Quality Improvement and Assessment Plan

Contents

Kennesaw State University
Construction Management

9.1.1. Bachelor's Degree Program Quality Improvement Plan

9.1.1.1.Strategic Plan for the educational unit.

In order to accomplish the CM Department's mission to prepare students for industry leadership positions, as well as for graduate studies in construction management, CM Department uses the following plan:

The CM Department programs are modeled to reflect the organization of the construction industry by offering concentrations in Land Development, General Contracting, Specialty Construction (Electrical & Mechanical), and Facilities Management. and Heavy Horizontal Construction concentration. This organization not only covers the different facets of the construction industry, but also encompasses the entire life cycle of buildings and facilities.

We endeavor to exceed the accreditation (ABET, ACCE, SACs, IFMA) standards for BS and MS Programs to not only stay competitive but remain a leader among institutions offering one or more similar degrees or concentrations.

Through professional development activities of the Construction Management Faculty, we ensure that the quality of instruction and related technologies stays current on innovations that continuously re-shape the Construction Industry. All Construction Management tenure-track faculty members publish peer-reviewed publications and participate in regional, national and international conferences related to their field of specialization.

For quality assurance and enhancement, the department, in collaboration with the Industry Advisory Board, undertakes surveys of stakeholders, which include students, graduates, employers, and alumni. The results of these surveys are shared periodically with the board and faculty to identify the improvements required at the course, department and the institutional level.

The Construction Industry Advisory Board's objective is to ensure that students meet the educational and career needs of the industry from an employer's perspective. Through their organizational structure, the board recommends actions to the department to ensure that learning outcomes at the program level meet or exceed employer needs. The board also plays a critical role in prescribing state of the art facilities and instructional technologies for teaching different courses. The board members regularly participate in stakeholder assessment surveys, which are in addition to reviewing of capstone and research projects each semester to benchmark the quality of graduates and to identify areas for improvement.

Encourage CM faculty to be well informed and conversant with current industry issues. Position the size and offerings of the program to serve the changing needs of the construction industry and an expanding national and international student population. Be a positive force in the local and national construction industry through collaboration with other institutions and participation in professional and community organizations. Add to the body of construction management knowledge through scholarly research and publications. Support the strategic and academic

direction of Kennesaw State University.

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 goals (G) of the Construction Management (CM) Department are:

- Goal 1: Continue to improve curriculum to reflect global and national construction industry needs.
- Goal 2: Enhance and sustain the department.

BSCM Program Goal and Objectives

BSCM 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 estalished to accomlpish the program's goal and contribute towards the department's goals.

BSCM Program Objectives:

The BS program objectives (PO) of the Construction Management Department are:

- PO1: Prepare students for successful construction industry career.
- PO2: Meet accreditation agency requirements for curriculum
- PO3: Increase visibility and awareness of the CM Department

9.1.1.2.Assessment Plan for the degree program.

Bachelor of Science Construction Management (BSCM) 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 BSCM program. In academic year 2017-18 (Fall 2017, Spring 2018, Summer 2018), the required architecture for quality plan was developed. During this period, program student learning outcomes and their assessment plans, assessment frequency, design of data collection templates were finalized. During the academic year 2018-19 (Fall 2018, Spring 2019, Summer 2019), the required data was collected and analyzed. During academic year 2019-20 (Fall 2019, Spring 2020, Summer 2020), the action plan is under implementation and data is being collected to determine if implemented strategies resulted in improvement or not.

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

Table 1: Correlation of Program Learning Outcomes with Program Objectives and Department Goals

epartment Goals	Program Objectives (PO)	BS Program Student Learning Outcome (SLO)	Assessment Method
Goal 1: Continue to improve curriculum to reflect global and national construction industry needs.	PO1: Prepare students for successful construction industry career.	SLO 1 – Create written communications appropriate to the construction discipline. SLO 2 – Create oral presentations appropriate to the construction discipline. SLO 3 – Create a construction project safety plan. SLO 4 – Create construction project cost estimates. SLO 5 – Create construction project schedules. SLO 6 – Analyze professional decisions based on ethical principles. SLO 7 – Analyze construction documents for planning and management of construction processes. SLO 8 – Analyze methods, materials, and equipment used to construct projects. SLO 9 – Apply construction management skills as a member of a multi-disciplinary team. SLO 10 – Apply electronic-based technology to manage the construction process. SLO 11 – Apply basic surveying techniques for construction layout and control.	• Program Level Outcomes Assessments • Students Exit Surveys • Alumni Surveys • Employer Surveys • Capstone Industry Panel Evaluations

)epartment Goals	Program Objectives (PO)	Program Student Learning Outcome (SLO)	Assessment Method
		SLO 12 – Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process. SLO 13 – Understand construction risk management. SLO 14 – Understand construction accounting and cost control. SLO 15 – Understand construction quality assurance and control. SLO 16 – Understand construction project control processes. SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project. SLO 18 – Understand the basic principles of sustainable construction. SLO 19 – Understand the basic principles of structural behavior. SLO 20 – Understand the basic principles of mechanical, electrical and piping systems.	

	PO2: Maintain BS program accreditation		• ACCE BS self-study • IFMA self-study • ACCE Annual Progress Reports • IFMA Annual Progress Reports

Department Goals	Program Objectives (PO)	BS Program Student Learning Outcome (SLO)	Assessment Method
Goal 2: Enhance and sustain the department	PO3: Increase visibility and awareness of the CM Department		• Industry Advisory Board activities • Peer-reviewed faculty publications in journals and conferences • Student Competitions • Student Chapters • Awards, leadership activities at the national, state and regional level • Number of organizations coming to the department to recruit CM graduates and interns

Quality Plan for PO1

To accomplish PO1, 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 – Create written communications appropriate to the construction discipline.
SLO 2 – Create oral presentations appropriate to the construction discipline.
SLO 3 – Create a construction project safety plan.
SLO 4 – Create construction project cost estimates.
SLO 5 – Create construction project schedules.
SLO 6 – Analyze professional decisions based on ethical principles.
SLO 7 – Analyze construction documents for planning and management of construction processes.
SLO 8 – Analyze methods, materials, and equipment used to construct projects.
SLO 9 – Apply construction management skills as a member of a multi-disciplinary team.
SLO 10 – Apply electronic-based technology to manage the construction process.
SLO 11 – Apply basic surveying techniques for construction layout and control.

SLO 12 – Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
SLO 13 – Understand construction risk management.
SLO 14 – Understand construction accounting and cost control.
SLO 15 – Understand construction quality assurance and control.
SLO 16 – Understand construction project control processes.
SLO 17 – Understand the legal implications of contract, common, and regulatory law to manage a construction project.
SLO 18 – Understand the basic principles of sustainable construction.
SLO 19 – Understand the basic principles of structural behavior.
SLO 20 – Understand the basic principles of mechanical, electrical and piping systems.

9.1.1.2.1 Assessment Plan for SLOs Achievement

The achievement of SLOs is measured through five methods: (1) course level learning outcomes (CLO) assessment, (2) undergraduate students exit survey, (3) undergraduate alumni survey and (4) undergraduate employers survey (5) capstone industry panel evaluations. 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 2.

Table 2: 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 Outcome Assessment	Twice a year	Students work	Paper or Online	Students	Faculty	Faculty	Once per year
Capstone Project Evaluation	Twice a year	Assessments' Reports	Paper	Ind. panel members and Faculty	Capstone Course Instructor	Dept. Chair	Once per year
Course Evaluation	Twice a year	SIR	Paper	Students	Faculty	Faculty	Once per year
Undergraduate Exit Surveys	Twice per year	Response to Interview Questions	Online	Capstone Seniors	Dept. Chair	Dept. Chair	Once per year
Employer Surveys	Once every three year	Surveys	Online	Employers of CM graduates	Dept. Chair	Dept. Chair	Once every three year
Alumni Surveys	Once every three year	Surveys	Online	CM Alumni	Dept. Chair	Dept. Chair	Once every three year
Faculty Feedback	Monthly	Meeting Minutes	Paper	Faculty	Dept. Chair	Dept. Chair	Once per year
Industry Advisory Board Feedback	Four times a year	Meeting Minutes	Paper	Industry advisory members	Dept. Chair	Dept. Chair	Once per year

The following section discusses each assessment method.

Course Level Learning Outcomes Assessment

Undergraduate Program Coordinator in collaboration with faculty, CIAB- Accreditation, Outcomes and Capstone Assessment Committee and Department Chair developed the architecture for addressing and assessing the student learning outcomes throughout the curriculum. BSCM curriculum has been designed to ensure that student learning outcomes are fulfilled. Table 3 shows how each course in the curriculum contributes to the achievement of the student learning outcomes.

Table 3: Distribution of student learning outcomes throughout the courses offered in BSCM

BSCM SLO s ASSESSMENT	
SLO	**Course Number & Name**
SLO 1 - Create written communications appropriate to the construction discipline.	CM 2000 - Construction Graphics
	CM 4900 - Capstone Project
	CM 4760 - Construction & Real Property Law
SLO 2 - Create oral presentations appropriate to the construction discipline.	CM 4900 - Capstone Project
	CM 3800 - Construction Finance
SLO 3 - Create a construction project safety plan.	CM 4710 - Construction Safety
	CM 4900 - Capstone Project
SLO 4 - Create construction project cost estimates.	CM 4900 - Capstone Project
SLO 5 - Create construction project schedules.	CM 4510 - Construction Scheduling
	CM 4900 - Capstone Project
SLO 6 - Analyze professional decisions based on ethical principles.	CM 3800 - Construction Finance
	CM 4710 - Construction Safety
	CM 4760 - Construction & Real Property Law
	CM 4560 - Construction Project Management
SLO 7 - Analyze construction documents for planning and management of construction processes	CM 4510 - Construction Scheduling
	CM 4560 - Construction Project Management
SLO 8 - Analyze methods, materials, and equipment used to construct projects.	CM 3110 - Resi. And Light Construction Methods
	CM 3180 - Mechanical and electrical building systems
SLO 9 -Apply construction management skills as a member of a multi-disciplinary team.	CM 4560 - Construction Project Management
SLO 10 - Apply electronic-based technology to manage the construction	CM 3000 - Computer Applications in Construction
SLO 11 - Apply basic surveying techniques for construction layout and control.	SURV 2200 - Construction Measurments
SLO 12 - Understand different methods of project delivery and the roles and	CM 4560 - Construction Project Management
SLO 13 - Understand construction risk management.	CM - 3400 Risk & Quality Management
SLO 14 - Understand construction accounting and cost control.	CM 3800 - Constrution Finance
	CM 4900 - Capstone Project
SLO 15 - Understand construction quality assurance and control.	CM 3400 - Risk & Quality Management
	CM 3180 Mechanical And Electrical Building System
SLO 16 - Understand construction project control processes	CM 3800 - Construction Finance
	CM 4510 - Construction Scheduling
	CM 4560 - Construction Project Management
SLO 17 - Understand the legal implications of contract , common and regulatory law to manage a const. project	CM 4900 - Capstone Project
	CM 4760 - Construction & Real Property Law
SLO 18 - Understand the basic principles of sustainable construction.	CM 3110 Resi. And light Construction Methods
	CM 3180 Mechanical And Electical Building System
SLO 19 - Understand the basic principles of structural behavior.	CM 2210 - Intro To Structures
SLO 20 - Understand the basic principles of mechanical, electrical and piping system.	CM 3180 Mechanical And Electrical Building System

Table 4: Mapping of Program Student Learning Outcome (SLO)s with Course Level Learning Outcome (CLO)s

BSCM SLO s ASSESSMENT(Academic Year 2018-2019)		
SLO	**Course Number & Name**	**CLO Number & Description**
SLO 1 - Create written communications appropriate to the construction discipline.	CM 2000 - Construction Graphics	CLO 1- Generate plan, elevation and section of 3D objects.
		CLO 2- Read and interpret Civil, Architecture, and Structural drawings.
		CLO 3- Identify conflicts & coordination between the different construction drawings.
	CM 4900 - Capstone Project	CLO 6 - Create a high quality, professional submittal
	CM 4760 - 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
SLO 2 - Create oral presentations appropriate to the construction discipline.	CM 4900 - Capstone Project	CLO 7 - Prepare and delivery a professional presentation
	CM 3800 - Construction Finance	CLO 1 - Creative effective project presentation.Demonstrate presentation skills
SLO 3 - Create a construction project safety plan.	CM 4710 - Construction Safety	CLO 1 - Develop a detailed safety manual that includes subparts discussed in OSHA 29 CFR 1926.
		CLO 2 - Develop a knowledge of safety procedures, regulations, and hazards.
	CM 4900 - Capstone Project	CLO 3 - Develop project specific safety plan
SLO 4 - Create construction project cost estimates.	CM 4900 - Capstone Project	CLO 1 - Provide comprehensive estimate for a project
SLO 5 - Create construction project schedules.	CM 4510 - Construction Scheduling	CLO 1 - Understanding and development of project planning and how to incorporate into a project schedule, including the determination of project constraints, activities, logic, and durations.
	CM 4900 - Capstone Project	CLO 2 - Planning and schedule development

SLO 6 - Analyze professional decisions based on ethical principles.	CM 3800 - Construction Finance	CLO 2 - Define ethics and defend choices or decisions on the principles of ethics.
	CM 4710 - Construction Safety	CLO 3 - Distinguish between ethical and non-ethical safety procedures in building construction.
	CM 4760 - Construction & Real Property Law	CLO 2 - Examine legal documents and contracts to ensure ethical behavior and principles are understood and followed throughout the agreement.
		CLO 3 - Compare and contrast what behavior may be legal but not ethical within the construction industry.
	CM 4560 - Construction Project Management	CLO 4 - Examine scenarios in construction management settings to differentiate ethical and unethical behaviors
SLO 7 - Analyze construction documents for planning and management of construction processes	CM 4510 - Construction Scheduling	CLO 2 - Attain skill and confidence in precedence network diagrams and CPM software
	CM 4560 - Construction Project Management	CLO 3 - Organize a planning and scheduling process for construction projects.
SLO 8 - Analyze methods, materials, and equipment used to construct projects.	CM 3110 - Resi. And Light Construction Methods	CLO 1 - Determine scopes of work, construction materials,and basic means & methods
		CLO 2 - Sequence construction activities
	CM 3180 - Mechanical and electrical building systems	CLO 1 - Identify the equipment and materials used in mechanical sytems
		CLO 2 - Identify the equipment and materials used in plumbing systems
		CLO 3 - Differentiate between the equipment and materials used in electrical systems.
		CLO 4 - Examine the sequence of installation, with milestone dates, for mechanical,electrical and plumbing (MEP) systems in a construction project
SLO 9 -Apply construction management skills as a member of a multi-disciplinary team.	CM 4560 - Construction Project Management	CLO 5 – Execute a Change Order, a Schedule of Values, and Pay Applications

SLO 10 - Apply electronic-based technology to manage the construction process.	CM 3000 - Computer Applications in Construction	CLO 1 - Prepare basic AutoCAD construction drawings, modify, exchange, and extract information from CAD drawing files
		CLO 2 - Generate basic BIM models, modify, exchange, and extract information from 3D BIM models.
		CLO 3 - Use computer software to prepare basic work schedules typically used in construction practice.
		CLO 4 - Use computer software to prepare basic quantity takeoff schedules using estimating software.
SLO 11 - Apply basic surveying techniques for construction layout and control.	SURV 2200 - Construction Measurments	CLO 1 - Perform differential leveling
		CLO 2 - Transfer elevations
		CLO 3 - Perform a 2D traverse
		CLO 4 - Understand %grade and calculate elevations
		CLO 5 - Perform elementary cogo calculations
		CLO 6 - Perform elementary route calculations
		CLO 7 - Apply elementary surveying to construction
SLO 12 - Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	CM 4560 - Construction Project Management	CLO 1 - Classify the types of project delivery methods and identify the stakeholders in the construction process and describe their roles.
SLO 13 - Understand construction risk management.	CM - 3400 Risk & Quality Management	CLO 2 - Recognize how to transfer and avoid risk
		CLO 3 - Describe and understand risks associated with construction contracts

SLO 14 - Understand construction accounting and cost control.	CM 3800 - Constrution Finance	CLO 3 - Prepare and forecast statement of cash flow for construction projects.
		CLO 4 - Prepare and analyze labor burden and general overhead for a construction company. Suggest recommendations to control costs.
		CLO 5 - Analyze company's key financial statements to predict company's financial health and performance. Recommend cost control strategies.
	CM 4900 - Capstone Project	CLO 4 - Understand requirements for project cost controls
SLO 15 - Understand construction quality assurance and control.	CM 3400 - Risk & Quality Management	CLO 4 - Identify risk with quality control solutions
	CM 3180 Mechanical And Electrical Building System	CLO 5 - Locate and prepare inspection documents for MEP systems in construction projects
SLO 16 - Understand construction project control processes	CM 3800 - Construction Finance	CLO 6 - Examine construction project performance using CPI and SPI. Analyze to suggest recommendations for project control.
	CM 4510 - Construction Scheduling	CLO 3 - Determine progress; Analyze schedule status
	CM 4560 - Construction Project Management	CLO 2 - Demonstrate cost and schedule control

SLO 17 - Understand the legal implications of contract , common and regulatory law to manage a const. project	CM 4900 - Capstone Project	CLO 5 - Understand project specific provisions for
	CM 4760 - Construction & Real Property Law	CLO 4 - Identify within construction contracts
		CLO 5 - Identify legal terms,contracts terms, and construction term used in AIA documents for construction projects.
		CLO 6 - Recognize contract, common and regulatory law in construction contracts and projects.
SLO 18 - Understand the basic principles of sustainable construction.	CM 3110 Resi. And light Construction Methods	CLO 3 - Recognize fundamentals of sustainable
	CM 3180 Mechanical And Electical Building System	CLO 7 - Analyze and compare MEP systems to determine best options for sustainable construction;This will include energy analysis, water usage analysis materials and processes.
SLO 19 - Understand the basic principles of structural behavior.	CM 2210 - Intro To Structures	CLO 1 – Understand of the basic concepts and principles of statics.
		CLO 2 – Understand of the basic concepts of strength of materials.
		CLO 3 – Analyze and design simple beams and columns.
SLO 20 - Understand the basic principles of mechanical, electrical and piping system.	CM 3180 Mechanical And Electrical Building System	CLO 1 - Identify the equipmentand materials used in mechanical systems
		CLO 2 - Identify the equipments and materials used in plumbing systems
		CLO 3 - Differentiate betweenthe equipment and materials used in electrical systems
		CLO 8 - Explain which types of MEP systems are used for a particular project type.

9.1.1.3. Assessment Implementation Plan for the degree program

A- Assessment implementation plan for SLOs achievement

The primary course-level assessment tool that will be used in the BSCM program is exams, homework/assignments, projects or combination of them in each course. At the beginning of the assessment cycle, the Undergraduate Program Coordinator in consultation with Department faculty, CIAB- Accreditation, Outcomes and Capstone Assessment 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

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 Undergraduate Program Coordinator. The Undergraduate Program Coordinator is responsible to assess the achievement of the student learning outcomes. The Undergraduate 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 faculty, CIAB- Accreditation, Outcomes and Capstone Assessment Committee and Department Chair. Once these are approved, the Undergraduate Program Coordinator in consultation with faculty, CIAB- Accreditation, Outcomes and Capstone Assessment 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 the faculty to incorporate the changes at the course level. Upon receiving the recommendations, the instructor will update the course content if required.

