

**Annual Assessment and Public
Information Dissemination
Report for Construction
Management**

Academic Year (AY) 2015-2016



**Missouri State University
Construction Management
Public Information Dissemination
As Required for ACCE Standard Section VIII**

I. Program Goals and Objectives

The Department of Technology & Construction Management has developed a comprehensive plan to achieve the academic and non-academic goals as embodied in program outcomes, student learning outcomes, course learning objectives, and strategic plan goals and objectives. At a program level, a student, upon completion of this degree program, will be able to:

- PLO #1. Demonstrate the application of oral, written, and graphic communication skills to present data/information and support decision making. (*Technical Communication*)
- PLO #2. Demonstrate the effective utilization of discipline specific technical knowledge and skills. (*Technology*)
- PLO #3. Utilize critical thinking, math, statistics, and science skills for problem solving. (*Application of Math and Scientific Principles*)
- PLO #4. Demonstrate leadership, participation, and problem solving skills in a team environment. (*Teamwork*)
- PLO #5. Utilize applied management topics to manage, control, and improve corporate environments. (*Applied Management*)
- PLO #6. Demonstrate knowledge of safety, ethics, non-discrimination, and diversity in the workplace. (*Professional Responsibility*)

These program outcomes are embodied throughout the twenty student learning outcomes designated by ACCE and adopted by the program. These student learning outcomes are:

- 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.

Lastly, the strategic plan for the Technology and Construction Management department operationalizes select strategies and action plans to assure the program learning outcomes and student learning outcomes are met. The goals that summarize this strategic plan are:

- TCM Goal 1: Achieve academic excellence in departmental programs
- TCM Goal 2: Attract and retain quantity and quality of students
- TCM Goal 3: Strengthen community and industry engagement
- TCM Goal 4: Enhance the research environment of the Department
- TCM Goal 5: Support and promote faculty development

II. Program admission requirements

Students may declare the construction management major any time prior to completing 75 credit hours. After declaring construction management as their major and upon obtaining a passing grade in either MTH 261 or MTH 287, students are admitted into the degree program upon completion of the application to a degree program form.

III. Program Assessment Measures

The construction management program collects and analyzes data from ten assessment measures as outlined below. These measures, their frequency, and their relationship to the department goals and program outcomes are also indicated below.

Instrument Number	Instrument	Direct Indirect	Program Level Course Level SLO Level	Where\when Implemented	Frequency	Feedback	Implementation of Changes	Goals (Strategic Plan) and Program Outcomes
1	Senior Exit Examination	D	C,S	Completed in capstone course by all students	Fall and Spring	Summary and objective specific feedback supplied to all faculty	Faculty adjust courses and evaluate questions under direction of assessment committee	Goal 1 Program Outcomes 2,3,6
2	Capstone Course	D	P	Presentation and paper completed by all students in senior capstone course	Fall and Spring	Results are summarized by course faculty and discussed at end of semester meeting	Weaknesses are identified by grading matrix and a strategy is discussed at fall faculty retreat to correct deficiencies	Goal 1 Program Outcomes 1-6
3	Course Folders	D	C, S	All course folders are to be current at end of academic year, placed in departmental office, with Instructor Course Evaluations completed	Spring	Folders are reviewed by department head and department assessment committee with feedback provided to faculty	Department head and curriculum committee formally request course changes and monitor for corrections	Goal 1

4	Advisory Board Course Review	D	C, S	All courses folders are evaluated by advisory board curriculum subcommittee. In 2015 four courses were evaluated.	5-Year Rotation, 4 SLOs per year	Advisory council provides feedback using feedback form	Department head reviews suggestions individually with impacted faculty and corrective strategy is formulated	Goal 1
5	Strategic Plan Progress Review	D	P	Week before Fall classes at departmental planning meeting	Fall Faculty Planning Session	Department as a whole reviews progress toward goals.	Department head monitors and adjusts plan as needed in consultation with faculty	Goals 1-5
6	Course Evaluations	I	C	Completed by all students in every course	Fall and Spring	Compiled by university. Feedback provided to individual faculty and department head	Faculty discuss changes to address concerns with department head and monitor for improvements	Goal 1
7	Senior Exit Surveys	I	P, S	Completed prior to exit interview by all graduating seniors	Fall and Spring	Department Head compiles results which are discussed with faculty	Department Head discusses feedback with faculty to determine if a problem exists and corrective strategy is formulated	Goal 1
8	Senior Exit Interview	I	P, C	Completed by all graduating seniors, conducted by department head	Fall and Spring	Department Head summarized feedback which is discussed in general with all faculty and when needed with specific faculty	Department Head discusses feedback with faculty to determine if a problem exists and a corrective strategy is formulated and monitored.	Goal 1
9	Alumni Surveys	I	P, S	Completed by all alumni from prior five years	Every Four Years	Department Head compiles results which are discussed at fall planning session	Department Head discusses feedback with faculty to determine if a problem exists and corrective strategy is formulated and monitored.	Goal 1
10	Employer Survey	I	P, S	Completed by employers hiring graduates from prior five years	Every Four years	Department Head compiles results which are discussed at fall planning session	Department Head discusses feedback with faculty to determine if a problem exists and corrective strategy is formulated /monitored.	Goal 1

IV. Information Obtained from Assessment Measures

A. *Senior Exit Exams*

The senior exit exam is administered as the final exam in the required capstone course – TCM 499, Senior Project. The instrument provides a measures of student learning outcomes at the analyze, apply and understand level. It is a compilation of all the standardized examination questions administered at the course level and provides feedback to the faculty on student performance. While these measures do not form the basis of whether corrective action is required at the course level, they do provide an invaluable longitudinal look at student progress and knowledge retention. For fall 2015, the mean score on the senior exit exam was 56.3% and for spring 2016, the mean score was 60.6%.

B. *Capstone Course*

Spring 2016

This semester, which used a multi-story structural steel frame building, did not have the constructability issues that were very visible in the PT cast-in-place building utilized in fall 2015. Students seemed to handle the construction process better on a building type we see in this area more frequently. In fact, it was an overall strength to this semester.

