Michigan State University
Construction Management Undergraduate Program
Public Disclosures (ACCE Standard Section 8.1.5)
2021 – 2022

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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 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 8/4/2022 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)* 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	Professional letter assignment	75%	Graduating Seniors Survey	3.5 on 5-point Likert
SLO-2	CMP 435/436	Individual Presentations	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:

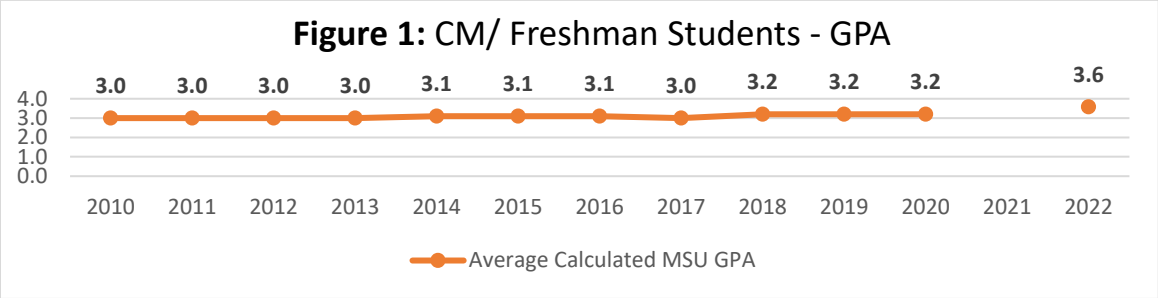
1. SIRS
2. Curriculum Assessments
3. Senior Exit Survey
4. Destination Survey
5. Career Fair Stats and Surveys
6. Student Feedback via Focus Group Interviews
7. Periodic IAB Reports
8. Record Books
9. Admission Statistics
10. Annual Reports

For the public's immediate interest, this section reports on **admission statistics**.

The program shows an upward trend in quality and quantity of student admits (Table 3 and Figure 1) (i.e., CM is the third program in CANR with the largest number of new student gains in 2022).

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

Fall	TOTAL	Fall	TOTAL
2010	16	*2017*	24
2011	12	*2018*	28
2012	6	*2019*	29
2013	8	*2020*	32
2014	12	*2021*	45
2015	21	*2022*	60
2016	20		



- 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.

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 – 3.47 / 56 above 3.0)
    - Average MSU GPA: 3.50 (Range: 4.0 – 3.1)
- Spring 2022:
  - 29 new applications / 28 qualified / 96% admission rate.
    - Average CMP GPA: 3.63 (Range: 4.00 – 3.13)
    - Average MSU GPA: 3.64 (Range: 4.00 – 3.18)
  - Due to curriculum changes, this was an out-of-ordinary year with low number of qualified students for application.
  - Invited 16 qualified but not admitted students from Spring 2021 (i.e., due to seat limits).
  - 32 total admits.

- 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 5-6 students in recent years). At junior level, 2021 female admits are 5 students (12.8%) out of 40.