B- Undergraduate Student Exit Survey

At the beginning of the academic year, Undergraduate Program Coordinator in consultation with faculty, CIAB- Accreditation, Outcomes and Capstone Assessment Committee and Department Chair sets the expected SLOs target value. During each semester, before graduation, all bachelor's degree students are invited to participate in an exit interview utilizing a standard department survey format. Refer to Appendix C for Undergraduate Student Exit survey form. Undergraduate 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 through Question 1 as shown in the survey example below. Students will specify the level of achievement of SLOs by specifying their level of achievement on a scale from 1-5 (highest "5" being Very High and lowest "1" being Very Low).

*** 1. Please indicate your perceived level of achievement related to each of the following CMP learning objectives:**

	Very Low	Low	Medium	High	Very high
Create written communications appropriate to the construction discipline.	○	○	○	○	○
Create oral presentations appropriate to the construction discipline.	○	○	○	○	○
Create a construction project safety plan.	○	○	○	○	○
Create construction project cost estimates.	○	○	○	○	○
Create construction project schedules.	○	○	○	○	○
Analyze professional decisions based on ethical principles.	○	○	○	○	○
Analyze construction documents for planning and management of construction processes.	○	○	○	○	○
Analyze methods, materials, and equipment used to construct projects.	○	○	○	○	○
Apply construction management skills as a member of a multi-disciplinary team.	○	○	○	○	○
Apply electronic-based technology to manage the construction process.	○	○	○	○	○
Apply basic surveying techniques for construction layout and control.	○	○	○	○	○
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	○	○	○	○	○
Understand construction risk management.	○	○	○	○	○
Understand construction accounting and cost control.	○	○	○	○	○
Understand construction quality assurance and control.	○	○	○	○	○
Understand construction project control processes.	○	○	○	○	○

Understand the legal implications of contract, common, and regulatory law to manage a construction project.	○	○	○	○	○
Understand the basic principles of sustainable construction.	○	○	○	○	○
Understand the basic principles of structural behavior.	○	○	○	○	○
Understand the basic principles of mechanical, electrical and piping system.	○	○	○	○	○

C- Undergraduate Alumni Three Year Out Surveys

At the beginning of the assessment cycle, Undergraduate Program Coordinator in consultation with faculty, CIAB- Accreditation, Outcomes and Capstone Assessment Committee and Department Chair sets the expected SLOs target value. Three years following graduation all bachelor's degree students are sent a standard department survey format and asked to complete it. Refer to Appendix C for Undergraduate Alumni Three Year Out Survey form. The results of these surveys are summarized and the Department Chair/ Undergraduate 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 through Question 7 as shown below. Students will specify the level of achievement of SLOs 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
Create written communications appropriate to the construction discipline.	○	○	○	○	○	○
Create oral presentations appropriate to the construction discipline.	○	○	○	○	○	○
Create a construction project safety plan.	○	○	○	○	○	○
Create construction project cost estimates.	○	○	○	○	○	○
Create construction project schedules.	○	○	○	○	○	○
Analyze professional decisions based on ethical principles.	○	○	○	○	○	○
Analyze construction documents for planning and management of construction processes.	○	○	○	○	○	○
Analyze methods, materials, and equipment used to construct projects.	○	○	○	○	○	○

D- Undergraduate Alumni Employer Three Year Out Surveys

At the beginning of the assessment cycle, Undergraduate Program Coordinator in consultation with faculty, CIAB- Accreditation, Outcomes and Capstone Assessment Committee and Department Chair sets the expected SLOs target value. Three years following graduation all bachelor'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 C for Undergraduate Employer Three Year Out Survey form. The results of these surveys are summarized and Department Chair/ Undergraduate 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 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
Create written communications appropriate to the construction discipline.	○	○	○	○	○
Create oral presentations appropriate to the construction discipline.	○	○	○	○	○
Create a construction project safety plan.	○	○	○	○	○
Create construction project cost estimates.	○	○	○	○	○
Create construction project schedules.	○	○	○	○	○
Analyze professional decisions based on ethical principles.	○	○	○	○	○
Analyze construction documents for planning and management of construction processes.	○	○	○	○	○
Analyze methods, materials, and equipment used to construct projects.	○	○	○	○	○
Apply construction management skills as a member of a multi-disciplinary team.	○	○	○	○	○
Apply electronic-based technology to manage the construction process.	○	○	○	○	○
Apply basic surveying techniques for construction layout and control.	○	○	○	○	○
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	○	○	○	○	○
Understand construction risk management.	○	○	○	○	○
Understand construction accounting and cost control.	○	○	○	○	○
Understand construction quality assurance and control.	○	○	○	○	○
Understand construction project control processes.	○	○	○	○	○

E- Faculty Feedback

Faculty shares their opinion and suggestions to improve quality of CM program during monthly faculty meetings.

F- Industry Advisory Board Feedback

CM industry advisory board provides feedback at regular advisory board meetings. This feedback assists in modifying the course(s) content or revises the curriculum if needed. This feedback also helps in developing the required skill set in students to cater the industry needs. Refer to Appendix D for industry advisory meeting minutes. The following table provides details of the assessment used for the CM program.

Quality Plan for PO2: Maintain BS program accreditation

BSCM 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 and IFMA annual status reports.

The BSCM program has accreditation upto February 2021. For reaccreditation the self-study is to be submitted during June 2020 and schedule reaccreditation visit during September/October 2020.

Quality Plan for PO3: Increase visibility and awareness of the CM Department

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

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

Appendix C

C – 1 Bachelor's Degree Program Undergraduate Student Exit Survey Results 2019

Q1

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Please indicate your perceived level of achievement related to each of the following CMP learning objectives:

	VERY LOW	LOW	MEDIUM	HIGH	VERY HIGH	TOTAL	WEIGHTED AVERAGE
Create written communications appropriate to the construction discipline.	0.00% 0	8.70% 2	17.39% 4	43.48% 10	30.43% 7	23	3.96
Create oral presentations appropriate to the construction discipline.	0.00% 0	8.70% 2	13.04% 3	43.48% 10	34.78% 8	23	4.04
Create a construction project safety plan.	0.00% 0	0.00% 0	4.35% 1	52.17% 12	43.48% 10	23	4.39
Create construction project cost estimates.	0.00% 0	4.35% 1	17.39% 4	43.48% 10	34.78% 8	23	4.09
Create construction project schedules.	4.35% 1	8.70% 2	21.74% 5	39.13% 9	26.09% 6	23	3.74
Analyze professional decisions based on ethical principles.	0.00% 0	0.00% 0	13.04% 3	47.83% 11	39.13% 9	23	4.26
Analyze construction documents for planning and management of construction processes.	0.00% 0	0.00% 0	13.04% 3	60.87% 14	26.09% 6	23	4.13
Analyze methods, materials, and equipment used to construct projects.	0.00% 0	4.35% 1	30.43% 7	39.13% 9	26.09% 6	23	3.87
Apply construction management skills as a member of a multi-disciplinary team.	0.00% 0	0.00% 0	21.74% 5	43.48% 10	34.78% 8	23	4.13
Apply electronic-based technology to manage the construction process.	0.00% 0	0.00% 0	13.04% 3	47.83% 11	39.13% 9	23	4.26

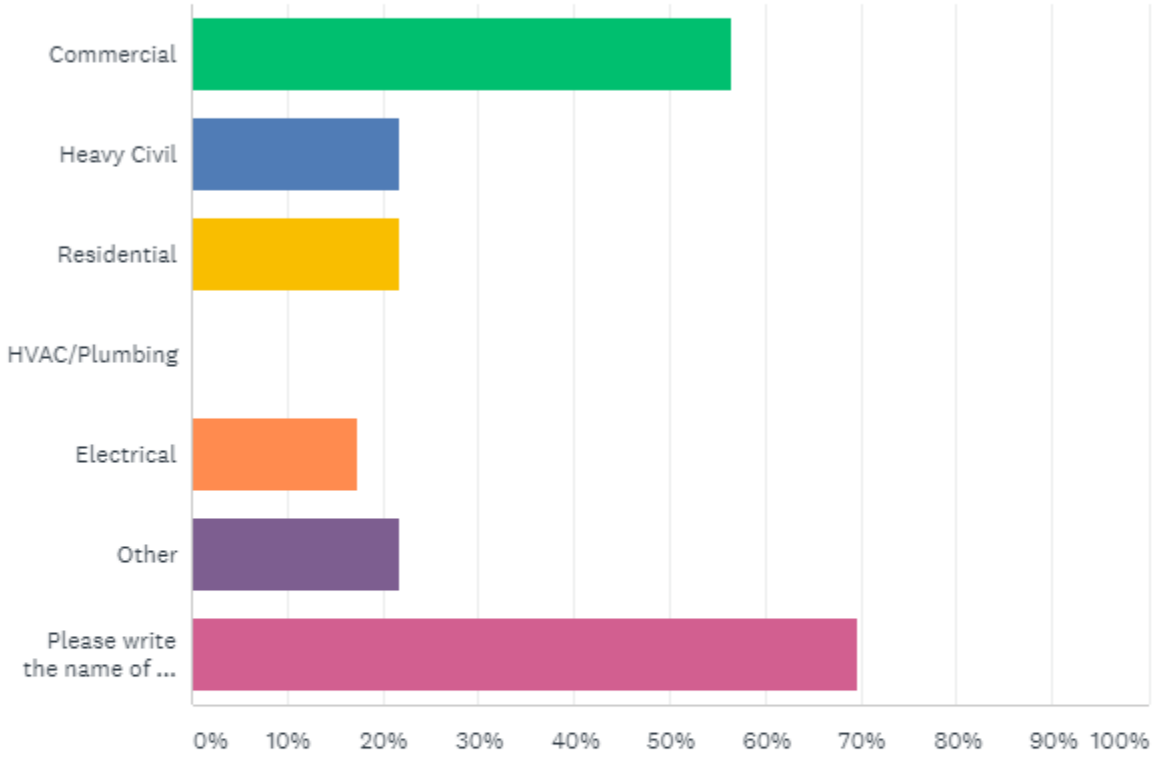
Apply basic surveying techniques for construction layout and control.	0.00% 0	13.04% 3	17.39% 4	47.83% 11	21.74% 5	23	3.78
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	0.00% 0	0.00% 0	4.35% 1	65.22% 15	30.43% 7	23	4.26
Understand construction risk management.	0.00% 0	0.00% 0	4.35% 1	52.17% 12	43.48% 10	23	4.39
Understand construction accounting and cost control.	0.00% 0	0.00% 0	17.39% 4	52.17% 12	30.43% 7	23	4.13
Understand construction quality assurance and control.	0.00% 0	0.00% 0	21.74% 5	56.52% 13	21.74% 5	23	4.00
Understand construction project control processes.	0.00% 0	0.00% 0	21.74% 5	56.52% 13	21.74% 5	23	4.00
Understand the legal implications of contract, common, and regulatory law to manage a construction project.	0.00% 0	4.35% 1	13.04% 3	65.22% 15	17.39% 4	23	3.96
Understand the basic principles of sustainable construction.	0.00% 0	4.35% 1	17.39% 4	52.17% 12	26.09% 6	23	4.00
Understand the basic principles of structural behavior.	0.00% 0	4.35% 1	30.43% 7	56.52% 13	8.70% 2	23	3.70
Understand the basic principles of mechanical, electrical and piping system.	4.35% 1	4.35% 1	34.78% 8	39.13% 9	17.39% 4	23	3.61

Q2

Customize Save as

If you have/had an internship, please indicate contractor type

Answered: 23 Skipped: 0



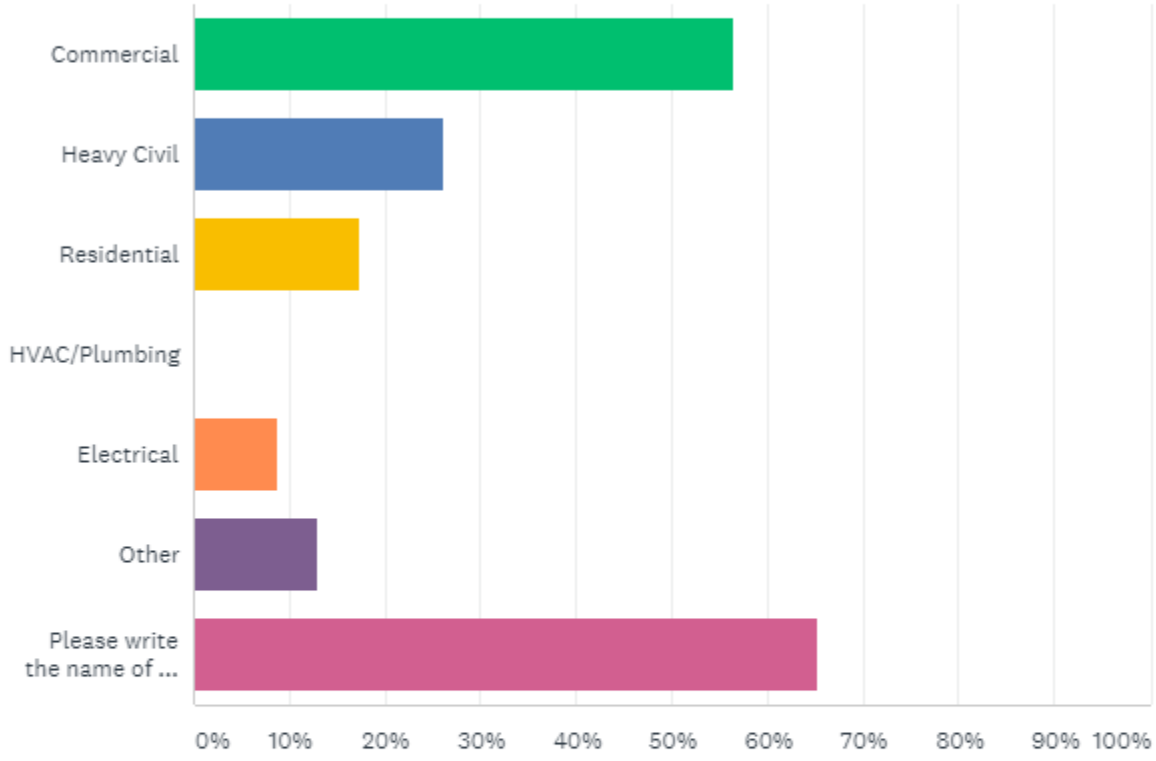
ANSWER CHOICES		RESPONSES	
Commercial		56.52%	13
Heavy Civil		21.74%	5
Residential		21.74%	5
HVAC/Plumbing		0.00%	0
Electrical		17.39%	4
Other		21.74%	5
Please write the name of the organization.	Responses	69.57%	16
Total Respondents: 23			

Q3

Customize Save as

If you have full-time job or will have upon graduation, please indicate contractor type

Answered: 23 Skipped: 0



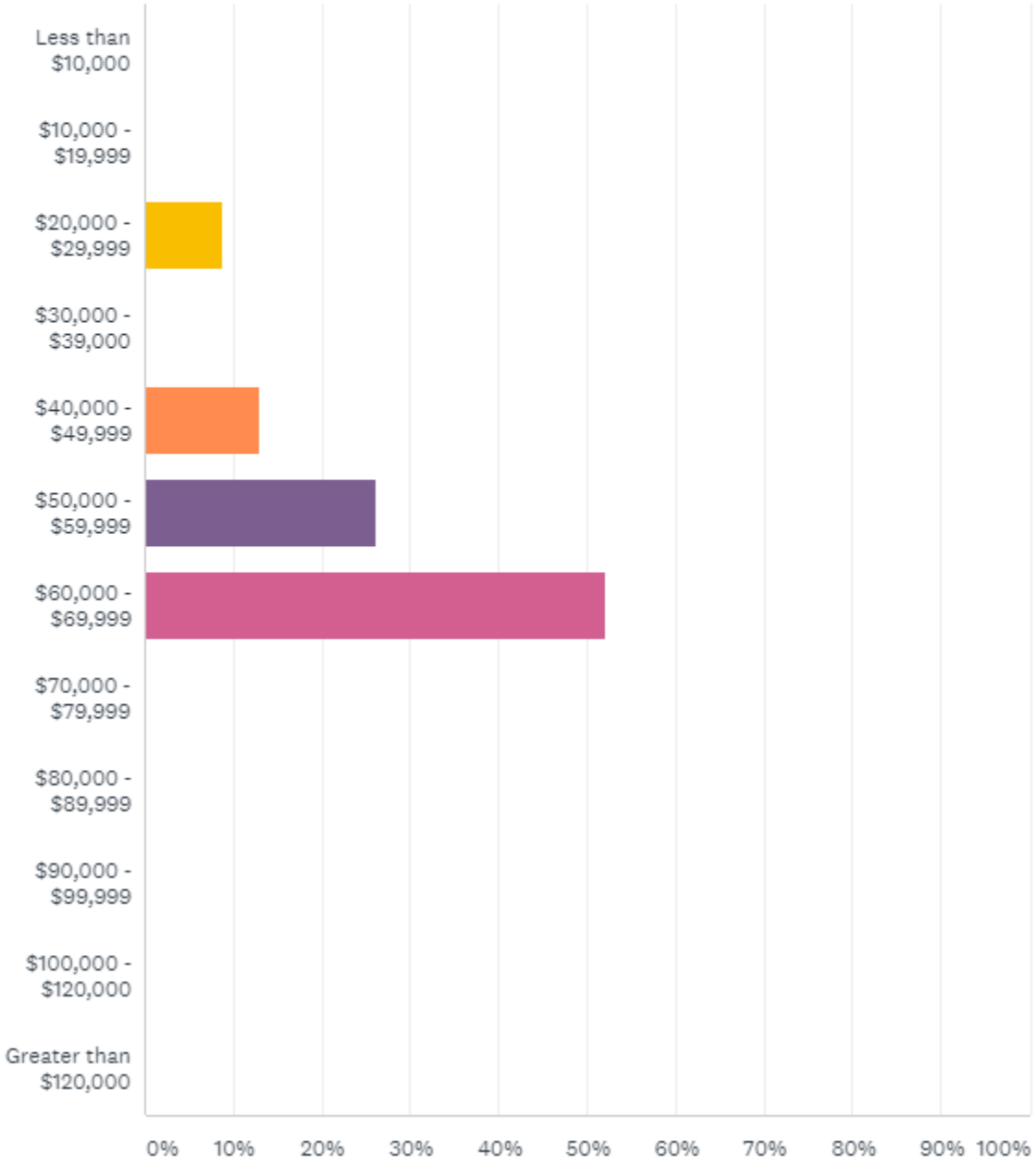
ANSWER CHOICES		RESPONSES	
Commercial		56.52%	13
Heavy Civil		26.09%	6
Residential		17.39%	4
HVAC/Plumbing		0.00%	0
Electrical		8.70%	2
Other		13.04%	3
Please write the name of the organization.	Responses	65.22%	15
Total Respondents: 23			

Q4

Customize | Save as

Please indicate your current or upon graduation full-time salary range within the fields of Architecture, Engineering, or Construction: [Insert salary ranges]

Answered: 23 Skipped: 0



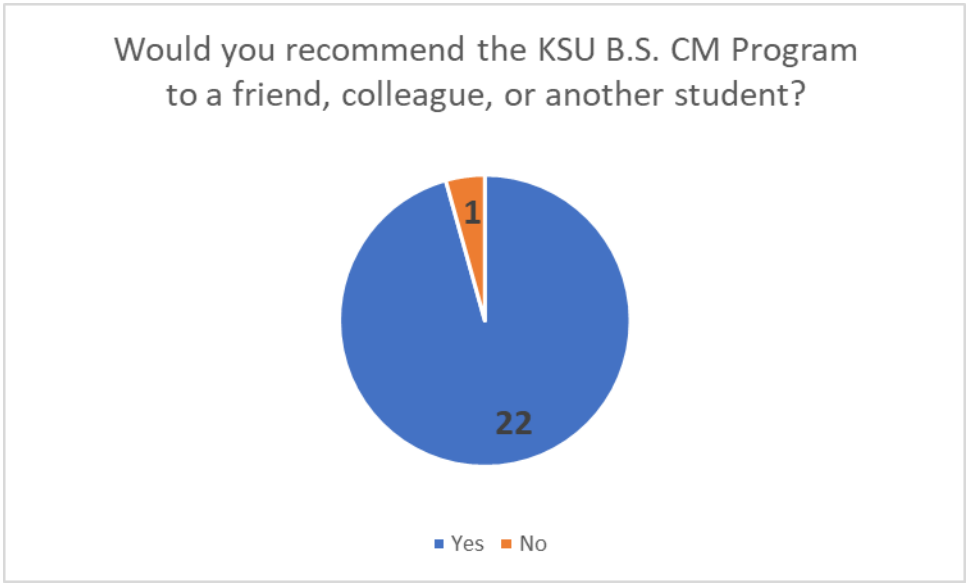
ANSWER CHOICES	RESPONSES	
Less than $10,000	0.00%	0
$10,000 - $19,999	0.00%	0
$20,000 - $29,999	8.70%	2
$30,000 - $39,000	0.00%	0
$40,000 - $49,999	13.04%	3
$50,000 - $59,999	26.09%	6
$60,000 - $69,999	52.17%	12
$70,000 - $79,999	0.00%	0
$80,000 - $89,999	0.00%	0
$90,000 - $99,999	0.00%	0
$100,000 - $120,000	0.00%	0
Greater than $120,000	0.00%	0
TOTAL		23

Q5

Save as

Would you recommend the KSU B.S. CM Program to a friend, colleague, or another student?

