

*CM Program Assessment Measures and Actions Taken as a Result of Assessment*

For program assessment, the CM Program set 70% as the level of acceptance for Student Learning Outcomes for all construction management courses offered by the program. The direct/indirect measures of student learning outcomes are collected and reviewed by the instructor of record and reported to the department faculty for confirmation and suggestions, if necessary. In case of a student learning outcome falling below the benchmark of 70%, actions-to-be-taken will be prepared by the instructor of record in consultation with the Program Director and the Department Chair. They are also presented during the meeting with the department Industry Advisory Council (IAC) once a semester and seeks inputs from the IAC.

Below is the complete set of report to the university assessment committee at CBU reported at the end of the 2018-19 academic year. Note that SLO's 9, 15, and 18 will be assessed in the 2019-20 academic year.

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Academic Year: 2018-2019

Program/Academic Major: Construction Management

Date: May 15, 2019

Note: CM program uses Direct Measures and Indirect Measures to assess student learning outcomes directed by the American Council for Construction Education (ACCE) accreditation guideline. Direct Measure is based on student's performance on coursework in each class, such as homework assignments, quizzes, projects, and exams. Indirect Measure is based on the student's course objective evaluation, which is a student's self-evaluation conducted at the end of the semester. The minimum criteria for the CM program is set 70% on both Direct and Indirect Measures. Attached are the course assessment sheet for each class indicated in the following table.

SLO #	Student Learning Outcomes	Assessment Methods	Overall Results (%)	Direct Measure (%)	Indirect Measure (%)	Actions Needed
<b>SLO 1</b>	Create written communications appropriate to the construction discipline	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 90.9  Indirect Measure: 86.9	CON205 (91.5), CON215 (84.7), CON315 (94.7), CON415 (88.7), CON430 (94.8)	CON205 (75.0), CON215 (96.0), CON315 (93.4), CON415 (87.5), CON430 (82.6)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor

SLO #	Student Learning Outcomes	Assessment Methods	Overall Results (%)	Direct Measure (%)	Indirect Measure (%)	Actions Needed
<b>SLO 2</b>	Create oral presentations appropriate to the construction discipline	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 87.8  Indirect Measure: 93.3	CON310 (82.9), CON330 (92.3), CON415 (88.2)	CON310 (94.8), CON330 (100), CON415 (85.0)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 3</b>	Create a construction project safety plan	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 92.4  Indirect Measure: 100	CON330 (92.4)	CON330 (100)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 4</b>	Create construction project cost estimate	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.4  Indirect Measure: 86.7	CON205 (91.2), CON430 (90.8), CON460 (86.1)	CON205 (79.2), CON430 (83.3), CON460 (97.6)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 5</b>	Create construction project schedule	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 87.0  Indirect Measure: 95.1	CON460 (87.0)	CON460 (95.1)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 6</b>	Analyze professional decisions based on ethical principles	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 90.7  Indirect Measure: 91.7	CON105 (86.3), CON330 (94.4), CON415 (90.3), CON460 (91.6)	CON105 (90.0), CON330 (100), CON415 (86.9), CON460 (90.0)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course

SLO #	Student Learning Outcomes	Assessment Methods	Overall Results (%)	Direct Measure (%)	Indirect Measure (%)	Actions Needed
						improvement by instructor
<b>SLO 7</b>	Analyze construction documents for planning and management of construction process	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 87.1 Indirect Measure: 87.7	CON205 (91.1), CON325 (82.7), CON350 (83.9), CON430 (90.8), CON460 (86.8)	CON205 (79.5), CON325 (93.0), CON350 (91.2), CON430 (83.6), CON460 (91.3)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 8</b>	Analyze methods, materials, and equipment used to construct project	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.5 Indirect Measure: 90.2	CON105 (82.4), CON205 (90.9), CON310 (79.6), CON315 (93.3), CON415 (92.9), CON430 (90.8), CON460 (91.0), CON470 (94.9)	CON105 (95.0), CON205 (81.7), CON310 (97.8), CON315 (93.4), CON415 (85.1), CON430 (83.6), CON460 (85.0), CON470 (100)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 9</b>	Apply construction management skills as a member of a multi-disciplinary team	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: Indirect Measure:	CON215, CON310 CON330, CON340 CON415, CON460 CON470	CON215, CON310 CON330, CON340 CON415, CON460 CON470	Not assessed in 2018-2019; Will be included in 2019-2020 academic year
<b>SLO 10</b>	Apply electronic - based technology to manage the construction process	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.8 Indirect Measure: 85.9	CON205 (91.6), CON215 (84.7), CON415 (99.0), CON430 (86.3), CON460 (87.5)	CON205 (74.2), CON215 (96.0), CON415 (87.6), CON430 (86.6), CON460 (85.0)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 11</b>	Apply basic surveying techniques for construction layout and control	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: Indirect Measure:	EGR251(86.8)	EGR251(89.3)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor