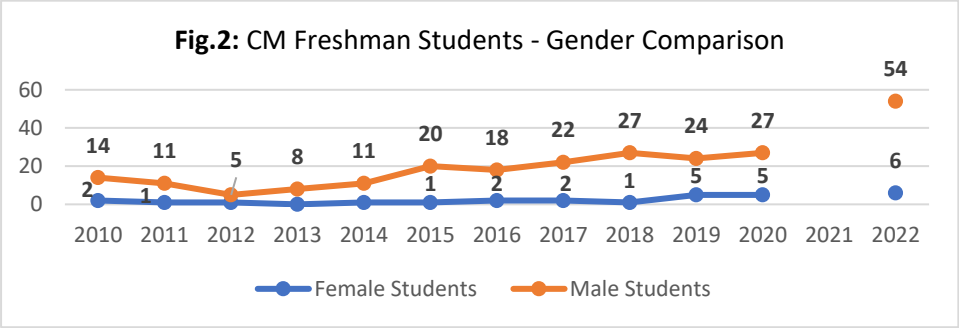
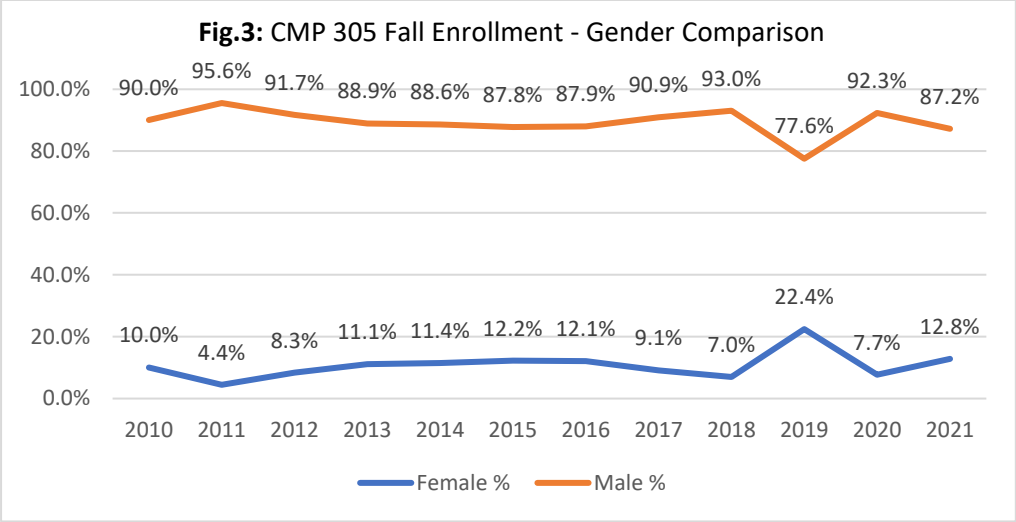


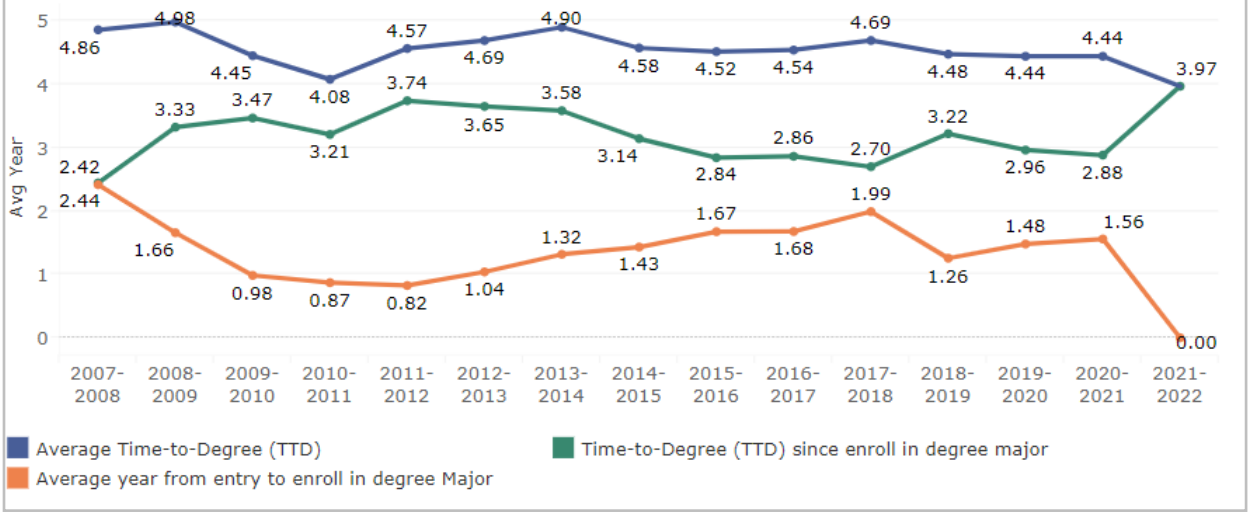
Fig.2: CM Freshman Students - Gender Comparison

Fig.3: CMP 305 Fall Enrollment - Gender Comparison



2. Retention rate: 100% for Fall 2016 cohort (retrieved on 1.2.2019). 83.3% (10 out of 12 graduating based on a four-year report updated on 12.27.2021). The university system to retrieve this data is under construction currently (Summer 2022). The data will be updated as it becomes fully available.
3. Average time to degree (2021-2022): 3.97 years (Figure 4).