Students still struggle with the pay process, at least with developing a full understanding of a specific projects process from reading the contract. The groups this semester did not seem to struggle with the DBE requirement or prevailing wage rates for the project.

PowerPoint slide development for presentations in large rooms continues to be an issue throughout the early part of the semester: text size being too small, graphs that are too cluttered and poor color selection for good text and background contrast.

Project reports were lower than expected quality this semester. Site specific safety plans were weak as well a defined QA/QC program in the project reports. During the presentations, teams presented and fielded questions in these areas, but it was not reflected in the project reports.

Fall 2015

This semester was the first time in more than four years that we have seen a weakness in understanding how the project went together. The project this semester was a four story cast-in-place, post-tensioned addition to an existing building. Little time in our curriculum is spent on multi-story cast-in-place concrete construction and less on post-tensioned structures after the materials and methods course sequence. The students struggled all semester with specific operations around the shoring, reshoring and post-tension processes. When activities needed to happen and how long it took from concrete placement to stressing operations, to when work areas would be open for the next phase of construction. This was evident in the schedule activities durations.

Groups are still weak in digesting the pay process directly from the contract and figuring how long it is from pay application to receiving payment. Additionally, they usually do not understand the “what if the owner/his representative do not agree” with the pay application and what the follow-up process is.

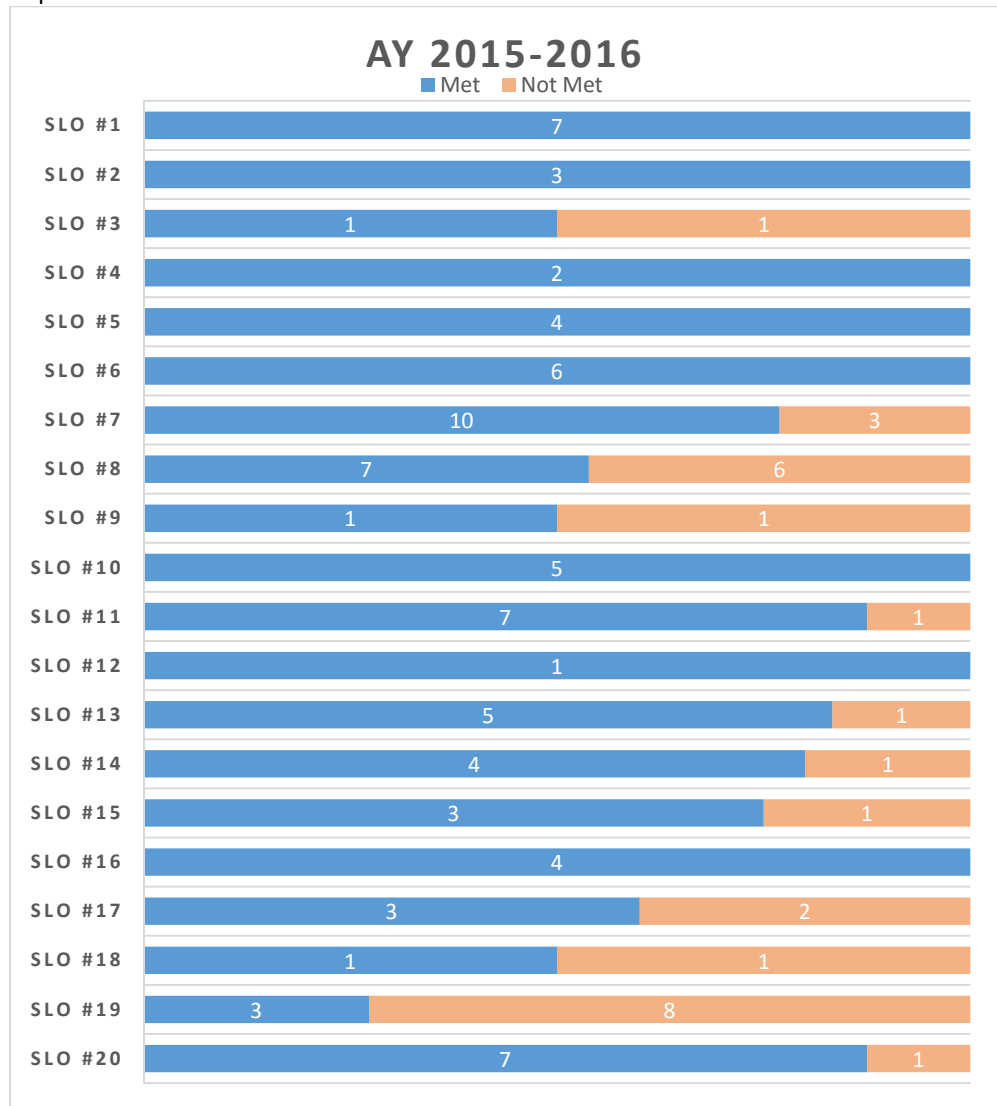
Teams seem to be weak with the Disadvantaged Business Enterprise goals and the process around meeting DBE requirements and its impact to contractor selection. It is a difficult process to understand if the student hasn’t experienced it.

Other items that continue to be a problem area are Power Point Slide development for presentations in large rooms. Text size being too small, graphs that are too cluttered and poor color selection for text and background continue to be a disappointment.

On the positive side, student groups have improved greatly in delivering a professional presentation, especially with respect to main content, dress and delivery. Estimating has improved as well as project site logistics.

C. Course Folders

Course folders were collected and updated with syllabi, instructor course evaluation forms, and representative work samples for all major assignments/exams. As the majority of student learning outcomes have multiple direct measures, the chart below shows the number of direct measures that were above and below the target level of 70% as detailed in the Assessment Implementation Plan.



D. Advisory Board Course Review

During AY 2015-2016, the Construction Management Advisory Board (CMAB) reviewed two courses in accordance with the Advisory Board Course/SLO Review Schedule published in Appendix K of the ACCE Self-Study (Note: The full schedule for course review was not developed until after Fall 2015, that is the reason why only two courses were reviewed this academic year).