Answered: 23 Skipped: 0

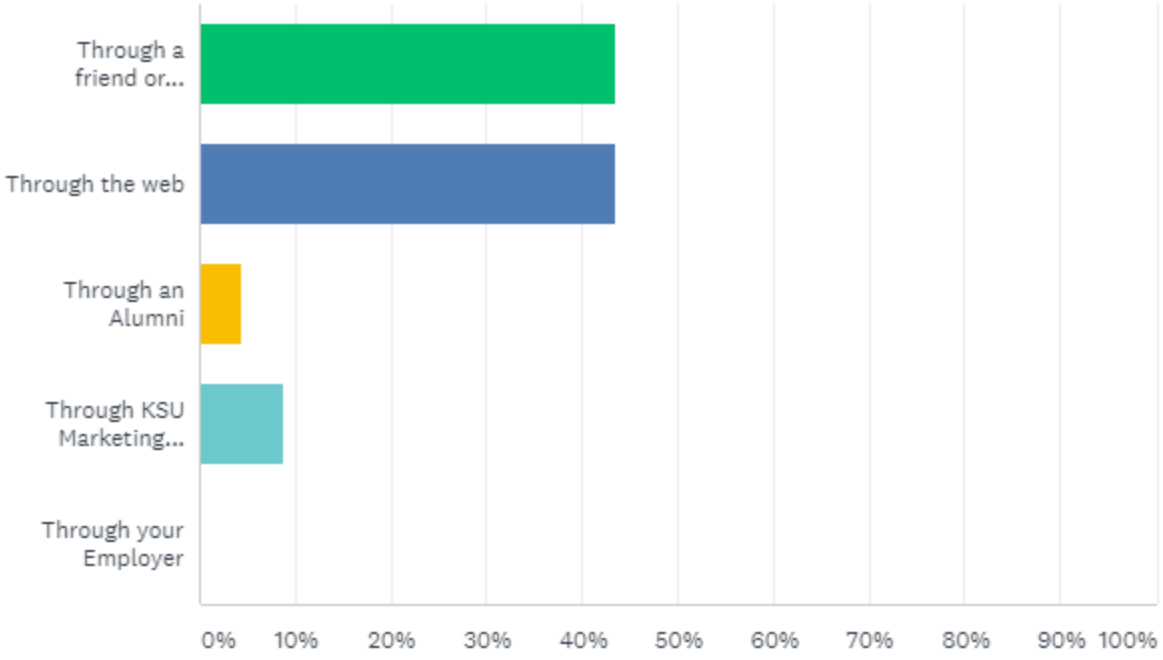

Would you recommend the KSU B.S. CM Program to a friend, colleague, or another student?
1
22
Yes
No

Q6

Customize Save as

How did you learn about KSU's BS CM Program?

Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Through a friend or relative or student	43.48%	10
Through the web	43.48%	10
Through an Alumni	4.35%	1
Through KSU Marketing efforts	8.70%	2
Through your Employer	0.00%	0
TOTAL		23

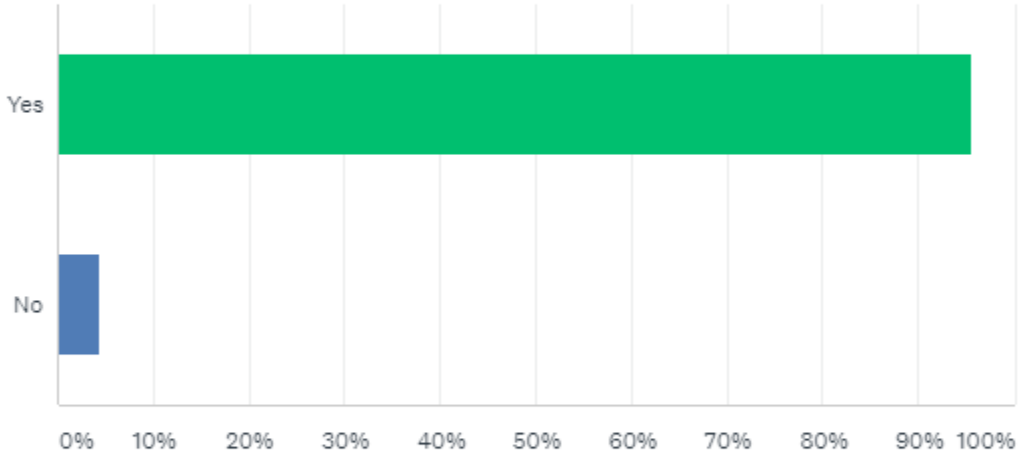
Comments (5)

Q7

Customize Save as

Do you believe that the education you received at KSU's BS CM program enabled you to get a job you are in today?

Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	95.65%	22
No	4.35%	1
TOTAL		23

Comments (16)

Q8

Save as

As a whole, please list any ideas you have for KSU's CM program improvement.

Answered: 23 Skipped: 0

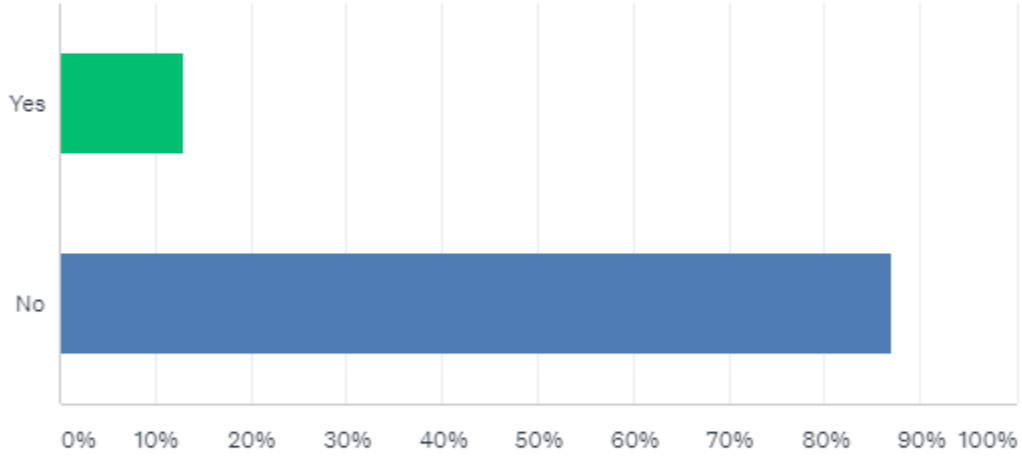
Showing 23 responses
Perhaps an opportunity to visit a job site
Split Capstone into a 3rd year and 4th year approach, instead of a one semester approach.
I would like a program designed for students to rotate through internships/labor jobs. Companies should sponsor KSU and a lot 2/3 interns per semester.
Have more Faculty so classes can be smaller.
N/A
More classes available to help with graduation timing. More hands on building projects.
More hands on projects(site visits, workshops, real life scenarios)
N/A
I would recommend to include a field engineering course specifically on building layout i.e foundations, embeds placement and location. Also a course for those who would like to work on the subcontractor side I.e. how to bid, lean methods, how to market.
More class availability, online capabilities, no need for every class to have a lab
To many professors read straight from powerpoints, gets boring and looses my attention very fast.
Have classes geared toward students looking to be superintendents
N/A
more classes. Give internship credits.
Change the major name to building science. Incorporate a few more design classes because design build is a common form of construction. Have more industry professionals come in to give speeches during classes. Also add a career development course.
Require students to have internship hours. Many students have made it to Capstone with no industry experience. There are also many classes that need to be offered online rather than 100% in class.
The Capstone Lab needs better computers. Also there needs to be more hands on learning with building materials and building methods. Nobody informed me that there is a commercial grade wood shop that is open to use until my last semester here.
Dont teach P6 scheduling. My entire scheduling class was a joke. The teacher TRIED to teach us P6 and we never used it again in the program. Teach Microsoft project to students. Also I think more time should be spent covering the legal side of construction and how to write contracts.
Less lectures, make some classes online
Use a program for estimating big projects.
some classes could be Hybrid
Finalize teaching staff for classes. Add the internship class back in, it should be required to graduate. Get rid of useless classes like music appreciation and marketing.
Students should choose a "capstone project" during their first year and keep the same project throughout the program. All assignments for each class should be based on that project.

Q9

Customize Save as

Did you take any class or classes out of CM department other than your major requirements due to your personal interest?

Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	13.04%	3
No	86.96%	20
TOTAL		23

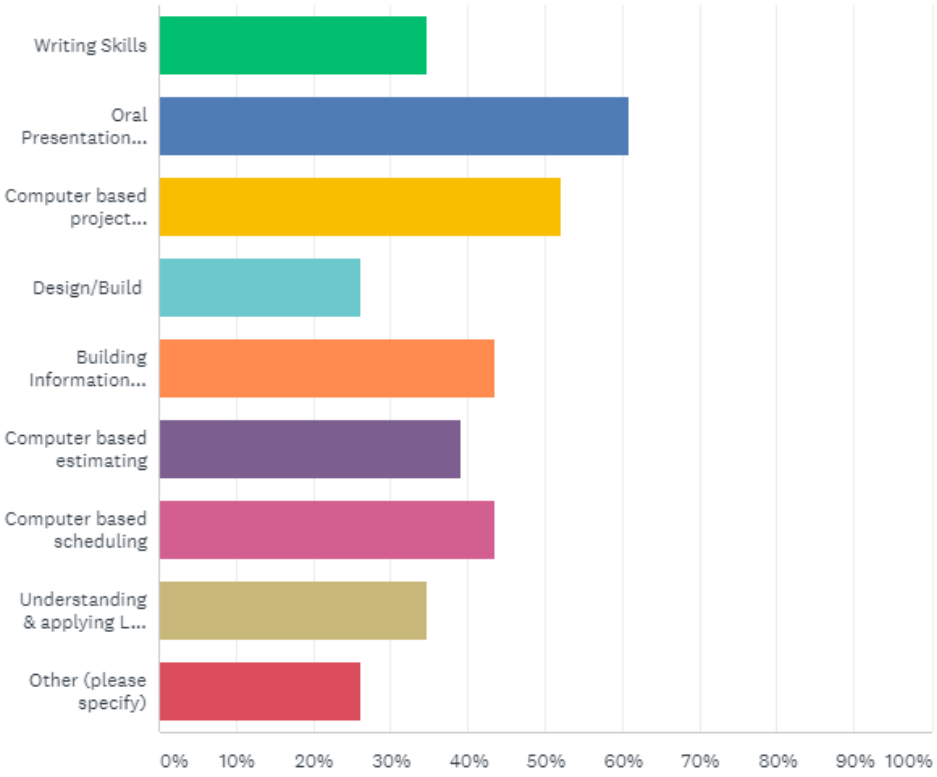
Comments (3)

Q10

Customize Save as

Looking to the future of the construction industry, what two specific skill sets do you believe are the most important as it relates future graduates being competitive and successful in the construction industry?

Answered: 23 Skipped: 0



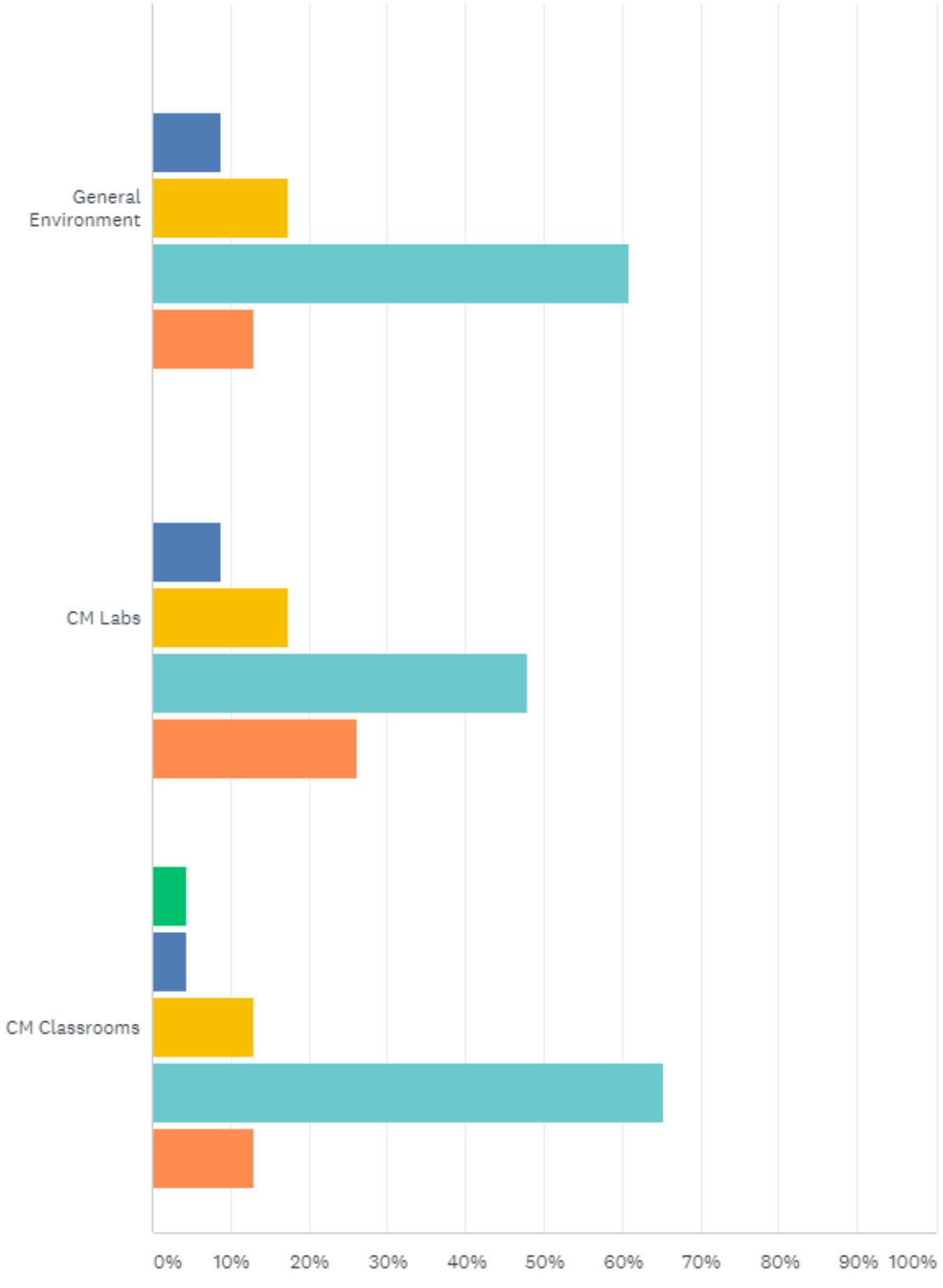
ANSWER CHOICES		RESPONSES	
Writing Skills		34.78%	8
Oral Presentation Skills		60.87%	14
Computer based project management applications		52.17%	12
Design/Build		26.09%	6
Building Information Modeling (BIM)		43.48%	10
Computer based estimating		39.13%	9
Computer based scheduling		43.48%	10
Understanding & applying LEED principles		34.78%	8
Other (please specify)	Responses	26.09%	6
Total Respondents: 23			

Q11

Customize Save as

How would you rate the CM Department facilities? Please use the scale of 1-(Poor) to 5-(Excellent)

Answered: 23 Skipped: 0



	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
General Environment	0.00% 0	8.70% 2	17.39% 4	60.87% 14	13.04% 3	23	3.78
CM Labs	0.00% 0	8.70% 2	17.39% 4	47.83% 11	26.09% 6	23	3.91
CM Classrooms	4.35% 1	4.35% 1	13.04% 3	65.22% 15	13.04% 3	23	3.78

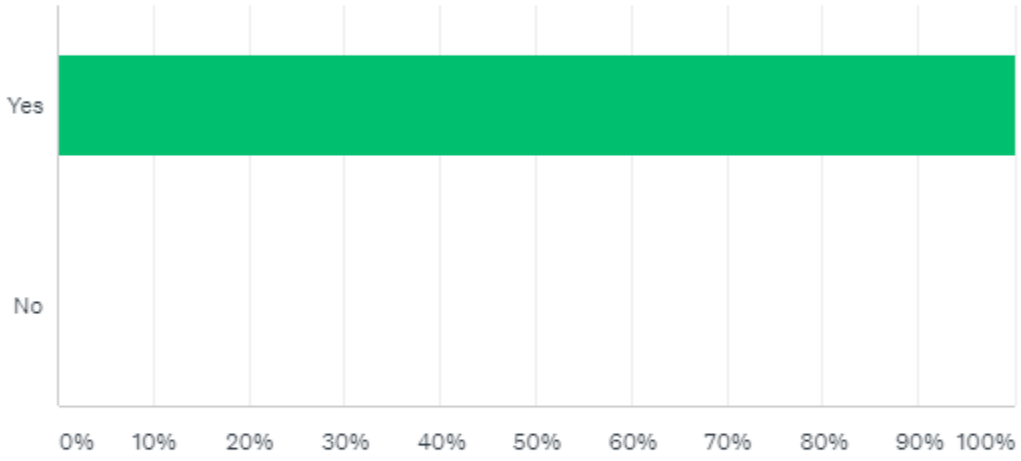
Comments (12)

Q12

Customize Save as

Do you feel that the CMP professors were available and willing to assist you throughout your courses?

