

Department of Construction Management Major Assessment Report (AY 2016-17)

Please download this document and provide a response to each question in the appropriate section. Send your assessment reports to Dr. Angel Sanchez (aansanchez@csufresno.edu) in the Office of Institutional Effectiveness and copy Dr. Melissa Jordine (mjordine@csufresno.edu). Please complete a separate report for each Bachelors and Masters program offered by the department.

1. What learning outcome(s) did you assess this year? List all program outcomes you assessed (if you assessed an outcome not listed on your department SOAP please indicate explain). Do not describe the measures or benchmarks in this section Also please only describe major assessment activities in this report. No GE assessment was required for the 2016-2017 academic year.

To meet new outcome-based program accreditation standards set forth by the Construction Management (CM) accrediting body ACCE, the AY 2016-17 SOAP report and Major Assessment have been updated accordingly. Therefore, the old CM program learning outcomes (PLOs) have been replaced by ACCE's 20 student learning outcomes (SLOs). To better align major assessment and course learning outcomes (CLOs) assessment efforts, a comprehensive mapping between ACCE SLOs and CM CLOs were conducted through faculty retreat and industry advisory board meetings. For this academic year, the following ACCE SLOs/CM PLOs were assessed:

- SLO 1: Create written communications appropriate to the construction discipline.
- SLO 2: Create oral presentations appropriate to the construction discipline.
- SLO 9: Apply construction management skills as a member of a multi-disciplinary team.
- SLO 12: Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
- SLO 18: Understand the basic principles of sustainable construction.

Accordingly, the following CM courses with which the above SLOs were associated were assessed in AY 2016-17 using Course Kaizen as the major assessment delivery method.

Course No. & Name	Date Assessed	ACCE SLOs Assessed in AY 2016-17				
		SLO 1	SLO 2	SLO 9	SLO 12	SLO 18
CM4: Construction Graphics	12/2/2016		X	X		
CM7S: Construction Materials & Basic Building Systems	5/12/2017					X
CM20: Construction Contracts & Specifications	12/14/2016	X			X	

2. What assignment or survey did you use to assess the outcomes and what method (criteria or rubric) did you use to evaluate the assignment? If the assignment (activity, survey, etc.) does not correspond to the activities indicated in the timeline on the SOAP, please indicate why. Please clearly indicate how the assignment/survey is able to measure a specific outcome. If after evaluating the assessment you concluded that the measure was not clearly aligned or did not adequately measure the outcome please discuss this in your report. Please include the benchmark or standard for student performance in your assessment report (if it is stated in your SOAP then this information can just be copied into the report). An example of an expectation or standard would be “On outcome 2.3 we expected at least 80% of students to achieve a score of 3 or above on the rubric.”

To facilitate the SLOs assessment planning and data collection, the department developed a course assessment matrix with specified assessment measures, minimum standards and assessment targets, and mandated its application in all major courses. Please note:

- Only CLOs that were mapped with assessed ACCE SLOs were presented in these matrices;
- The term “grade C” used in “Minimum Standards” and “Assessment Targets” was not referring to the letter grade but just a notion indicating that the level of assessed performance of a particular measure exceeded 70% in score or rubric levels.

CM4: Construction Graphics Course Assessment Matrix

#	Course Learning Outcomes (CLOs)	ACCE SLOs	Assessment Measures (D: Direct; ID: Indirect)	Minimum Standards	Assessment Targets
1	Explain and present design concepts, construction drawings components, bid documentation and specifications with appropriate vocabulary and terminology (Direct Assessment)	SLO 2	D1: \$300 House Challenge Project Presentation; D2: Walmart Project Report Out	70% (C)	≥ 80% of students with grade C or better
5	Perform design and management tasks efficiently via collaboration with other members in a multidisciplinary team environment (Direct Assessment)	SLO 9	D1: \$300 House Challenge Project Submittals; ID1: Peer Evaluation Survey	D1: 70% (C)	≥ 80% of students with grade C or better

CM7S: Construction Materials and Basic Building Systems

#	Course Learning Outcomes (CLOs)	ACCE SLOs	Assessment Measures (D: Direct; ID: Indirect)	Minimum Standards	Assessment Targets
5	Recognize basic principles of sustainable design regarding building materials (Direct Assessment)	SLO 18	D1: Sustainability Paper	70% (C)	D1: ≥ 80% of students with grade C or better

