

## Major Assessment Report (AY 2015-2016)

### BS Construction Management

#### **Special Note:**

*The faculty of the Department of Construction Management are finaling our updated SOAP to align with newly approved Outcomes Based Standards (OBS) for our external professional accreditation organization (the American Council for Construction Education). These new standards were approved in January 2016 and ratified this past summer. Thus, our faculty agreed to postpone updating our SOAP until the OBS approved Student Learning Outcomes (SLO's) were approved. Our updated SOAP will include these new SLO's as well as other structural improvements to our assessment program.*

*Thus the assessment program below is based upon extending our previous SOAP, which listed assessment plans through the 2013-2014 academic year.*

**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. The G.E. Committee will issue a separate call for G.E. assessment reports.

- 5) Apply the principles of business and organizational management to successfully lead a construction enterprise. (Business Management)
- 6) Efficiently plan, estimate, and prepare bids for construction projects. (Procurement & Pre-Construction Planning)
- 7) Manage and control the schedule, cost, quality, safety, and sustainability for the project. (Project Administration & Controls)
- 8) Demonstrate an understanding of the materials, means, and methods for various projects and sectors including buildings, utilities, infrastructure, and industrial construction. (Construction Knowledge)

**2. What instruments (assignment) did you use to assess them?** 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 instrument (assignment) is able to measure the 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

The following instruments were used to assess the outcomes this cycle:

*Method 1. Senior Capstone Projects – Faculty revisiting evaluation process and forms*

Method 2. Course Assessments

- a) Direct Measure (CM 170 CLO 2) – SLO 5. Business Management  
Instrument: Report of Simulated Construction Business (Rubric)  
Discussion: Students provide a written report that updates their company financials in an online computer simulation game (COINS). Students must receive a 70% on the assignment rubric in order to pass the assignment. Students must pass this assignment in order to pass the course.
  
- a) Direct Measure (CM 180A CLO 1) – SLO 6. Procurement & Preconstruction Planning  
Instrument: Written Plan for Senior Project (Rubric)  
Discussion: Students are tasked with developing a written plan of execution for their senior project. This plan includes all procurement and preconstruction planning required for the project. Students must receive a 70% on the assignment rubric in order to pass the assignment. Students must pass this assignment in order to pass the course.
  
- b) Direct Measure (CM 170 CLO 4) – SLO 7. Project Administration & Controls  
Instrument: [Certification of Completion for Software Training](#)  
Discussion: This 3-hour online training ensures students know how to effectively use construction management software to conduct common project administration and management practices on a project. Students receive a certificate of completion from the software company once proficiency has been demonstrated in all areas. Students must pass this certification in order to receive credit and pass the course.
  
- b) Direct Measure (CM 180B CLO 1) – SLO 8. Construction Knowledge  
Instrument: Research Term Paper on Construction Technology (Rubric)  
Discussion: Students are required to conduct a research project on an innovative material, method, or technology and explain how the science of this topic is integrated into the senior project in order to demonstrate their ability to learn and convey their construction knowledge. Students must receive a 70% on the assignment rubric in order to pass the assignment. Students must pass this assignment in order to pass the course.

*Method 3. AIC Level 1 Exam – No longer administered by program. May revisit in future.*

*Method 4. Alumni Survey – Not administered this year.*

Method 5. Student Exit Survey

- a) Indirect Measure – The survey measures the students' perception of achieving learning outcomes (5-point agreement scale). The benchmark average of 4.0 is expected. Data for all outcomes are collected annually, but only SLO's 5-8 were evaluated this year. Additionally, general student feedback is solicited to help improve the degree program.

*Method 6. Student Internship Evaluations – Data not compiled by previous coordinator.*

*Method 7. ASC Student Competition – No longer used for evaluation since a small portion of students participate.*

- 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).

**SLO 5. Business Management**

- a) Direct Measure:  
Instrument: Report of Simulated Construction Business (Rubric)  
Results: The overall class average was 33.8 out of 40 points (84.5%). All students passed this assignment (70% minimum).
- b) Indirect Measure:  
Instrument: Student Exit Survey  
Results: The average for this year was 4.25, which is above the benchmark of 4.0 and the 4-year average of 3.97.
- c) Discussion:  
Overall results for this outcomes remains strong. However, informal feedback from industry and students suggests that more focus on entrepreneurship skills and knowledge could strengthen the degree program. Faculty will discuss this in future meetings.