Answered: 23 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	100.00%	23
No	0.00%	0
TOTAL		23

Comments (0)

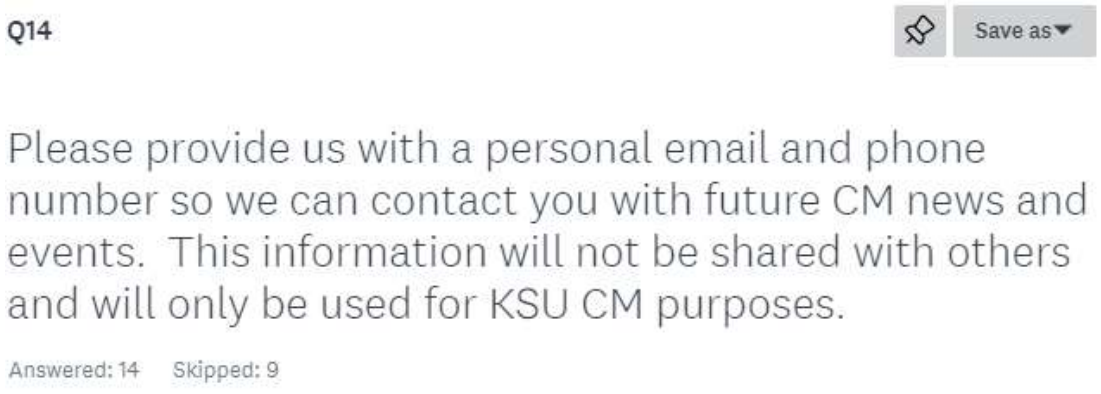
Q13

Save as

In looking at the stated objectives above for the KSU Construction Management program, in what areas would you recommend changes as the program begins its strategic planning for the next decade?

Answered: 18 Skipped: 5

Showing 18 responses
Maintain up to date with the technology used in construction
More internships to less 'fortunate' students. Students who end up with internships have had experiance working with their family or something. Get some green students.
Scheduling, and the construction process.
Go more in depth with the estimations and scheduling. Not being in the industry made it very difficult because there was an expectation of having knowledge of some things to a certain extent.
Bring more real life scenario cases/problems to the classroom then allow the students to try and work through them.
Make it mandatory to intern
Current objectives are effective and well rounded.
Scheduling and Estimating
Gear more classes towards students pursuing working in the field as a assistant superintendent, superintendent, etc.
more classes or kids will be in college for 8 years
Put more emphasis on BIM because it is the future, incorporate various construction software in all classes. Make capstone a group project rather than individual to gauge how well a student can perform on a a project team.
There needs to be more of a focus on scheduling taught by teachers who understand the programs being used.
Internships should be a requirement in order to graduate. I learned a lot during my internship and it also lead to my full time job/beginning of my career prior to graduation.
Teach students more online applications like procore, mastertask, BIM. And then if the department is willing, an investment into a virtual reality BIM set would be awesome. We use it at my job and its incredible and makes students really invest into their BIM work
Make all work online so we can properly use all proper CM applications
New computers and programs
Capstone students work full time, classes should be at least after 5pm
The idea of you will learn more in college instead of out in the field needs to stop. Internships and setting students up with companies should be the focus.



Response was deleted for privacy reasons

Action Taken;

Results of this indirect assessemnt was mapped with the direct SLO and CLO assessments related to each courses as detailed in C-4. In addition the following actions were taken

1- Provide the latest versions of software.
2- Obtain the latest lab technology such as Infra-Red imaging, 3D printing, Air quality evaluation equipment and safety equipment.
3- Consider offering internship each year.
4- Faculty were encouraged to bring guest speakers from the industry and several advisory board members volunteered to come to classrooms as guest lecturers to present the latest real life experience cases.
5- Introduce virtual site visit. Most students work and take more courses. Field visit might be a challenge.
6- Expand on field visits during Fridays and Saturdays.
7- Encourage faculty to utilize the existing labs and shops in most classes.
8- P6 was introduced in several courses now.
9- More online and hybrid courses are offered now.

Appendix C

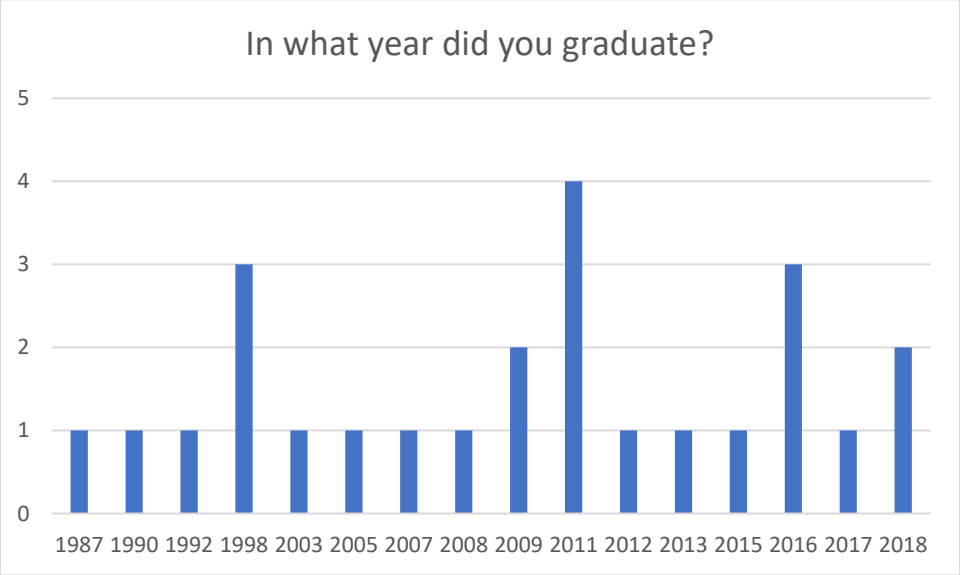
C – 2 Bachelor's Degree Program Three Year Out Alumni Survey Results and Assessment Report 2018

Q1

Save as

In what year did you graduate?

Answered: 25 Skipped: 0

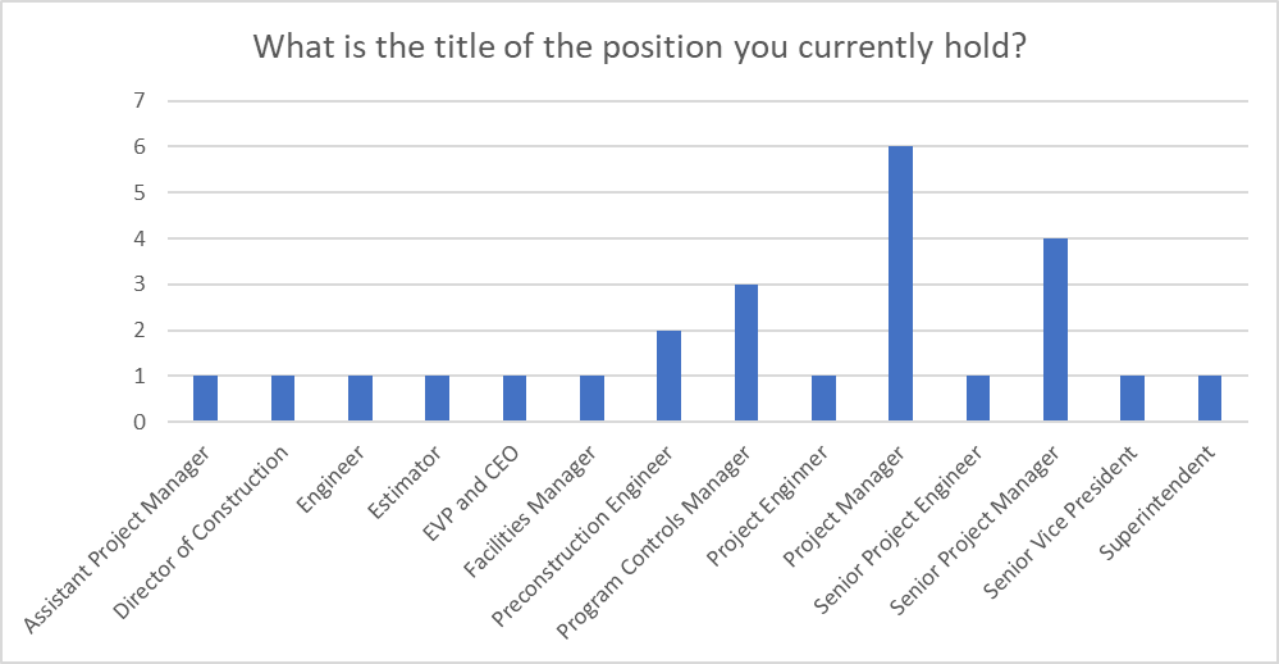


Q2

Save as

What is the title of the position you currently hold?

Answered: 25 Skipped: 0

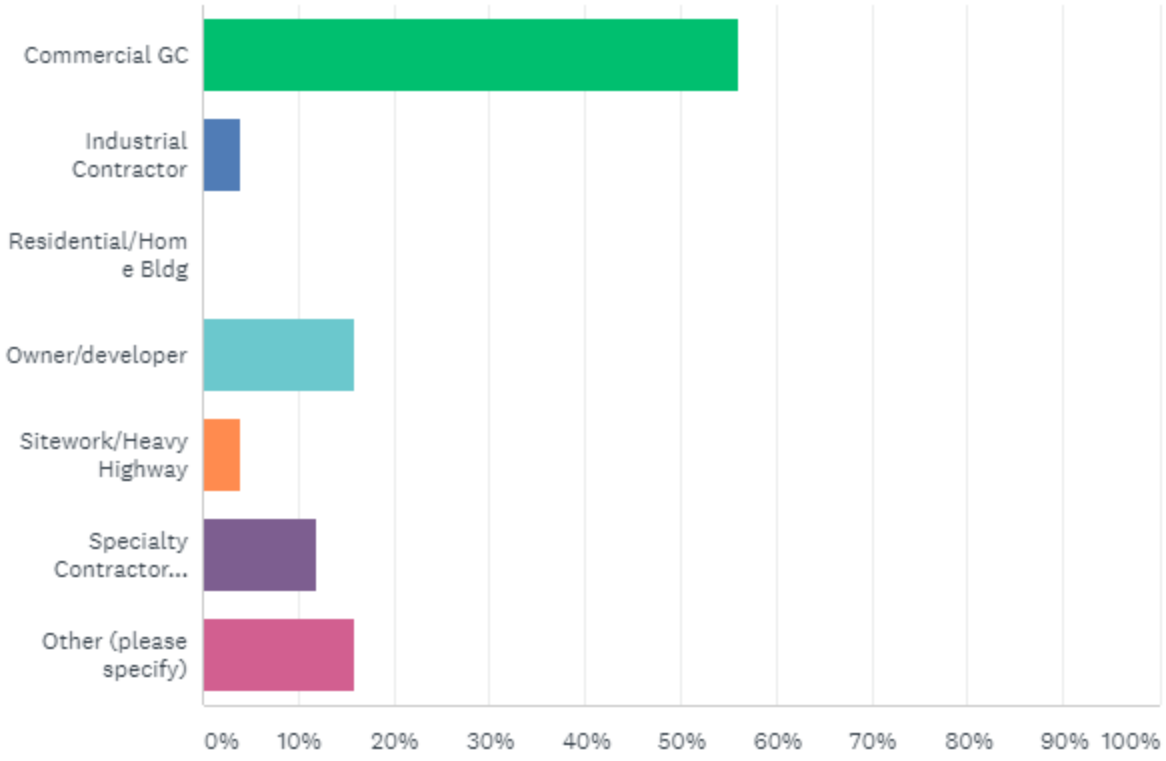


Q3

Customize Save as

Please check which areas best describe your current organization. Check all that apply.

Answered: 25 Skipped: 0



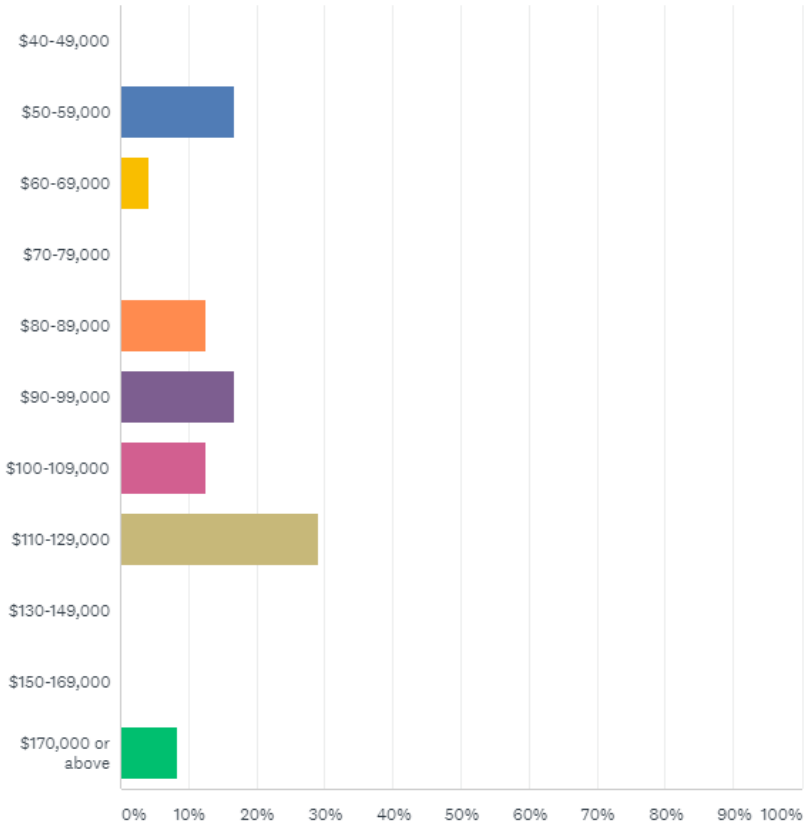
ANSWER CHOICES		RESPONSES	
Commercial GC		56.00%	14
Industrial Contractor		4.00%	1
Residential/Home Bldg		0.00%	0
Owner/developer		16.00%	4
Sitework/Heavy Highway		4.00%	1
Specialty Contractor (MEP)		12.00%	3
Other (please specify)	Responses	16.00%	4
Total Respondents: 25			

Q4

Customize | Save as

Please specify your current salary range? (please check the appropriate range)

Answered: 24 Skipped: 1



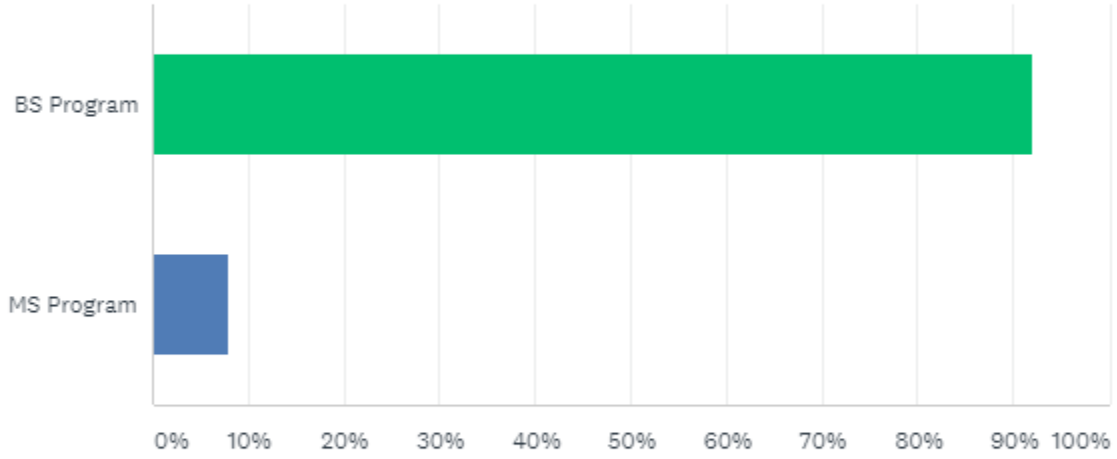
ANSWER CHOICES	RESPONSES	
$40-49,000	0.00%	0
$50-59,000	16.67%	4
$60-69,000	4.17%	1
$70-79,000	0.00%	0
$80-89,000	12.50%	3
$90-99,000	16.67%	4
$100-109,000	12.50%	3
$110-129,000	29.17%	7
$130-149,000	0.00%	0
$150-169,000	0.00%	0
$170,000 or above	8.33%	2
Total Respondents: 24		

Q5

Customize Save as

Please indicate the program level from which you graduated.

Answered: 25 Skipped: 0



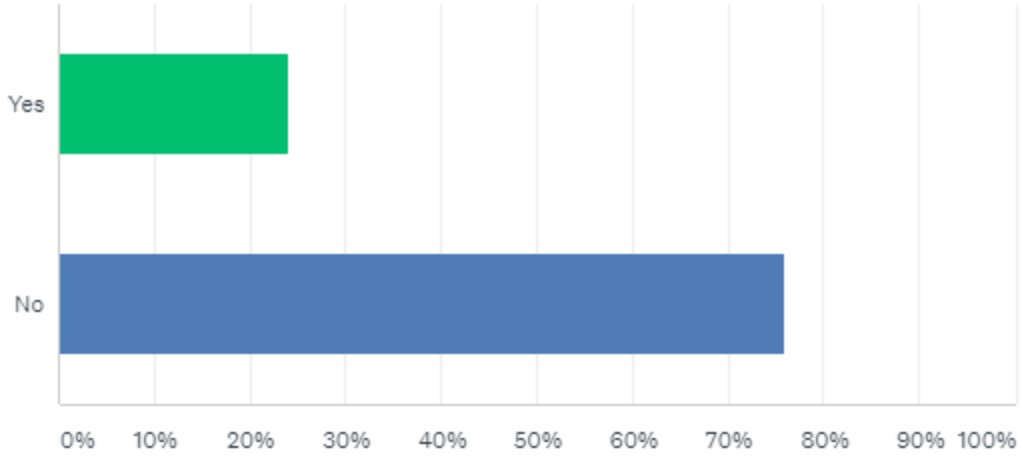
ANSWER CHOICES	RESPONSES	
BS Program	92.00%	23
MS Program	8.00%	2
TOTAL		25

Q6

Customize | Save as

Have you earned additional degrees or certifications since leaving KSU?