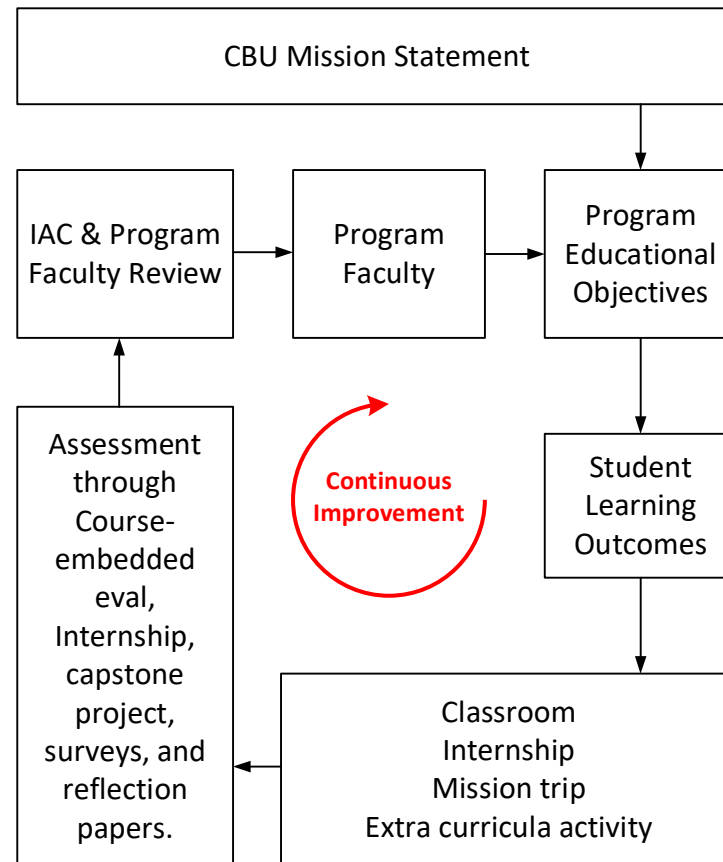
SLO #	Student Learning Outcomes	Assessment Methods	Overall Results (%)	Direct Measure (%)	Indirect Measure (%)	Actions Needed
<b>SLO 12</b>	Understand different methods of project delivery and the roles of and responsibilities of all constituencies involved in the design and construction process	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 86.1  Indirect Measure: 94.6	CON105 (83.5), CON315 (82.9), CON350 (84.1), CON470 (94.0)	CON105 (91.3), CON315 (96.7), CON350 (90.4), CON470 (100)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 13</b>	Understand construction risk management	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.2  Indirect Measure: 87.6	CON105 (89.2)	CON105 (87.6)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 14</b>	Understand construction accounting and cost control	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 82.2  Indirect Measure: 92.4	CON325 (82.2), ACC250	CON325 (92.4), ACC250	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 15</b>	Understand construction quality assurance and control	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure:   Indirect Measure:	CON105	CON105	Not assessed in 2018-2019; Will be included in 2019-2020 academic year
<b>SLO 16</b>	Understand construction project control processes	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 90.0  Indirect Measure: 89.3	CON105 (84.5), CON415 (99.0), CON460 (86.5)	CON105 (87.6), CON415 (87.6), CON460 (92.6)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor

SLO #	Student Learning Outcomes	Assessment Methods	Overall Results (%)	Direct Measure (%)	Indirect Measure (%)	Actions Needed
<b>SLO 17</b>	Understand the legal implications of contract, common, and regulatory law to manage a construction project	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.5  Indirect Measure: 94.9	CON315 (90.7), CON350 (83.7), CON470 (94.0)	CON315 (93.4), CON350 (91.2), CON470 (100)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 18</b>	Understand basic principles of sustainable construction	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure:  Indirect Measure:	CON105	CON105	Not assessed in 2018-2019; Will be included in 2019-2020 academic year
<b>SLO 19</b>	Understand the basic principles of structural behavior	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 88.3  Indirect Measure: 96.6	CON215 (84.7), CON310 (88.6), CON340 (93.2)	CON215 (96.0), CON310 (97.8), CON340 (96.0)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor
<b>SLO 20</b>	Understand the basic principles of mechanical, electrical and piping systems.	Course-Embedded Assessment Direct/Indirect Measures	Direct Measure: 89.4  Indirect Measure: 98.0	CON215 (84.7), CON470 (94.1)	CON215 (96.0), CON470 (100)	Minimum criteria (70%) met in all courses; No immediate actions needed other than continuous course improvement by instructor

### Proactive Actions to Continuous Improvement

If the respective Student Learning Outcome (SLO) met the 70% minimum requirement, there were no immediate actions needed other than continuous course improvement by instructor. Then the department faculty share the results with the Industry Advisory Council (IAC) for their advice to improve the program.

Although the above data supports Student Learning Outcomes are met, the program takes proactive actions in pursuit of continuous improvement. The following multifaceted continuous improvement plan reflects the strategic plan of the CM Program. All phases are sequentially interrelated in support of desired program outcomes centered on CBU's educational mission. The following figure shows the phases of the program's continuous improvement cycle and the key roles in each phase.



**Construction Management Program Continuous Improvement Plan**

In light of the continuous improvement plan, the CM Program will add the following two surveys in the 2019-20 academic year to enforce the assessment plan as a means to substantiate program's continuous improvement plan:

- Alumni Survey
- Employer Survey

These two surveys were conducted in the past but discontinued when the program had to change the program directors. The CM Program currently collects data only from employers who provide summer internships to students. The CM Program will resume the two surveys to our alumni and the current and new employers of our graduates. The alumni survey should particularly help the program re-visit the previous year's implementation of the continuous improvement cycle. The employer survey will be used to measure the level of satisfaction of our graduates' employers. Together, the two surveys will help the program improve the quality of the program in the long run.

#### Assessment Implementation Plan for the Degree Program

The Alumni and Employer Surveys will be implemented as follows:

- The first batch of Alumni and Employer Surveys will be sent out in May, 2020 and will continue during the summer of 2020.
- The department faculty will review the results of the two surveys in August, 2020 and assume the first-responder roles.
- IAC will then review the results of the surveys as well as the suggestions made by the department faculty in October, 2020
- A list of action items for the spring and fall semester courses will be made by the department faculty based on the suggestions from the department faculty and the IAC prior to the conclusion of the fall semester of 2020.
- Iterate the implementation and review cycle in each academic year.