In spring 2016, the CMAB Curriculum Subcommittee reviewed TCM 322 – Electrical Systems for Buildings and TCM 326 – Construction Soils and Foundations. For both courses comments were generally very positive and encouraging as to the level and adequacy of coverage for each course learning objective/student learning outcome. Specific feedback for each course is summarized below:

- TCM 322 – Electrical Systems for Buildings
 - Appreciation of time spent on engineering/design
 - Need for additional time reviewing drawings at different phases of design
- TCM 326 – Construction Soils and Foundations
 - Appreciation of time spent on engineering/design
 - Need for more focus on soils reports and their impacts on a project
 - Inclusion of additional material on types of shoring for different soils types

E. Strategic Plan Progress Reviews

Goals and objectives of the department and the construction management degree program are listed below. Strategies are indicated under each related objective with yearly updates as applicable.

Goal 1: Achieve Academic Excellence in Departmental Programs

Departmental Objectives:

- 1.1 Encourage and support accreditation of departmental programs
 - 1.1.1 ACCE re-accreditation 2016 (ongoing)
 - 1.1.2 PMI re-accreditation 2019
 - 1.1.3 ABET accreditation for MET in 2019 (begin preparation in 2016) ABET accreditation preparation has begun - drafts of program educational objectives, student outcomes, and performance indicators have been generated as of December 2015
 - 1.1.4 Explore possibility of CIDA accreditation and decide by May 2016
- 1.2 Maintain up-to-date and relevant laboratories, equipment, and software
 - 1.2.1 Conveyor, surveying equipment repair, 2nd plan box, etc. (target 2015) (Conveyor, plan box purchased and surveying equipment repaired as of summer 2015) (Conveyor installed as of December 2015)
 - 1.2.2 Robotics purchase, etc. 2016
 - 1.2.3 Develop a coordinated plan for lab and equipment use (Joswick and committee, December 11, 2015) (committee formed August 2015)
- 1.3 Maintain a faculty that is current on the latest and most relevant teaching topics and methods
 - 1.3.1 Target 1 faculty presentation on technical or academic developments each semester starting fall 2015 (Callahan) – Continue to spring 2016
- 1.4 Develop a more diverse department
 - 1.4.1 Encourage student diversity by participating in at least one targeted event or activity per year (iBuild April 2016; a record 2,983 middle and high school students attended the event in Kansas City)

Construction Management Program Objectives:

- 1.1 CM - Offer programs and opportunities that stimulate interest and grow the CM program

- 1.1.1 Maintain ACCE accreditation and evaluate alternatives (May 2016) (CM faculty attended the annual and mid-year ACCE meetings. Based upon the current situation, the CM Program will seek ACCE accreditation in 2016 and re-evaluate other options as the MET program nears its accreditation period.)
- 1.1.2 Investigate the possibility of either a CM emphasis in the MPM or a new M.S. in CM (May 2018)
- 1.1.3 Finalize collaborative program with Drury's architecture program (May 2017)
- 1.1.4 Implement a study abroad program to increase student awareness of international construction methods and job opportunities (May 2019)
- 1.2 CM - Improve the facilities used by CM students to better promote student success and recruitment
 - 1.2.1 Explore options for using existing and/or new building designated funding for renovation or an addition to Kemper Hall (May 2020)
 - 1.2.2 Update Kemper 207 to have key card access (May 2016) (A request for the key card reader will be put in for a planned summer 2016 installation.)
- 1.3 CM - Strengthen oral and written communication skills in CM courses
 - 1.3.1 Develop exercises in at least five CM courses that have students write significant papers or give significant presentations where detailed feedback is returned to students (May 2016) (As of May 2016 TCM 499, 494, 454, 320, and 226 have significant papers where detailed feedback is returned to students.)
- 1.4 CM - Infuse a multidisciplinary perspective across the curriculum
 - 1.4.1 Increase the opportunities for CM, FM, and ID students to work together on cross-disciplinary projects. (May 2017)
- 1.5 CM - Obtain feedback on how we can improve the quality of graduates.
 - 1.5.1 Survey advisory board members and primary employers every four (4) years to determine their level of satisfaction with quality of CM student and their level of preparation. (AY 2015-16) (Completed in fall 2015, Results of all surveys will be analyzed as part of annual retreat in August 2016)
 - 1.5.2 Every two years, survey CM graduates who have been in the workforce for at least one (1) year regarding their satisfaction with their academic preparation from the program. (AY 2015-16) (Completed in fall 2015, Results of all surveys will be analyzed as part of annual retreat in August 2016)
 - 1.5.3 Survey graduating seniors every semester regarding their satisfaction with their academic preparation from the program. (ongoing) (Convert to online survey by December 2015) Completed - December 2015 (Completed in spring 2016, Results of all surveys will be analyzed as part of annual retreat in August 2016)

Goal 2: Grow enrollment – attract and retain quantity and quality of students

Departmental Objectives:

- 2.1 Develop and maintain a departmental website that effectively helps with student recruitment
 - 2.1.1 Form TCM website development committee (Callahan, fall 2015) (Committee formed August 2015)
- 2.2 Develop and strengthen relationships with community colleges (articulation agreement with East Central C.C. in progress fall 2015, MET program)
- 2.3 Develop and maintain printed material

2.3.1 Select a departmental folder and have a supply available to hold departmental literature for recruiting and informational purposes (Callahan and staff, August 2015) (Completed, 1000 folders received August 2015)

2.4 Strengthen relations with MSU Admissions and Advising

Construction Management Program Objectives:

- 2.1 CM - Attract and retain high potential students
 - 2.1.1 Implement student recruitment and retention plan (with student input) by August 2017.
 - 2.1.2 Participate in four major recruiting events (ongoing)
 - 2.1.2.1 For 2015-2016: iBuild, Bearfest, MBU, and Industrial Arts Competition (MBU and Bearfest Village complete – December 2015) (iBuild and Industrial Arts Competition – May 2016)
 - 2.1.3 Implement a scholarship program for incoming students (August 2019)
 - 2.1.4 Continue to investigate and develop long-term recruitment strategies
 - 2.1.4.1 PLTW (May 2016) -Move to May 2017
 - 2.1.4.2 CTCs (May 2017)
 - 2.1.4.3 Specific high schools, etc. (May 2020)
 - 2.1.5 Grow number of endowed student scholarships.
 - 2.1.6 Investigate MSU's "crowd funding" tool as a way to develop a Construction Club endowed scholarship fund (May 2016) -Move to May 2017
- 2.2 CM - Offer programs and opportunities that stimulate interest and grow the CM program
 - 2.2.1 Increase student extracurricular involvement in student organizations (ongoing) -Tracking began fall 2015; compare year-over-year numbers ongoing (to be analyzed as part of annual retreat in August 2016)
 - 2.2.2 Investigate the possibility of adding course offerings to increase concentration areas (May 2018)

