

**Kennesaw State University
Construction Management**

Master's Degree Program Academic Quality Master Plan

Academic Quality Plan

Master of Science Construction Management (MSCM) program adopted the American Council for Construction Education (ACCE) learning outcomes assessment approach from Fall 2017. The academic quality plan for this outcomes based approach includes five components: Plan, Collect, Analyze, Act, and Report. Plan component includes establish or edit program objectives and student learning outcomes. This also includes creation or revision of the assessment plan. Collect component includes the design of data collection templates and assessment frequency. This also includes the required assessment data collection. Analyze component includes the analysis of the collected data and identification of potential areas for improvement. Act includes developing of action plans and their implementation. Report includes determination of if implemented strategies resulted in improvement or not. The quality plan includes feedback from faculty, industry advisory board, students, alumni and employers. This quality master plan will be used for assessment of MSCM program.

Department Mission

The mission of the Construction Management Department is to prepare students for professional construction leadership positions, with a sense of ethical and environmental responsibility, and prepare them for advanced degree programs.

Department Goals

The long-term goals (LG) of the Construction Management (CM) Department are:

- LG1: Continue to improve curriculum to reflect global and national construction industry needs.
- LG2: Improve managerial/ business skills of students to take leadership roles
- LG3: Enhance and sustain the department.

The short-term goals (SG) of the Construction Management Department are:

- SG1: Prepare students for successful construction industry career.
- SG2: Meet accreditation agency requirements for curriculum
- SG3: Encourage students to take business fundamentals courses
- SG4: Increase financial support for the department.
- SG5: Increase the number of faculty achieving tenure and promotion within the college and departments
- SG6: Increase visibility and awareness of the CM Department

MSCM Program Goal and Objectives

MSCM program goal is to prepare students for global and national construction industry needs through a curriculum which meets the accreditation agency requirements. The following program objectives (PO) are established to accomplish the program's goal and contribute towards the department's goals.

MSCM Program Objectives:

- PO1: Prepare bids and estimates for construction projects
- PO2: Prepare construction schedule and manage project risks.
- PO3: Carry-out project management related tasks.
- PO4: Conduct research and disseminate findings through publications.
- PO5: Pursue advanced degrees
- PO6: Maintain MS program ACCE accreditation
- PO7: Increase visibility and awareness of the CM Department

The following Table 1 shows the correlation of department long and short-term goals with program objectives. The table also includes the assessment tools used to determine the accomplishment of the program objectives.

Table 1: Correlation of Program Outcomes with Department Long and Short Term Goals

Department Long Term Goals (LG)	Department Short Term Goals (SG)	MS Program Objectives (PO)	Assessment Method
<p>LG1: Continue to improve curriculum to reflect global and national construction industry needs.</p>	<p>SG1: Prepare students for successful construction industry career.</p>	<p>PO1: Prepare bids and estimates for construction projects</p> <p>PO2: Prepare construction schedule and manage project risks.</p> <p>PO3: Carry-out project management related tasks.</p> <p>PO4: Conduct research and disseminate findings through publications.</p> <p>PO5: Pursue advanced degrees</p>	<ul style="list-style-type: none"> • Program Student Learning Outcomes Assessments • Students Exit Surveys • Alumni Surveys • Employer Surveys
<p>LG1: Continue to improve curriculum to reflect global and national construction industry needs.</p>	<p>SG2: Meet accreditation agency requirements for curriculum</p>	<p>PO6: Maintain MS program ACCE accreditation</p>	<ul style="list-style-type: none"> • ACCE MS self-study • ACCE Annual Progress Reports
<p>LG3: Enhance and sustain the department</p>	<p>SG6: Increase visibility and awareness of the CM Department</p>	<p>PO7: Increase visibility and awareness of the CM Department</p>	<ul style="list-style-type: none"> • Peer-reviewed faculty publications in journals and conferences • Awards, leadership activities at the national, state and regional level • Industry Advisory Board activities • Number of organization coming to the department to recruit CM graduates and interns

Quality Plan for PO1 to PO5

To accomplish PO1 to PO5 objectives, the Program Student Learning Outcomes are developed in accordance with American Council of Construction Education (ACCE). The Program Student Learning Outcomes will be further referred as Student Learning Outcomes (SLO)s.

