Michigan State University

Construction Management Undergraduate Program

Public Disclosures (ACCE Standard Section 8.1.5)

2020 – 2021

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A. Construction Management Program Vision, Values, and Mission

The **vision** of the Construction Management (CM) Program at Michigan State University (MSU) is to advance knowledge and transforms lives in the built environment industry.

The following statements represent the **core values** of the Program.

- We pursue academic **excellence**.
- We nurture a culture of **respect, trust, support,** and **empowerment**.
- We value interdisciplinary **collaboration**.
- We embrace **diversity, equity,** and **inclusion**.

The **mission** of the Program is to inspire and educate future leaders and engaged citizens who will innovate the built environment industry. The Program continues to serve the needs of Michigan, the nation, and the world through high-quality teaching, research, and professional involvement by providing:

- A learning setting where students develop an understanding of the real world of construction management and its requisite content and skills.
- Appropriate course content building upon sound fundamentals which is accurate and up to date in construction science and management.
- A learning setting where students can master the material and are encouraged to explore.
- An inclusive learning setting where students can develop strong interpersonal, communication, and leadership skills.
- A learning environment where students develop an understanding of the broader social, environmental, economic, and business context in which the construction industry operates.

B. Program Admission Requirements

Admission to the CM program is at junior level. As presented in MSU's Official Academic Programs catalog:[1]

Construction management builds upon a basic understanding of mathematics, physics, statistics, and economics to develop the skills necessary to manage construction projects. Prior to enrollment in the major, students must have demonstrated this basic understanding by a minimum performance in the courses listed and a minimum grade-point average of 3.00 in CMP courses listed in item 2. below.

Enrollment in the construction management major is limited. Those seeking admission must at least meet the criteria listed below.

1. Completion of at least 56 credits.
2. Completion of the following courses with a minimum grade of 2.0 in each course:

MTH	124	Survey of Calculus I	3
PHY	231	Introductory Physics I	3
STT	200	Statistical Methods	3
Or			
STT	201	Statistical Methods	4
Or			
STT	315	Introduction Probability and Statistics for Business	3
Or			
STT	421	Statistics I	3
EC	201	Introduction to Microeconomics	3
Or			
EC	202	Introduction to Macroeconomics	3
CMP	101	Principles of Construction Management	2
CMP	124	Residential Construction Materials and Methods	3
CMP	210	Commercial Construction Methods	3
CMP	222	Statics and Strengths of Materials	3
CMP	230	Utility Systems	4
CMP	245	Principles of Green Building	3

While meeting all of the criteria above is necessary to be considered for admission to the Bachelor of Science Degree in Construction Management, it does not guarantee admission. Other factors such as MSU grade-point average, construction management grade-point average, work experience, personal experience, and diversity may also be considered.

[1] Source accessed on 7/10/2021 via: https://reg.msu.edu/academicprograms/ProgramDetail.aspx?Program=5257

C. Program Objectives and Learning Outcomes

The Program **objectives** are categorized under five themes and related goals: **A)** Cohesive and Strong Program Identity; **B)** Enriched and Inclusive Student Experience; **C)** Exemplary Research and Interdisciplinary Efforts; **D)** Diversified Funding Models; and **E)** Impactful Outreach and Engagement.

A. Cohesive and Strong Program Identity: We will strengthen internal and external collaborations and efforts across areas of teaching, research, service, and outreach for a cohesive and strong program identity.

- Objective A. 1: Develop the Program's unique strengths, opportunities, and impact for exceptional teaching, research, service, and outreach.
- Objective A.2: Advocate our identity internally and externally to advance the Program's recognition locally, nationally, and internationally.

B. Enriched and Inclusive Student Experience: We will provide professional, community-engaged, and practice-oriented and high impact experiences to educate and inspire the diverse set of future leaders for the built environment industry.

- Objective B.1: Align School and Program-wide student recruitment, admissions, and retention to enhance student success, access, and inclusiveness.
- Objective B.2: Enhance student engagement and achievement in academics and extra-curricular activities.
- Objective B.3. Produce highly sought-after graduates by employers and/or post-graduate or professional programs.

C. Exemplary Research and Interdisciplinary Efforts: We will advance our research discovery by continuing and expanding interdisciplinary collaborations within and beyond the School.

- Objective C.1: Grow and diversify extramural research funding.
- Objective C.2: Attract, retain, and empower high-quality faculty for sustained and continuously improved quality in emergent and cutting-edge research areas.
- Objective C.3: Increase engagement of undergraduate and graduate students in research and innovative projects.

D. Diversified Funding Models: We will develop multiple funding models with incentives to ensure the Program's sound finance. We will stay agile to implement tactics to respond to changes.

- Objective D.1: Diversify funding streams through entrepreneurial efforts.

E. Impactful Outreach and Engagement: We will enhance engagement with professional and local, state, national, and international level communities and increase community access to our Program's scholarly activities for impacts serving the Program's mission.

- Objective E.1: Enhance the Program's engagement with local, state, national, and international communities.
- Objective E.2: Improve community access to Program's scholarly activities.

CM **program learning outcomes** align with the American Council for Construction Education's (ACCE) twenty Student Learning Outcomes (SLOs) listed below: *

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

*In defining the learning outcomes for 4-year degree programs per ACCE Document 103: Standards and Criteria for Accreditation of Postsecondary Construction Education Degree Programs - 3.2.2.2 Student Learning Outcomes, the following verbs consistent with Bloom's taxonomy are used:

- *Remember:* The lowest level of the taxonomy requires students to do very little with the information they are learning. They may be asked to recall, list, or name an idea or concept.
- *Understand:* At the next level, students demonstrate that they understand the content by explaining, summarizing, classifying, or translating the given information.
- *Apply:* At this level, students begin to put the information they are learning into context. Here they are able to integrate ideas across multiple situations, or utilize the content in a new way.
- *Analyze:* Students begin to develop higher order thinking. They may be asked to compare and contrast or take a concept and break it into parts to explore the relationships present.
- *Evaluate:* At this stage, students are asked to judge an idea. This may involve predicting, experimenting, critiquing, or making an argument from evidence.
- *Create:* At the highest level, students are producing new ideas or products that integrate the knowledge they have gained. When students are involved in creating new artifacts, they are actively engaged in the subject matter.

D. Program Assessment Measures

Objective tools will be used to assess the degree of success in achieving the Program's objectives and learning outcomes. These assessment tools must provide quantifiable and objective measures to allow proper analysis and use of the results to continuously improve the quality of the Program and align it with the School's vision and mission.

Table 1 below shows the assessment tools and measures used to evaluate the achievement of the **Program Objectives**. Data will be collected at least once a year, unless otherwise noted, for each measure. The Program holds an annual strategic meeting devoted to reviewing information obtained from assessment measures, records and documents action items at program level and shares with stakeholders at school, college, and industry board levels.

Table 1 Construction Management Program Goals/ Objectives, Performance Criteria and Evaluation Methodologies

Themes / Goals / Objectives	Performance Criteria	Evaluation Methodology	Frequency
A. Cohesive and Strong Program Identity: We will strengthen internal and external collaborations and efforts across areas of teaching, research, service, and outreach for a cohesive and strong program identity.			
1. Develop the Program's unique strengths, opportunities, and impact for exceptional teaching, research, service, and outreach.	Continuous improvement in the number and scope of: • Faculty directed grants (applied and received), publications, projects, courses, and programs associated with grants/fellowships and/or other innovative efforts. • Revenue-based initiatives. • Students enrolled in RBI and Linked degree programs. • Collaborative initiatives within and outside of the Program/School.	• List of Program grants, publications, new and revised course, student and faculty awards, and initiatives list and collaborative School efforts list • Annual Program and School Reports	Annual
2. Advocate our identity internally and externally to advance the Program's recognition locally, nationally, and internationally.	Continuous improvement in the: • Number, academic success, and diversity of students enrolled in the Program as freshmen and at junior level. • Number of faculty and student awards and recognition locally, nationally, and internationally. • Number of Program related events with social media exposure and coverage. • Number of stakeholder interactions.	• College and Program reporting of freshmen and upper-level admission statistics • Senior exit surveys and focus group interviews. • Program Record book entries • Industry and Alumni Board (IAB) Reports • Annual Program and School Reports	Annual
B. Enriched and Inclusive Student Experience: We will provide professional, community-engaged, and practice-oriented and high impact experiences to educate and inspire the diverse set of future leaders for the built environment industry.			
1. Align School and Program - wide student recruitment, admissions, and retention to enhance student success, access, and inclusiveness.	Continuous improvement in the: • Quantity, quality, and diversity of students enrolled in the Program as freshmen. • Quantity, quality, and diversity of students enrolled in the Program at upper level. • Faculty/ student ratio. • Number and value of scholarships awarded to students. • Alignment among stakeholders.	• College and Program reporting of freshmen and upper-level admission statistics • IAB Reports • Annual Program and School Reports	Annual