Goal 3: Strengthen Community and Industry Engagement

Departmental Objectives:

- 3.1 Strengthen advisory boards and promote advisory board coverage of all programs
 - 3.1.1 CM Advisory Board (ongoing, Callahan and CM faculty)
 - 3.1.2 MET Advisory Board (form by June 2016, Callahan and MET faculty) - Ongoing: Spring 2016: A list of corporate targets has been generated.
- 3.2 Increase industry participation in the career fair and other means of recruiting for all TCM programs (ongoing): Career Fair 2014 – 28 companies, 2015 – 40 companies
- 3.3 Support the University's Public Affairs Mission by leading and participating in community engagement and/or service events

Construction Management Program Objectives:

- 3.1 CM - Improve and enhance communications with alumni, the CM community, and friends and supporters of the program
 - 3.1.1 Increase the number of alumni participating in the annual golf tournament (ongoing) (24 companies (primarily alumni players) participated in the May 2016 tournament – largest to date)
 - 3.1.2 Hold at least one alumni event each year (alumni gala or other???)
 - 3.1.2.1 For 2015-16 host alumni event at men's basketball game Completed February 2016
 - 3.1.3 Explore ways to regularly communicate with alumni (social media, newsletters, etc.) (May 2016) (social media efforts and newsletters continue; efforts will continue and due date on this activity should extend

- potentially 2 years to coincide with work of advisory board on alumni relations)
- 3.2 CM - Grow and develop CM advisory board
 - 3.2.1 Increase membership in advisory board by one (1) company each year (May 2016) –Completed for 2016 – 3 companies added for AY 2015-2016
 - 3.2.2 Implement sub-committees to the advisory board to spread the workload and maintain engagement throughout the year (May 2017)
 - 3.2.3 Institute a young alumni track for recent graduates to become involved (May 2017)
 - 3.2.4 Review advisory board bylaws (May 2016) (A very productive spring advisory board has begun review of bylaws in coordination with strategic planning efforts for the board. Final draft of revised bylaws should be voted upon in May 2017.)
 - 3.2.5 Encourage CM advisory board member(s) to participate in ACCE activities (December 2015)
 - 3.3 CM - Support MSU's Public Affairs Mission
 - 3.3.1 Host Boy Scout Merit Badge University (Completed September 2015).
 - 3.3.2 Periodically undertake major public affairs project (May 2017)
 - 3.3.3 Engage faculty and students in community service by targeting 3 different activities each year (ongoing)
 - 3.3.3.1 For 2015-16: Adopt-a-street, food bank, SCA Chicken BBQ, (Completed adopt-a-street, SCA Chicken BBQ, Sammy's Window, and Operation Christmas Child as of December 2015) (ramp build, pinewood derby build day; Gen Next Bass Bash events held in spring 2016)
 - 3.4 CM - Grow the reputation of the CM program through professional engagement
 - 3.4.1 Encourage faculty to hold regional, national, and international officer positions within professional organizations (ongoing) (Gebken held Board positions with ASC and Sigma Lambda Chi; Mehany elected to research committee vice-chair; Behzadan served as ASCE CIMS committee secretary and ASCE JCEM special editor on quantitative methods)
 - 3.4.2 Develop Missouri Construction Hall of Fame and induct first group (May 2020)
 - 3.5 CM – Increase student success in job placement
 - 3.5.1 Increase the number of employers participating in the Career Fair from prior year. (ongoing): 2014 – 28 companies, 2015 – 40 companies
 - 3.5.2 Investigate the possibility of holding an additional spring career fair event (with student input). (December 2015) (10 construction companies and approximately 50 students attended the all-university career fair event in the spring semester. This event will be encouraged for both employers and students as hiring trends continue upward.)
 - 3.5.3 Increase student participation in the Career Fair from prior year. (ongoing): 2014 – 84, 2015 - 110
 - 3.5.4 Personally visit 2 employers each year who either do not or have not recently recruited at MSU in an attempt to grow number of employers on campus. (May 2016) (Visited Murphy Mechanical and Clayco on our spring 2016 field trip. Emphasized that these companies should come visit MSU. Also visited Gold's Mechanical and SECO offices in town)

Goal 4: Enhance the research environment of the program

Departmental Objectives:

- 4.1 All TCM tenured or tenure track faculty members maintain SA status as required by the College of Business

- 4.1.1 Promote collaborative writing/multiple authorships within the department
 - 4.1.1.1 Schedule departmental meeting to discuss collaborative research (Callahan, October 2015)
- 4.1.2 Promote collaborative writing across multiple disciplines/institutions
- 4.2 Develop a research focus area that could support participation from all TCM programs
- 4.3 Reposition C-PRIME to strengthen its platform for supporting externally funded research
 - 4.3.1 Redefine C-PRIME's mission by May 2016 after assessing current and new faculty members' strengths and interests. Update: Dr. Behzadan appointed C-PRIME director spring 2016. Initial thoughts on new vision presented to faculty May 2016.