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	24.00%	6
No	76.00%	19
TOTAL		25

Comments (6)

Q7

Customize | Save as

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	TOTAL	WEIGHTED AVERAGE
Create written communications appropriate to the construction discipline.	0.00% 0	0.00% 0	8.00% 2	68.00% 17	24.00% 6	0.00% 0	25	4.16
Create oral presentations appropriate to the construction discipline.	0.00% 0	0.00% 0	36.00% 9	44.00% 11	20.00% 5	0.00% 0	25	3.84
Create a construction project safety plan.	0.00% 0	20.00% 5	8.00% 2	44.00% 11	24.00% 6	4.00% 1	25	3.75
Create construction project cost estimates.	0.00% 0	8.33% 2	12.50% 3	25.00% 6	50.00% 12	4.17% 1	24	4.22
Create construction project schedules.	0.00% 0	12.00% 3	32.00% 8	28.00% 7	28.00% 7	0.00% 0	25	3.72
Analyze professional decisions based on ethical principles.	4.00% 1	0.00% 0	20.00% 5	40.00% 10	36.00% 9	0.00% 0	25	4.04
Analyze construction documents for planning and management of construction processes.	0.00% 0	0.00% 0	44.00% 11	24.00% 6	32.00% 8	0.00% 0	25	3.88
Analyze methods, materials, and equipment used to construct projects.	0.00% 0	4.00% 1	40.00% 10	28.00% 7	28.00% 7	0.00% 0	25	3.80
Apply construction management skills as a member of a multi-disciplinary team.	0.00% 0	8.00% 2	16.00% 4	44.00% 11	32.00% 8	0.00% 0	25	4.00
Apply electronic-based technology to manage the construction process.	0.00% 0	16.00% 4	32.00% 8	36.00% 9	16.00% 4	0.00% 0	25	3.52
Apply basic surveying techniques for construction layout and control.	0.00% 0	16.00% 4	28.00% 7	28.00% 7	24.00% 6	4.00% 1	25	3.63

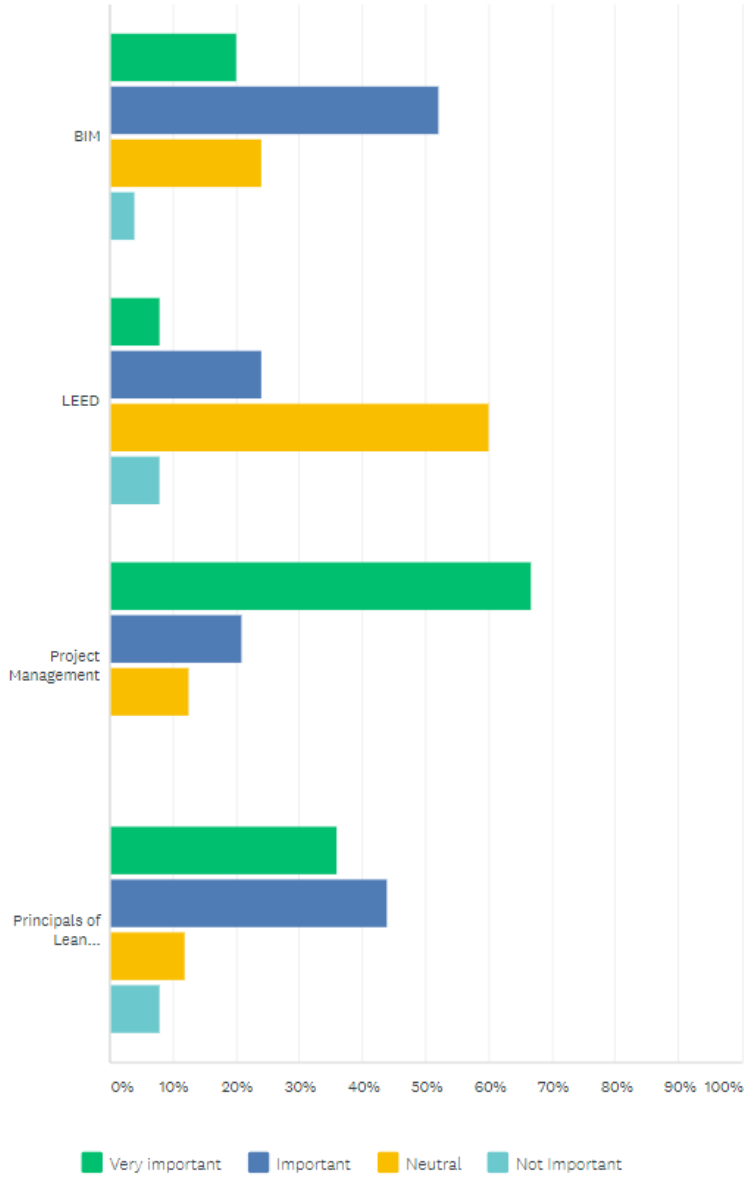
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	0.00% 0	4.00% 1	28.00% 7	44.00% 11	24.00% 6	0.00% 0	25	3.88
Understand construction risk management.	0.00% 0	4.00% 1	40.00% 10	32.00% 8	24.00% 6	0.00% 0	25	3.76
Understand construction accounting and cost control.	0.00% 0	4.00% 1	28.00% 7	36.00% 9	32.00% 8	0.00% 0	25	3.96
Understand construction quality assurance and control.	4.00% 1	4.00% 1	44.00% 11	28.00% 7	20.00% 5	0.00% 0	25	3.56
Understand construction project control processes.	0.00% 0	20.00% 5	32.00% 8	36.00% 9	12.00% 3	0.00% 0	25	3.40
Understand the legal implications of contract, common, and regulatory law to manage a const. project.	0.00% 0	4.00% 1	24.00% 6	36.00% 9	36.00% 9	0.00% 0	25	4.04
Understand the basic principles of sustainable construction.	0.00% 0	12.00% 3	32.00% 8	36.00% 9	16.00% 4	4.00% 1	25	3.58
Understand the basic principles of structural behavior.	0.00% 0	0.00% 0	28.00% 7	48.00% 12	24.00% 6	0.00% 0	25	3.96
Understand the basic principles of mechanical, electrical and piping system.	0.00% 0	12.00% 3	36.00% 9	28.00% 7	24.00% 6	0.00% 0	25	3.64

Q8

Customize Save as

How important is it to you to pursue continuing education or certifications in the following areas in order to stay current with changing trends in the industry?

Answered: 25 Skipped: 0



	VERY IMPORTANT	IMPORTANT	NEUTRAL	NOT IMPORTANT	TOTAL	WEIGHTED AVERAGE
BIM	20.00% 5	52.00% 13	24.00% 6	4.00% 1	25	2.12
LEED	8.00% 2	24.00% 6	60.00% 15	8.00% 2	25	2.68
Project Management	66.67% 16	20.83% 5	12.50% 3	0.00% 0	24	1.46
Principals of Lean Construction Management	36.00% 9	44.00% 11	12.00% 3	8.00% 2	25	1.92

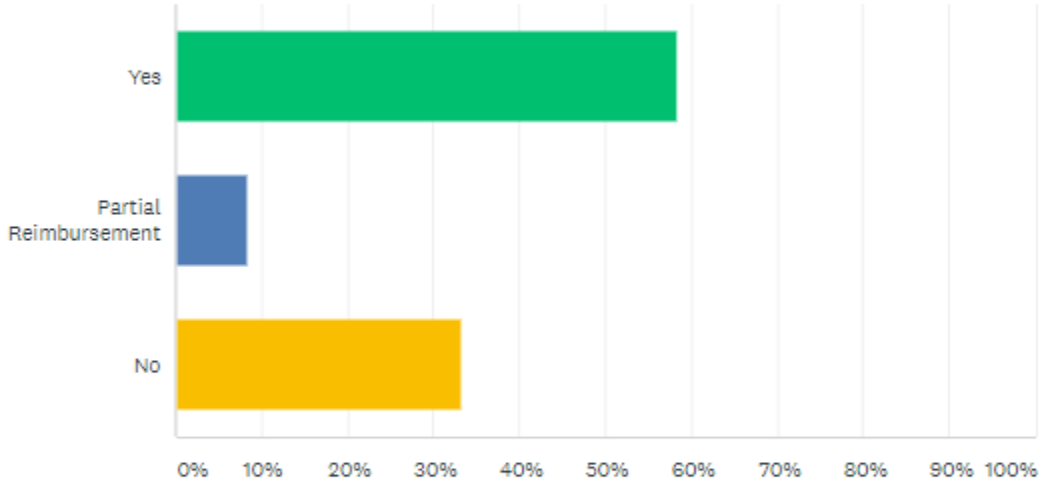
Comments (2)

Q9

Customize Save as

Did your employer reimburse you for professional development courses?

Answered: 24 Skipped: 1



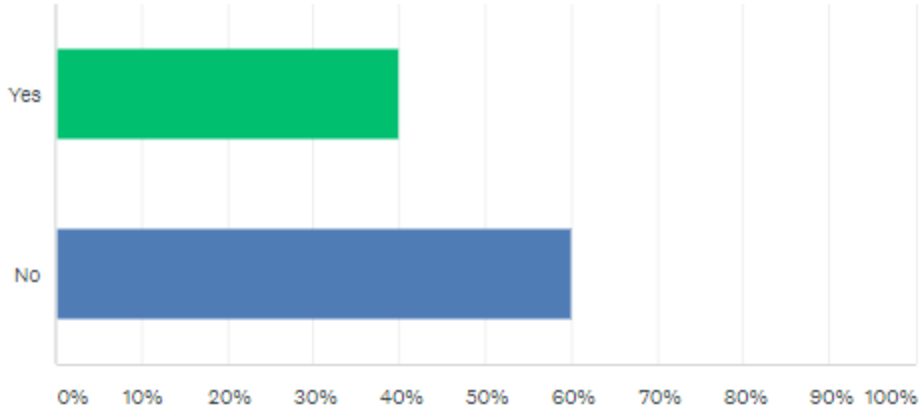
ANSWER CHOICES	RESPONSES	
Yes	58.33%	14
Partial Reimbursement	8.33%	2
No	33.33%	8
TOTAL		24

Q10

Customize Save as

Have you taken any professional development or continuing education courses since graduation from KSU

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	40.00%	10
No	60.00%	15
TOTAL		25

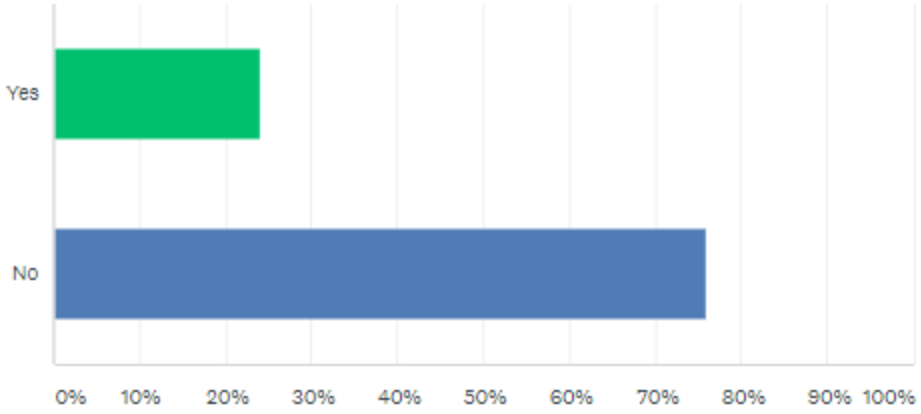
Comments (8)

Q11

Customize Save as

Have you served on any industry or educational advisory groups since graduation from KSU?

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	24.00%	6
No	76.00%	19
TOTAL		25

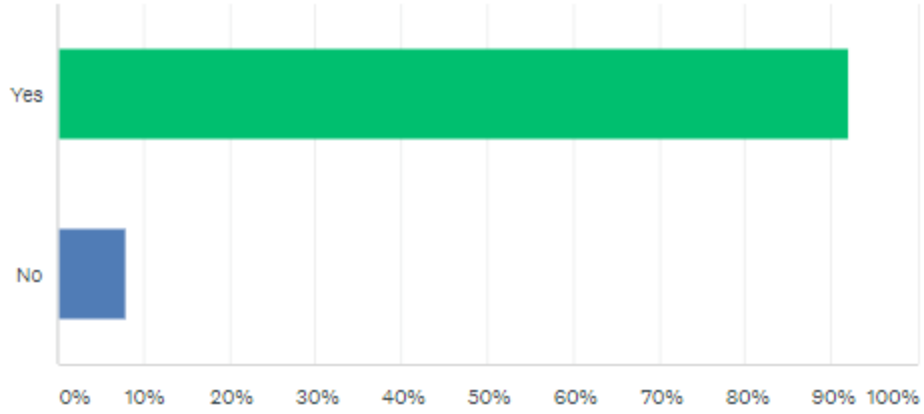
Comments (5)

Q12

Customize Save as

Based on your experience, do you feel that your KSU education has adequately prepared you to address ethical challenges?

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	92.00%	23
No	8.00%	2
TOTAL		25

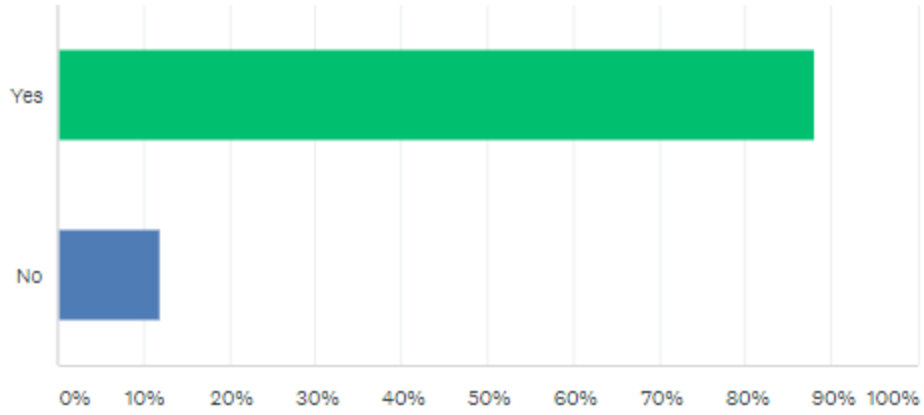
Comments (2)

Q13

Customize Save as

Did the skills/knowledge that you acquired at KSU help you obtain your first employment after graduation?

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	88.00%	22
No	12.00%	3
TOTAL		25

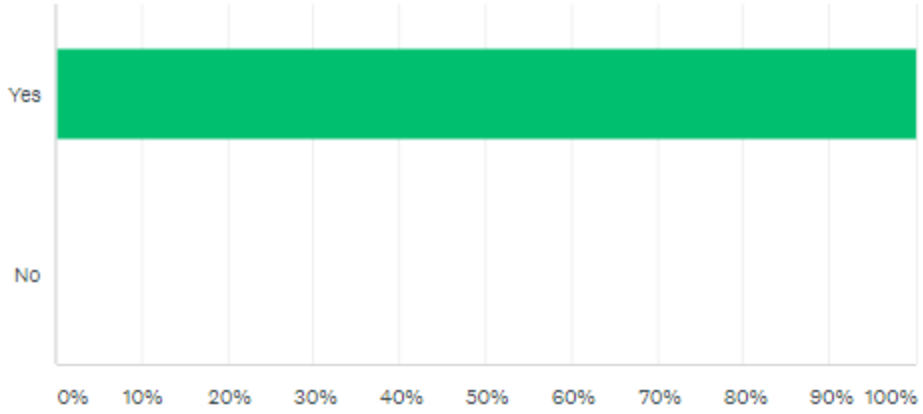
Comments (4)

Q14

Customize Save as

Would you recommend the KSU CMP to a student aspiring to a career in construction?

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Yes	100.00%	25
No	0.00%	0
TOTAL		25

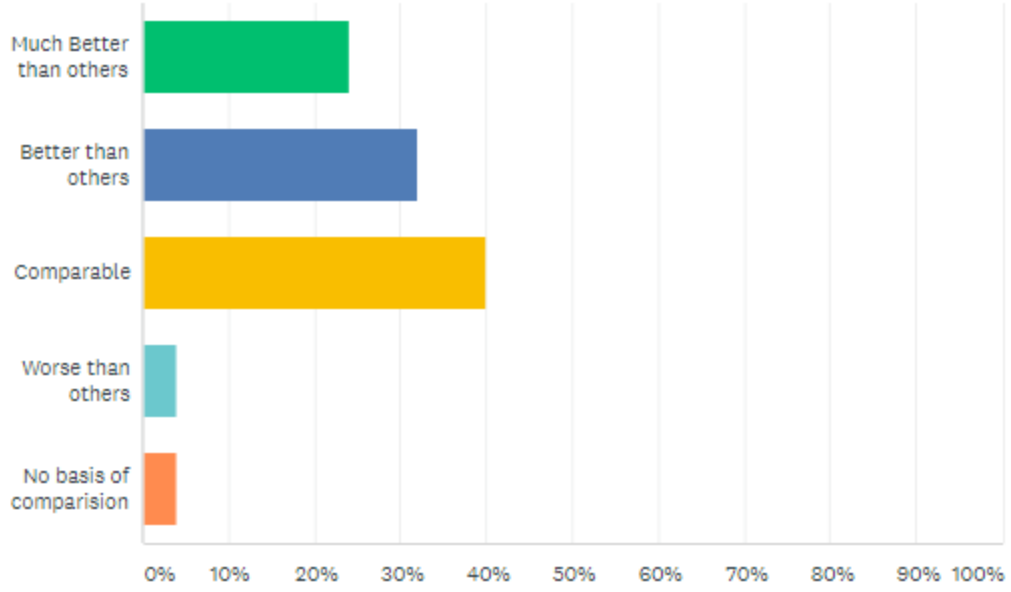
Comments (1)

Q15

Customize | Save as

From an overall perspective, how would you compare the education and skillsets you acquired in the KSU CMP to graduates that you have encountered from other Construction Management schools? Please consider the following skillsets: estimating, scheduling, project management/leadership, safety planning, accounting/finance/computer applications and use, blueprint and spec reading.

Answered: 25 Skipped: 0



ANSWER CHOICES	RESPONSES	
Much Better than others	24.00%	6
Better than others	32.00%	8
Comparable	40.00%	10
Worse than others	4.00%	1
No basis of comparision	4.00%	1
Total Respondents: 25		

Comments (0)

Q16

Customize | Save as

Based on your observation, please rank areas where you perform Better/Worse/Equal to your colleagues from other Construction Management Schools.