2. Enhance student engagement and achievement in academics and extra-curricular activities.	Continuous improvement in the: • Number and impact of students engaging in enrichment activities. • Number of teaching awards. • Number of student awards. • Number and scope of new and revised infrastructure, technology, and curriculum materials for the Program and the School. • Number, variety, and impact of guest lectures, site visits/filed trips, and professional development opportunities for students. • Student overall Program Satisfaction (above 3.5 on a 5.0 scale from CM Program Senior Exit Survey). • Retention Rates: 95% of students admitted at the junior level will obtain their CM degree. • Average Time to Degree (reduced average for 4-year target)	• College administered program exit survey • Program Senior exit survey • Program Record book entries	Annual
3. Produce highly sought-after graduates by employers and/or post-graduate or professional programs.	• Meet SLO direct and indirect measures/ apply continuous improvement action items. • Satisfactory student evaluations of teaching (Overall SIRS scores will average below 2.5 for all courses (between 1=superior and 5=inferior). • Successful placement of our graduates (at least 90% of graduates will be employed in our industry within 3 months of graduation. • Interest for our students and graduates for internships, full-time employment, and post graduate degrees. • Number of graduates placed in higher education teaching faculty positions.	• SLO Evaluations • SIRs evaluations • Graduating Senior Destination Survey employment placement information • Senior exit survey • Student focus group interviews • Career Fair Employer Surveys • Career Fair Statistics • College administered program exit survey • Record Book entries	Annual
C. Exemplary Research and Interdisciplinary Efforts: We will advance our research discovery by continuing and expanding interdisciplinary collaborations within and beyond the School.			
1. Grow and diversify extramural research funding.	Continuous improvement in the: • Number of faculty directed grants (applied and received), publications. • Number of interdisciplinary collaborations.	• List of Program grants, publications, new and revised course, student and faculty awards, and initiatives list and collaborative School efforts list.	Annual

2. Attract, retain, and empower high-quality faculty for sustained and continuously improved quality in emergent and cutting-edge research areas.	Continuous improvement in the: • Number of new hires in emerging areas. • Number of tenured and promoted faculty in emerging areas. • Number of awards and recognitions. • Number of professional presentations, workshops, and leadership evidence in professional organizations.	• Annual Program and School Reports • Record Book Entries	Annual
3. Increase engagement of undergraduate and graduate students in research and innovative projects.	Continuous improvement in the: • Number of undergraduate students involved in research and creative activities. • Number of publications co-authored by students. • Number of posters and presentations led by students in university or professional organization outlets.		Annual
D. Diversified Funding Models We will develop multiple funding models with incentives to ensure the Program's sound finance. We will stay agile to implement tactics to respond to changes.			
1. Diversify funding streams through entrepreneurial efforts.	Continuous improvement in the: • Number and scope of new grants, programs, endowments.	• Annual Program and School Reports • Record Book Entries	Annual
E. Impactful Outreach and Engagement We will enhance engagement with professional and local, state, national, and international level communities and increase community access to our Program's scholarly activities for impacts serving the Program's mission.			
1. Enhance the Program's engagement with local, state, national, and international communities.	Continuous improvement in the: • Number and impact of outreach events led and/ or attended by program faculty and / or students. • Number of events faculty showed evidence of leadership and engagement with professional societies and the community at local, state, national, and international levels. • Number and scope of events showcased on faculty websites, school website, and School and program social media.	• Record Book Entries • Annual Program and School reports	Annual
2. Improve community access to Program's scholarly activities.			Annual

To evaluate the **Program Learning Outcomes** and consider the students' perception of the quality of their learning experience, each of the Program SLOs will be measured by one direct and one indirect assessment tool. Each assessment tool will be conducted at least once a year. The graduating seniors survey will be used as the indirect measure for each of the 20 Program learning outcomes. *Table 2* below shows the assessment tools used to evaluate the achievement of the program learning outcomes as well as their target performance. The direct assessment methods shown below are conducted when their respective classes are offered (at least once a year).

Every year the CM faculty hold an SLO meeting where approximately seven SLO are examined on a rotational basis in detail using data collected since the last analysis. This cycle ensures that all SLO will be evaluated at least every three years. Additionally, any SLO requiring corrective action may be required to be assessed again in the next year.

Table 2 Construction Management Program Learning Objectives

Student Learning Outcome	Direct Assessment		Direct Assess	Indirect Assessment	Indirect Assessment Target Performance
	Course	Assessment Measure			
SLO-1	CMP 435/436	Response letter assignment	75%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-2	CMP 435/436	Final Project Presentation	75%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-3	CMP 401	Safety Plan Book	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-4	CMP 415	Project 2	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-5	CMP 311	Individual Scheduling Project	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-6	CMP 311	Ethics Homework	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-7	CMP 415	Individual Assignment	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-8	CMP 210	Equipment Selection Assignment Scores	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-9	CMP 328	Final Project	75%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-10	CMP 328	Assignment average of BIM Modeling and	75%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-11	CMP 305	Surveying questions of Exam 1	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-12	CMP 385	Set of Questions (Test 1)	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-13	CMP 385	Subset of Questions on (Test 2)	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-14	CMP 325/311	Construction Accounting Assignment & Cost Control Questions on Final Exam	70%	Graduating Seniors Survey	3.5 on 5-point Likert scale
SLO-15	CMP 423	Quiz	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-16	CMP 423	Exam 2 Questions	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-17	CMP 385	Set of questions (Test 3)	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-18	CMP 245	Average of 3 Exams	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-19	CMP 322	Average of Test 1-5	70%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-20	CMP 230	Final Exam Questions	70%	Graduating Seniors Survey	3.5 on 5-point Likert

E. Information Obtained from Assessment Measures

a) Addressing the Program Objectives

Ten different tools exist for assessment of measures:

1. SIRS
2. Curriculum Assessments
3. Senior Exit Survey
4. Destination Survey
5. Career Fair Stats and Surveys
6. Student Feedback via Focus Group Interviews
7. Periodic IAB Reports
8. Record Books
9. Admission Statistics
10. Annual Reports

Appendix includes descriptions and performance evaluations for all these measures. For the public's immediate interest, this section reports on **admission statistics**.

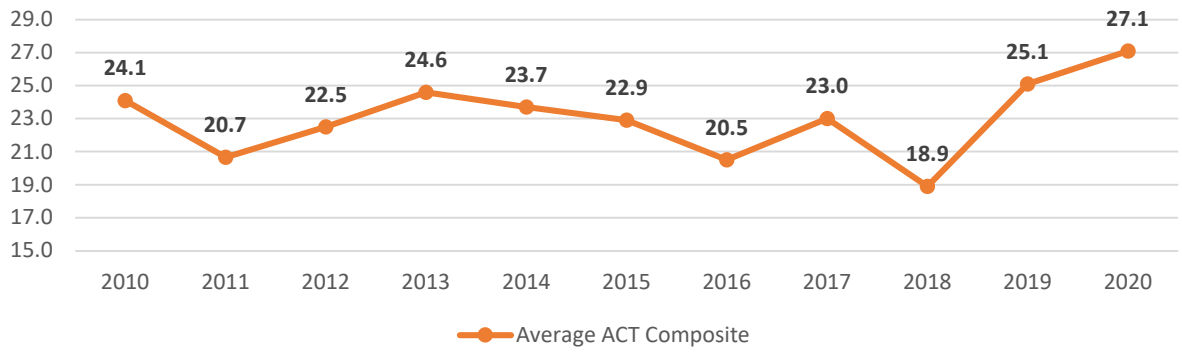
The program shows an upward trend in quality and quantity of student admitted both at freshmen and junior levels.