Construction Management Program Objectives:

- 4.1 CM - Increase the amount of funded research
 - 4.1.1 Increase the number of co-authored papers by faculty members (ongoing) – Mehany, Gebken – 1 journal, 1 conference; Behzadan – 2 journal articles, 4 conference papers – May 2016
 - 4.1.2 Secure \$250,000 funding for grants or research projects by May 2020; Dr. Behzadan - Approximately \$300,000 from NSF grants as of Dec. 2015
 - 4.1.3 Enhance relationships with potential funding agencies (May 2018)
- 4.2 CM - Develop resources needed to facilitate research
 - 4.2.1 Increase student involvement in research by involving 5 undergraduate students in research projects by May 2018
 - 4.2.2 Acquire additional research equipment
 - 4.2.2.1 3-D Laser Scanner (May 2016) – Completed December 2016 – major equipment grant used
 - 4.2.2.2 Other Major equipment (May 2018)

Goal 5: Support and Promote Faculty Development

Departmental Objectives:

- 5.1 Develop faculty members who are current and engaged in their academic areas
 - 5.1.1 Fund and encourage participation in professional organizations, conferences, and other professional endeavors
 - 5.1.2 Encourage faculty members to pursue leadership roles in regional and national professional organizations (goal: at least 1 faculty member from each program in a regional or national office, position, or committee by May 2017)
- 5.2 Implement faculty mentoring and development program
 - 5.2.1 Assign newly hired faculty a mentor within one month of hire
 - 5.2.2 Provide opportunities /resources for faculty internships and short courses
 - 5.2.2.1 Present Information to the TCM faculty relating to the ACG faculty internship and other opportunities (Dr. Mehany, August 2015)

Construction Management Program Objectives:

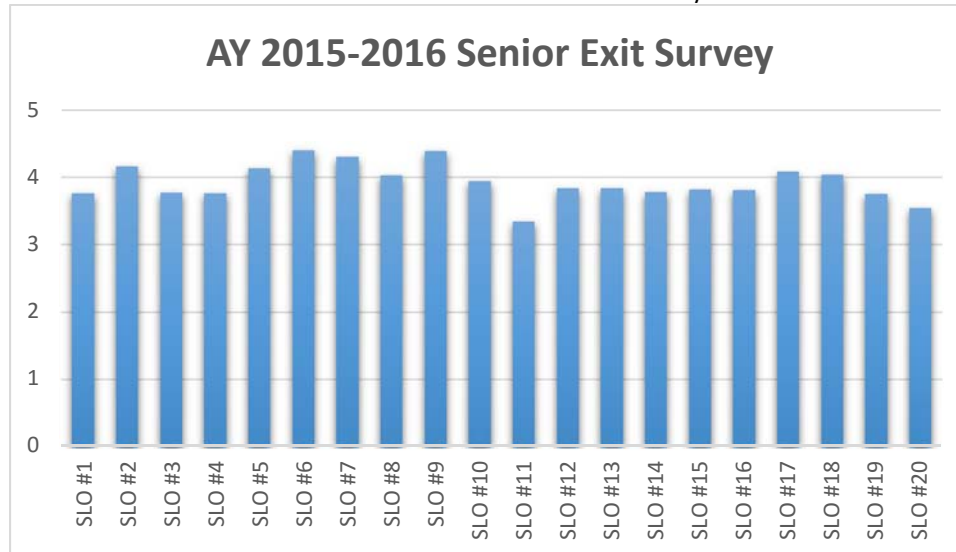
- 5.1 CM - Grow Endowed chairs for faculty
 - 5.1.1 Seek funding for new endowed professorship (May 2020)

F. Course Evaluations

For AY 2015-2016, the mean and median student evaluation of teaching score for CM courses was 4.23/5.00. The standard deviation for the same time period was 0.22 points. The mean student evaluation of teaching score for the Technology and Construction Management department was 4.17/5.00.

G. *Senior Exit Surveys*

Each semester, graduating seniors are asked to complete a survey that assesses their perceived level of preparedness across each of the 20 student learning outcomes. In addition, this instrument also collects information about the courses and/or individuals who most contributed to these outcomes and job placement information. For AY 2015-2016, the mean perceived level of preparedness for all SLOs was 3.92/5.00 with a standard deviation of 0.26 points. The figure below shows the distribution of scores for the senior exit surveys.



H. *Senior Exit Interview*

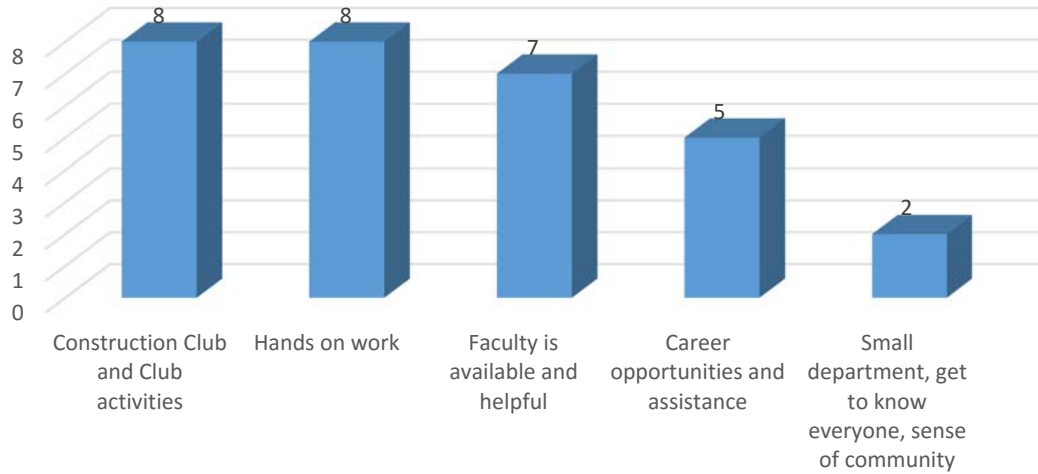
In addition to the senior exit survey, graduating senior also individually sit down for exit interviews with the department head each semester. The questions asked during the exit included the following:

1. What did you like best about the Department and program (besides courses)?
2. What do we need to do better/improve (besides courses)?
3. What courses did you learn the most in or like the best?
4. What courses do we need to improve?