**SLO 6. Procurement & Preconstruction Planning**

- a) Direct Measure:  
Instrument: Written Plan for Senior Project (Rubric)  
Results: All students passed this assignment (70% minimum).
- b) Indirect Measure:  
Instrument: Student Exit Survey  
Results: The average for this year was 4.30, which is above the benchmark of 4.0 and the 4-year average of 3.95.
- c) Discussion:  
Our students must pass this assignment in order to move forward with their senior project. Thus, students must provide a well documented and thorough report or risk failing the first in this two-course capstone series. Faculty did discuss the opportunity to strengthen this assignment by adding an oral presentation element.

**SLO 7. Project Administration & Controls**

- a) Direct Measure:  
Instrument: Certification of Completion for Procore Software Training  
Results: All students passed this assignment.

b) Indirect Measure:

Instrument: Student Exit Survey

Results: The average for this year was 4.16, which is above the benchmark of 4.0 and the 4-year average of 4.12.

c) Discussion:

Although all students passed this assignment, faculty discussed if this is an adequate measure for this learning outcome. The software training does require students to understand and apply construction administration and control practices, but it relies mostly on standard quiz questions. Faculty will revisit this after another cycle and discussions with the accreditation body to ensure relevance.

**SLO 8. Construction Knowledge**

1) Direct Measure:

Instrument: Research Term Paper on Construction Technology (Rubric)

Results: All students passed this assignment (70% minimum).

2) Indirect Measure:

Instrument: Student Exit Survey

Results: The average for this year was 4.28, which is above the benchmark of 4.0 and the 4-year average of 4.16.

3) Discussion:

This was perhaps the most challenging of all assignments for students. It requires them to incorporate prior coursework (general education and CM courses) into a coherent and complete research paper. Review of recent results shows that students generally pass this assignment, but often struggle with clearly articulating key technical ideas within their papers.

**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.

CM faculty are conducting a comprehensive review of overall curriculum and individual courses over the next semester (Fall 2016) in order to align with the new ACCE Outcomes Based Standards that were approved in January 2016 and ratified this summer. Results from this assessment cycle will be incorporated into this review process.

**5. What assessment activities will you be conducting in the 2016-2017 AY?** 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.

Assessment activities listed in the previous SOAP will be continued this upcoming academic year. However, data will be collected for the new ACCE Student Learning Outcomes.

Here are the assessment methods planned for this year:

- 1) Senior Capstone Project Evaluation
- 2) Course Assessments (via Course Kaizen Meetings)
- 3) AIC Level 1 Exam – May introduce this fall pending survey of students
- 4) Employer Survey
- 5) Student Exit Survey
- 6) Student Internship Evaluations

**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 the previous accreditation cycle have been addressed.

The CM faculty will be developing a new 5-year strategic plan in Spring 2016 to align with University, College, and accreditation body’s initiatives.

No other progress to report.

**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) then please attach a copy of the rubric. If you administered a survey please attach a copy of the survey so that the Learning Assessment Team (LAT) can review the questions.

**Attachments.**

- A. Rubrics**
- B. Senior Exit Survey**

## Attachment A. Rubrics

### A1. Business Management Rubric

#### COINS Update Grading Rubric

Category	Min. Value	Act. Value	Passed
COINS Score 1 - Percent change in equity	0		
COINS Score 2 - Rough approximation of profit	0		
COINS Score 3 - Average gross margin per project	0		
COINS Score 4 - Change in "Appraisal Metrics"	1		
Provides copy of financial analysis spreadsheet	N/A	N/A	
Provides copy of current Balance Sheet	N/A	N/A	
Provides copy of current Income Statement	N/A	N/A	
Provides copy of current Job Cost Report	N/A	N/A	
Provides copy of current Cash Flow Report	N/A	N/A	
Provides copy of current Ratios Report	N/A	N/A	
Summarizes observations based on the data and lists at least 3 action items to improve performance for next time. Summary should be at least 200 words with less than 3 errors in grammar and/or spelling.	N/A	N/A	

#### Summary of Observations

*{Write a short paragraph that discusses the data from the financial analysis spreadsheet.}*

#### Action Items for Improvement

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#### Attachments

1. Balance Sheet
2. Income Statement
3. Job Cost Report
4. Cash Flow Report
5. Ratios Report
6. Update financials spreadsheet

## A2. Construction Knowledge Research Paper

### Introduction

The primary focus of this research paper is to provide CM students with the opportunity to research a topic related to their senior project and to describe how this topic demonstrates the interconnectedness of the social, political, economic institutions and behaviors, and the historical background of a project. Students are expected to meet at least the “Milestone Level 3” of the AACU Written Communication VALUE rubric.