- Freshman Level numbers and academic success:
  - We reached an all-time high in CM admits at freshman level (see Table 3) last year (2020) with 32 students and this year (2021) we are at 47 (as of July 2021).
  - ACT composite is on the rise: 27.1 in 2020 (See Figure 1) – MSU middle 50% of enrolled freshmen *in 2020 is between 23-29.*

Table 3: CM Program Freshmen Admits Cohort / Paid & Enrolled in Classes

Fall	TOTAL	Fall	TOTAL
2010	16	2016	20
2011	12	2017	24
2012	6	2018	28
2013	8	2019	29
2014	12	2020	32
2015	21	2021	Pending

Fig. 1: CM Freshman Students - ACT Composite Trend



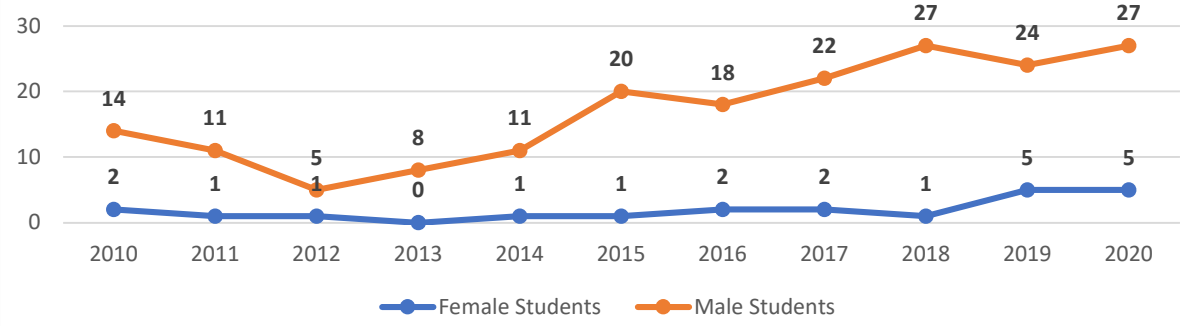
- Junior level numbers and academic success:
  - It is possible that we have COVID related grade inflation in grades for junior level admits. It is still apparent that we are in an improvement trend.
  - 56 qualified and 40 admitted. Admits average GPA: 3.5 MSU; GPA: 3.75 CM GPA.

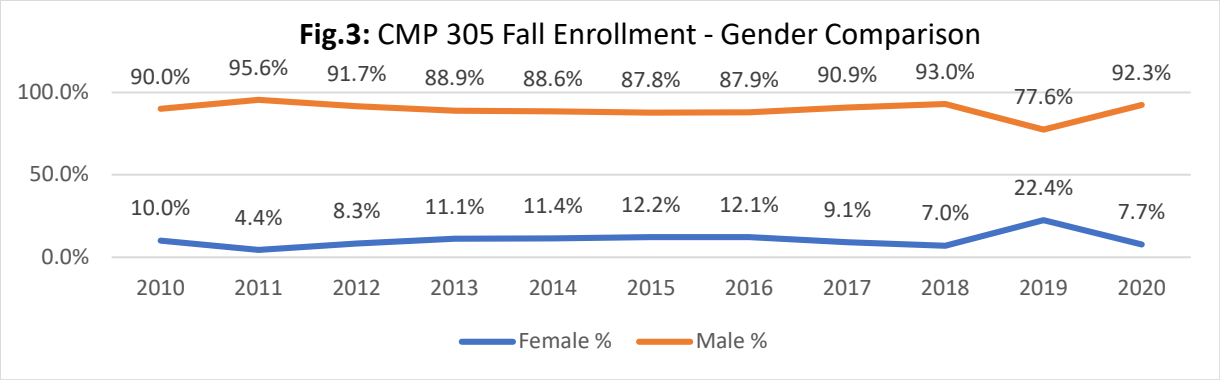
Upper-Level Application and Admission Trends:

- Spring 2019:
  - 59 applied, 47 admits. 69% admission rate.
  - Admits:
    - Average CMP GPA: 3.28 (Range: 4.0 – 2.69/ 40 above 3.0)
    - Average MSU GPA: 3.2 (Range: 3.95 - 2.62)
- Spring 2020:
  - 58 applied, 40 admits. 69% admission rate.
  - Admits:
    - Average CMP GPA: 3.465 (Range: 3.83 - 3.16 / 46 above 3.0)
    - Average MSU GPA: 3.25 (Range: 3.97 - 2.53)
- Spring 2021:
  - 62 applied, 40 admits. 64% admission rate.
  - Admits:
    - Average CMP GPA: 3.75 (Range: 3.96 – 2.62 / 56 above 3.0)
    - Average MSU GPA: 3.5 (Range: 4.0 – 3.5)

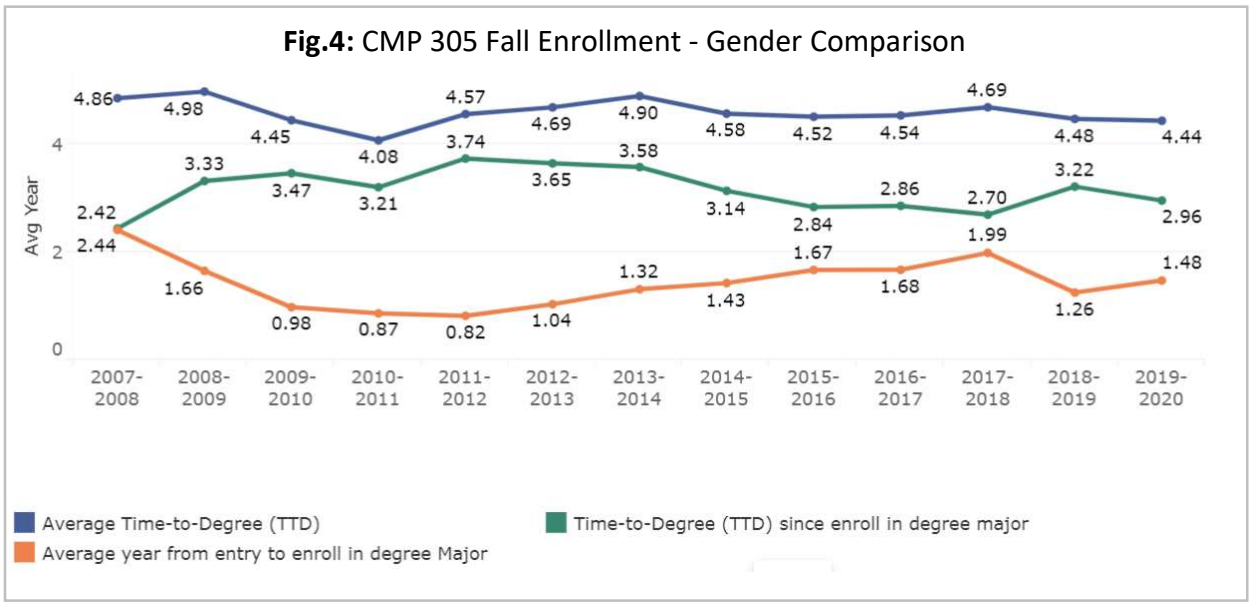
- DEI:
  - Although there is an upward trend in DEI data, we are not fully engaged with very diverse populations at freshmen level, and this is reflected at junior level admits.
  - All time high at freshmen female admits (rising from 0, 1, or 2 students to 5 students in 2019 and 2020 both). At junior level, 2020 female admits are 3 students (7.7%). In 2021, all female students that applied at upper level were admitted: 5 out of 40 giving a 12.5% female ratio at upper level (See Figures 2 and 3).