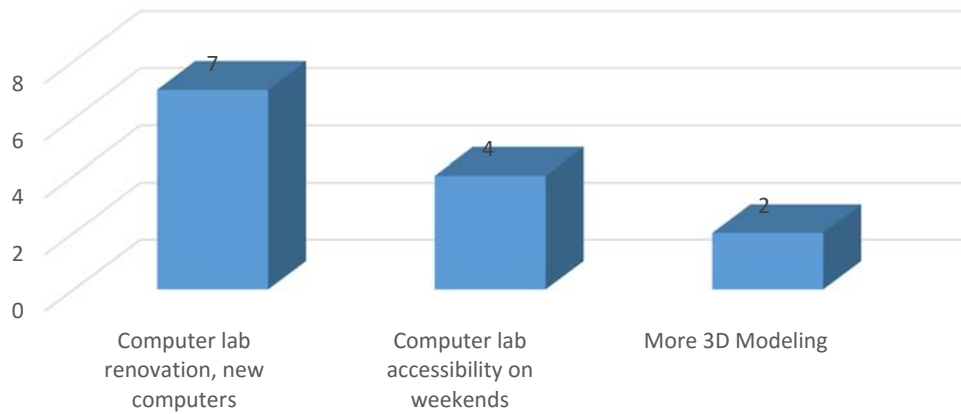
Pareto charts for the top responses from these interviews are presented below in a semester-by-semester break down.

Spring 2016

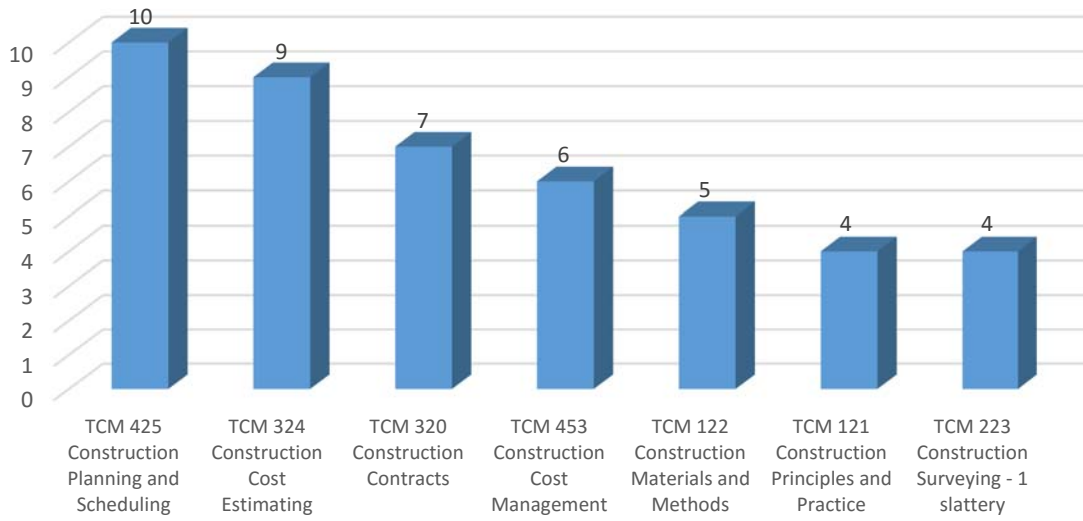
What did you like best about the Department and program (besides courses)?



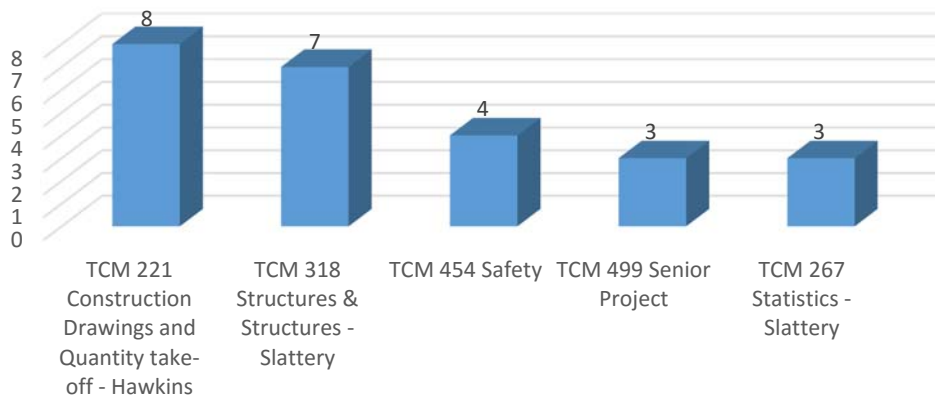
What do we need to do better/improve (besides courses)?



What courses did you learn the most in or like the best?



What courses do we need to improve?

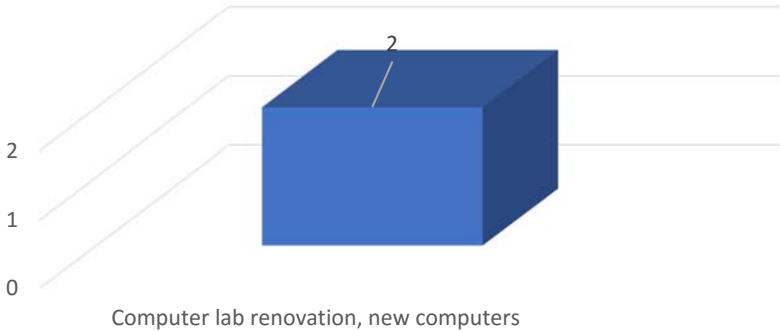


Fall 2015

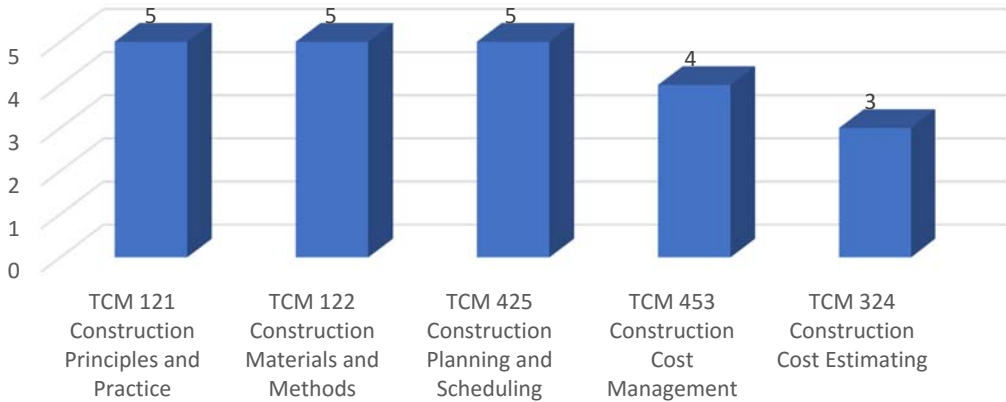
What did you like best about the Department and the program (besides courses)?

