 9 were presented in the self-study.
 *** Future planning is based upon lessons learned from the results of the current assessment. Note that this also includes new courses based upon assessment results and changes to the surveying course (GME 15 & GME 15L) by the Civil Engineering Department.

VII. Closing the Loop

Fresno State Closing the Loop process is described immediately below.

A major assessment report, which focuses on assessment activities carried out the previous academic year, is submitted in September of each academic year and evaluated by the Learning Assessment Team and Director of Assessment at Fresno State.

Department Closing the Loop process. The CM department plans to enhance the program assessment efforts with the following initiatives:

- Adapt current Course Kaizen to SLO Kaizen to help enhance clarity and accountability in assessment efforts;
- Identify faculty leads for different SLOs assessment based upon their subject matter expertise to streamline assessment data collection and documentation process, and also potentially helps balance assessment load on individual faculty;
- Conduct assessment-oriented faculty retreat at both beginning and end of the semester to plan and review assessment efforts, results and action plans;
- Align SOAP, Major Assessment and ACCE Accreditation efforts by developing, implementing and continuously improving scientific assessment plans and measures.

The new assessment process will include the following steps:

1. *Collection of assessment data for all SLO's each time the associated course is taught. An online repository in Google Drive will house the assessment data.*
2. *Each SLO will be reviewed based upon the schedule provided in part IV above. The SLO review process will include:*
 - a. *The faculty lead for the SLO will analyze all assessment data.*
 - b. *The faculty lead for the SLO will schedule a SLO Kaizen meeting to present the relevant findings and lead faculty discussions for future improvements.*
 - c. *The faculty lead for the SLO will create a written report of the SLO and submit to the CM Program Assessment Coordinator.*
 - d. *The CM Program Assessment Coordinator will retain the written report in the SLO folder in the online repository.*
 - e. *The CM Program Assessment Coordinator will schedule an end of year CM faculty meeting to review all recommendations from SLO Kaizens to develop a comprehensive strategy to implement identified improvements.*
 - f. *The CM Program Assessment Coordinator will schedule a beginning of year CM Faculty Meeting to review all planned changes and improvements.*
 - g. *The CM Program Assessment Coordinator will schedule a mid-year CM Faculty Meeting to review all implemented changes to measure any changes based on the improvements.*