CM20: Construction Contracts and Specifications

#	Course Learning Outcomes (CLOs)	ACCE SLOs	Assessment Measures (D: Direct; ID: Indirect)	Minimum Standards	Assessment Targets
2	Describe different types of project delivery methods common in the construction industry. (Direct Assessment)	SLO 12	D1: Quiz	70% (C)	≥ 80% of students with grade C or better
3	Utilize construction project management software to track RFI's, submittals, and other common administrative tasks. (Direct Assessment)	SLO 1	D1: Class Deliverables (Transmittal)	Pass by Completion	100% students Pass

In AY 2016-17, the CM department also administered several surveys as indirect measures for program assessment purposes, including:

- CM Alumni Survey
- CM Senior Pre-exit and Exit Survey

Nevertheless, due to the change of the ACCE accreditation requirements, these survey instrument will need updating to reflect the new ACCE SLOs. As a result, the results of the AY 2016-17 surveys were not included in the program assessment report. The CM department also conducted an Industry Advisory Board (IAB) survey on their perceptions towards the ACCE SLOs to establish program priorities.

3. What did you discover from the data? Discuss the student performance in relation to your standards or expectations. Be sure to clearly indicate how many students did (or did not) meet the standard for each outcome measured. Where possible, indicate the relative strengths and weaknesses in student performance on the outcome(s).

Assessment results of each ACCE SLO were presented below with details related to assessment targets. For each SLO, the CM faculty also discussed particular strengths and weakness in the Course Kaizen meetings.

SLO 1: Create written communications appropriate to the construction discipline (Enrollment N=23, Effective Count =20).

Measures	Target	Unsatisfactory (F: Below 60%)	Below Expectation (D: 60% ~ 69.9%)	Competent (C: 70% ~ 79.9%)	Proficient (B: 80% ~ 89.9%)	Advanced (A: 90% or Better)	% w/ C or better
Class Deliverables Transmittal	100% "Pass" by Completion	10.0% (2)	N/A	N/A	N/A	90.0% (18)	90.0% Target Missed

SLO 1 Discussion Notes:

- The transmittal was evaluated based upon a simple binary pass/fail grading scheme. The instructor planned to use a better grading rubric that assesses the actual writing ability of the students.
- There was only 1 direct measure used for SLO 1 in this assessment cycle. The instructor was recommended to add more measures in future assessment.

SLO 2: Create oral presentations appropriate to the construction discipline (Enrollment N=40, Effective Count =40).

Measures	Target	Unsatisfactory (F: Below 60%)	Below Expectation (D: 60% ~ 69.9%)	Competent (C: 70% ~ 79.9%)	Proficient (B: 80% ~ 89.9%)	Advanced (A: 90% or Better)	% with C or better
\$300 House Challenge Presentation	≥ 80% with grade C or better	0.0% (0)	15.0% (6)	17.5% (7)	40.0% (16)	27.5% (11)	85% Target Met

Walmart Project Report Out	≥ 80% with grade C or better	2.5% (1)	5.0% (2)	10.0% (4)	50.0% (20)	32.5% (13)	92.5% Target Met
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SLO 2 Discussion Notes:

- Students did very well in SLO 2 assessment, and demonstrated unprecedented learning engagement in the \$300 House Challenge project due to the authenticity and creativity of the project.
- Assessed in an entry level class, the assessment target may be elevated to “≥ 80% with grade B or better” in the future.

SLO 9: Apply construction management skills as a member of a multi-disciplinary team (Enrollment N=40, Effective Count =40). *

Measures	Target	Unsatisfactory (F: Below 60%)	Below Expectation (D: 60% ~ 69.9%)	Competent (C: 70% ~ 79.9%)	Proficient (B: 80% ~ 89.9%)	Advanced (A: 90% or Better)	% with C or better
\$300 House Challenge Submittals	≥ 80% with grade C or better	0.0% (0)	2.5% (1)	0.0%	50.0% (20)	47.5% (19)	97.5% Target Met

*The indirect measure of SLO 9 was a peer evaluation survey. The questionnaire used in this survey will be provided in the **Additional Guidelines** section.