Fig. 2: CM Freshman Students - Gender Comparison





2. Retention rate: 97.75% (> 95%; Summer 2021 - The rate of admitted students at the junior level that obtain their CM degree [between 2006-2015 giving each cohort 6 years to graduate]).
3. Average time to degree (2019-2020): 4.44 years (Figure 4).



4. Student/ Faculty Ratio calculated through dividing the number of seniors at 400 level courses by the number of full-time faculty (2020-2021): 5.7 (i.e., trends in the last three years: 6.6, 5.7, 5.7).

b) Addressing the Program Learning Outcomes

Each of the 20 SLOs/Program Learning Outcomes is measured annually using one direct and one indirect measure:

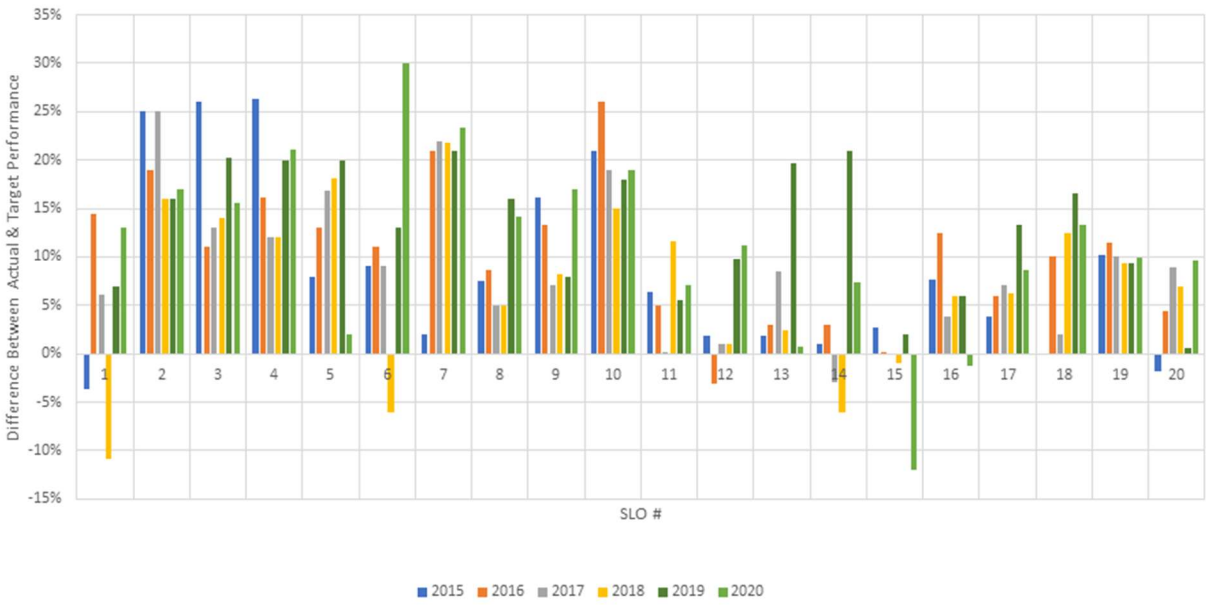
1. Direct assessment measures

are through in-class assessments. Instructors teaching the courses listed in *Table 2* are responsible for collecting the direct assessment data for each of the 20 SLOs. Our program collects assessment data annually, and records are kept in electronic form through an MSU shared drive site which is accessible by all program faculty to upload their assessment information which includes:

- The individual course SLO assessment plan with performance targets for individual SLO.
- Specific assessment tools including exam questions and homework assignments used for data collection.
- Summary assessment data.
- Analysis against performance criteria in an annual report card.
- Any corrective measures as needed to address gaps from performance objectives and actual achievement are indicated in the report card.

Performance evaluation: Performance targets range between 70%-75% and are listed in *Table 2*. Faculty expected the performance results to be lower this year due to the disturbance of COVID-19 and changing the teaching mode to online delivery. Direct assessments showed good progress in 2020-2021 AY except for SLO 15 (58% versus targeted 70% average score in CMP 423 quiz). Figure 5 shows SLO direct assessment evaluations in the last five years.

Fig. 5: Information Obtained from Direct Assessment Measures



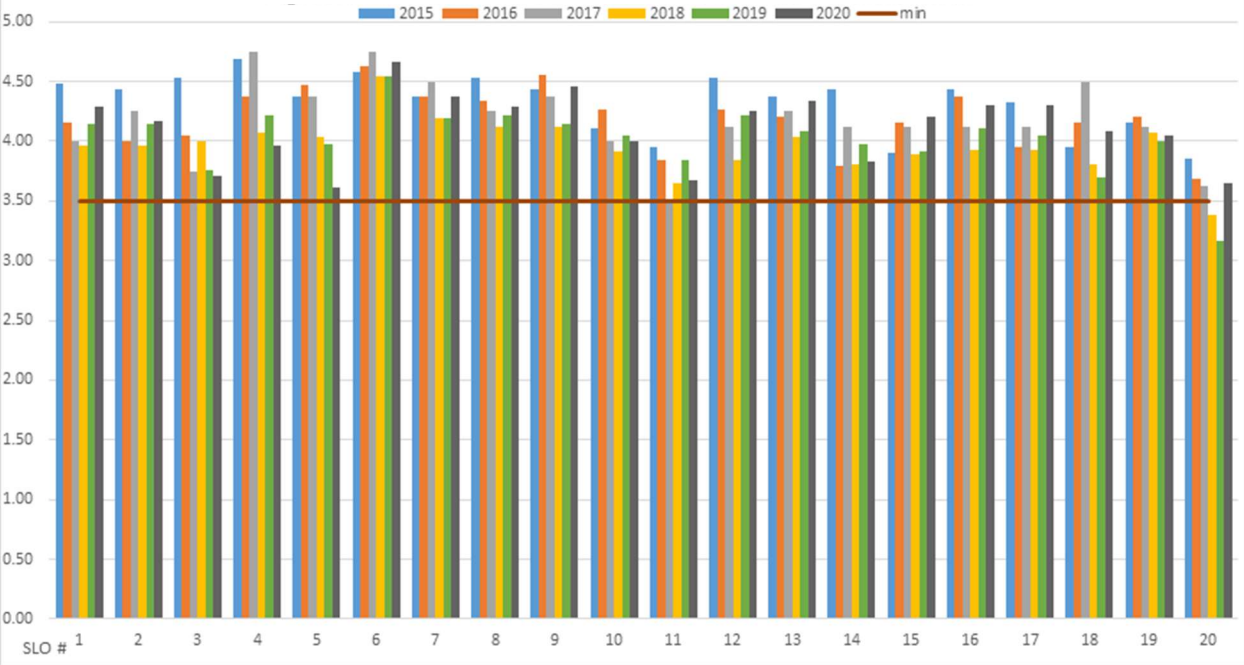
2. Indirect assessment measures include feedback from graduating senior survey administered by our program and distributed to senior students every fall semester. This anonymous survey is administered via the MSU subscription of Qualtrics. Students registered for CMP 415 are invited to participate. An initial invitation is sent during the first week of November and a weekly reminder is sent till the exam week. During the exam week, two reminders were sent to the remaining list of students. In the survey, students are asked to rate their perception of ability in relation to each SLO using a five-point Likert scale (between 1: Not much – 5: Great deal). The target average rating for each SLO is 3.5 out of 5.0.

Performance Evaluation: Per indirect assessments via exit surveys, all SLOs are above the target score of 3.5. The following SLOs have room for improvement based on the data trends in comparison to previous years (while online teaching impacts due to COVID-19 should be considered)

- SLO3
- SLO4
- SLO5
- SLO11
- SLO14
- SLO20

Figure 6 shows SLO indirect assessment evaluations in the last five years.

Fig. 6: Information Obtained from Indirect Assessment



F. Actions Taken as Result of Assessment Data Collected

As the data above is collected and reflections from various stakeholders are evaluated, the Program takes immediate actions wherever possible and needed such as providing additional support to faculty during the pandemic in areas of need, working with student organizations to facilitate improved engagement despite online learning during 2020-2021, and implementing IAB curriculum committee Fall 2020 inputs to SLO mapping across the curriculum within the same semester.