Fig.4: First-Time Undergraduate Time-to-Degree by Graduating Cohorts



4. Student/ Faculty Ratio calculated through dividing the number of seniors at 400 level courses by the number of full-time faculty (2021-2022): 5 (i.e., trends in the last four years: 6.6, 5.7, 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*. Direct assessments showed good progress in 2021-2022 AY. Figure 5 shows SLO direct assessment evaluations in the last five years.

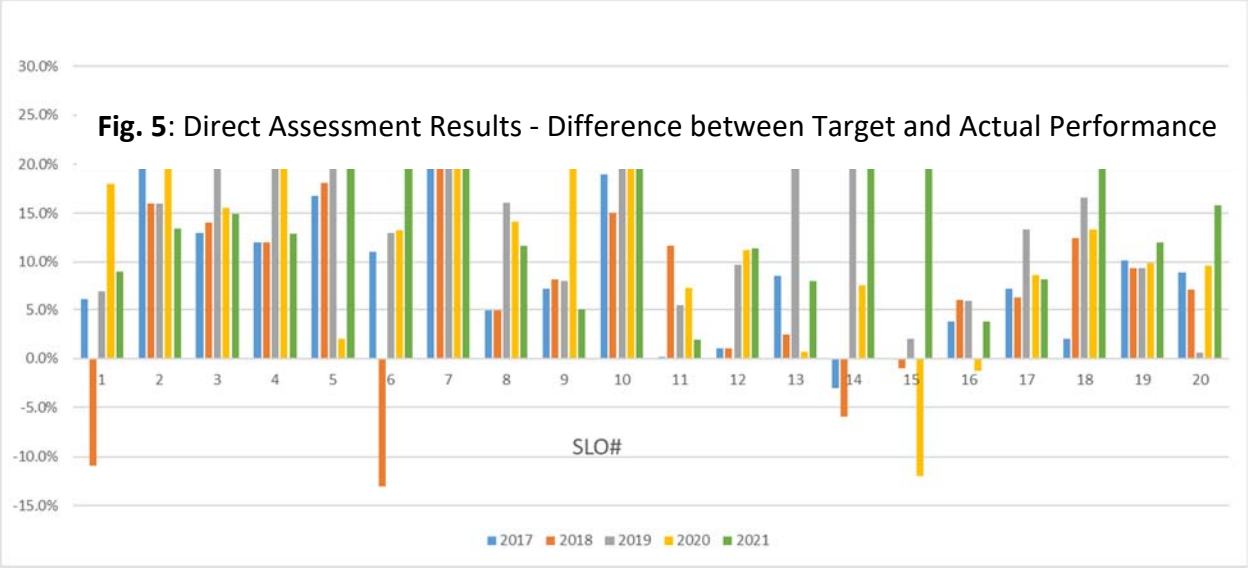


Fig. 5: Direct Assessment Results - Difference between Target and Actual Performance