SLO 9 Discussion Notes:

- Student did a great job in SLO 9. Project-based learning with civic engagement ingredients provided students with enhanced learning experience and better outcomes in a plethora of skills including communication, teamwork, and leadership.
- Peer evaluation was conducted to better understand team dynamics and the variety of individual contribution to the team.

SLO 12: Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process (Enrollment N=23, Effective Count =22).

Measures	Target	Unsatisfactory (F: Below 60%)	Below Expectation (D: 60% ~ 69.9%)	Competent (C: 70% ~ 79.9%)	Proficient (B: 80% ~ 89.9%)	Advanced (A: 90% or Better)	% with C or better
Assessment Quiz 2	≥ 80% with grade C or better	13.6% (3)	18.2% (4)	9.1% (2)	13.6% (3)	45.5% (10)	68.2% Target Missed

SLO 12 Discussion Notes

- Through direct conversation with students, the instructor reflected that the assessment quiz might have been too challenging for students, due to the amount of content. Revision was planned in future assessment cycle.
- There was only 1 direct measure used for SLO 12 in this assessment cycle. The instructor was recommended to add more measures in future assessment.

SLO 18: Understand the basic principles of sustainable construction (Enrollment N=36, Effective Count =29).

Measures	Target	Unsatisfactory (F: Below 60%)	Below Expectation (D: 60% ~ 69.9%)	Competent (C: 70% ~ 79.9%)	Proficient (B: 80% ~ 89.9%)	Advanced (A: 90% or Better)	% with C or better
Sustainability Paper	≥ 80% with grade C or better	3.4% (1)	0.0% (0)	65.6% (19)	31.0% (9)	0.0% (0)	96.6% Target Met

SLO 18 Discussion Notes

- Students did well in SLO 18, although the completion rate of the Sustainability Paper was low, which affected the validity of the assessment results. The instructor was recommended to improve student engagement, or look for new direct measures for assessing SLO 18.
- There was only 1 direct measure used for SLO 18 in this assessment cycle. The instructor was recommended to add more measures in future assessment.

4. What changes did you make as a result of the data? Describe how the information from the assessment activity was reviewed and what action was taken based on the analysis of the assessment data.

In preparation for the next ACCE Accreditation visit in 2019, the CM department has been conducting a comprehensive review of overall curriculum and individual courses since fall 2016. The goal is to coordinate all program learning outcome assessment efforts, including ACCE SLOs and SOAP, with course learning outcomes (CLOs) assessment. The ACCE SLOs and CM CLOs mapping is established and all course instructors are aware of their individual assessment tasks.

Course Kaizens have been reaffirmed to be the major vehicle of program level assessment activity and utilized as an assessment data collection mechanism. A schedule for Course Kaizens has been established to both track all completed SLOs assessment results and plan for future assessment tasks. The Course Kaizens also increase the accountability of assessment at course/instructor level, with comprehensive documentation of assessment process, results, reflection and action plans.

The AY 2016-17 cycle was the first time that such a highly integrated program assessment strategy was implemented. A lot of positive changes have been observed in comparison with previous efforts. However, there was a significant process transition. The AY 2016-17 assessment cycle also revealed a few loopholes that should be addressed in the next AY:

- Some SLOs assessment did not have adequate direct measures or the measures were not well designed so the assessment results might not accurately reflect achieved SLOs;
- A few indirect measures including the surveys to alumni, employers and senior students have to be updated to reflect the new ACCE 20 SLOs requirements;
- Some incentives and creative means need to be created to better engage faculty, especially part-time faculty in the assessment process and enhance data collection efforts to help achieve more comprehensive and valid assessment results.

5. What assessment activities will you be conducting in the AY 2017-2018? List the outcomes and measures or assessment activities you will use to evaluate them. These activities should be the same as those indicated on your current SOAP timeline; if they are not please explain.

