CALIFORNIA STATE UNIVERSITY, SACRAMENTO

Department of Construction Management

TO: Office of Academic Program Assessment, Office of Academic Affairs **July 1, 2013**

FROM: Mikael Anderson, Chair

SUBJECT: BSCM 2012-2013 ANNUAL ASSESSMENT REPORT

Dr. Taylor,

Construction Management became a standalone Academic Department during the fall 2012 semester. From 1972 until 2012, Construction Management was a program under the Department of Civil Engineering. Previous Annual Assessment Reports were performed by the chair of Civil Engineering, so this year is the first official annual assessment report by the new Department of Construction Management.

Construction Management continues to be accredited through the American Council for Construction Education (ACCE). In October 2012, a visiting team from ACCE came to campus to evaluate the Construction Management Program for a re-accreditation. In February 2012, the accreditation committee and executive board for ACCE granted Sacramento State's Department of Construction Management the full 6-year reaccreditation. The previous accreditation visits resulted in 3-year reaccreditations, so this 6-year full reaccreditation is evidence that ACCE supports the leadership and direction of the Construction Management Program. It should also be noted that ACCE only granted 6-year reaccreditation to one other university during this cycle.

Sincerely,

Mikael Anderson, PE, Chair, Associate Professor
Department of Construction Management
College of Engineering & Computer Science
California State University, Sacramento
(916) 278-5990, mikael@csus.edu

1. As a result of last year's assessment effort, have you implemented **any changes for your assessment including learning outcomes, assessment plan, assessment tools (methods, rubrics, curriculum map, or key assignment etc.), and/or the university baccalaureate learning goals?**

a. If so, what are those changes? How did you implement those changes?

Assessment Plan Changes: The CM Faculty completed redeveloped our Academic Quality Plan (terminology preferred by our accreditation group, ACCE), which is our Assessment Plan. The Academic Quality Plan was restructured to more clearly identify Program Educational Outcomes (PEO's), Program Learning Outcomes (PLO's) , and Course Level Learning Outcomes. These outcomes are tied to our vision statement and our four missions of the program.

The assessment plan was further developed by the faculty through identifying tools and methods for evaluating the outcomes listed above into the following categories:

(1) Assessment Measures (i.e. surveys, tests, assignments, etc)
(2) Constituents (who we are surveying – alumni, students, employers, etc)
(3) Data Collection (methods used in gathering the information)
(4) Analysis Method (faculty discussion, industry focus groups, individual course revisions, etc)
(5) Recordkeeping (how the results are shared/published)
(6) Cycle Process (how often will these outcomes be reassessed, typically 3 or 6 year cycles to coincide with our reaccreditation)

In summary, Construction Management views our assessment plan as three subsets that are linked back to our vision and missions. Program Level Assessment (PEO's) → Curriculum Level Assessment (PLO's) → Individual Course Level Assessment (mapping to our curriculum)

***Please refer to attached Academic Quality Plan, created as a visual aid to this entire process.**

b. How do you know if these changes have achieved the desired results?

In our previous three reaccreditation visits from ACCE, we were charged with a weakness in the program for our assessment plan. During the fall 2012 reaccreditation, the visiting team acknowledged our newly structured assessment plan (Academic Quality Plan) and it was removed as a weakness in the program.

As a result of a comprehensive curriculum review with faculty and industry employers last year, we were able to implement changes in our course offerings resulting in reducing units from 132 to 126. These changes are a work-in-progress, as we continue to update our course content to align with the changes and demands of our evolving construction management industry. A direct example of these updates is one of our faculty receiving a grant to develop Building Information Modeling (BIM) into our current course curriculum, as the industry continues to become more technical in nature.

An additional indicator that our changes have results in positive outcomes is through our senior exit interviews surveys, performed with every graduate of our program. Feedback from these surveys is shared with faculty teaching the specific courses, and indirectly improved in the classroom the following semester.

More direct results are that we had 100% job placement with our graduates for the past two years, which provides evidence that our graduates are well sought after by employers due to their preparation from our program.

c. If no, why not?

N/A

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2. As a result of last year's assessment effort, have you implemented **any other changes at the department, the college or the university, including advising, co-curriculum, budgeting and planning?**
a. If so, what are those changes? How did you implement those changes?

Advising Changes: We used to have mandatory major advising every semester, as a result of only being able to offer major courses once each year. The intent with the mandatory advising is to guide students in taking the correct prerequisite courses in a timely manner in order that they can graduate in a timely manner. Missing one prerequisite course could result in delaying graduation by an entire year due to the course only being offered every other semester. As the enrollment continues to grow and we have limited faculty resources, we changed our policy to require mandatory advising every spring semester only. Additionally, we provide one-on-one advising for new students during orientations and conduct a fall student welcome where the faculty review program and curriculum policies.

Co-Curriculum Changes: The construction management major coincides with a minor in business administration. With construction management offering some major courses that are similar to the business minor electives, we were able to come to an agreement with the business college in allowing our CM 111 Labor relations course to count as an elective towards the business minor for CM students. This resulted in a reduction of 3 units for CM students. We also received an exemption from the foreign language requirement, resulting in another 6 units reduction. Lastly, we worked closely with the Math Department to remove the second semester calculus (Math 26B) from the major requirements. As only one semester of Calculus (Math 26A) is required for accreditation, this change resulted in an additional 3 units of reduction.