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

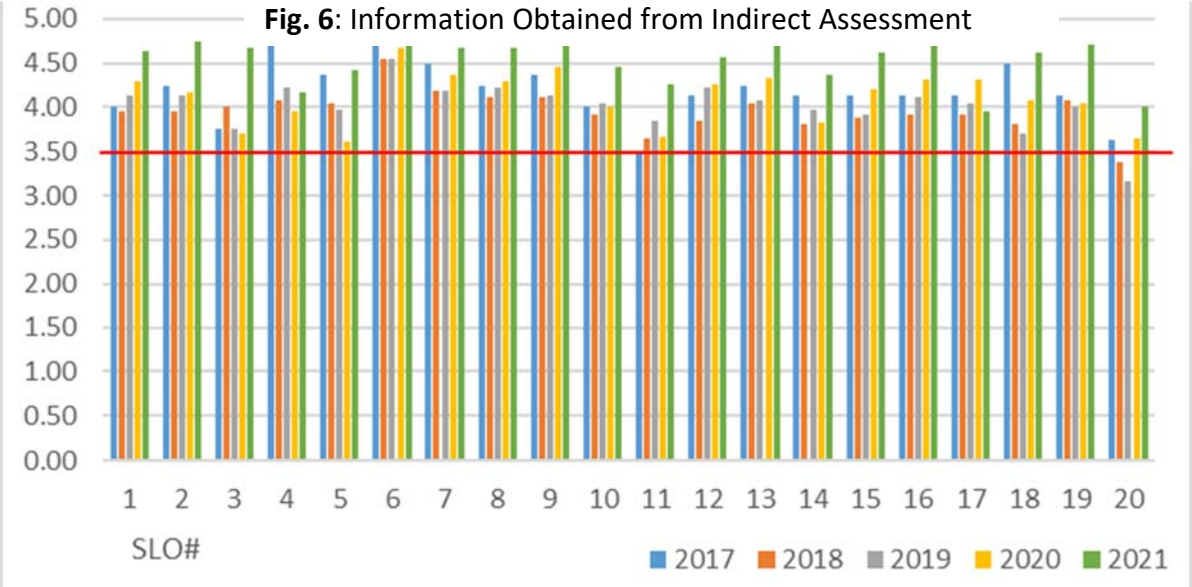


Fig. 6: Information Obtained from Indirect Assessment

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.

As a part of the Program Continuous Improvement Plan, the CM faculty met on December 22nd, 2021, and May 12th, 2022 for SLO reviews. All SLOs were reviewed and showed satisfactory assessment results. Specific actions and/or notes (if applicable) as a result of these meetings are listed below along with responsible parties. A strategic planning meeting is scheduled for December 21st, 2022.

SLO specific notes:

- SLO 01: The assessment tool to be changed to reflect the performance target to be 75% of the student reaches 75% of the grade.
- SLO 02: New assessment tool has been developed per ACCE visiting team comments. Moving forward, the assessment tool will stay as an individual presentation while the assignment might change and in both courses the syllabus will reflect the assignment percentage as a part of the grade.
- SLO 05: Coordinate between Estimating and Scheduling to one common project.
- SLO 06: The assessment tool has been changed from a quiz to an assignment. Assessment tool and rubric are acceptable.
- SLO 08: The assessment tool instrument's interface was reported to be a little bit clunky. Allocations to be made to fix the macro and the interface.

- SLO 09: (a) Raise target performance to 75% in the assessment plan. (b) Upload all components of the student work that went into the teamwork.
- SLO 10: Watch if the non-submission continues to be a trend in the future for many of the assignments.
- SLO 14: The new assessment tool and rubric are acceptable.
- SLO 15: This was the first time to use this class for the assessment. It was found to be acceptable.

General Action List:

- If there are any changes in the syllabi, upload on one drive. *(All faculty)*
- Update industry advisors in the assessment plan each year. *(All faculty)*
- Curriculum committee to make the materials available to IAB. *(Faculty representative)*
- Reach out to the SLO support industry representatives at the beginning of the semester and update the SLO card with their names (if changed). *(All faculty)*
- Continue to align SLO direct and indirect assessments for the same cohort in SLO reporting. *(PD & SLO Lead Faculty)*
- The non-submission is to be left blank instead of zero and taken out of calculations with a note of no submission (grades are to be normalized if there are multiple submissions for the assessment) – leave it out of the average in calculating performance results of direct assessments. *(All faculty)*
- Moving to one meeting cycle, next SLO review meeting is scheduled on May 11, 2023 between 12:30-4:00 PM.

G. Enrollment by Numbers and Student Achievements

In Fall 2021, the CM Program had a total of 181 undergraduate students enrolled. Total enrollment in Spring 2022 was 152. Around 15% of those students came from out of state. During this academic year, 32 students were admitted to the upper level and 38 seniors graduated.

Select Undergraduate Student Achievements:

- Lia Mastroianni received NAHB Student Chapter Outstanding Student Award.
- Sam Bourgeois & Tim McAuliffe received AGC of MI Educational Endowment Fund Scholarships.
- Christy Sopocy and Lia Mastroianni presented “Meet the Future” at the national PWB Headquarters during International Builders Show (IBS) 2022.
- CM students of the year: Mackenzie Merritt and Aaron Stern-Raskin.
- 2021-2022 CM Program Ambassadors: Lia Mastroianni, Sam Bourgeois, and Hannah Garthy.
- Graduated members of Sigma Lambda Chi: Joel Schultz, Evan Ward, Garrett Lee Henning, Kyle Monroe Iverson, and Mackenzie Carla Merritt.