Student Learning Outcomes:

- SLO 1 - Critical thinking and creativity
- SLO 2 - Problem solving and decision making
- SLO 3 - Effective and Professional oral and written communication
- SLO 4 - Use of information and communication technology
- SLO 5 - Principles of leadership in business and management
- SLO 6 - Current issues in construction
- SLO 7 - Complex project decision making and associated risk management
- SLO 8 - Professional ethics including application to situations and choices
- SLO 9 - Advanced construction management practices
- SLO 10 - Research methods

The following Table 2 shows the correlation of program objectives and program student learning outcomes.

Table 2: Correlation of program objectives (PO)s and program student learning outcomes (SLO)s.

	PO1	PO2	PO3	PO4	PO5
SLO1	X	X	X	X	X
SLO2		X	X	X	
SLO3		X	X	X	X
SLO4	X		X		
SLO5	X	X	X		
SLO6	X		X	X	
SLO7	X	X	X		X
SLO8	X		X		X
SLO9	X	X	X	X	
SLO10				X	X

Assessment Plan for SLOs Achievement

The achievement of SLOs is measured through four methods: (1) course level learning outcomes (CLO) assessment, (2) graduate students exit survey, (3) graduate alumni survey and (4) graduate employers survey. In CLO assessment, instructor uses student course evaluations to get the students' feedback. The frequency of assessment and evaluation of these components are described in the following Table 3.

Table 3: Frequency of Assessment and Evaluation of Components for SLO Achievement

Assessment Method	Frequency of Assessment	Data Collected Media	How Collected	From Whom Collected	Responsible for Collection	Who Evaluates Data	Frequency of Evaluation
Course Level Learning Outcomes Assessment	Once per year	Exams/ homeworks/ assignments/ projects	Paper/online	Students	Course Instructor	Course Instructor	Once per year
Graduate Student Course Evaluations	Once per year	Surveys	Online	Students	Course Instructor	Course Instructor	Once per year
Graduate Students Exit Survey	Twice per year (Fall and Spring)	Surveys	Online	Students	Dept. Chair/Graduate Coordinator	Dept. Chair/Graduate Coordinator/ Advisory board	Once per year
Graduate Employers Survey	Once every three years	Surveys	Online	Employers of CM Graduates	Dept. Chair/Graduate Coordinator/ Advisory board	Dept. Chair/Graduate Coordinator/ Advisory board	Once every three years
Graduate Alumni Survey	Once every three year	Surveys	Online	CM Alumni	Dept. Chair/Graduate Coordinator/ Advisory board	Dept. Chair/Graduate Coordinator/ Advisory board	Once every three year

The following section discusses each assessment method.

Course Level Learning Outcomes Assessment

Graduate Program Coordinator in collaboration with Graduate faculty, CIAB- Graduate Program Committee and Department Chair developed the architecture for addressing and assessing the student learning outcomes throughout the curriculum. MSCM curriculum has been designed to ensure that student learning outcomes are fulfilled. Table 4 shows how each course in the curriculum contributes to the achievement of the student learning outcomes.

Table 4: Distribution of student learning outcomes throughout the courses offered in MSCM program

	SLO1	SLO2	SLO3	SLO4	SLO5	SLO6	SLO7	SLO8	SLO9	SLO10
CM6000	X	X	X			X				X
CM6100		X	X				X	X		
CM6120	X	X			X		X			
CM6200		X	X			X		X		
CM6310									X	
CM6320				X						
CM6520	X		X							
CM6600		X	X				X			
CM6610	X							X	X	
CM6620	X				X				X	
CM6710	X	X	X	X	X		X			X
CM6720	X	X	X		X	X		X		X

Table 5 shows how correlation of the course learning outcomes with student learning outcomes.

Table 5: Mapping of Program Student Learning Outcome (SLO)s with Course Level Learning Outcome (CLO)s

SLO	Course Number & Name	CLO Number & Description
SLO 1- Critical Thinking and Creativity	CM 6000- Information Methods	CLO 1– Ability to carry out research process on a subject related to the construction industry reflecting critical thinking and creativity
	CM 6120 – Dispute Resolution	CLO 4 - Defining key elements in the strategic bargaining process, including motivational, procedural and other elements and applying them to specific bargaining scenarios.
	CM 6520 – International Construction	CLO 1- The ability to prepare a country review from construction perspective.
	CM 6520 – International Construction	CLO 3- The ability to reason and look at all factors of risk and understanding of international issues that differ from local.
	CM 6610 – Sustainable Construction	CLO 1- Understand the basic principles of sustainable construction.
	CM 6620 – Sustainable	CLO 1- Examine sustainability options for existing buildings.