As a part of the Program Continuous Improvement Plan, the CM faculty met on:

- May 14th 2021 for strategic planning meeting and reviewed Program Objectives and assessment results in addition to new Program Strategic Plan.
- January 15th and May 6th of 2021 for Program Learning Outcomes/SLO Reviews.

Specific actions as a result of these meeting are listed below along with responsible parties.

Program:

- Research profile is on the rise. Continue the trend to strengthen scholarship and track records. Strategically pursue and build up towards higher impact. Work with the school to consider assignment adjustments and support for faculty to achieve such goals (teaching release for large scale grants, support for outreach efforts, endowed professorship for continuation of efforts, cost sharing for doctoral student assistance for high impact efforts etc.) *(Program Director [PD] / School Director)*
- Work with the colleges, university, and IAB to bring in new tenure track and teaching faculty hires to: *(PD/ IAB/ School Director)*
    - grow the number of graduates while keeping the faculty/ student ratio balance and
    - provide space for key faculty members to reflect their expertise in research via UG/G courses.
- Work with CANR and the School to bring in resources for: *(PD/ School Director)*
    - assignment adjustments for innovative and large-scale scholarly activities,
    - teaching support (that can also help train doctoral students in teaching),
    - administrative support, and
    - development, fundraising, advising, outreach.
- Develop 'industry trends – applied research reporting' with the industry and Linkedin and Master's program students. *(Mr. Aydukovic / Dr. Syal / PD)*
- Encourage and work with faculty to take sabbaticals. *(PD/ School Director)*
- Continue to strengthen and diversify Career Fairs as needed while making sure to sustain and improve its revenue-generating capacity. *(Mr. Aydukovic / PD)*
- Work with CANR and the School to prioritize attracting endowments. *(PD/ Dr. Syal)*
- Upper-level admission application to record and report on diversity metrics – *(Ms. Knowles)*

Faculty:

Across the Curriculum:

- Bring in diverse profiles (both in industry niches and demographics) as guest lecturers in courses and start recording accordingly in the Record Book. *(All faculty)*
- Transfer Course Review Protocol for the program is in place and to be followed. *(Ms. Knowles and Student services, PD, and all faculty)*
- Coordinate for the use of RS Means book in courses across the curriculum. *(PD and Faculty)*

SLOs:

- SLO data to be updated a week after the exam week. *(All faculty)*
- SLO-15 - Bring the construction quality assurance and control module later in the semester along with a discussion on the topic to improve student knowledge and confidence via CMP 423. *(Dr. Syal)*
- SLO-20:
    - Utilize new lab equipment, BIM model and teaching materials for MEP systems, virtual site visits on our Program's Youtube channel, and additional site visits to continue the upward trend with SLO-20 in CMP 230. *(Mr. Shah)*
    - Consider additional opportunities to strengthen student know how via additional upper-level courses such as CMP 311, 415, and hands-on lab. *(Mr. Shah and Dr. El-Gafy)*
- Rubrics to be discussed and applied to all relevant assignments across the curriculum.
    - Ethics Assignments *(Dr. Mollaoglu)*
    - Writing Assignments *(Mr. Aydukovic and Dr. Berghorn)*

Courses:

- CMP 328 – Change from 2 credits to 3 credits. *(Dr. Zhao)*
- Explore credit and content revisions to CMP 322 in alignment with CMP 222 to optimize teaching of structural systems for construction. *(PD and CM Faculty)*
- Start Hands-on Lab and engage trades with students. *(Mr. Shah / Ms. Knowles with the student services / Program for announcements)*
- Continue Internship course. *(Mr. Aydukovic / Ms. Knowles with the student services / PD)*
- Continue Real Estate Finance and Economics course. *(Mr. Maguire / Ms. Knowles with the student services / PD).*
- Align one estimating and scheduling homework- potentially using MEP systems via CMP 311 and CMP 415 to compliment SLO-20 as described above. *(Mr. Shah and Dr. El-Gafy)*

IAB:

- Work with the School and DEI committee for organized outreach, recruitment, and retention for improved DEI metrics in the Program.
- IAB to record metrics for members and improve diversity metrics such as industry niche, role, years after graduation, gender, race, and ethnicity.
- Student Organization Advisors to work with e-board members and together to seek opportunities to maximize the impact of efforts across all areas of the mission.

G. Enrollment by Numbers and Student Achievements

In Fall 2020, the CM Program had a total of 171 undergraduate students enrolled producing 2272 student credit hours (SCHs). Total enrollment in Spring 2021 was 128 with 1686 SCHs. Around 10% of those students came from out of state and 13% of the students were female. During this academic year, 40 students were admitted to the upper level and 46 seniors graduated.

Select Undergraduate Student Achievements:

- Abdallah Agabur and Samantha Bourgeois got awarded Clark Construction's DEI Award during their internships – Summer 2020.
- MSU Residential Competition Team got 2nd place in NAHB Student Chapter Competition – Spring 2021.
- Ashley Prince, 2020/2021 Outstanding Student Leader for the College of Agriculture and Natural Resources. She gave the commencement speech in Spring 2021.
- Sabrina Maniaci, 2020 CANR Alumni Association Scholarship.
- CM students of the year: Aundrea Cole, Ashley Prince, and TreMaine Dwight.
- 2020-2021 CM Program Ambassadors: Michael Hadvina and Tahmim Siddiquee.
- Graduated members of SLC: Garrett Spenser Wojtowicz, Hunter Jay Weis, Michael Anthony Hadvina, and Tahmim Ahmed Siddiquee.

Student Organizations:

Student Builders and Contractors Association (SBCA), Professional Women Builders (PWB), Sigma Lambda Chi (SLC), and the newly formed Graduate Student Association for Construction (GSAC) collaborated and facilitated an exemplary level of engagement. Below is a list of select activities by our student organizations:

- PWB Mock Interviews to help prep for the Career Fair, Karen Schroeder, Lisa Honaman, Melanie Goerke, Carolyn Whiting attended - 10.6.2020.
- PWB, Coty Fournier's Story - 11.10.2020.
- PWB X SBCA, Westwood Inn Construction Virtual Site Tour, Sachse Construction, 11.11.2020.
- Fall 2020 – PWB started Podcast Series.
- SBCA Virtual Residential Construction Site Tour – Featured Mayberry Homes and T.A. Forsberg, 2/10/2021, 40 attendees.
- PWB led DEI panel – Building Strong at the Speed of Change – Featuring Rita Brown, Aaron Walsch, Grace Trudell, Kathi Dobson, Precious Jackson, 2.17.2021 – 95 attendees.
- SLC - Spring 2021 – 12 new inductees.

- SBCA - Jobs, Internships and Starting Your Career with principals from Oakwood Homes, 2.23.2021.
- PWB celebrated Women in Construction Week through virtual engagements.
- Started a Youtube Channel for Virtual Site Visits – Spring 2021:
  - https://www.youtube.com/channel/UCl0bcNv6y1D0XEvvAVvOniQ
- SBCA – Virtual Meeting and Site Tour, Featuring Barton Malow, 3.15.2021.
- SLC, MSU Infrastructure Night, 3.24.2021. Virtual Site Tour.
- PWB – Podcast with Jessica Flores on historic preservation.
- PWB – Virtual Meeting Featuring Mona Lisa Development, 4.6.2021.
- GSAC – Featuring Barton Malow and Christman Construction – 4.7.2021. Mclaren Hospital MEP Systems Virtual Site Tour.

Internships and Student Enrichment: According to Fall 2020 MSU Career Services Destination Survey of graduating seniors, of the CM students:

- All 45 respondents reported having participated in paid internships (21 of those for credit).
- 5 out of 30 respondents participated in research (16.6%).
- 8 out of 33 respondents participated in volunteering activities (24%).
- 4 out of 25 respondents participated in study abroad (16%).

H. Other Highlights

Faculty

- Dr. Sinem Mollaoglu promoted to Professor rank effective July, 2020
- Marcus Metoyer retired – May, 2021.
- New teaching specialist hire: Harshal Shah – Starting Fall 2021.
- Dr. Zhao promotion to tenure and associate professor in Summer 2021.

