EMU CM Program- Assessment Plan

Updated Winter 2022

Mission Statement of the Construction Management Program

The mission of the EMU CM Program is "*to educate, mentor, and fully prepare the students for their career of professional excellence with hands-on, management, and business-oriented skills to work in and lead the U.S. and global construction industry*."

CM Degree Program Objectives

To meet the program mission and goals as outlined in the strategic plan, the EMU CM program will produce graduates that will be able to:

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 system

Student Learning Outcomes of the Construction Program.

The EMU CM program learning outcomes are the same as the ACCE Student Learning Outcomes. Therefore, upon graduation from the EMU CM program, a graduate shall be able to:

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.
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As the program objectives are the same as the Student Learning Outcomes (SLOs), the assessment of the SLOs functions as the assessment of the Program Objectives.

Assessment Tools and Performance Criteria.

The program establishes assessment tools and performance criteria for each instrument to measure the achievement of the outcomes and objectives of the program. Each SLO will be evaluated with either two direct assessment tools or one direct and indirect assessment tool. The program faculty sets the required performance and can't be lowered. Recommending a lowering of the performance threshold is not acceptable.

1) Direct Assessment tools: the program has adapted the direct assessment tool to be either a whole or part of an assignment or examination that is part of a course grade or the course final grade, if applicable. If a group project is used, an individual student assessment will be evaluated.

The program used the course grade mainly during the departure of the faculty members, change in leadership, and COVID-19. However, in the last year, the direct assessment has shifted to use mostly a whole or part of an assignment or examination for assessment. The following are the direct tools used in the last assessment cycle starting in fall 2019 and ending in winter 2020 semesters:

Direct Assessment Tool	Performance Criteria
1) Exams, Quizzes, Homework, Reports, Certificates, etc.	At least 70% of participating students will score 70% or better.
2) The final grade of a course	At least 70% of participating students will score 70% [C-] or better.
3) Projects	At least 70% of participating students will score 70% or better.

The Curriculum Mapping of the courses to the program SLOs is presented in the chart on the next page.
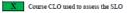
2) Indirect Assessment tools: The program used mainly the student exit survey given to graduating seniors. Each SLO will be measured on a 1–5 scale, where one (1) indicates strongly disagree, and five (5) strongly agree. In addition, the program used a class survey on a scale of 1-10, where one (1) indicates strongly disagree, and five (5) strongly agree. The following summarizes the indirect assessment tools and their performance criteria.

Indirect Assessment Tool	Performance Criteria
1) Class Assessment	At least 50% of students score at least six (6) on a 1-10 scale, where one (1) indicates strongly disagree, and ten (10) strongly agree.
2) Exit Survey	At least 50% of students "Strongly agree" (i.e., 5/5) and "Somewhat agree" (i.e., 4/5) that the CM program adequately prepared students for each ACCE SLO.

EMU CM Curriculum Map

Construction Management Required Courses (columns 1–19):

1) CNST 125 Introduction to Construction
2) CNST 201 Construction Systems
3) CNST 206 Surveying
4) CNST 212 Construction Materials and Testing
5) CNST 213 Construction Safety
6) CNST 228 Construction Graphics
7) CNST 229 Analysis of Commercial Prints
8) CNST 230 Construction Management Computer Applications
9) CNST 302 Contract Documents, Regulations, and Specifications
10) CNST 303 Electrical, Mechanical, and Equipment Systems
11) CNST 304 Construction Estimating and Bidding
12) CNST 312 Statics and Strength of Materials
13) CNST 361 Planning and Scheduling
14) CNST 403 Production Control
15) CNST 406W Construction Law
16) CNST 412 Structural Systems
17) CNST 436 Heavy/Highway Construction Means and Methods
18) CNST 440 LEED for New Construction and Major Renovations
19) CNST 450 Fundamentals of Construction Project Management

Legend: X = Course CLO is mapped to the SLO (yellow); **X** = Course CLO used to assess the SLO (green).