SLO	Course Number & Name	CLO Number & Description
	Operations & Maintenance	CLO 2- Apply rating systems and/or sustainability strategies for existing buildings.
	CM 6710- Facility Management Practices	CLO 3 – Prepare facility capital and operational plans, schedule, estimates, and annual budgets.
	CM 6720- Facility Management Strategies	CLO 1 – Describe the practice and history of Facilities Management by identifying various roles and responsibilities of FM as the profession has evolved over time and how FM is practiced worldwide.
CLO 2 – Implement a quality assurance process for improving product or a process in a FM department or organization (FMEA & Six Sigma).		
SLO 2 – Problem solving and decision making.	CM 6000- Information Methods	CLO 2– Ability to disseminate research information preferably thorough journal/ conference paper based on individual research project completed during the course- problem solving and decision-making
	CM 6200- Strategic Bidding & Estimating	CLO 1: The ability to prepare a skeleton detailed estimate for a commercial construction project
		CLO 2 – The ability to prepare a detailed General Condition Estimate (CSI Division 1)
		CLO 3 – The ability to prepare an Order of magnitude estimate with Location, Inflation, and Size Adjustment.
		CLO 4 – The ability to estimate Unit Prices based on wage rates and crew productivities
		CLO 6 – The ability to prepare and present a cost proposal with write up, a schedule, and a cost proposal
	CM 6600- Construction Risk Analysis & Control	CLO 1 - Select risk factors associated with construction projects.
CM 6100- Construction & Real Property Law	CLO 1- Author a construction contraction with all legal terms, risk, contingencies, addendums, etc. as required by AIA for construction related projects.	
	CLO 4- Identify within construction contracts loopholes, liabilities, illegal content, etc.	

SLO	Course Number & Name	CLO Number & Description
	CM 6120 – Dispute Resolution	CLO 1- Using examples of conflict at both the individual and organizational levels, to define the key common social and behavioral aspects required for conflict resolution.
		CLO 8- Understanding the basic principles of mediation, arbitration, partnering, litigation and other resolution processes, through actual development and participation in exercises involving each of those modes of resolution.
	CM 6710- Facility Management Practices	CLO 3 – Prepare facility capital and operational plans, schedule, estimates, and annual budgets.
		CLO 4 – Use economic decision making tools to analyze alternative facility or asset decisions and cost control.
	CM 6720- Facility Management Strategies	CLO 2 – Implement a quality assurance process for improving product or a process in a FM department or organization (FMEA & Six Sigma).
	SLO 3 – Effective and professional oral and written communication.	CM 6000- Information Methods
CM 6600- Construction Risk Analysis & Control		CLO 6 - Describe a quality assurance program for risk management.
CM 6100- Construction & Real Property Law		CLO 5- Identify legal terms, contract terms, and construction term used in AIA documents for construction projects
		CLO 6- Recognize contract, common and regulatory law in construction contracts and projects
CM 6200- Strategic Bidding & Estimating		CLO 6 – The ability to prepare and present a cost proposal with write up, a schedule, and a cost proposal
		CLO 7 – Improve Presentation and discussion skill while presenting Ethics
CM 6520 – International Construction		CLO 2 – The ability to research and put together material that can be published and can be directly used by interested parties.
CM 6710- Facility Management Practices		CLO 5 – Author academic research paper and publishable quality.