Answered: 25 Skipped: 0

	WORSE	EQUAL	BETTER	TOTAL	WEIGHTED AVERAGE
Estimating	4.00% 1	64.00% 16	32.00% 8	25	2.28
Scheduling	4.00% 1	64.00% 16	32.00% 8	25	2.28
Project Management/Leadership	4.00% 1	44.00% 11	52.00% 13	25	2.48
Accounting/Finance	4.00% 1	68.00% 17	28.00% 7	25	2.24
Safety Planning & Management	8.00% 2	72.00% 18	20.00% 5	25	2.12
Computer Applications & Use	8.00% 2	56.00% 14	36.00% 9	25	2.28
Blueprint & Spec Reading	0.00% 0	60.00% 15	40.00% 10	25	2.40
Understanding Materials & Methods	4.00% 1	56.00% 14	40.00% 10	25	2.36
Understanding Structures	12.00% 3	68.00% 17	20.00% 5	25	2.08
Writing Skills	4.00% 1	60.00% 15	36.00% 9	25	2.32
Oral Presentation Skills	20.00% 5	56.00% 14	24.00% 6	25	2.04

Q17

Customize Save as

Please rank each of the following skillsets in regard to its importance in obtaining employment in your current organization?

Answered: 25 Skipped: 0

	NOT IMPORTANT	IMPORTANT	VERY IMPORTANT	N/A	TOTAL	WEIGHTED AVERAGE
Estimating	0.00% 0	44.00% 11	56.00% 14	0.00% 0	25	2.56
Scheduling	0.00% 0	56.00% 14	40.00% 10	4.00% 1	25	2.42
Project Management/Leadership	0.00% 0	8.00% 2	92.00% 23	0.00% 0	25	2.92
Accounting/Finance	0.00% 0	36.00% 9	60.00% 15	4.00% 1	25	2.63
Safety Planning & Management	0.00% 0	36.00% 9	56.00% 14	8.00% 2	25	2.61
Computer Applications & Use	12.00% 3	28.00% 7	60.00% 15	0.00% 0	25	2.48
Blueprint & Spec Reading	0.00% 0	32.00% 8	68.00% 17	0.00% 0	25	2.68
Understanding Materials & Methods	0.00% 0	40.00% 10	60.00% 15	0.00% 0	25	2.60
Understanding Structures	8.70% 2	65.22% 15	26.09% 6	0.00% 0	23	2.17
Writing Skills	0.00% 0	20.00% 5	80.00% 20	0.00% 0	25	2.80
Oral Presentation Skills	0.00% 0	40.00% 10	60.00% 15	0.00% 0	25	2.60

Q18

Customize | Save as

Looking to the future of the Construction Industry, what skillsets do you believe are the most important in order for future CMP graduates to be competitive and successful? Please rank the following skillsets on a scale of 1-(Not Important) to 5-(Extremely Important)

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Communication Skills	0.00% 0	0.00% 0	4.17% 1	12.50% 3	83.33% 20	24	4.79
Computer based project management applications Skills	0.00% 0	0.00% 0	16.67% 4	33.33% 8	50.00% 12	24	4.33
Design Build	0.00% 0	25.00% 6	25.00% 6	25.00% 6	25.00% 6	24	3.50
Building Information Modeling (BIM)	0.00% 0	12.50% 3	33.33% 8	29.17% 7	25.00% 6	24	3.67
Computer based estimating Skills	0.00% 0	4.17% 1	12.50% 3	41.67% 10	41.67% 10	24	4.21
Computer based scheduling Skills	0.00% 0	0.00% 0	29.17% 7	29.17% 7	41.67% 10	24	4.13
Understanding & applying LEED principals Skills	12.50% 3	20.83% 5	58.33% 14	4.17% 1	4.17% 1	24	2.67
Financial Planning Skills	0.00% 0	0.00% 0	21.74% 5	26.09% 6	52.17% 12	23	4.30
Leadership/Management Skills	0.00% 0	0.00% 0	8.33% 2	20.83% 5	70.83% 17	24	4.63
Marketing Skills	0.00% 0	16.67% 4	33.33% 8	25.00% 6	25.00% 6	24	3.58
Risk Management Skills	0.00% 0	4.17% 1	25.00% 6	41.67% 10	29.17% 7	24	3.96
Business Operation Skills	0.00% 0	4.17% 1	16.67% 4	25.00% 6	54.17% 13	24	4.29

Q19

Customize | Save as

The KSU CMP desires to remain a frontrunner in training for the Construction Industry. We must be proactive in assessing our strengths and weaknesses. For the following learning objectives, please check whether you feel that the CMP meets Construction Industry requirements, or needs to improve in certain areas. Please write any additional comments in the space below.

Answered: 25 Skipped: 0

	NEEDS IMPROVEMENT	MEETS REQUIREMENTS	TOTAL	WEIGHTED AVERAGE
Create written communications appropriate to the construction discipline.	32.00% 8	68.00% 17	25	1.68
Create oral presentations appropriate to the construction discipline.	36.00% 9	64.00% 16	25	1.64
Create a construction project safety plan.	20.00% 5	80.00% 20	25	1.80
Create construction project cost estimates.	32.00% 8	68.00% 17	25	1.68
Create construction project schedules.	37.50% 9	62.50% 15	24	1.63
Analyze professional decisions based on ethical principles.	0.00% 0	100.00% 24	24	2.00

Analyze construction documents for planning and management of construction processes.	29.17% 7	70.83% 17	24	1.71
Analyze methods, materials, and equipment used to construct projects.	16.67% 4	83.33% 20	24	1.83
Apply construction management skills as a member of a multi-disciplinary team.	25.00% 6	75.00% 18	24	1.75
Apply electronic-based technology to manage the construction process.	25.00% 6	75.00% 18	24	1.75
Apply basic surveying techniques for construction layout and control.	16.67% 4	83.33% 20	24	1.83

Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	29.17% 7	70.83% 17	24	1.71
Understand construction risk management.	25.00% 6	75.00% 18	24	1.75
Understand construction accounting and cost control.	41.67% 10	58.33% 14	24	1.58
Understand construction quality assurance and control.	20.83% 5	79.17% 19	24	1.79
Understand construction project control processes.	32.00% 8	68.00% 17	25	1.68
Understand the legal implications of contract, common, and regulatory law to manage a const. project.	4.00% 1	96.00% 24	25	1.96
Understand the basic principles of sustainable construction.	8.00% 2	92.00% 23	25	1.92
Understand the basic principles of structural behavior.	8.00% 2	92.00% 23	25	1.92
Understand the basic principles of mechanical, electrical and piping system.	36.00% 9	64.00% 16	25	1.64

Action Taken;

Results of this indirect assessemnt was mapped with the direct SLO and CLO assessments related to each courses as detailed in C-4. Special attention was made to improve the students performance on SLO14 as the same concerns were reflected in the direct assessment.

Appendix C

C – 3 Bachelor's Degree Program Three Year Out Alumni Employer Survey Results and Assessment Report 2018

Q1

Save as

Name of your organization?

Answered: 15 Skipped: 0

Q2

Customize Save as

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

Answered: 15 Skipped: 0

	LOW	MEDIUM	HIGH	VERY HIGH	N/A	TOTAL	WEIGHTED AVERAGE
Create written communications appropriate to the construction discipline.	0.00% 0	13.33% 2	53.33% 8	33.33% 5	0.00% 0	15	3.20
Create oral presentations appropriate to the construction discipline.	0.00% 0	26.67% 4	53.33% 8	20.00% 3	0.00% 0	15	2.93
Create a construction project safety plan.	0.00% 0	40.00% 6	40.00% 6	0.00% 0	20.00% 3	15	2.50
Create construction project cost estimates.	0.00% 0	6.67% 1	53.33% 8	33.33% 5	6.67% 1	15	3.29
Create construction project schedules.	0.00% 0	20.00% 3	53.33% 8	20.00% 3	6.67% 1	15	3.00
Analyze professional decisions based on ethical principles.	0.00% 0	6.67% 1	53.33% 8	40.00% 6	0.00% 0	15	3.33
Analyze construction documents for planning and management of construction processes.	0.00% 0	13.33% 2	53.33% 8	33.33% 5	0.00% 0	15	3.20

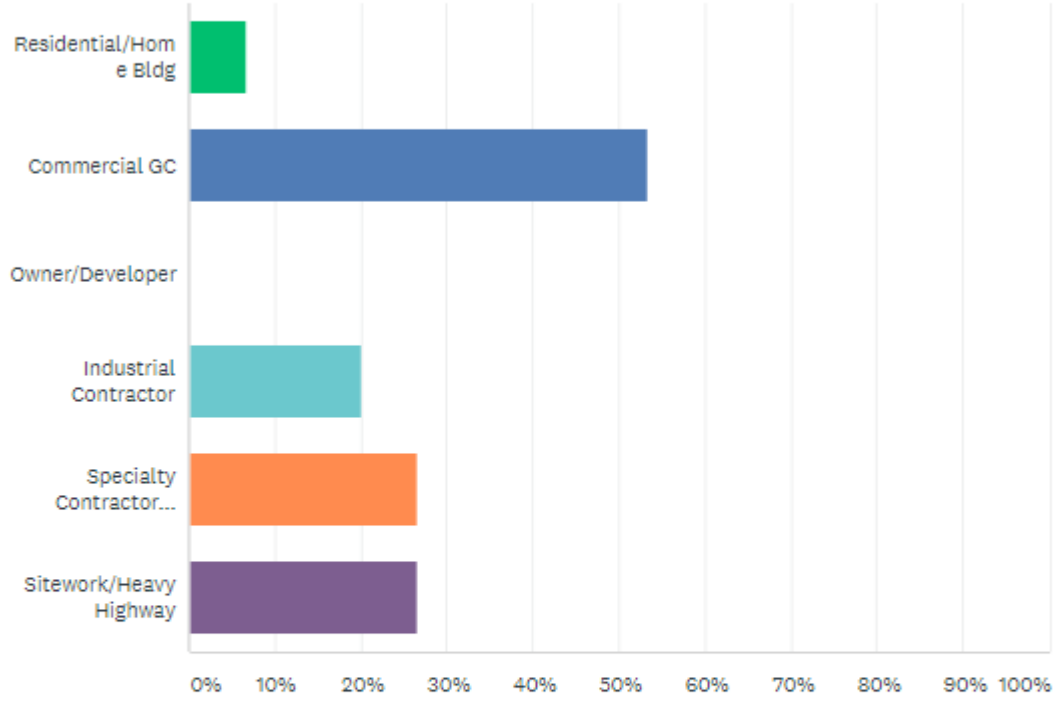
Analyze methods, materials, and equipment used to construct projects.	0.00% 0	13.33% 2	60.00% 9	26.67% 4	0.00% 0	15	3.13
Apply construction management skills as a member of a multi-disciplinary team.	0.00% 0	13.33% 2	60.00% 9	26.67% 4	0.00% 0	15	3.13
Apply electronic-based technology to manage the construction process.	0.00% 0	13.33% 2	40.00% 6	46.67% 7	0.00% 0	15	3.33
Apply basic surveying techniques for construction layout and control.	6.67% 1	33.33% 5	33.33% 5	6.67% 1	20.00% 3	15	2.50
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	0.00% 0	46.67% 7	40.00% 6	13.33% 2	0.00% 0	15	2.67
Understand construction risk management.	0.00% 0	40.00% 6	53.33% 8	6.67% 1	0.00% 0	15	2.67
Understand construction accounting and cost control.	0.00% 0	26.67% 4	60.00% 9	13.33% 2	0.00% 0	15	2.87
Understand construction quality assurance and control.	0.00% 0	6.67% 1	80.00% 12	13.33% 2	0.00% 0	15	3.07
Understand construction project control processes.	0.00% 0	6.67% 1	53.33% 8	33.33% 5	6.67% 1	15	3.29
Understand the legal implications of contract, common, and regulatory law to manage a const. project.	0.00% 0	53.33% 8	33.33% 5	6.67% 1	6.67% 1	15	2.50
Understand the basic principles of sustainable construction.	0.00% 0	20.00% 3	60.00% 9	20.00% 3	0.00% 0	15	3.00
Understand the basic principles of structural behavior.	6.67% 1	20.00% 3	66.67% 10	6.67% 1	0.00% 0	15	2.73
Understand the basic principles of mechanical, electrical and piping system.	6.67% 1	26.67% 4	53.33% 8	6.67% 1	6.67% 1	15	2.64

Q3

Customize Save as

Please check all areas in which your organization specializes:

Answered: 15 Skipped: 0



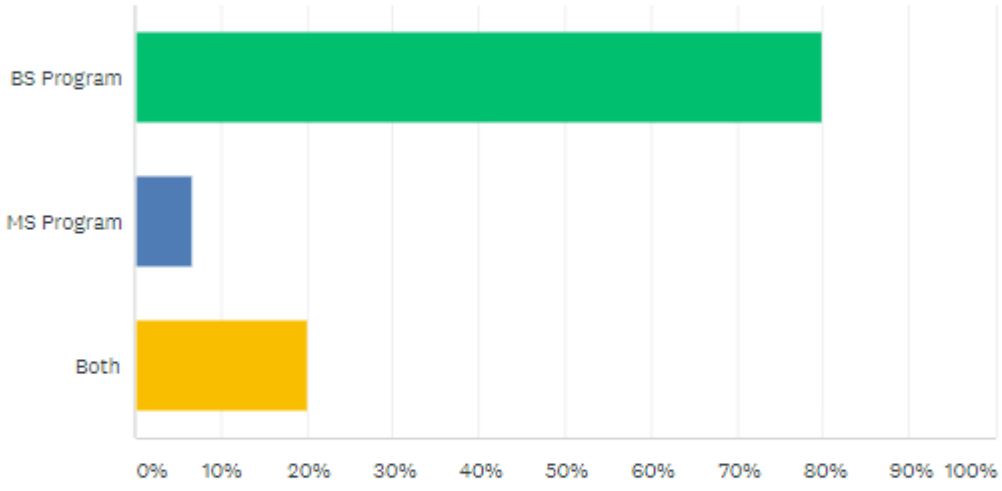
ANSWER CHOICES	RESPONSES	
Residential/Home Bldg	6.67%	1
Commercial GC	53.33%	8
Owner/Developer	0.00%	0
Industrial Contractor	20.00%	3
Specialty Contractor (MEP)	26.67%	4
Sitework/Heavy Highway	26.67%	4
Total Respondents: 15		

Q4

Customize Save as

Check applicable levels of education for KSU CMP graduates hired:

Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
BS Program	80.00%	12
MS Program	6.67%	1
Both	20.00%	3
Total Respondents: 15		

Q5

Save as

In what years (or range of years) did you hire KSU CMP graduates?

Answered: 15 Skipped: 0

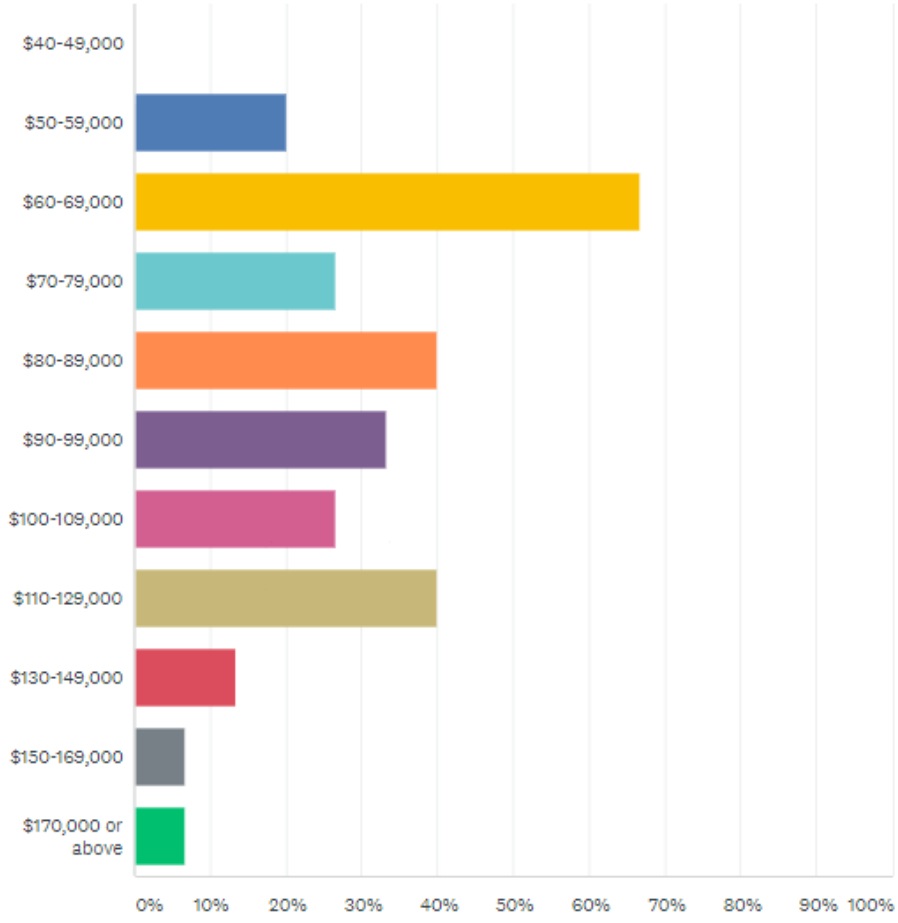
Showing 15 responses
Since 2015
Since 2001
Since 2010
Since 1988
Since 2003
Since 2014
Since 2010
2008 and 2014
Since 1990
Since 1990
Since 1985
2006 and 2007
Since 2015
Since 2010
Since 1995

Q6

Customize Save as

Please indicate current salary range(s) of all CMP graduates in your organization:

Answered: 15 Skipped: 0



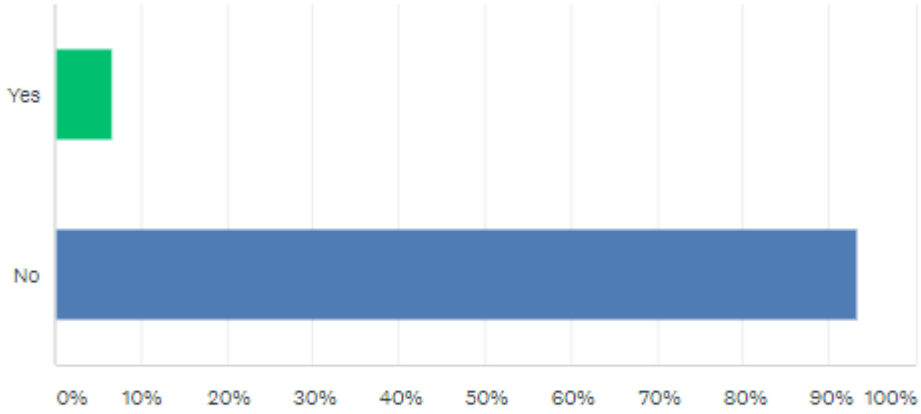
ANSWER CHOICES	RESPONSES	
$40-49,000	0.00%	0
$50-59,000	20.00%	3
$60-69,000	66.67%	10
$70-79,000	26.67%	4
$80-89,000	40.00%	6
$90-99,000	33.33%	5
$100-109,000	26.67%	4
$110-129,000	40.00%	6
$130-149,000	13.33%	2
$150-169,000	6.67%	1
$170,000 or above	6.67%	1
Total Respondents: 15		

Q7

Customize Save as

Based on your knowledge, have CMP graduates employed by your organization earned any additional degrees or certifications after graduating from KSU?