### Grading Rubric

Category	Pass	Fail
Submit a Google Document version of your essay by the due date		
Briefly introduce your project		
Describe the specific way in which your project impacts society		
Describe the specific way in which your project is impacted by local, regional, and/or state-wide politics		
Describe the specific way in which your project is impacted the the culture of the local area		
Describe the specific way in which economics impacts your project		
Discuss any social issues that were encountered during your project		
Briefly summarize your overall experience on the project		
At least 750 words (approximately 1.5 pages, single spaced).		
AACU WC1-3. Demonstrates adequate consideration of context, audience, and purpose and a clear focus on the assigned task(s) (e.g., the task aligns with audience, purpose, and context).		
AACU WC2-3. Uses appropriate, relevant, and compelling content to explore ideas within the context of the discipline and shape the whole work.		

AACU WC3-3. Demonstrates consistent use of important conventions particular to a specific discipline and/or writing task(s), including organization, content, presentation, and stylistic choices.		
AACU WC4-3. Demonstrates consistent use of credible, relevant sources to support ideas that are situated within the discipline and genre of the writing.		
AACU WC5-3. Uses straightforward language that generally conveys meaning to readers. The language in the portfolio has few errors.		

## Attachment B. CM Program Senior Exit Survey

### Q38 General Questions

#### Q5 Graduation Date

- May 2016
- December 2015
- May 2015
- December 2014
- May 2014
- December 2013

#### Q89 Which best describes your academic standing?

- Majoring in CM
- Double Major in CM (Engineering Primary)
- Double Major in CM (Other Primary)
- Minor in CM

#### Q6 Which curriculum did you follow?

- Before 2011/2012 (i.e., you took CM 105)
- After 2011/2012 (i.e., you took CE 20)
- Don't know

#### Q8 Are you interested in graduate studies?\*

- Yes
- No

#### Q9 If you are interested in graduate studies, when would you start?

- Immediately
- Within 2 years
- Within 5 years
- Unsure

Q10 Are you currently employed?

- Yes
- No

Q11 Are you currently employed in construction?

- Yes
- No

Q12 Have you been offered full time employment after graduation?

- Yes
- No

Q13 Have you been offered full time employment in construction (or a construction related field) after graduation?

- Yes
- No

Q39 No Employment Offers

Q40 What best describes your situation?

- Continuing Education
- Working Part Time (non-student)
- Unable to Find Employment
- Other

Q88 If "Other" selected, please explain.

Q41 Did you search for a job in construction?

- Yes
- No

Q42 If no, why did you not search for a job in construction?

Q43 If yes, did you receive any employment offers in construction?

- Yes
- No

Q44 If you did receive construction employment offers, why did you not accept them?

Q82 Is there anything that the CM Program and/or Fresno State could do to assist you in better preparing you to find employment?

Q26 General Employment

Q36 How many employment offers did you receive?

- 1
- 2
- 3
- 4
- 5
- More than 5

Q30 Employer Name (after graduation):

Q31 Position Title (after graduation):

Q28 What is the range of your annual salary (after graduation)?

- Less than \$35,000
- \$35,000 to \$45,000
- \$45,000 to \$55,000
- \$55,000 to \$65,000
- \$65,000 to \$75,000
- \$75,000 to \$85,000
- \$85,000 or More
- Not Applicable

Q33 Did you search for a job in construction?

- Yes
- No

Q34 If no, why did you not search for a job in construction?

Q37 If yes, for how many construction employment opportunities did you interview?

- 1
- 2
- 3
- 4
- 5
- 6+

Q45 Is there anything that the CM Program and/or Fresno State could do to assist you in better preparing you to find employment?

Q83 Construction Employment

Q17 How many construction employment offers did you receive?