SLO	Course Number & Name	CLO Number & Description
	CM 6720- Facility Management Strategies	CLO 1 – Describe the practice and history of Facilities Management by identifying various roles and responsibilities of FM as the profession has evolved over time and how FM is practiced worldwide.
		CLO 4 – Demonstrate project writing and presentation skills for FM projects and companies.
SLO 4 – Use of information and communication technology.	CM 6320- Construction information System.	CLO 1 – Create a database for project using MS Access.
		CLO 2 – Develop a model using BIM software.
		CLO 3 – Prepare quantity takeoff and cost estimates using BIM.
		CLO 4 – Resolve the constructability problems using BIM.
	CM 6710- Facility Management Practices	CLO 4 – Use economic decision making tools to analyze alternative facility or asset decisions and cost control.
SLO 5 – Principles of leadership in business and management.	CM 6120 – Dispute Resolution	CLO 5- Evaluating and applying the various communication and persuasion techniques designed to improve negotiating effectiveness.
		CLO 6- Appraising the roles of needs, power and personality on bargaining outcomes.
		CLO 7- Developing a framework of ethical decision making, and analyzing the ethical issues in specific types of conflicts.
	CM 6620 – Sustainable Operations & Maintenance	CLO 3 – Analyze sustainability projects using financial tools.
	CM 6710- Facility Management Practices	CLO 1 – Describe their role and responsibility as a Facility Manger in different business and organization models.
CLO 2 – Use the techniques of strategic planning (balance scorecard) to justify clear alignment between their facility strategic plan and company’s mission, vision, and strategic objectives.		

SLO	Course Number & Name	CLO Number & Description
	CM 6720- Facility Management Strategies	CLO 3 – Use planning strategies to implement and control change within an organization (benchmarking and FCAP).
SLO 6 – Current issues in construction	CM 6000- Information Methods	CLO 4– Identify current issues in construction
	CM 6200- Strategic Bidding & Estimating	CLO 1: The ability to prepare a skeleton detailed estimate for a commercial construction project
		CLO 2 – The ability to prepare a detailed General Condition Estimate (CSI Div 1)
		CLO 3 – The ability to prepare an Order of magnitude estimate with Location, Inflation, and Size Adjustment.
		CLO 4 – The ability to estimate Unit Prices based on wage rates and crew productivities
		CLO 5 – Discussion on Ethics during the Bid Process
CM 6720- Facility Management Strategies	CLO 5 – Analyze a case to discuss the role of human factors in organizational success.	
SLO 7 – Complex project decision making and associated risk management.	CM 6600- Construction Risk Analysis & Control	CLO 2 - Recognize how to transfer and avoid risk as an owner/GC.
		CLO 3 - Describe and understand risk associated with construction contracts.
		CLO 4 - Recognize and reduce risk by utilizing decision tree method.
		CLO 5 - Identify risk with quality control solutions.
	CM 6100- Construction & Real Property Law	CLO 1- Author a construction contraction with all legal terms, risk, contingencies, addendums, etc. as required by AIA for construction related projects.
		CLO 2- Examine legal documents and contracts to ensure ethical behavior and principles are understood and followed throughout the agreement.
	CM 6120 – Dispute Resolution	CLO 2- Defining of desired goals and outcomes for a construction or design negotiation process, development of a planning framework to achieve stated objectives and application to a specific conflict scenario.

SLO	Course Number & Name	CLO Number & Description
		CLO 3- Understanding the concepts and components of distributive (win-lose) and integrative (win-win) bargaining strategies; examining the preconditions and appraising the strategies and their application to specific conflict scenarios.
	CM 6710- Facility Management Practices	CLO 6 – Describe the strategic alignment of FM technology with organizational technology.
SLO 8 – Professional ethics including application to situations and choices.	CM 6200- Strategic Bidding & Estimating	CLO 7 – Improve Presentation and discussion skill while presenting Ethics
	CM 6100- Construction & Real Property Law	CLO 3- Compare and contrast what behavior may be legal but not ethical within the construction industry.
	CM 6610 – Sustainable Construction	CLO 2- Analyze professional decisions based on ethical principles.
	CM 6720- Facility Management Strategies	CLO 6 – Demonstrate analysis of process, organization, stakeholders, or technologies in an ethically responsible way.
SLO 9 – Advanced construction management practices.	CM 6310- Advance Scheduling and Integrated Control	CLO 1 – Use advanced scheduling software to prepare schedules
		CLO 2 – Loading and monitoring cost to schedules, and use different theories of tracking the percent completion for projects.
		CLO 3 – Integrate data visualization, CAD, and scheduling software for resource management and advanced scheduling.
		CLO 4 – Investigate, search, analyze, and recommend solutions for tasks that are related to specific scheduling, or estimating challenge.
	CM 6610 – Sustainable Construction	CLO 3 – Analyze methods, materials, and equipment used to construct projects.
	CM 6620 – Sustainable Operations & Maintenance	CLO 4 – Develop an implementation plan for a sustainability project.
SLO 10 – Research methods.	CM 6000- Information Methods	CLO 5- Apply research methods

SLO	Course Number & Name	CLO Number & Description
	CM 6710- Facility Management Practices	CLO 3 – Prepare facility capital and operational plans, schedule, estimates, and annual budgets.
		CLO 5 – Author academic research paper and publishable quality.
	CM 6720- Facility Management Strategies	CLO 7– Author academic research paper and publishable quality.