In AY 2017-18, the department will follow the assessment plan and Course Kaizen schedules laid out in the SOAP timeline. Specifically, the following ACCE SLOs will be assessed with the associated courses as indicated in the mapping table:

- SLO 1: Create written communications appropriate to the construction discipline.
- SLO 2: Create oral presentations appropriate to the construction discipline.
- SLO 3: Create a construction project safety plan.
- SLO 4: Create construction project cost estimates.
- SLO 5: Create construction project schedules.
- SLO 9: Apply construction management skills as a member of a multi-disciplinary team.
- SLO 10: Apply electronic-based technology to manage the construction process.
- SLO 12: Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
- SLO 13: Understand construction risk management.
- SLO 14: Understand construction accounting and cost control.
- SLO 15: Understand construction quality assurance and control.
- SLO 16: Understand construction project control processes.
- SLO 17: Understand the legal implications of contract, common, and regulatory law to manage a construction project.
- SLO 19: Understand the basic principles of structural behavior.
- SLO 20: Understand the basic principles of mechanical, electrical and piping systems.

Course No. & Name	Planned Assessment Date	ACCE SLOs Planned to Assess in AY 2017-18														
		SLO 1	SLO 2	SLO 3	SLO 4	SLO 5	SLO 9	SLO 10	SLO 12	SLO 13	SLO 14	SLO 15	SLO 16	SLO 17	SLO 19	SLO 20
CM127: Construction Soils and Foundation	Fall 2017			X								X				
CM122: Construction Laws	Fall 2017	X												X		
CM110: Estimating and Bidding	Fall 2017				X											

CM116: Scheduling and Control	Fall 2017		X			X				X						
CM193: Internship	Spring 2018		X						X							
CM107/L: Advanced Construction Structures	Spring 2018	X					X								X	
CM140: Building MEP	Spring 2018															X
CM170: Construction Project Controls	Spring 2018							X			X		X			

6. What progress have you made on items from your last program review action plan? Please provide a brief description of progress made on each item listed in the action plan. If no progress has been made on an action item, simply state “no progress.”

All ACCE Accreditation issues and concerns from previous accreditation cycle have been addressed. The department also conducted several faculty retreats including a most recent meeting in April 2017 to develop a new 5-year strategic plan. The strategic plan established new department mission, vision and core values, and summarized efforts to date in aligning assessments at accreditation, program and course levels. Performance criteria and assessment standards were also discussed.

7. Additional Guidelines: If you have not fully described the assignment then please attach a copy of the questions or assignment guidelines. If you are using a rubric and did not fully describe this rubric (or the criteria being used) than please attach a copy of the rubric. If you administered a survey please consider attaching a copy of the survey so that the Learning Assessment Team (LAT) can review the questions.

To provide additional information on how individual SLOs were assessed, associated grading rubrics and survey questionnaires were included below.

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

- Direct Measure 1: \$300 House Challenge Project Presentation
- Direct Measure 2: Walmart Project Report Out

We used the following grading rubric for the two direct measures

	Unsatisfactory	Below Expectation	Competent	Proficient	Advanced
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Grading Criteria	1	2	3	4	5
Physical Appearance	Typical inappropriate dressing for class	Clean dressing but not suitable for presentation	Partially business casual, overall clean dressing	All members business casual or better	All members formal dressing
Presentation Organization	Presenters are not prepared and poor organization of contents.	Presentation is confusing and unclear. No agenda or clear structure	Clear organization, but the contents are not well balanced	Very clear presentation, balanced contents	Professional presentation. Key objectives well highlighted
Delivery	Speakers cannot be heard. Presentation was too short or long. Key points not summarized.	Information is read from a script of directly from the screen. Poor posture and no eye contact.	An annoying number of "Ahs and Uhms". Pace is too fast or too slow. Key points are touched upon without adequate articulation.	Reasonable pace and style. Some rough spots. Overall easy to follow and contents are complete.	Interaction with the audience and properly paced for understanding. Enjoyable to listen to.
Use of Visual Aids	No aids are used or they are so poorly prepared that they disturbed the presentation.	Aids are difficult to read. Poor images or inappropriate animations.	Aids are marginal. Font is large enough to read. Some distracting backgrounds.	Aids are reasonably good. Graphics and animation usage are appropriate.	Aids presented are professional and polished. Font is large enough. Images are relevant and help address the issue.
Teamwork	No clear role defined and no bonding between group members.	Roles are roughly defined but some members did not fully participate	All group members participate but one or more members dominant	Balanced participation of all group members. Some issues in transition.	Balanced participation. Smooth transition and support between members.