Faculty Awards, Recognitions, Leadership

- Dr. Zhao selected as AGC Faculty Industry Residency fellow – Summer 2020.
- Dr. Mollaoglu:
  - Stepped down from ASCE Journal of Construction Engineering and Management's Editorial Board after serving over 10 years.
  - Started to serve as an Associate Editor in Engineering Project Organizations Journal's Editorial Board.
- Outstanding Reviewer recognitions by ASCE journals:
  - Journal of Construction Engineering and Management – Dr. Zhao
  - Journal of Civil Engineering Education – Dr. Zhao
  - Journal of Architectural Engineering - Dr. Syal

- Emerging and strengthening scholarship and engagement locally, nationally, and internationally with professional and larger communities in the following areas – led by Dr.s Syal, Mollaoglu, Zhao, and Berghorn:
  - Intelligent technologies and energy efficiency, team science in AEC project teams and education, integrative project delivery, sustainability, mass timber, and domicology.
- Dr. Mollaoglu received CANR's 2021 You Belong Here Award.
- Dr. Zhao received the NSF CAREER AWARD-2021: Intelligent Energy Retrofit Decisions for Large-scale Residential Buildings.

Grants:

- New grants (External): $276, 865
  - Supplement Grants from National Science Foundation (NSF) – Summer 2020.
    - NSF Future of Work – COVID – 19 Supplement to Address Challenges Imposed on Project Teams: $240K – Dr. Mollaoglu led.
    - NSF –EDSE Internship Supplement with the Industry: $24K Dr.s Mollaoglu and Zhao led.
- New Grant – Internal:
  - George Berghorn was awarded MSU AAP PIRA Funds, Understanding the Nexus Between Energy and Water Infrastructure, WASH Access, Gender Roles, and Female Educational Attainment in Tanzania - Development of the Women Building Tanzania Research Consortium, 18 months, $99K.
- On-Going (External): $3,313,617
- Applied - Large Scale Grants: About $75M
- Development:
  - $500K Estate Gift – Alan Scott to Housing Education and Research Initiative
  - Construction Assoc. of MI Foundation will donate $2.5K annually to CM labs May 2020 - Led By Kevin Foucher of CM IAB.
- Collaborative / Interdisciplinary Efforts: 14 (recorded via grants).

Alumni & IAB:

- Mohsen Goordarzi (graduating from our doctoral program) accepted a tenure track assistant professor position at Ball State University – Fall 2021 start.
- Karen Schroeder, Homebuilding Education Leadership Program Advisory Board Member at MSU – Selected as CANR's 2021 Honorary Alumnus.
- Clarence Corson, IAB Member, named as one of the Top 40 under 40 in the AEC and Facilities industry by Consulting-Specifying Engineer.

I. Rate and Types of Employment of Graduates

Destination survey of graduating senior students is administered by the CANR annually at the CM program. In Fall 2020, 44 out of the 48 responded are employed full time. 4 continued education with the graduate school. Average starting salary for these students is $64,190 and median starting salary is $62,250. Majority of the students were employed in Midwest (See Figure 7 below).

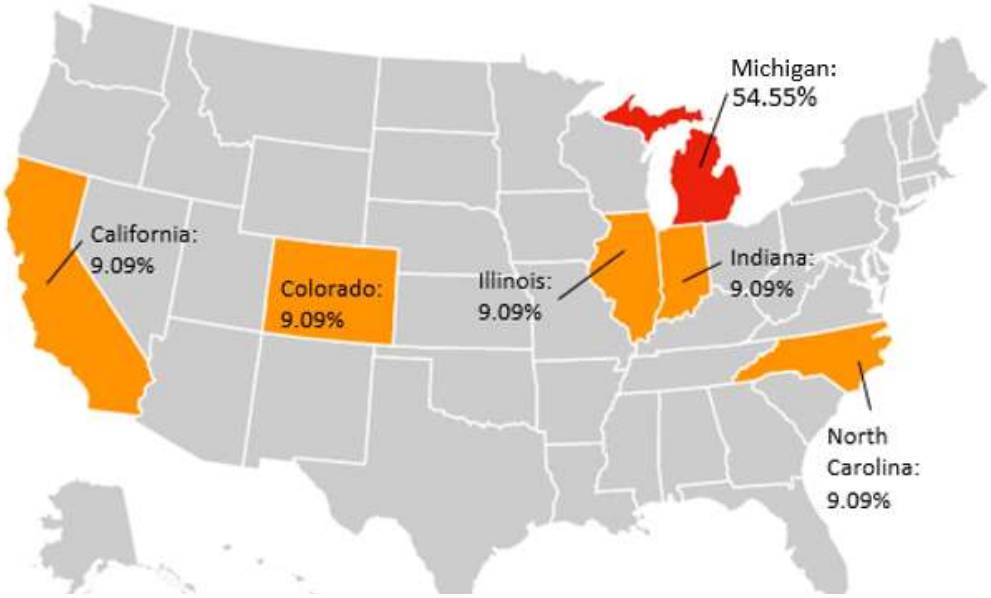


Fig. 7: Geographic Distribution of CM students employed across the U.S. (2020-2021)

Graduates of the CM program have been hired by commercial, residential, infrastructure, and industrial sectors of the architecture, engineering, and construction industry. Commercial sector has been the dominant sector that has recruited our graduates in the recent years followed by the residential sector.

The career options for our graduates upon graduation include: project engineer, assistant project manager, project manager, scheduler, estimator, superintendent, project controls manager, and virtual design coordinator.

Types of companies that have hired our graduates include but are not limited to general contractors, construction managers, design-builders, developers, multi-family and residential builders, transportation and logistics companies, real estate companies, suppliers, material testing firms, renovation, facility management and maintenance companies, mechanical and electrical contractors, insurance companies, project managers, consultants, and utility and renewable energy companies.

J. Data to Support Qualitative Claims made by the Program

The data provided in this document intends to satisfy the public disclosure requirements of ACCE accreditation and to show that MSU's CM program is striving to continuously improve while providing the industry with well-prepared graduates that can become leaders in the future.

CM Career Fair has been well attended, with 55-80 companies attending, in the past three years. Employer to graduating CM senior rate has been consistently at around 1.5. Below are select testimonials from recruiters:

"Hensel Phelps is very grateful to be given the opportunity to come back into town every year and speak with the best and brightest students in the nation! This was my first year back to the MSU career fair since I graduated back in 2014, and I wanted to express how well I think the whole experience went. […] This program always lives up to its expectations. The students we talked with were well-prepared, professional, and were a pleasure to get to know."

– Project Engineer and Recruiter at Construction Group, Hensel Phelps

" Thank you for hosting a fantastic career fair highlighting your very talented students. ….. I find some standouts [in other programs of the state] too, but not of the quantity available at MSU."

- Project Manager and Recruiter, Thomas Sebold and Associates

2018-2019 survey of MSU's CM Program alumni and recruiters[2] (n=248) showed that most participants highly regard the CM program as one of the best in the Midwest but pointed that the program needs to improve marketing to showcase it as one of the best programs in the nation.

[2] El-Gafy, M. (2019). 2019 Alumni Perspectives Survey Report. Submitted to The Construction Management Alumni and Industry Association. School of Planning Design and Construction, Michigan State University, East Lansing, MI, July 22, 2019. 81 Pages.

Appendix - Information Obtained from Assessment Measures - Program Objectives

1. SIRS

Description: A program review of the university wide Student Instructional Rating Survey (SIRS) which is used to evaluate student views on all individual courses. University policy mandates that SIRS forms be administered in all courses each semester that they are taught. We use the standard 26-question SIRS to gauge student satisfaction with our courses. The 5-point Likert scale is: 1- superior, 2- above average, 3- average, 4- below average, and 5- inferior. The categories are as follows: Instructor Involvement, Student Interest, Student-Instructor Interaction and Course Organization. While student satisfaction surveys are limited in comparative use across disciplines or types of courses, they are useful for formative assessment of teaching. The SIRS data is used by the CM Program Director who reports to the faculty the general results. Courses where SIRS scores are low may be identified as needing improvement and the faculty work to improve course design or delivery improvement, considering the pedagogy used in the course.