The primary course-level assessment tool that will be used in the MSCM program is exams, homeworks/assignments, projects or combination of them in each course. At the beginning of the assessment cycle, the Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair sets each SLO target achievement value and communicates to the instructors. Using this target values, instructors set the target achievement value of mapped course learning outcome (CLO)s contributing towards these SLOs. The instructors also finalize the assessment tools required to assess the CLOs achievement. The finalization of the assessment tools is at discretion of instructor and these can vary or may not vary for each academic year.

During the semester, the instructor assess the level of achievement of CLOs through different assessment tools and collects the course assessment tools data. At the end of the each semester, the instructor determines the level of achievement of CLOs. The achieved levels are compared with target levels. In addition to this the instructors use the course evaluations. The university requires that the student course evaluations be conducted using a standard format at the end of every semester. Refer to Appendix P for Construction Management’s Course Evaluation template. The evaluations are completed by the students and results made available to the respective faculty. In addition, the department Chair has access to them and is utilized in annual faculty evaluations.

After reviewing this data and course evaluations the instructor suggests the improvement plan for CLO. The instructor forwards the assessment data to the Graduate Program Coordinator. The Graduate Program Coordinator is responsible to assess the achievement of the student learning outcomes. The Graduate Program Coordinator will determine the achievement of each student learning outcome by calculating the mean of “Achieved class average score for the CLO” of assessment tools contributing towards the SLO. These assessment tools can be from one course or more than one course. This calculated mean is compared with the target set at beginning of the academic year. After comparison, depending upon whether the target is achieved or not achieved appropriate recommendations are made to improve achievement of the SLO. These recommendations are further reviewed by Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair. Once these are approved, the Graduate Program Coordinator in consultation with Department Graduate Program

Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair, the action plan to implement the recommendations is drafted. This action plan includes the responsible person and the steps to follow to implement the actions. This action plan will be implemented in the following academic year. These recommendations are presented to Graduate faculty to incorporate the changes at the course level. Upon receiving the recommendations, the instructor will update the course content if required.

Graduate Students Exit Survey

In Fall 2015, the graduate student exit survey questionnaire had been revised. As mentioned above, the MSCM program adopted to ACCE learning outcomes assessment approach in Fall 2017. ACCE is in the process of the formulating new learning outcomes. It is expected that new learning outcomes to be effective from Fall 2019. Once ACCE makes them effective, MSCM program will be adopting the revised ACCE learning outcomes (tentatively in Fall 2019) and redesign all the forms. To avoid multiple changes in this short period of time, MSCM program decided to use the existing exit survey questionnaire for this assessment. Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair correlated SLOs with program objectives as shown in Table 2. This table is duplicated below for quick reference.

Table 2 Correlation of Program Objectives (PO)s and Student Learning Outcomes (SLO)s

	PO1	PO2	PO3	PO4	PO5
SLO1	X	X	X	X	X
SLO2		X	X	X	
SLO3		X	X	X	X
SLO4	X		X		
SLO5	X	X	X		
SLO6	X		X	X	
SLO7	X	X	X		X
SLO8	X		X		X
SLO9	X	X	X	X	
SLO10				X	X

At the beginning of the academic year, Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair sets the expected SLOs target value. During each semester, before graduation, all master's degree students are invited to participate in an exit interview utilizing a standard department survey format. Refer to Appendix Q for Graduate Student Exit survey form. Graduate Program Coordinator/ Department Chair summarizes the results of these surveys and uses these survey results in the assessment of the faculty, staff, curriculum, facilities and services utilized by the department. The achievement of SLOs is measured indirectly by assessing the achievement of program objectives through Question 1 as shown below. Students

will specify the level of achievement of SLOs by specifying their level of achievement of POs on a scale from 1-5 (highest "5" being Very High and lowest "1" being Very Low).