SLO 9: Apply construction management skills as a member of a multi-disciplinary team

- Direct Measure 1: \$300 House Challenge Project Submittal
- Indirect Measure 1: \$300 House Challenge Peer Evaluation Survey

For the Direct Measure 1, we used the following grading rubric

Criteria	Unsatisfactory	Below Expectation	Proficient	Advanced
	<60%	60% ~ 69.9%	70% ~ 89.9%	≥90%
Design Concept	Limited or no definition of design problem. No design strategy identified and design evaluation is superficial. Poor documentation of design process.	Begins to demonstrate the ability to define design problem and identify design strategy. Some evaluation, and limited documentation of design process.	Demonstrates the ability to define design problem and identify design strategy through evaluating relevant factors. Consistent documentation of design process.	Clearly defines the design problem and identifies design strategy to propose solutions with evaluation of a broad spectrum of factors. Excellent documentation of design development process with artifacts evidence.
Design Completion	Design is incomplete and does not address design intention; model is incomplete and accuracy of model components is low.	Attempts to complete the design with some details; model contains some required components, with average of low level of accuracy.	Complete design with good amount of details; model contains all required components with good level of accuracy.	Thorough design with great details that address the design intention; model contains all required components and view representations with high level of accuracy.
Material Specification	Materials are not defined with little to none efforts on selecting or evaluating materials according to performance or cost factors.	Attempts to discussion material selection process with some understanding of selecting criteria. Lack of summary on final material specifications.	Good discussion on selection process on building materials showing consideration on either performance or cost factors; good summary on final material specifications with justification.	Comprehensive discussion on material selection process utilizing criteria that consider both performance and cost factors; clearly states final decision on all building materials with justification.
Cost Estimate	No efforts made to calculate building material cost. Does not indicate if the project budget will be met.	Attempts to calculate material costs with generic cost information without reference to reliable sources. Total project cost is missing.	Detailed calculation of all building materials cost with realistic cost information from reliable resources. Indicates whether of not the project budget will be met.	Comprehensive calculations of all building materials cost with realistic numbers obtained from vendors and relevant cost database. Clearly summarizes the estimated project cost and

				whether or not the project budget will be met.
Reflection/ Critical Thinking	Do not understand project intention; no recognition on personal perceptions and no discussion on learning experience or project outcomes.	Demonstrates understanding of project intention but needs some clarification; discussion on learning experience and project outcomes are superficial.	Demonstrates understanding of project contexts; discusses learning experience and project outcomes.	Demonstrates understanding of project contexts, articulates on personal perceptions towards the project, and learning experience and conducts objective self-evaluation of learning outcomes.

For Indirect Measure 1, the \$300 House Challenge Project Peer Evaluation Qualtrics survey questionnaire can be viewed here: <https://goo.gl/ij6tvJ>.

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

- Direct Measure 1: Assessment Quiz 2

A copy of Quiz 2 can be downloaded here: <https://goo.gl/xc1NHQ>

SLO 18: Understand the basic principles of sustainable construction.

- Direct Measure 1: Sustainability Paper

The grading rubric for the Sustainability Paper is shown below.

Criteria	Unsatisfactory	Below Expectation	Competent	Proficient	Advanced
	1	2	3	4	5
Contents - Completion	Paper contains 50% or less of	Paper contains 51%~69% of	Paper contains 70%~79% of	Paper contains 80%~89% of required deliverables	Paper contains 90%~100% of required deliverables

	required deliverables	required deliverables	required deliverables		
Contents - Accuracy	Little information is provided in the deliverables with poor accuracy	Some information is provided in the deliverables with low accuracy	Solid information is provided in the deliverables with acceptable accuracy	Great amount of information is provided in the deliverables with good accuracy	Excellent coverage of information in the deliverables with impeccable accuracy
Formatting	No obvious efforts in compliance with formatting requirements	Some efforts in compliance with formatting requirements	Acceptable formatting, quite a few mistakes and inconsistencies	Good and consistent formatting, very few mistakes	Excellent formatting, almost impeccable consistency
Organization	No obvious efforts in logical organization	Poor logical organization	Acceptable logical organization	Good logical organization	Excellent logical organization