Performance Evaluation: Close evaluation of the SIRs forms for Spring 2020, Summer 2020, and Fall 2020 showed majority of the courses within the target performance metric range (<2.5). The courses above the target were CMP 230 (3.16) and CMP 322 (2.69).

Average scores:

- 2017-2018: 1.85
- 2018-2019: 1.98
- 2019-2020: 1.91
- Summer & Fall 2020 (Spring 2021 Pending): 1.90

- COVID-19 outbreak happened during Spring 2020 and all courses were changed to virtual teaching abruptly a couple days after the Spring break. As expected, course evaluations were affected by this issue.
- CMP 230 instructor had to leave right before the semester start due to health issues that led to an emergency adjunct hire and with the abrupt change to virtual teaching in Spring 2020 – the course did get impacted.
    - New MEP acquired for the lab could not be used to due to the shift to online instruction.
    - In Spring 2021, to provide students with broader MEP experiences during virtual teaching, we collaborated with industry members and worked with student organizations to implement extensive virtual site visits (tied to the curriculum and CMP 230) that included:
        - Health care MEP systems
        - University steam and chilled water infrastructure
        - We uploaded these site visits on a YouTube channel for the program to utilize the material for teaching in the long term.
    - New faculty hire is in place effective Fall 2021 with expertise in MEP systems.

- New drawing sets and models implemented for hands-on experiences in the lab relating to MEP systems.

- We had a new faculty hire and on-boarding with the CMP 322.
  - New faculty co-taught with existing faculty in Flip class format during online teaching. The format was not well-received by the students and was abandoned for the future.

2. Curriculum Assessments

Description: Review of CM faculty assessment of CM curriculum compliance with ACCE standards. This review is on-going and the CM faculty monitor ACCE standard changes, as necessary. ACCE mandates that all accredited programs must meet certain numerical requirements for broad course topic areas such as general education, mathematics, science, business, construction, and construction science. ACCE also mandates required SLOs. Additionally, the CM Program must strive to meet its own mission and objectives articulated above, while operating within the MSU context. The designated CM faculty and the Program Director are responsible for jointly seeing that course contents and deliveries are appropriate and support the overall mission and objectives of the program. Toward this end each course within CM must have a standardized course outline with a specific set of course objectives addressing its course content and relevant SLO. Each faculty member develops testing or other appropriate measures for assessing student performance against course objectives. Oversight and coordination of course objectives is provided by the Program Director and the CM faculty for the purpose of ensuring that the broader program objectives are being met. Periodic review of CM courses, curriculum, SLO distribution across the curriculum, and SLO assessments by the CM faculty is used to determine overall compliance with ACCE Curriculum categories.

Performance Evaluation:

1. Compliance with the MSU-ACCE report and address any issues identified: No issues addressed. Document preparation for Fall 2021 site visit is in-progress. Chris Dehaven from the Curriculum Committee will represent the IAB during the visit.

2. Curriculum compliance with the accreditation requirements (Document 102) – Table 3.1.4: Table 3.1.4.1 is updated accordingly. In compliance. Transfer courses are up for review.

3. 100% compliance of the May meeting action items for SLO reviews: In compliance with the mapping of course learning outcomes via SLOs across the curriculum and relevant syllabi.
   - Direct assessments showed good progress except for SLO 15 (58% versus targeted 70% average score in CMP 423 quiz).
   - Per indirect assessments via exit surveys, all SLOs are above the target score of 3.5. The following SLOs have room for improvement based on the data trends in comparison to previous years (while online teaching impacts due to COVID-19 should be considered):
     - SLO3
     - SLO4
     - SLO5
     - SLO11
     - SLO14
     - SLO20

3. Senior Exit Survey

Description: Review of the Program administered Senior Exit Survey. This anonymous survey is administered via the MSU subscription of Qualtrics. Students registered for CMP 415 are invited to participate. An initial invitation is sent during the first week of November and a weekly reminder is sent till the exam week. During the exam week, two reminders is to send to the remaining list of students.

Performance Evaluation: Goal met (i.e., all scores over 3.5 [out of 5 where 5 is extremely satisfied and 1 is extremely dissatisfied] and average score is 4.07).

Average scores:

- 2015-2016: 4.00
- 2016-2017: 4.02
- 2017-2018: 4.35
- 2018-2019: 4.15
- 2019-2020: 4.13
- 2020-2021: 4.07

- Some of the strongest elements of the Program took a hit due to COVID-19 and online teaching.
- The Program in the overall is perceived as closely-knit, with quality advising, good access to faculty.
- Capstone courses were back in the books first time this year after many years. They were very well perceived by the students.

4. Destination Survey

Description: Review of graduating senior Destination Survey (employment information survey) conducted by the college. This survey gathers information on employment positions taken by students upon graduation. Company information, job descriptions, salary ranges etc. are reported.

Performance Evaluation:

1. Performance goal of "90% of graduates will be employed in our industry within 3 months of graduation" is met. 44 out of the 48 responded are employed full time. 4 continued educations with the graduate school.

2. Performance goal is met with room for improvement in engagement with research, study abroad/away, and volunteering: "We will continuously improve number and impact of students engaging in enrichment activities."

    - All 45 respondents reported having participated in paid internships (21 of those for credit).
    - 5 out of 30 respondents participated in research (16.6%).
    - 8 out of 33 respondents participated in volunteering activities (24%).
    - 4 out of 25 respondents participated in study abroad (16%).

5. Career Fair Stats & Surveys

Description: The number of employers and students attended to CM Career Fairs is recorded annually along with revenue generated, and employer comments following the career fair to get feedback on our student quality. The data is collected by the Career Fair Services at MSU in collaboration with the Program.

Performance Evaluation: The following performance goals were met:

1. Inform the program faculty and administration of employers, recruiters, and interviewers' recommendations and incorporate those as they fit to the program strategic plans.
    - Overall satisfaction with the career fair and student quality was high. Employers suggested improvement of number of students they interview during the fair. They also suggested inviting students outside of CM to be invited to the fair.

2. Continuing interest for our students and graduates for internships, full-time employment, and post graduate degrees.

    2020 Virtual Career Fair Registration Breakdown:
    - Total registered students: 181
    - Total active with spots claimed (tracked in virtual setting): 124
    - Registered (active) Companies: 60 (57)
    - CM seniors: 39
    - CM students: 78
    - Employer/ CM Senior: 1.5 – *steady for the past three years*
    - Employer/Total Students: 0.5 - *steady for the past three years*

3. Support the Program with revenue generation – Performance goal met despite the virtual event and reduced fees.

6. Student Feedback via Focus Group Interviews

Description: Conducted by the Program Director, in person, at the end of each Fall semester with a maximum of five graduating seniors to collect their inputs on the curriculum, program, and student experience and input on areas of concern and potentials for improvement to make CM Spartan experience an excellent one in preparing them for their futures. Another venue for collecting student input is by inviting student organization leaders and any other students of the program to the Program Faculty meetings at the end of each Spring semester and collecting their inputs for continuous improvement.

Performance Evaluation: Continued improvement in program satisfaction from CM program seniors. Compliance with the previous year's action items.

- Overall, the students reported high satisfaction with the program.
- Strengths:
    - Close engagement opportunities with the faculty. Students felt that they enjoyed building relationships with the faculty and reported that "They [the faculty] care."
    - Capstone courses.

- The fact that all courses covered ethics within the context of the course.
- Opportunities with extracurricular activities (competition team, student organizations, engagement with the industry, study abroad, internships, etc.)
- Smaller focus groups through student organizations while being connected across all organizations.

- Opportunities for improvement:
  - COVID had an impact on some classes more than others. Some of the faculty members can use support with virtual technologies and teaching with VDI.
  - More hands-on experiences.
  - Diversity in class materials, content, and guest speakers.
    - Courses barely touch on diversity matters. Modules by trained experts are needed in more than one course in the curriculum.
    - The students expressed interest in being exposed to a wider variety of the following in guest lectures and site visits:
      - construction industry niches other than commercial construction.
      - demographics from the industry via guest lectures.