Answered: 15 Skipped: 0



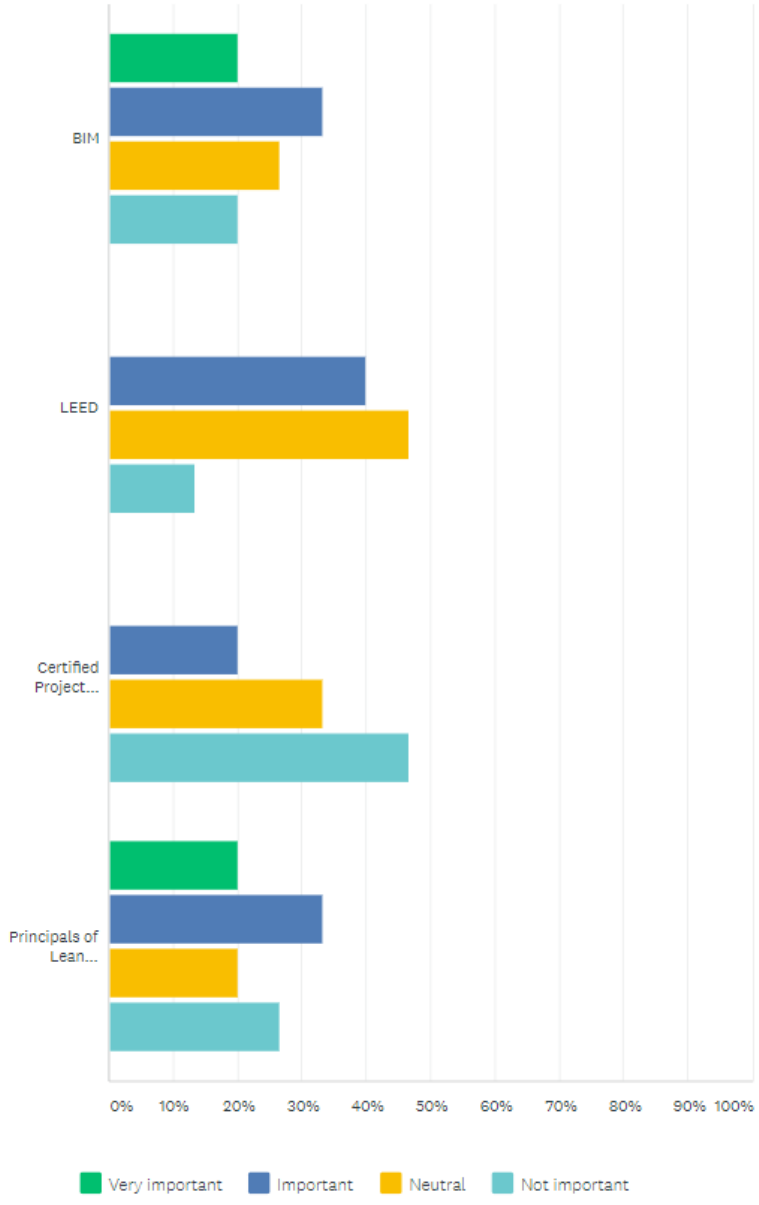
ANSWER CHOICES	RESPONSES	
Yes	6.67%	1
No	93.33%	14
TOTAL		15

Q8

Customize Save as

Within your organization, how important is it for an employee to pursue continuing education or certifications in the following areas:

Answered: 15 Skipped: 0



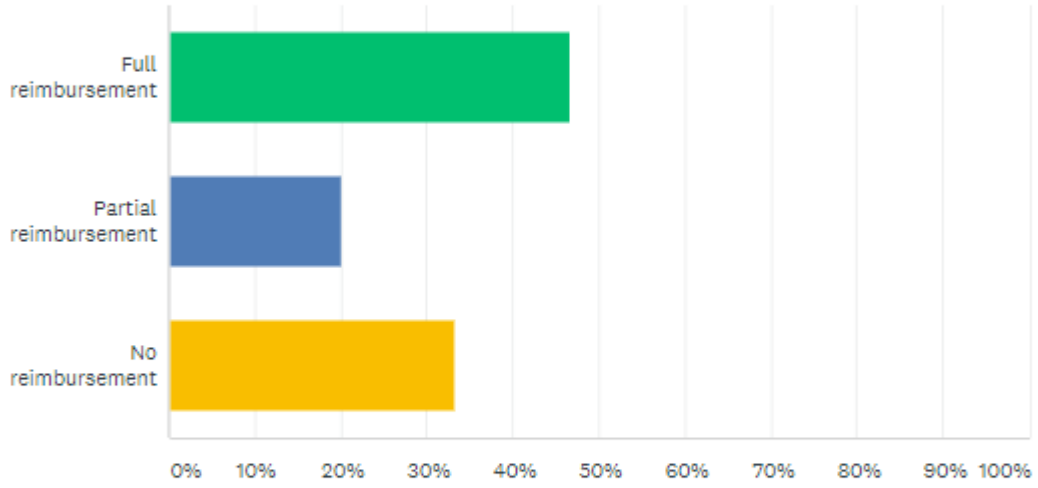
	VERY IMPORTANT	IMPORTANT	NEUTRAL	NOT IMPORTANT	TOTAL	WEIGHTED AVERAGE
BIM	20.00% 3	33.33% 5	26.67% 4	20.00% 3	15	2.47
LEED	0.00% 0	40.00% 6	46.67% 7	13.33% 2	15	2.73
Certified Project Management	0.00% 0	20.00% 3	33.33% 5	46.67% 7	15	3.27
Principals of Lean Construction Management	20.00% 3	33.33% 5	20.00% 3	26.67% 4	15	2.53

Q9

Customize Save as

Do you have a policy to reimburse employees for professional development courses?

Answered: 15 Skipped: 0



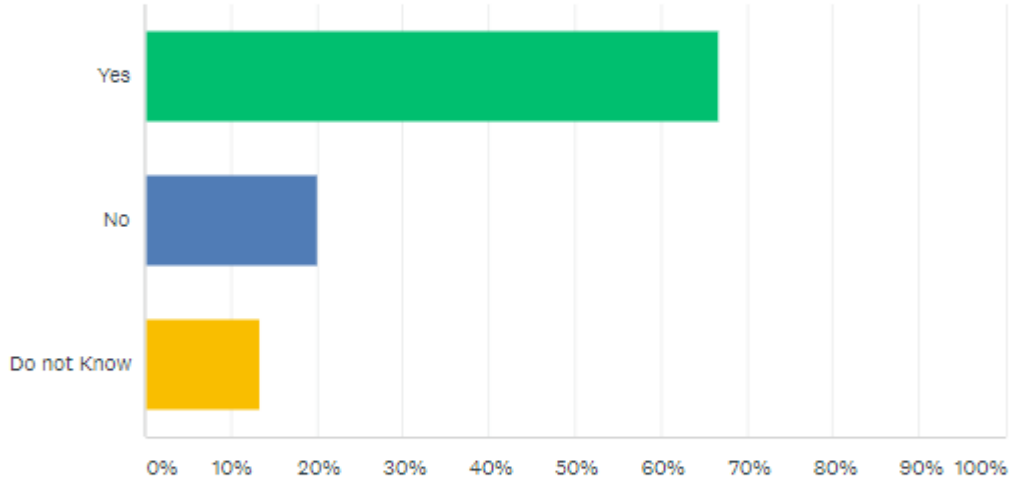
ANSWER CHOICES	RESPONSES	
Full reimbursement	46.67%	7
Partial reimbursement	20.00%	3
No reimbursement	33.33%	5
TOTAL		15

Q10

Customize Save as

Based on your knowledge, have CMP graduates employed by your organization completed any continuing education or professional development courses?

Answered: 15 Skipped: 0



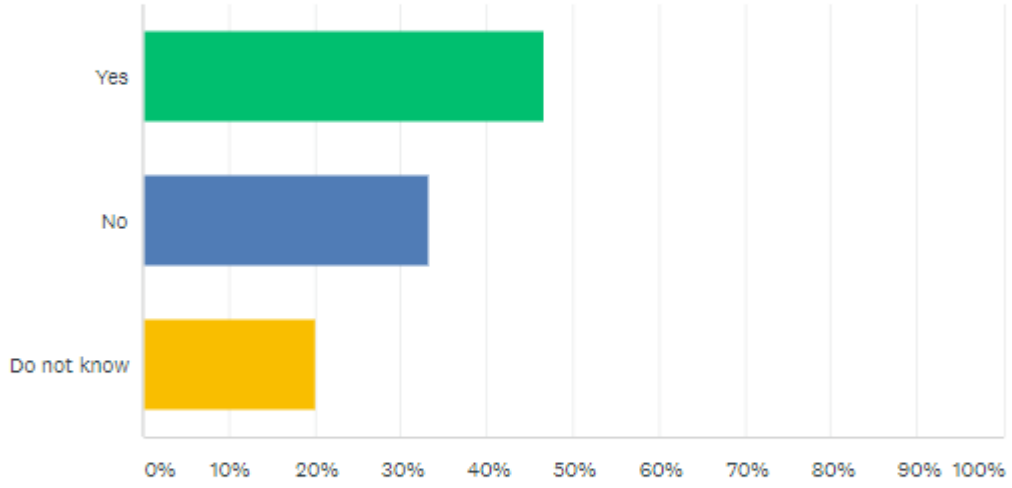
ANSWER CHOICES	RESPONSES	
Yes	66.67%	10
No	20.00%	3
Do not Know	13.33%	2
TOTAL		15

Q11

Customize Save as

Based on your information, do any KSU CMP graduates employed by your organization serve on any industry or educational advisory groups?

Answered: 15 Skipped: 0



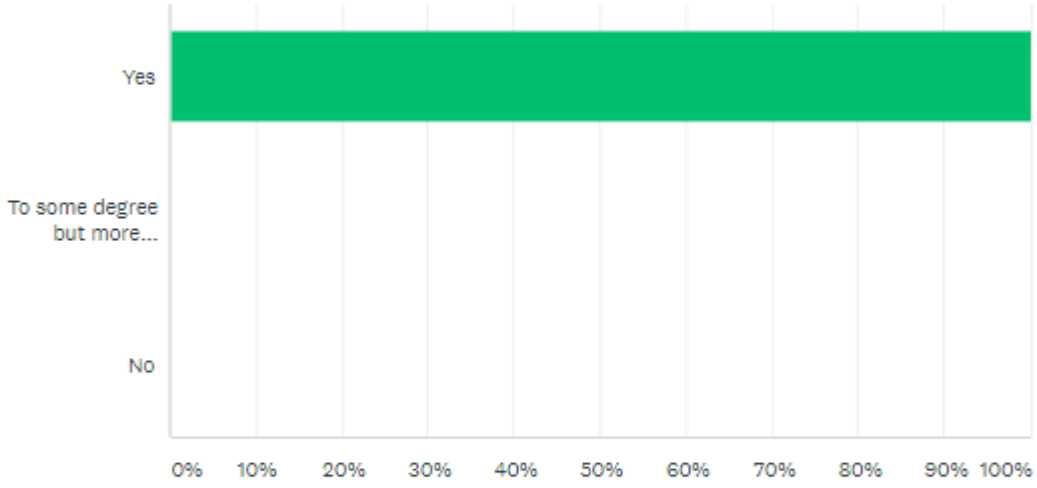
ANSWER CHOICES	RESPONSES	
Yes	46.67%	7
No	33.33%	5
Do not know	20.00%	3
TOTAL		15

Q12

Customize Save as

Based on your observation, do KSU CMP graduates employed by your organization apply ethical practices in the performance of their job duties?

Answered: 14 Skipped: 1



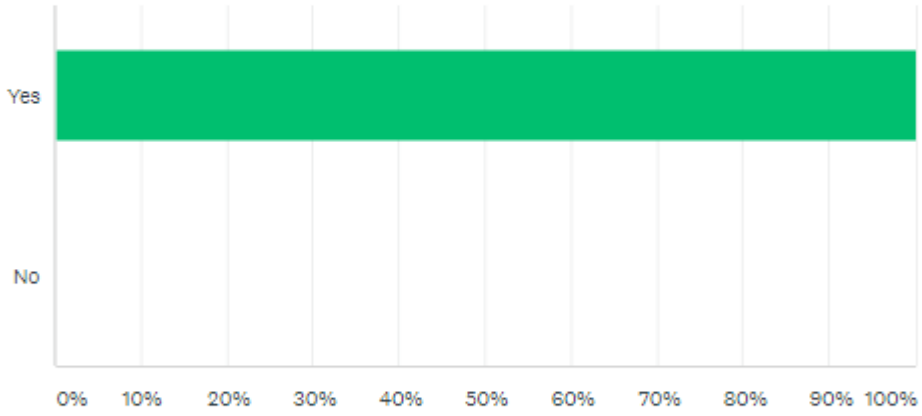
ANSWER CHOICES	RESPONSES	
Yes	100.00%	14
To some degree but more instruction is required	0.00%	0
No	0.00%	0
TOTAL		14

Q13

Customize Save as

Do you agree that the education your KSU CMP graduate received has provided them with the skills and training necessary to hold positions of higher responsibility within your organization?

Answered: 15 Skipped: 0



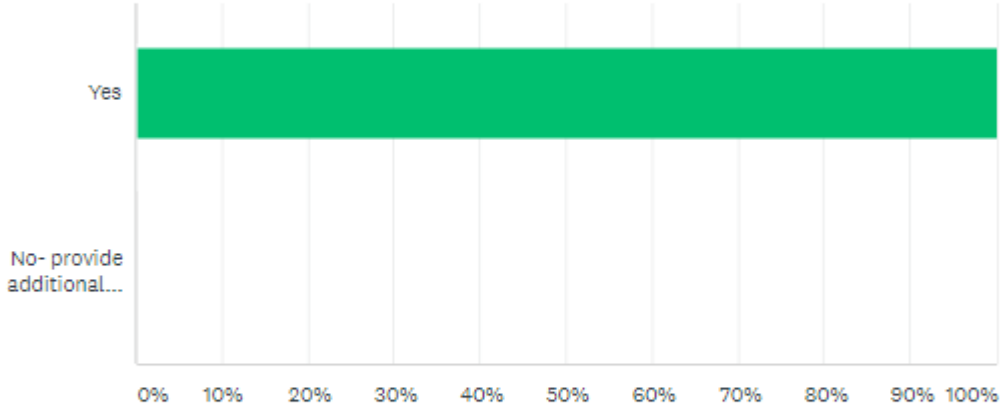
ANSWER CHOICES	RESPONSES	
Yes	100.00%	15
No	0.00%	0
Total Respondents: 15		

Q14

Customize Save as

Would you seek to hire KSU CMP graduates in the future?

Answered: 15 Skipped: 0



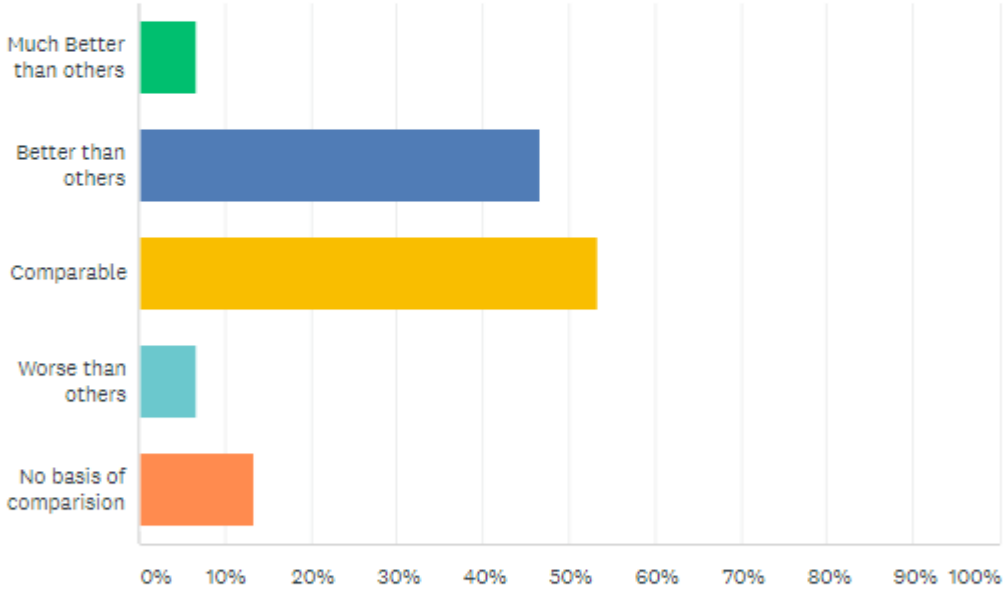
ANSWER CHOICES	RESPONSES	
Yes	100.00%	15
No- provide additional comment below	0.00%	0
TOTAL		15

Q15

Customize Save as

From an overall perspective how would you compare your KSU CM graduates versus other CM school graduates who work for your firm in the following key areas: (estimating, scheduling, project management/leadership, safety planning, accounting/finance, computer applications & use, blueprint & spec reading) If you have employed KSU graduates in the past but do not have any currently employed, please answer this question by comparing those KSU graduates that used to work for your firm versus those from other schools.

Answered: 15 Skipped: 0



ANSWER CHOICES	RESPONSES	
Much Better than others	6.67%	1
Better than others	46.67%	7
Comparable	53.33%	8
Worse than others	6.67%	1
No basis of comparision	13.33%	2
Total Respondents: 15		

Q16

Customize | Save as

Based on your observation, please rank areas where KSU CM Alum performs better/Worse/Equal to their counterparts from other Construction Management Schools.

	WORSE	EQUAL	BETTER	TOTAL	WEIGHTED AVERAGE
Estimating	0.00% 0	100.00% 13	0.00% 0	13	2.00
Scheduling	7.69% 1	84.62% 11	7.69% 1	13	2.00
Project Management/Leadership	15.38% 2	38.46% 5	46.15% 6	13	2.31
Accounting/Finance	8.33% 1	91.67% 11	0.00% 0	12	1.92
Safety Planning & Management	0.00% 0	84.62% 11	15.38% 2	13	2.15
Computer Applications & Use	0.00% 0	84.62% 11	15.38% 2	13	2.15
Blueprint & Spec Reading	0.00% 0	69.23% 9	30.77% 4	13	2.31
Understanding Materials & Methods	0.00% 0	76.92% 10	23.08% 3	13	2.23
Understanding Structures	0.00% 0	76.92% 10	23.08% 3	13	2.23
Writing Skills	0.00% 0	100.00% 13	0.00% 0	13	2.00
Oral Presentation Skills	23.08% 3	76.92% 10	0.00% 0	13	1.77

Q17

Customize | Save as

Looking to the future of the construction industry, what skill sets do you believe are the most important as it relates to future graduates being competitive and successful in the construction industry?On a scale from 1-5 with "1" being very low and "5" being very high, please assess the following skills of KSU graduates who work for you.