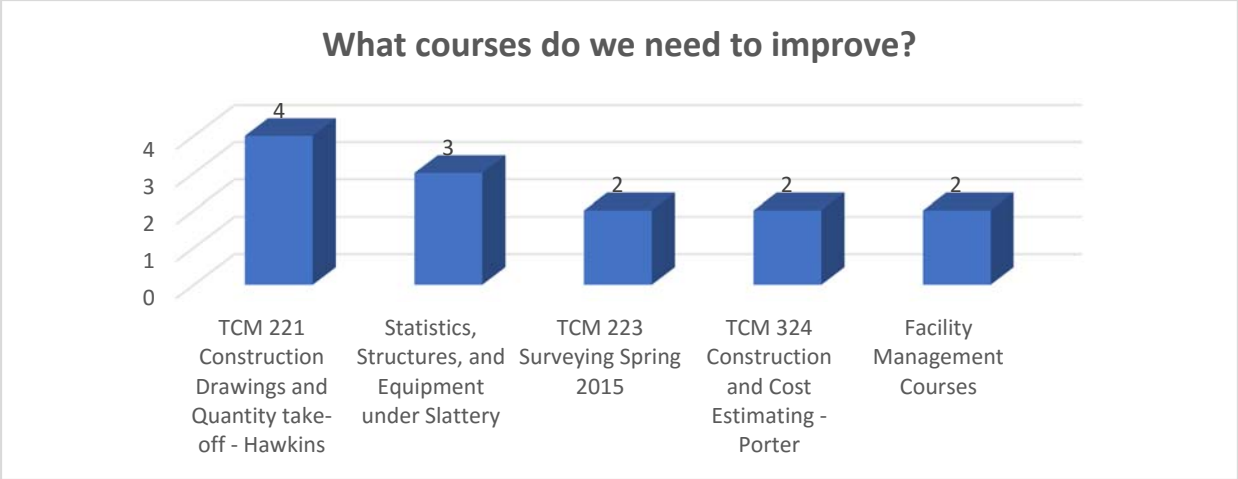


What do we need to do better/improve (besides courses)?



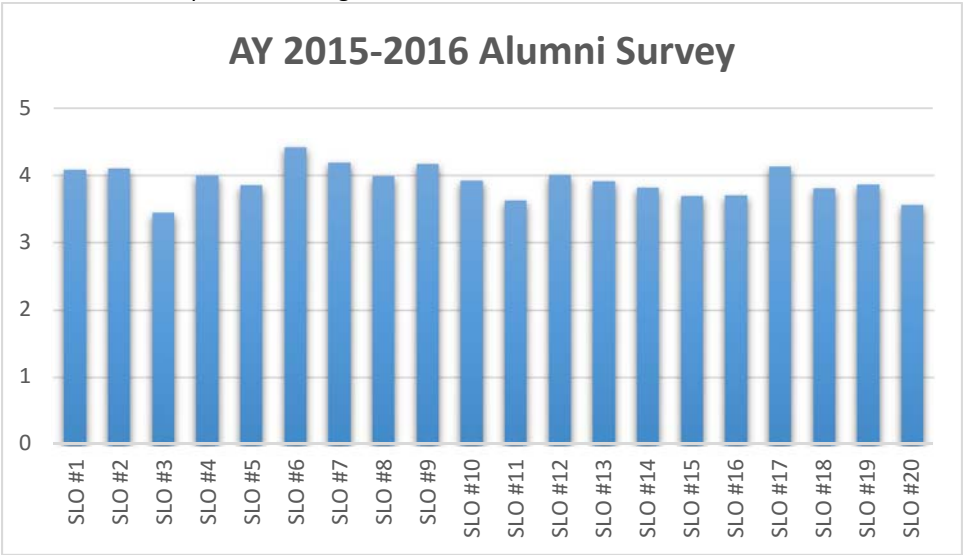
What courses did you learn the most in or like the best?





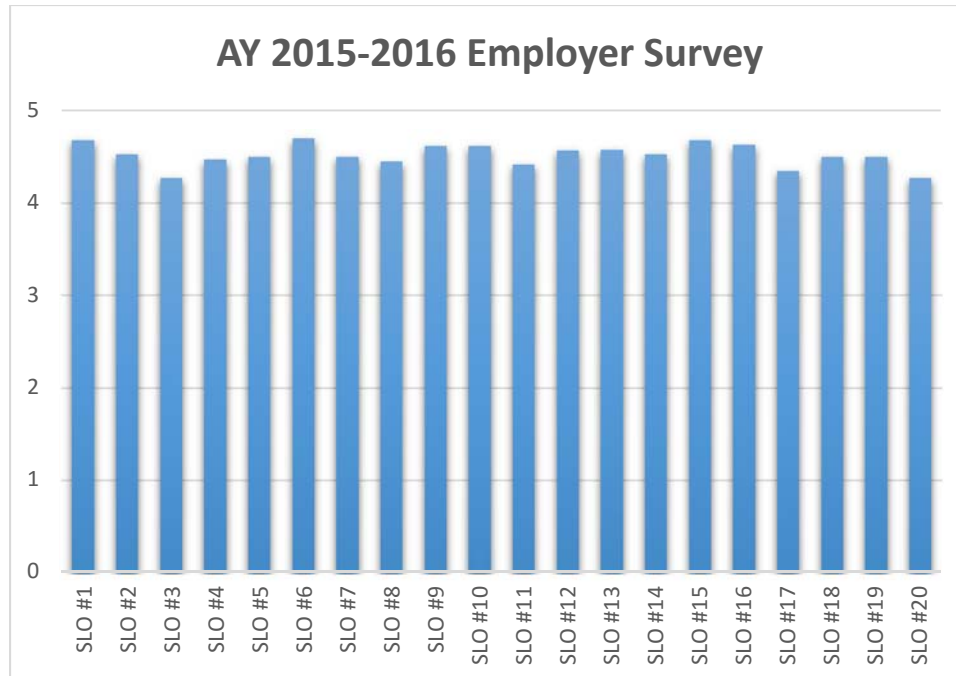
I. *Alumni Survey*

Every four years, recent alumni are asked to complete a survey that assesses their perceived level of preparedness across each of the 20 student learning outcomes. In addition, this instrument also collects information about the overall satisfaction with their undergraduate experience, perceived department strengths/weaknesses, and contact information. For AY 2015-2016, the mean perceived level of preparedness for all SLOs was 3.92/5.00 with a standard deviation of 0.24 points. The figure below shows the distribution of scores for the alumni survey.