7. Periodic IAB Reports

Description: Review of periodic reports prepared by the CM Industry and Alumni Board (IAB) addressing program quality. The CM alumni and industry board has 36 members. The board meets twice (once in Fall and once in Spring) while sub-committees (i.e., curriculum guidance, golf, faculty and student outreach, executive, board development) meet up to monthly frequency throughout the year. Written feedback from the board is provided to the School and Program at each board meeting (In Fall and Spring semesters) by each committee. There reports are provided to the CM faculty for review and take appropriate actions.

Performance Evaluation: Met our goal of having regular engagements with the alumni board and sub-committees (curriculum, fundraising, strategic planning, outreach etc.) for alignment of stakeholders and satisfactory review of program protocols and progress, curriculum, and student and faculty engagements.

- All action items were followed in Fall 2020. Standing item is the quantity of graduating seniors while keeping a balanced ratio of faculty/ students to ensure quality.
- New members:
  - Amanda Allen
  - Stacey Nellis
  - Coty Fournier
  - Michael A. Houston
  - Clarence Carson, CCA, CCP
  - Vito Castellana
  - Joe Harris
  - Andrew Holman, MBA, LEED AP
  - Michael Stoskopf
- New IAB roles:
  - Bristol Reynolds (IAB Chair)
  - Tim Prochko (Strategic Planning Committee Chair)
  - Melanie Goerke (Secretary/Treasurer)

The full list of current members:
https://www.canr.msu.edu/spdc/programs/construction_management/cm-alumni

8. Record Books

Description: The Program faculty has access to a record book on one drive that showcases significant events related to the Program faculty, courses, students, alumni, and all other stakeholders. Faculty also records student organization events that are significant for the program and records field visits and industry guest lectures to ensure connection of all stakeholders and improvement of curriculum using industry input, outreach, and student enrichment opportunities.

Performance Evaluation: Performance goal met. We had some exceptional successes this year in both faculty and student sides such as:

1. Faculty and student awards and recognition locally, nationally, and internationally.
    - Prestigious awards for both faculty (five) and students (five).
    - MSU Competition Team's Success at NAHB Student Chapter Competition- IBS 2021.
    - Dr. Zhao's CAREER Award on intelligent energy retrofits.
    - Dr. Mollaoglu's on-going NSF funded interdisciplinary research on team-science and AI ($1.4M) and center/institute grant applications.
    - Dr. Syal's international leadership in sustainable built environments.
2. Number of new hires in emerging areas.
    - New hires in key areas: Mr. Aydukovic and Shah.
3. Number of tenured and promoted faculty in emerging areas.
    - Faculty promotions: Dr. Mollaoglu to full professor, Dr. Zhao to Associate professor).
4. Graduates placed in higher education teaching faculty positions.
    - Mohsen Goodarzi accepted a tenure track position at Ball State University –Fall 2021.
5. Professional presentations, workshops, and leadership evidence in professional organizations.
    - Emerging and strengthening scholarship and engagement locally, nationally, and internationally with professional and larger communities in the following areas – led by Dr.s Syal, Mollaoglu, Zhao, and Berghorn:
        - Intelligent technologies and energy efficiency, team science in AEC project teams and education, integrative project delivery, sustainability, mass timber, and domicology.
6. Program related events with social media exposure and coverage.
    - Significant growth in social media presence due to:
        - Set up and management of the Linkedin account by the Program.
        - Close coordination with The School social media and communications reps.
        - Student organizations' engagement with advisors and higher level of involvement and ownership with Program activities.
7. Students engaging in enrichment activities.
    - Exemplary engagements by student organizations in coordination with the faculty and industry members. 15 different activities with high impacts and outreach recorded. Highlights include:
        - Virtual site visits
        - Diversity, Equity, and Inclusion (DEI) panel
        - Podcasts
        - The program's Youtube channel and social media engagements.

8. Number, variety, and impact of guest lectures, site visits/filed trips, and professional development opportunities for students.
    - 26 activities recorded.
    - A good variety of site visits and speakers were involved.
    - The students were also exposed to the faculty's research activities via outreach efforts and their integration.

9. Admission Statistics

Description: Data for freshmen, junior level Program admits (by tracking CMP 305 students to avoid MSU versus CM junior status confusion), and seniors are extracted in collaboration with the college and based on Program records of upper-level applications. Report on this data showcases student academic success, gender, race, ethnicity, international/ national, in/out of – state status, and time-to degree measures.

Performance Evaluation: Performance goal met. See details on Pages 13-15 of this document.

10. Annual Reports

Description: The School requires annual reporting from each program in Summer semester of every year. The report includes all outcomes from the assessment tools listed above and additionally covers faculty productivity in publications, grants, and mentoring efforts.

Performance Evaluation: Last year's priority items are addressed.

1. Faculty Awards (4)
    - Berghorn - Coach, 2020 National Champion NAHB Student Competition Team 2020
    - Syal - Finalist for the "You Belong Here" DEI Award, College of Agriculture and Natural Resources (CANR), Michigan State University, 2020
    - Zhao - Robert L. Bowen Industry Residency, Associated General Contractors (AGC)
    - Zhao - 2020 TEDx Selected Speaker
2. Leadership evidence in professional organizations. (5)
    - Mollaoglu, Associate Editor, Engineering Project Organizations Journal, 2021.
    - Mollaoglu, Editorial Board, American Society of Civil Engineers, Journal of Construction Engineering and Management, Assistant Specialty Editor of Organizational Issues between 2010-2011 and Sustainability between 2010-2020.
    - Syal: ASCE Journal of Architectural Engineering, Editorial Board.
    - Zhao, Review Editor, Frontiers in Built Environment (Construction management)
    - Zhao, Editorial Board, Advances in Civil Engineering
3. Faculty directed grants (new, on-going, applied/ large scale) and Developments (19)
    - *New grants (External) - 2020:* $276, 865
    - *On-Going (External) – 2020:* $3,313,617
    - *Applied - Large Scale Grants – 2020:* About $75M
    - *Development:* $500K Estate Gift
4. Collaborative initiatives within and outside of the Program/School.
    15 – recorded through grants.
5. Publications, projects, courses, and programs associated with grants/fellowships and/or other innovative efforts.

10 Journal Papers / 8 Conference Proceedings and Reports.

6. Professional and invited presentations.
   15 (State: 5, National: 3, International: 7) in Domicology, Mass Timber, Partnering, Sustainable Development.
7. Professional Development for Faculty
   2 recorded.
8. Undergraduate students involved in research and creative activities.
   8 students recorded.
9. Publications co-authored by students.
   12 recorded.
10. Posters and presentations led by students in university or professional organization outlets.
    5 recorded.
11. Revenue-based initiatives.
    - Career Fair
    - Real Estate Graduate Certificate – Approved in Spring 2021
    - Summer Courses (Safety, Internship, Real Estate Finance)
12. Students enrolled in RBI and Linked degree programs.
    - RBI:
      - Summer 2021 Enrollments: 37
        - Safety Course: 23
        - Internship Course: 7
        - Real Estate Finance and Economics Course: 7
    - Linked Degree:
      - 2020-2021: 2
13. Scholarships awarded to students.
    - Total: $64,500 ***Program scholarships*** to 26 current students and 13 prospective students (undergraduate and graduate combined).
    - Undergraduate Students: $44K to 17 current students that ranged between $4,500 - $1,000 (i.e., average of $2,588) and $4,494 ($642 each) to seven prospective students.
    - Linked Degree (BS+MS) Students: Both graduate and undergraduate scholarships were available to 4+1 students – resulting into awards as high as $7K in total to a single student.
14. New and revised infrastructure, technology, and curriculum materials for the Program and the School.
    - BIM lab under development.
    - VDI in use
    - New computer labs for collaborative work is under development.
    - School signage updated.
    - Curriculum Changes this year:
      - Program Upper level Admit criteria and description revised
      - Course revisions – relating to prerequisites and other
        - CMP 222
        - CMP 230
        - CMP 245
        - CMP 305
        - CMP 315
        - CMP 401
        - CMP 435
        - CMP 436