Construction Management Program Students Learning Outcomes	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
SLO 1- Create written communications appropriate to the construction discipline.					X	X				X					**X**				
SLO 2- Create oral presentations appropriate to the construction discipline.					X	X													**X**
SLO 3- Create a construction project safety plan.					**X**				X										
SLO 4- Create construction project cost estimates.									X	X	**X**								
SLO 5- Create construction project schedules.								X					**X**						
SLO 6- Analyze professional decisions based on ethical principles.						X			X	X					**X**			X	
SLO 7- Analyze construction documents for planning and management of construction processes.	X					X	**X**	X	X										
SLO 8- Analyze methods, materials, and equipment used to construct projects.		X		X						X							X		
SLO 9- Apply construction management skills as an effective member of a multi-disciplinary team.										X				X					**X**
SLO 10- Apply electronic-based technology to manage the construction process.	X			**X**		X		**X**											
SLO 11- Apply basic surveying techniques for construction layout and control.			**X**			X													
SLO 12- Understand different methods of project delivery	X								**X**										X
SLO 13- Understand construction risk management.									X						X				X
SLO 14- Understand construction accounting and cost control.									X	X					X				X
SLO 15- Understand construction quality assurance and control.				X													X		X
SLO 16- Understand construction project control processes.									X						**X**				X
SLO 17- Understand the legal implications of contract, common, and regulatory law to manage a construction project.									X						**X**				
SLO 18- Understand the basic principles of sustainable construction.						X			X	X								**X**	
SLO 19- Understand the basic principles of structural behavior.												**X**				X			
SLO 20- Understand the basic principles of mechanical, electrical and plumbing systems.		X				X				**X**									

X — Course CLO is mapped to the SLO
X — Course CLO used to assess the SLO

Evaluation Methodology for the Data.

The program has created an assessment form to ensure consistency in assessment. The Direct Assessment form consists of the following elements:

1) SLO number and title.
2) The course prefix, number, and title.
3) Semester
4) Direct Assessment part or whole of an assignment or examination.
5) The instructor.
6) Exhibits:
   1) Assessment and Rubric
   2) Sample of student work
   3) Data and Analysis
   4) Assessment Results and Recommendations.

In addition, the indirect Assessment form consists of the following elements:

1) SLO number and title.
2) Semester
3) The Indirect Assessment tool used.
4) The Instructor.
5) Exhibits:
   1) Assessment
   2) Exit Survey Results
   3) Assessment Results and Recommendations

Each faculty or Part-Time Lecturer collect and analyze the data for the direct assessment measures assigned each semester. The instructor needs to recommend either measure to improve students' performance if the results do not meet the required performance criteria or provide recommendations for continuous improvement.

Data and recommendations will then be forwarded to the program coordinator, who will upload the assessment of all courses to a shared drive for faculty to access and provide feedback. The results are typically discussed among faculty during their regular meetings.

The Strategic Plan has continuously improved over the years. Program faculty revise the strategic plan as appropriate and beneficial to the program and the students. During the semester, there are regular meetings to review the strategic goals, mission and vision, and the status of the goals.

Assessment Implementation Plan

The assessment implementation plan is intended to ensure that the program continuously improves SLOs and the Degree Program objectives. The continuous improvement plan ensures that each class accomplishes the student learning outcomes and aligns with the overall program goals.

Direct and indirect assessment tools are used each semester for each SLO. The program faculty's data is compiled for each SLO and shared on a drive by the program coordinator.

Fall Semester:

1) Review assessment of the Winter Semester and initiate any curriculum changes in Curriculog if needed

2) Share any issues and student data with the Advisory Board meeting for their feedback and recommendations:
   a. Update on the implementation of recommendations from the previous meeting.
   b. Update on resources/equipment acquired from the previous semester.
   c. Get feedback/recommendations on old issues and any new issues.
   d. Continue/start implementation of the recommendations.

3) Collect data about the program needs for the next academic year.

4) Share the recommendations with the School Director to follow up with the Dean.

5) Review and update the Program Strategic Plan and Degree Program Assessment Plan once every three cycles. The next cycle will be in fall 2022. The faculty will start the process and get feedback and recommendation from CM Alumni Committee and Industrial Advisory Committee.

Winter Semester:

1) Follow up on any curriculum changes.

2) Share any issues and student data with the Advisory Board meeting for their feedback and recommendations:
   a. Update on the implementation of recommendations from the previous meeting.
   b. Update on resources/equipment acquired from the previous semester.
   c. Get feedback/recommendations on old issues and any new issues.
   d. Continue/start implementation of the recommendations.

3) Finish the list of equipment and resources needed for continuous improvement and turn it in to the School Director.

4) Share the recommendations with the School Director to follow up with the Dean.