J. *Employer Survey*

Every four years, employers are asked to complete a survey that assesses their level of satisfaction with the preparedness of Missouri State University construction management graduates across each of the 20 student learning outcomes. In addition, this instrument also collects information about the overall likelihood to continue to hire graduates from the MSU CM program, the perceived department strengths/weaknesses, and contact information. For AY 2015-2016, the mean level of satisfaction for employers across all SLOs was 4.52/5.00 with a standard deviation of 0.12 points. The figure below shows the distribution of scores for the employer survey.



V. Actions Taken as a result of assessment data collected

The construction management faculty met in September 2016 to discuss the findings of the AY 2015-2016 assessment cycle. All ten measures identified in the ACCE self-study were reviewed and discussed. Overall, the CM program appears to be meeting the majority of student and program learning outcomes. Course-level corrective actions are taken anytime a single direct measure fall below the 70% target level detailed in the Assessment Implementation Plan. The CM course binders contain the instructor course evaluation and improvement plan forms where these actions are documented and tracked.

At a higher level, the CM faculty noted three concerns from the assessment data. First, there was a gap of greater than 1.0 points between the perception of graduating seniors (3.34/5.00) and employers (4.42/5.00) with respect to ACCE SLO #11 (Apply basic surveying techniques for construction layout and control). As the employer perception the programs graduates was higher than the students, the faculty discussed possible issues including both students' ambitious expectations for surveying and students' lack of confidence in the subject area. Ultimately, the CM faculty decided to review the data in one year to see if the student's scores rise to meet those levels of satisfaction from the employers.

The second issue of concern relates to ACCE SLO #19 (Understand the basic principles of structural behavior). This is the only SLO to have more direct measures fail to meet rather than meet the 70% target level. Of the 11 direct measures of SLO #19, eight measures did not meet the target level. CM faculty discussions in the September 2016 assessment committee focused in on the lack of preparedness of students entering into engineering based construction management courses (e.g., statics, structures, and soils). In general, the faculty felt that many students are leaving early pre-requisite courses, primarily physics, without a firm grasp of forces and vectors. The corrective action for this area of concern is to work on ways to increase the number of labs for the engineering-based courses. Course instructors in this area and the department as a whole need to work on obtaining the necessary resources to incorporate more hands-on learning opportunities to improvement student learning. Possible laboratory additions that may help in this area include increases soil laboratory equipment, bench-scale force and

displacement models, and similar test equipment. This increased exposure to lab activities may necessitate the introduction of a lab fee to some of the engineering-based courses.

The last area of concern discussed by the CM faculty was the computer labs in Kemper Hall. Multiple comments about the TCM computer labs in senior exit interviews in both semesters identified issues of lab access, outdated machines, and temperature control that need to be addressed. The corrective action plan for this area of concern is to install ID card readers to Kemper 207 for night and weekend access, refresh/renew computer equipment, and explore funding opportunities for a computer lab refresh.

VI. Student Achievement

A. *Awards and Accomplishments*

2016 – Five recent alumni make 40 under 40 lists (David Atkisson- Springfield, Travis Delong – Springfield, Darren Smith – Springfield, Kevin Ruck – St. Louis, and Jeff Neal – St. Louis)

2016 – Dr. Mohammed Mehany receives ASC Excellence in Teaching Award

2016 – Aaron Parkhurst and Ron Antonini receive regional scholarship awards from the Kansas City Builder’s Association

2016 – Mr. David Joswick receives the district award of merit from the local Boy Scouts of America for his service to that organization.

2015 – CM student Chase Ekstam received the National Intern of the Year Award which included a \$10,000 scholarship and the production of a video highlighting his accomplishments and the MSU CM program. It should be noted that Chase’s employer was an MSU CM Advisory Board member. The video can be found at: <https://www.youtube.com/watch?v=iYFdWN4iNpE>

2015 – At the Associated Schools of Construction Region 4 Competition, the specialty construction team placed first, the design-build team placed third, and the heavy/civil team placed third.

B. *Student scholarships*

The department and local industry annually awards in excess of \$24,000 to CM students. On average another \$7,000 has been received by CM students on a regional or national level by CM students. The list of local scholarships, awards, and annual award amounts are listed below.

Scholarships	Amount
Arvin Gimble Award	\$ 2,000
Arvin Gimble Award	\$ 2,000
Builders Association	\$ 3,000
Doyle Kemper	\$ 1,000
Greater Ozarks	\$ 500
Mo Concrete	\$ 500
Orin Robinson	\$ 1,000
Robert and Louise Eggleston	\$ 2,500
Robert Dock	\$ 500
Roger Killian	\$ 1,000
SCA	\$ 3,500
Shank	\$ 1,000
Strong	\$ 500
TCM	\$ 1,000
Ted Smith \$ 1,000 Wilbur Shank	\$ 1,000
Walton: John May Scholarship	\$ 1,000

EFCO	\$ 1,000
Total	\$ 24,000

VII. Rate and Types of Employment of Graduates

A. *Student employment numbers for graduates during AY 2015-2016 including starting salary information.*

Type of Employer	No. of Graduates
Commercial GC	15
Specialty Contractor	5
Residential Contractor	1
Public Entity	1
Other	3
Total	25

The average starting salary for CM graduates with a position in a related field during AY 2015-2016 was \$52,647.

VIII. Data to support qualitative claims made by the program