- 1
- 2
- 3
- 4
- 5
- More than 5

Q18 Employer Name (after graduation):

Q19 Position Title (after graduation):

Q7 Where is your job located?

- Fresno/Central Valley
- Northern California
- Southern California
- West Coast (other than California)
- Other

Q20 What best describes your company?

- Owner
- Builder
- Prime Contractor
- Specialty Contractor
- Consultant
- Construction Manager
- Designer
- Developer
- Other

Q22 If you answered "Other", please describe.

Q23 What is the primary sector in which your firm works?

- Commercial Building
- Institutional/Government Building
- Residential Building
- Heavy Civil/Infrastructure
- Industrial/Manufacturing
- Utilities/Oil/Gas
- Other

Q29 If you answered "Other", please describe.

Q21 What is the range of your annual salary (after graduation)?

- Less than \$35,000
- \$35,000 to \$45,000
- \$45,000 to \$55,000
- \$55,000 to \$65,000
- \$65,000 to \$75,000
- \$75,000 to \$85,000
- \$85,000 or More
- Not Applicable

Q46 Extra Curricular Activities

Q47 Did you transfer to Fresno State from another school?

- Yes
- No

Q48 If yes, what best describes your prior school?

- Community College
- 4 Year College or University
- Other

Q49 If "Other", please describe.

Q50 Did you change major to Construction Management from another major?

- Yes
- No

Q51 What was your previous major?

- Civil Engineering
- Mechanical Engineering
- Electrical Engineering
- Other Engineering
- Business
- Other

Q52 Average number of hours worked while enrolled at Fresno State:

- 0
- Less than 10
- 10-20
- 20-30
- 30-40
- 40+

Q53 Did you complete an internship in construction while at Fresno State?

- Yes
- No

Q54 What was the name of the last company of your internship?

Q55 Were you involved in any of the following student organizations? (Select all that apply.)

- SIC
- XLC
- TGI
- CMAA
- AGC
- DBIA
- NAWIC
- Fraternity/Sorority
- Other

Q56 Did you serve in a leadership role in any of these organizations?

- Yes
- No

Q57 CM Program Assessment

Q58 I believe that I am well prepared to work as an entry level CM.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q59 I am satisfied with the education I received at Fresno State.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q60 I will be an active alumnus of Fresno State.

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q61 Are there any courses that you would like to see added to the CM curriculum?

Q62 Are there any courses that you would like to see modified or removed from the CM curriculum?

Q63 Do you have any suggestions on how the CM Program could improve the overall curriculum?

Q64 Rate your satisfaction of the overall advising process.

- Very Dissatisfied
- Dissatisfied
- Somewhat Dissatisfied
- Neutral
- Somewhat Satisfied
- Satisfied
- Very Satisfied

Q65 Rate your satisfaction of advising for lower division courses.

- Very Dissatisfied
- Dissatisfied
- Somewhat Dissatisfied
- Neutral
- Somewhat Satisfied
- Satisfied
- Very Satisfied

Q66 Rate your satisfaction of advising for upper division courses.

- Very Dissatisfied
- Dissatisfied
- Somewhat Dissatisfied
- Neutral
- Somewhat Satisfied
- Satisfied
- Very Satisfied

Q67 Do you have any recommendations to improve the advising process.

Q68 Program Outcomes

Q69 The following is a list of outcomes expected of students upon graduation. Rate your agreement that you understand and apply skills in the following areas.

Q70 Effective Communication (include Written, Oral, and Graphical)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q71 Teamwork & Team Relations

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q72 Problem Solving & Critical Thinking

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q73 Leadership

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q74 Legal & Ethical Responsibilities (including business relationships, construction contracts, and project roles)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q75 Business Management (including accounting, organizational management, and business structure)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q76 Construction Knowledge (including means, methods, and materials)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q77 Project Planning & Pre-construction Activities (including bidding, estimating, and scheduling)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q78 Project Administration & Controls (including field office management, cost control, schedule control, and project documentation)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q79 Construction Safety (including general knowledge and project safety management)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree

Q80 Integrated Project Practices (including managing owners' expectations, general design knowledge, and resolving project document conflicts)

- Strongly Disagree
- Disagree
- Neither Agree nor Disagree
- Agree
- Strongly Agree