Answered: 14 Skipped: 1

	1	2	3	4	5	TOTAL	WEIGHTED AVERAGE
Communication Skills	0.00% 0	7.14% 1	7.14% 1	42.86% 6	42.86% 6	14	4.21
Computer based project management applications Skills	0.00% 0	0.00% 0	7.14% 1	57.14% 8	35.71% 5	14	4.29
Design Build	0.00% 0	15.38% 2	23.08% 3	38.46% 5	23.08% 3	13	3.69
Building Information Modeling (BIM)	0.00% 0	14.29% 2	42.86% 6	14.29% 2	28.57% 4	14	3.57
Computer based estimating Skills	0.00% 0	0.00% 0	28.57% 4	35.71% 5	35.71% 5	14	4.07
Computer based scheduling Skills	0.00% 0	7.14% 1	21.43% 3	42.86% 6	28.57% 4	14	3.93
Understanding & applying LEED principals Skills	0.00% 0	14.29% 2	57.14% 8	28.57% 4	0.00% 0	14	3.14
Financial Planning Skills	7.69% 1	15.38% 2	7.69% 1	53.85% 7	15.38% 2	13	3.54
Leadership/Management Skills	0.00% 0	7.14% 1	7.14% 1	50.00% 7	35.71% 5	14	4.14
Marketing Skills	0.00% 0	14.29% 2	35.71% 5	28.57% 4	21.43% 3	14	3.57
Risk Management Skills	0.00% 0	0.00% 0	42.86% 6	28.57% 4	28.57% 4	14	3.86
Business Operation Skills	0.00% 0	0.00% 0	28.57% 4	50.00% 7	21.43% 3	14	3.93

Q18

Customize Save as

In context of the following Learning Outcomes, please identify areas that you would recommend improvement to the KSU Construction Management program as we begin our strategic planning for the next decade?

Answered: 12 Skipped: 3

	NEEDS IMPROVEMENT	MEETS REQUIREMENTS	TOTAL	WEIGHTED AVERAGE
Create written communications appropriate to the construction discipline.	0.00% 0	100.00% 1	1	2.00
Create oral presentations appropriate to the construction discipline.	66.67% 4	33.33% 2	6	1.33
Create a construction project safety plan.	50.00% 1	50.00% 1	2	1.50
Create construction project cost estimates.	0.00% 0	0.00% 0	0	0.00
Create construction project schedules.	50.00% 1	50.00% 1	2	1.50
Analyze professional decisions based on ethical principles.	0.00% 0	0.00% 0	0	0.00
Analyze construction documents for planning and management of construction processes.	0.00% 0	100.00% 1	1	2.00

Analyze methods, materials, and equipment used to construct projects.	0.00% 0	0.00% 0	0	0.00
Apply construction management skills as a member of a multi-disciplinary team.	100.00% 1	0.00% 0	1	1.00
Apply electronic-based technology to manage the construction process.	0.00% 0	0.00% 0	0	0.00
Apply basic surveying techniques for construction layout and control.	100.00% 1	0.00% 0	1	1.00
Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	0.00% 0	0.00% 0	0	0.00
Understand construction risk management.	0.00% 0	100.00% 1	1	2.00
Understand construction accounting and cost control.	0.00% 0	0.00% 0	0	0.00
Understand construction quality assurance and control.	0.00% 0	0.00% 0	0	0.00
Understand construction project control processes.	0.00% 0	0.00% 0	0	0.00
Understand the legal implications of contract, common, and regulatory law to manage a const. project.	0.00% 0	0.00% 0	0	0.00
Understand the basic principles of sustainable construction.	0.00% 0	0.00% 0	0	0.00
Understand the basic principles of structural behavior.	0.00% 0	0.00% 0	0	0.00
Understand the basic principles of mechanical, electrical and piping system.	33.33% 1	66.67% 2	3	1.67

Action Taken;

Results of this indirect assessemnt was mapped with the direct SLO and CLO assessments related to each courses as detailed in C-4. Althoug some findings of this assessment did not correleate witht the direct assessment especially for SLO17, SLO3, ad SLO11, Discussions were made during faculty meetings and retreats to address these issues especialy in oral presentation and leadership. The discussion was focused on enhancing the oral presentation in Capstone and other classes.

Appendix C

C – 4 KSU Teaching and Course assessment for CM Courses

BSCM SLO s ASSESSMENT Spring 2019

SLO	Target average score for the SLO	Achieved average score for the SLO	Course Number & Name	CLO Number & Description	Assessment Tool	Target class average score for the CLO	Achieved class average score for the CLO	Improvement Plan for the CLO
SLO 1 - Create written communications appropriate to the construction discipline.	85.0	89.4	CM 2000 - Construction Graphics	CLO 1- Generate plan, elevation and section of 3D objects.	Exam 1	85.0	87.4	Target met,Print 3d objects and use glass box to help students better understand orthographic projection.
				CLO 2- Read and interpret Civil, Architecture, and Structural drawings.	Exam 2	85.0	87.0	Target met, no action is needed.
				CLO 3- Identify conflicts & coordination between the different construction drawings.	Exam 2	85.0	93.0	The use of Bluebeam aided in the improvement in this lab.To overcome the learning curve Bluebeam was started early in the semester with a couple of classes focusing on simple tasks in Bluebeam. The exercise should include more interaction between the different plans.
			CM 4900 - Capstone Project	CLO 6 - Create a high quality, professional submittal	Project Notebook submittal	85.0	87.7	Target Met
			CM 4760 - 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	Final project	85.0	91.7	Target Met
SLO 2 - Create oral presentations appropriate to the construction discipline.	85.0	87.2	CM 4900 - Capstone Project	CLO 7 - Prepare and delivery a professional presentation	Project presentation	85.0	87.2	Target Met
			CM 3800 - Construction Finance	CLO 1 - Creative effective project presentation.Demonstrate presentation skills	Final project	85.0	87.3	Formative feedback throughout the semester led to improved ppt and student presentation
SLO 3 - Create a construction project safety plan.	85.0	91.1	CM 4710 - Construction Safety	CLO 1 - Develop a detailed safety manual that includes subparts discussed in OSHA 29 CFR 1926.	Safety Manual	75.0	100.0	Target met
				CLO 2 - Develop a knowledge of safety procedures, regulations, and hazards.	Exam 1	80.0	83.2	Target met
					Exam 2	80.0	84.8	Target met
					Exam 3	80.0	93.8	Target met
					Safety Manual	75.0	100.0	Target met
			CM 4900 - Capstone Project	CLO 3 - Develop project specific safety plan	Risk/Safety component of notebook submittal	85.0	84.5	Target Met
SLO 4 - Create construction project cost estimates.	85.0	84.3	CM 4900 - Capstone Project	CLO 1 - Provide comprehensive estimate for a project	Estimate component of notebook submittal	85.0	84.3	Target Met
SLO 5 - Create construction project schedules.	85.0	85.9	CM 4510 - Construction Scheduling	CLO 1 - Understanding and development of project planning and how to incorporate into a project schedule, including the determination of project constraints, activities, logic, and durations.	Deck planning and bar chart	85.0	86.3	Target Met
					House WBS worksession 1			
					House worksession 2			
			CM 4900 - Capstone Project	CLO 2 - Planning and schedule development	Schedule component of notebook submittal	85.0	85.4	Target Met
SLO 6 - Analyze professional decisions based on ethical principles.	85.0	94.5	CM 3800 - Construction Finance	CLO 2 - Define ethics and defend choices or decisions on the principles of ethics.	HW (Ethics)	85.0	90.0	Students were given instruction on how to write a summary of publications. Students below B grade repeated assignment.
			CM 4710 - Construction Safety	CLO 3 - Distinguish between ethical and non-ethical safety procedures in building construction.	Ethics Test	75.0	99.4	Target Met
			CM 4760 - Construction & Real Property Law	CLO 2 - Examine legal documents and contracts to ensure ethical behavior and principles are understood and followed throughout the agreement.	Final Project	85.0	91.7	Target Met
				CLO 3 - Compare and contrast what behavior may be legal but not ethical within the construction industry.	Ethics Assignment	90.0	100.0	Target Met
			CM 4560 - Construction Project Management	CLO 4 - Examine scenarios in construction management settings to differentiate ethical and unethical behaviors	Assignment 4	75.0	91.4	Target Met
SLO 7 - Analyze construction documents for planning and management of construction processes	85.0	86.3	CM 4510 - Construction Scheduling	CLO 2 - Attain skill and confidence in precedence network diagrams and CPM software	Sample 1	85.0	85.9	Target met
					Sample 2			
					Sample 3			
					Sample 4			
			CM 4560 - Construction Project Management	CLO 3 - Organize a planning and scheduling process for construction projects.	Assignment 3	75.0	86.8	Target met
SLO 8 - Analyze methods, materials, and equipment used to construct projects.	85.0	88.4	CM 3110 - Resi. And Light Construction Meth	CLO 1 - Determine scopes of work, construction materials,and basic means & methods	Lab 1-10	85.0	88.8	Target met
					Quiz 1-6	75.0	74.4	Target met
				CLO 2 - Sequence construction activities	Lab 12	85.0	88.4	Target met
			CM 3180 - Mechanical and electrical building systems	CLO 1 - Identify the equipment and materials used in mechanical sytems	Lab 1	85.0	92.3	With such a long final exam a new lab will be added to do mechanical questions. It will be set up as a mechanical quiz.
				CLO 2 - Identify the equipment and materials used in plumbing systems	Lab 2	85.0	94.0	With such a long final exam a new lab will be added to do the plumbing questions. It will be set up as a plumbing quiz.
				CLO 3 - Differentiate between the equipment and materials used in electrical systems.	Lab 3	85.0	90.9	With such a long exam a new lab will be added to do the electrical questions. It will be set up as a electrical quiz.
				CLO 4 - Examine the sequence of installation, with milestone dates, for mechanical,electrical and plumbing (MEP) systems in a construction project	Schedule	85.0	90.1	Combine students into groups, have them start by coming up with the tasks needed and milestones. Write out each task then organize them in order. Once the tasks have been adjusted then they will enter it into scheduling software.
SLO 9 -Apply construction management skills as a member of a multi-disciplinary team.	85.0	91.6	CM 4560 - Construction Project Management	CLO 5 – Execute a Change Order, a Schedule of Values, and Pay Applications	Final project	75.0	91.6	Target met
SLO 10 - Apply electronic-based technology to manage the construction process.	85.0	86.5	CM 3000 - Computer Applications in Construction	CLO 1 - Prepare basic AutoCAD construction drawings, modify, exchange, and extract information from CAD drawing files	Exam 1, using AutoCAD	85.0	87.0	Continue with the modules as designed. Introduce new asignments to intergrate Bluebeam with other CAD tools.
				CLO 2 - Generate basic BIM models, modify, exchange, and extract information from 3D BIM models.	Exam 2, using Revit	85.0	87.0	Continue module as is. Update revit and AutoCAD instructional materials to incorporate new drafting and construction drawings management features.
				CLO 3 - Use computer software to prepare basic work schedules typically used in construction practice.	Lab project 18 using primavera p6 for scheduling	85.0	86.0	Continue module as is. Introduce cost loaded schedule concepts to the scheduling assignments.
				CLO 4 - Use computer software to prepare basic quantity takeoff schedules using estimating software.	Lab project 12 (using Onscreen takeoff)	85.0	86.0	Continue module as is. Update and improve the assignments related to integrating revit, excell and AutoCAD for quantity takeoff.
SLO 11 - Apply basic surveying techniques for construction layout and control.	85.0	85.0	SURV 2200 - Construction Measurments	CLO 1 - Perform differential leveling	Lab	70.0	95.0	Continue labs with alternate locations to show affects of topography.
				CLO 2 - Transfer elevations	Lab	70.0	95.0	Continue labs with alternate locations to show affects of topography.
				CLO 3 - Perform a 2D traverse	Lab	70.0	85.0	Incorporate a 3D travesre to utilize trig elevations
				CLO 4 - Understand %grade and calculate elevations	Lab	70.0	80.0	Typical testing, emphasis more homework to engage students.
				CLO 5 - Perform elementary cogo calculations	Exam, Lab	70.0	72.0	Most difficult topic to grasp. Continue more homework and emphasis on applications and calculator usage.
				CLO 6 - Perform elementary route calculations	Exam, Lab	70.0	78.0	More homework and add field visit to roadway site.
				CLO 7 - Apply elementary surveying to construction	Lab	70.0	90.0	Continue layout of structures and add lab for field visit.
SLO 12 - Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.	85.0	91.7	CM 4560 - Construction Project Management	CLO 1 - Classify the types of project delivery methods and identify the stakeholders in the construction process and describe their roles.	Assignment 1	75.0	91.7	Target met
				CLO 1 -ISelect risk factors associated with construction projects	Assignment 1 (Quiz 1)	85.0	89.0	
				CLO 2- Recognize how to transfer and avoid risk as an owner/GC.	Project 1 (Quiz 3)	85.0	86.0	

SLO 13 - Understand construction risk management.	85.0	92.3	CM - 3400 Risk & Quality Management	CLO 3 -Describe and understand risk associated with construc	Project 1 (Quiz 3)	85.0	86.0	Continue module as is. Update contract used for excercise.
				CLO 4 - Recognize and reduce risk by utilizing decision tree n	Assignment 2 (Quiz 2)	85.0	98.6	Continue module as is. Update contract used for excercise.
SLO 14 - Understand construction accounting and cost control.	85.0	81.9	CM 3800 - Construtions Finance	CLO 3 - Prepare and forecast statement of cash flow for construction projects.	FPM 1	80.0	86.0	This is the time for formative assesment such that the quality of the final project is good. So grading is very consecutive. Pay apps are introduced in this class to help students understand the co-relation between project cash flow and payapps.
					Test 1 CLO 3	80.0	81.2	This is very important concept. An additional class excercise was added to help students grasp the concept firmly. The excercise helped improve the target from 77 to 81.1
				CLO 4 - Prepare and analyze labor burden and general overhead for a construction company. Suggest recommendations to control costs.	FPM 2	80.0	84.0	One of the key goals of this milestone is formative assesment for overall improvement of the quality of the project. Because of the grading is rigorous and conservative. No improvements suggested at this time.
					Test 1 CLO 4	80.0	85.2	An extra excercise helped improve the achievement on this CLO.
				CLO 5 - Analyze company's key financial statements to predict company's financial health and performance. Recommend cost control strategies.	FPM 3	85.0	88.0	No improvements at this time. Because of formative assesment throughout the semester, the quality of final project is good.
					Test 2 health	80.0	67.2	The concept needs more time. Repeat financial health problems as a class quiz to reiterate the process and concept. The CLO improved from 52.53 to 69.07.Students confuse the nature of financial indicators, for example liquidity parameters are different from profitabilty parameter.
			CM 4900 - Capstone Project	CLO 4 - Understand requirements for project cost controls	Cash flow/pay app component of notebook submittal	85.0	81.4	Invite faculty to give refreshing lectures
SLO 15 - Understand construction quality assurance and control.	83.3	91.2	CM 3400 - Risk & Quality Management	CLO 4 - Identify risk with quality control solutions	Assignment 5 (quiz 5)	80.0	85.0	Continue model as is. Provide example of use of project management software.
				CLO 5 - Describe a quality assurance program for risk manage				Continue model as is. Provide example of use of project management software.
			CM 3180 Mechanical And Electrical Building System	CLO 5 - Locate and prepare inspection documents for MEP systems in construction projects	Inspections	85.0	100.0	
				CLO 6 - Explain the process of submittals, shop drawings and quality assurance programs as they relate to MEP systems	Lab 5	85.0	88.5	The group approach worked well but they need to look at the drawings and submittals more not just methods of assessing.
SLO 16 - Understand construction project control processes	85.0	81.9	CM 3800 - Construction Finance	CLO 6 - Examine construction project performance using CPI and SPI. Analyze to suggest recommendations for project control.	Test 2 CPI SPI /Dep	80.0	88.9	No improvements suggested at this time
			CM 4510 - Construction Scheduling	CLO 3 - Determine progress; Analyze schedule status	Sample 5	85.0	64.4	Attendance is required and labs are due during class- if absent, grade is 0
					Sample 6		82.8	If 0 grades removed, this is average
			CM 4560 - Construction Project Management	CLO 2 - Demonstrate cost and schedule control	Final project	75.0	91.6	Target met
SLO 17 - Understand the legal implications of contract , common and regulatory law to manage a const. project	85.0	86.0	CM 4900 - Capstone Project	CLO 5 - Understand project specific provisions for contracts with owner and subcontractors	Contract component of notebook submittal	85.0	86.9	Target met
			CM 4760 - Construction & Real Property Law	CLO 4 - Identify within construction contracts loopholes, liabilities, illegal content, etc.	Final Project	85.0	91.7	Target met
				CLO 5 - Identify legal terms,contracts terms, and construction term used in AIA documents for construction projects.	Test 1	85.0	77.8	Do more review with the students to prepare for test 1
					Test 2	85.0	85.3	Target met
					Final project	85.0	91.7	Target met
				CLO 6 - Recognize contract, common and regulatory law in construction contracts and projects.	Test 1	85.0	77.8	Do more review with the students to prepare for test 1
					Test 2	85.0	85.3	Target met
					Final project	85.0	91.7	Target met
SLO 18 - Understand the basic principles of sustainable construction.	85.0	93.2	CM 3110 Resi. And light Construction Metho	CLO 3 - Recognize fundamentals of sustainable construction	Lab 11	90.0	90.6	Target met
			CM 3180 Mechanical And Electical Building System	CLO 7 - Analyze and compare MEP systems to determine best options for sustainable construction;This will include energy analysis, water usage analysis materials and processes.	Lab 7	85.0	95.7	Working in groups was a positive approach but the directions need to be more directed.
SLO 19 - Understand the basic principles of structural behavior.	85.0	89.2	CM 2210 - Intro To Structures	CLO 1 – Understand of the basic concepts and principles of statics.	HW - Resultants and Reactions	85.0	86.5	Target met, no actions required. at this time.
				CLO 2 – Understand of the basic concepts of strength of materials.	HW - Stress & Strain	85.0	90.7	Target met, no actions required. at this time.
				CLO 3 – Analyze and design simple beams and columns.	HW - Design of Beams	85.0	90.3	Target met, no actions required. at this time.
SLO 20 - Understand the basic principles of mechanical, electrical and piping system.	85.0	92.8	CM 3180 Mechanical And Electrical Building System	CLO 1 - Identify the equipmentand materials used in mechanical systems	Lab 1	85.0	92.3	With such a long final exam a new lab will be added to do the Mechanical questions It will be set up as a Mechanical quiz
				CLO 2 - Identify the equipments and materials used in plumbing systems	Lab 2	85.0	94.0	With such a long final exam a new lab will be added to do the plumbing questions It will be set up as a plumbing quiz
				CLO 3 - Differentiate betweenthe equipment and materials used in electrical systems	Lab 3	85.0	90.9	With such a long final exam a new lab will be added to do the Electrical questions.It will be set up as a Electrical quiz.
				CLO 8 - Explain which types of MEP systems are used for a particular project type.	Final paper	85.0	94.1	Research is good way to learn and understand a topic.