Curriculum Enhancements: During the summer 2012, I received grant funding to become a certified OSHA Safety Instructor. In the fall 2012, I integrated OSHA 10-hour safety training into our existing CM 120 course. The students can now add this certification to their resume, which is valued by employers and soon to be a minimum requirement for many federally funded projects.

b. How do you know if these changes have achieved the desired results?

The changes noted above have resulted in an overall reduction of units from 138 to 126, which has been mandated by the chancellor's office. The faculty and industry advisory board felt these changes would not affect the academic quality of the program. There are many other changes on the table for consideration,

including additional unit reductions and changes to course content in some of the existing major and minor courses.

c. If no, why not?

N/A

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3. What **PROGRAM** (not course) learning outcome(s) have you assessed this academic year?

At the Program Level, we have developed our Program Educational Outcomes (PEO's) as stated above. The PEO's are ***"A set of expectations that the Program establishes for students to be able to achieve after they graduate."*** This data is collected by interviewing recent graduates, surveying alumni of the program at specific intervals after graduation, and through industry advisory board and employment of our students.

- PEO #1: Develop the analytical and technical skills to succeed in the construction industry
- PEO #2: Lead project participants to successful outcomes (understand and apply the practices of effective leadership)
- PEO #3: Communicate effectively with the full range of participants in the construction process
- PEO #4: Practice construction management in a professionally responsible and ethical manner
- PEO #5: Develop an understanding of the social, political, and economical forces that affect the industry (lifelong learning)

The goal of the faculty this next academic year is develop alumni and employer surveys to directly answer each of the outcomes listed above. Our current mode of assessing this information is through more indirect, but very effective, measures noted in question #4 below.

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4. What method(s)/measure(s) have you used to collect the data?

Comprehensive Curriculum Review with faculty and industry. Meeting minutes provided as a record of the discussions and results.

Senior exit interviews with graduating students. Data was collected and records shared with faculty and industry.

Job placement record for past two years show 100% of the students received job offers in their major field of study.

Associated Schools of Construction (ASC) regional and national student competitions. These competitions are conducted by industry employers, using actual projects. Employers from across the nation attend these competitions to seek out the best of the best students for job placement. Our students have been awarded

over 35 trophies (1st, 2nd, or 3rd) in the past 6 years, setting a record of most percentage wins in 2013 with 6 trophies out of the 8 teams competing against 41 universities across the nation. The reputation earned from placing at this competition results in multiple job offers and recently employers as far away as Oklahoma visiting our campus for interviews.

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5. What are the criteria and/or standards of performance for the program learning outcome?

The criteria we used for developing our program learning outcomes (aka Program Educational Outcomes) was based on prescribed objectives outlined from our accrediting agency (ACCE), our program vision statement, our program missions, and our industry advisory board feedback.

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6. What data have you collected? What are the results and findings, including the percentage of students who meet each standard?

We have collected data from graduating seniors. The results are that they want to see more Building Information Modeling and additional estimating and scheduling software in the curriculum, as they are being asked about these tools and resources at job interviews. The percentage of students that received job offers is 100%.

a. In what areas are students doing well and achieving the expectations?

Our students are doing well in developing their analytical and technical skills in the industry, are able to communicate effectively as indicative of their in-class group project presentations and student competitions.

b. In what areas do students need improvement?

Students need to improve on their technical writing skills, as noted by the CM faculty. The current generation of students were born in the internet age and have lost the art of good writing skills.

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7. As a result of this year's assessment effort, do you anticipate or propose any changes for your program (e.g. structures, content, or learning outcomes)?

As a result of this past year's assessment, I anticipate integrating Building Information Modeling (computer 3-D modeling of construction projects) across many existing courses in our curriculum

a. If so, what changes do you anticipate? How do you plan to implement those changes?

The faculty have developed a plan for implementing these changes as follows:

CM 21 Construction Graphics (Bisharat) – Students learn about project drawings and details in the traditional two dimensional paper drawing. One of their projects involves building scaled models out of basal wood for a project. The professor is planning to introduce a 3-D modeling program in an assignment that will allow student to build a digital model of the project to complement their physical scaled models. Plan is to use Sketchup 3D and Autodesk Revit software.

CM 120 Operations Analysis (Anderson) – One of the objectives of this course is for students to leanr how to develop a site logistics plan for a project, which is essentially the prject site layout and flow of materials and equipment during construction. We are planning to allow the use of Sketchup 3D software for modeling these plans.

CM 126 Project Management (Reginato) – Students will use a clash detection software in developing protocols for addressing field problems, such as a plumbing pipe that clashes with an air duct. In the past, contractors and designers used light tables to see where various trades had conflicts, which could take several months to coordinate for a project. The students will be able to develop and analyze 3-D models for viewing the various trade contractors in coordinating the work.

b. How do you know if these changes will achieve the desired results?

Feedback from our industry employers, colleagues at competing universities, and recent jobsite visits indicate that these techniques noted above need to be taught to undergraduate students in order that they are adequately prepared upon graduation to manage these larger and more complicated structures.

The faculty will need to evolve their course offerings to stay ahead of the industry changes, which will require a regular assessment of this curriculum content.

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8. Which program learning outcome(s) do you plan to assess next year? How?

Our primary objective for the next year will be to collect data from our graduates at three and six years beyond graduation dates. This data must coincide with our Program Educational Outcomes, in order for us to have tangible results that we can analyze and implement as the faculty deem appropriate. We will use emails and social media to survey these alumni of the program.