*** 1. How well did the program prepare you in each of these areas? On a scale from highest "5" being Very High and lowest "1" being Very Low please rate the following areas:**

	1	2	3	4	5
1) Prepare bids and estimates for construction project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) Prepare construction schedule and manage project risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) Carry-out project management related tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Conduct research and disseminate findings through publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) Pursue advanced degree programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The assessment of SLOs is determined by the calculating the average of the corresponding POs achievement as shown below.

Table 6: SLO Accomplishment Calculation using PO

SLO#	SLO Accomplishment Calculation
SLO1	Mean of PO1, PO2, PO3, PO4,PO5 achievement
SLO2	Mean of PO2, PO3, PO4 achievement
SLO3	Mean of PO2, PO3, PO4,PO5 achievement
SLO4	Mean of PO1, PO3 achievement
SLO5	Mean of PO1, PO2, PO3 achievement
SLO6	Mean of PO1, PO3, PO4 achievement
SLO7	Mean of PO1, PO2, PO3 achievement
SLO8	Mean of PO1, PO3, PO5 achievement
SLO9	Mean of PO1, PO2, PO3, PO4 achievement
SLO10	Mean of PO4,PO5 achievement

Graduate Alumni Surveys

In Fall 2015, the graduate student exit survey questionnaire had been revised. As mentioned above, the MSCM program adopted to ACCE learning outcomes assessment approach in Fall 2017. ACCE is in the process of the formulating new learning outcomes. It is expected that new learning outcomes to be effective from Fall 2019. Once ACCE makes them effective, MSCM program will be adopting the revised ACCE learning outcomes (tentatively in Fall 2019) and

redesign all the forms. To avoid multiple changes in this short period of time, MSCM program decided to use the existing alumni survey questionnaire for this assessment if required. Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair correlated SLOs with program objectives as shown in Table 2. This table is duplicated below for quick reference.

Table 2: Correlation of Program Objectives (PO)s and Student Learning Outcomes (SLO)s

	PO1	PO2	PO3	PO4	PO5
SLO1	X	X	X	X	X
SLO2		X	X	X	
SLO3		X	X	X	X
SLO4	X		X		
SLO5	X	X	X		
SLO6	X		X	X	
SLO7	X	X	X		X
SLO8	X		X		X
SLO9	X	X	X	X	
SLO10				X	X

At the beginning of the assessment cycle, Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair sets the expected SLOs target value. Three years following graduation all master's degree students are sent a standard department survey format and asked to complete it. Refer to Appendix S for Graduate Alumni Three Year Out Survey form. The results of these surveys are summarized and the Department Chair/ Graduate Program Coordinator uses these survey results in the assessment of the faculty, staff, curriculum, facilities and services utilized by the department. The achievement of SLOs is measured indirectly by assessing the achievement of program objectives through Question 7 as shown below. Students will specify the level of achievement of SLOs by specifying their level of preparation they received on POs on a scale from 1-5 (highest "5" being Very Well Prepared and lowest "1" being Not well prepared).

7. Please assess the level of preparation you received in the following areas during your enrollment in the KSU CMP. Please use a scale of 1-(Not well prepared) to 5-(Very Well Prepared).

	1	2	3	4	5	N/A
1) Prepare bids and estimates for construction project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) Prepare construction schedule and manage project risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) Carry-out project management related tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Conduct research and disseminate findings through publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) Pursue advanced degree programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The assessment of SLOs is determined by the calculating the average of the corresponding POs achievement as shown in Table 6. This table is duplicated below for quick reference.

Table 6. : SLO Accomplishment Calculation using PO

SLO #	SLO Accomplishment Calculation
SLO1	Mean of PO1, PO2, PO3, PO4,PO5 achievement
SLO2	Mean of PO2, PO3, PO4 achievement
SLO3	Mean of PO2, PO3, PO4,PO5 achievement
SLO4	Mean of PO1, PO3 achievement
SLO5	Mean of PO1, PO2, PO3 achievement
SLO6	Mean of PO1, PO3, PO4 achievement
SLO7	Mean of PO1, PO2, PO3 achievement
SLO8	Mean of PO1, PO3, PO5 achievement
SLO9	Mean of PO1, PO2, PO3, PO4 achievement
SLO10	Mean of PO4,PO5 achievement

Graduate Employers Surveys

In Fall 2015, the graduate student exit survey questionnaire had been revised. As mentioned above, the MSCM program adopted to ACCE learning outcomes assessment approach in Fall 2017. ACCE is in the process of the formulating new learning outcomes. It is expected that new learning outcomes to be effective from Fall 2019. Once ACCE makes them effective, MSCM program will be adopting the revised ACCE learning outcomes (tentatively in Fall 2019) and redesign all the forms. To avoid multiple changes in this short period of time, MSCM program decided to use the existing alumni survey questionnaire for this assessment if required. Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate

faculty, CIAB- Graduate Program Committee and Department Chair correlated SLOs with program objectives as shown in Table 2. This table is duplicated below for quick reference.

Table 2 Correlation of Program Objectives (PO)s and Student Learning Outcomes (SLO)s

.	PO1	PO2	PO3	PO4	PO5
SLO1	X	X	X	X	X
SLO2		X	X	X	
SLO3		X	X	X	X
SLO4	X		X		
SLO5	X	X	X		
SLO6	X		X	X	
SLO7	X	X	X		X
SLO8	X		X		X
SLO9	X	X	X	X	
SLO10				X	X

At the beginning of the assessment cycle, Graduate Program Coordinator in consultation with Department Graduate Program Committee, Graduate faculty, CIAB- Graduate Program Committee and Department Chair sets the expected SLOs target value. Three years following graduation all master’s degree students are also sent a standard department format and asked to give to their employer to complete and return to the department. Refer to Appendix U for Graduate Employer Three Year Out Survey form. The results of these surveys are summarized and Department Chair/ Graduate Program Coordinator uses these survey results in the assessment of the faculty, staff, curriculum, facilities and services utilized by the department. The achievement of SLOs is measured indirectly by assessing the achievement of program objectives through Question 2 as shown below. Employers will specify the level of achievement of SLOs by rating the skills of their employee(s) learnt at KSU by ranking the POs on a scale from 1-5 (highest "5" being Very Well Prepared and lowest "1" being Not well prepared).

2. Please rank the following skills of KSU graduates who work for you.

	Low	Medium	High	Very High	N/A
1) Prepare bids and estimates for construction project	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2) Prepare construction schedule and manage project risks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3) Carry-out project management related tasks	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4) Conduct research and disseminate findings through publications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
5) Pursue advanced degree programs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

The assessment of SLOs is determined by the calculating the average of the corresponding POs achievement as shown in Table 6. This table is duplicated below for quick reference.

Table 6. : SLO Accomplishment Calculation using PO

SLO #	SLO Accomplishment Calculation
SLO1	Mean of PO1, PO2, PO3, PO4,PO5 achievement
SLO2	Mean of PO2, PO3, PO4 achievement
SLO3	Mean of PO2, PO3, PO4,PO5 achievement
SLO4	Mean of PO1, PO3 achievement
SLO5	Mean of PO1, PO2, PO3 achievement
SLO6	Mean of PO1, PO3, PO4 achievement
SLO7	Mean of PO1, PO2, PO3 achievement
SLO8	Mean of PO1, PO3, PO5 achievement
SLO9	Mean of PO1, PO2, PO3, PO4 achievement
SLO10	Mean of PO4,PO5 achievement

Quality Plan for PO6: Maintain MS program ACCE accreditation

MSCM program continues to make improvements to enhance the quality of the program. The level of accomplishment of this objective is measured by maintaining the accreditation to program and submitting the scheduled ACCE annual status reports.

The MSCM program has accreditation upto July 2019. For reaccreditation the self-study is to be submitted during November 2018 and schedule reaccreditation visit during March 2019.

Quality Plan for PO7: Increase visibility and awareness of the CM Department

The MSCM program continues its efforts to increase the visibility and awareness of the CM Department. The MSCM contribution to this can be assessed through the graduate students and faculty contributions in the following:

- Peer-reviewed faculty publications in journals and conferences
- Awards, leadership activities at the national, state and regional level
- Industry Advisory Board activities
- Number of organization coming to the department to recruit CM graduates and interns