Student Organizations:
According to the program's exit survey (n=24), 37.5% of the students were active in student organizations (i.e., officer, member, active participant). Student Builders and Contractors Association (SBCA) and Professional Women Builders (PWB) collaborated and facilitated an exemplary level of engagement. Below is a list of select activities by our student organizations:

- Career Diversity Panel (SBCA) - Fall22.
- AIA Construction Equipment Corp site visit (SBCA & PWB) - Fall22.
- Munn Ice Arena site visit at MSU with Barton Malow (SBCA) - Fall22.
- Career fair readiness with Sachse Construction in Detroit, MI (PWB+SCBA) - Fall22.
- PWB volunteered at the 2021 Impression 5 Design-Build (Fall22) & held a two-part STEM career exploration event with Lansing Girls Scouts – Spring22.
- Granger Construction held a Pull Planning workshop (PWB) - Fall22.
- Ryan Homes discussed production home building process (PWB & SBCA) – Spring22.
- PWB members presented at National PWB Headquarters during IBS 2022.
- SBCA students and Professor Harry Shah went to Chicago for project site visits – Spring22.
- Hensel Phelps discussed emerging technologies and contracting methods (SBCA & PWB) – Spring22.
- Drone Brothers discussed the impact of drone technology on the industry (Virtual) – Spring22.
- Granger Construction shared best practices for marketing, bids, and proposals (Virtual) – Spr22.
- PWB celebrated Women in Construction Week through virtual engagements– Spring22.
- Contributed to the Program's Youtube Channel.

Internships and Student Enrichment: According to the destination survey of graduating senior students is administered by the CANR and senior exit survey administered by annually by the CM program, all students participated in paid employment in the construction industry before graduation.

H. Other Highlights

Faculty

- Dr. Zhao promotion to tenure and associate professor in Summer 2021.
- New teaching specialist hire: Harshal Shah started in Fall 2021.
- Dr. Yeganeh will join the faculty as a tenure track Assistant Professor in Fall 2022.

Faculty Awards, Recognitions, Leadership

- Mr. Aydukovic elected to the City of East Lansing Downtown Development Authority Board of Directors, At-Large Member, 2021-Present
- Dr. Berghorn: Adams Academy Fellow (Michigan State University) 2019-2021 and Coach, Top-Three in NAHB Student Competition Team 2021
- Dr. Mollaoglu: CANR's 2021 You Belong Here Awardee; One of CANR representatives at MSU's Faculty Senate, 2021- Present; Associate Editor in Engineering Project Organizations Journal, 2021- Present; and AgBio Research Administrative Fellow, MSU CANR, 2022-2023.
- Dr. Zhao: NSF CAREER AWARD Recipient-2021: Intelligent Energy Retrofit Decisions for Large-scale Residential Buildings; ExCEEd Teaching Awardee, American Society of Civil Engineers (ASCE), 2021 and Outstanding Reviewer recognitions by ASCE Journal of Construction Engineering and Management and Journal of Civil Engineering Education.
- Led by Drs. Syal, Mollaoglu, Zhao, and Berghorn Strong, strong scholarship and engagement locally, nationally, and internationally with professional and larger communities in intelligent technologies and energy efficiency, team science in AEC project teams and education, integrative project delivery, sustainability, mass timber, and domicology.

Grants:

- New grants (External): $693,641
  - Intelligent privacy-preserving occupant energy use modeling for communities, National Science Foundation (NSF), $458,520, 2022-2025, Dong Zhao and Noah Durst.
  - Enhancing Design and Construction Technology Education Through the Context of Mass Timber – NSF. $648,121, 2022-2025. George Berghorn, Linda Nubani, and Chad Richert.
- New Grant – Internal:
  - Strengthening Mass Timber Scholarship at MSU. George Berghorn, Kristen Cetin, Mojgan Nejad, and Sandra Lupien. MSU Office of Research and Innovation. $378,000, 2022-2024.
- On-Going Grants (External): $5,480,818

Alumni & IAB:

- Mohsen Goordarzi (graduating from our doctoral program) accepted a tenure track assistant professor position at Ball State University – Fall 2021 start.
- CM Alum Ron Boji donated $5 million to Henry Ford Health and MSU Partnership.
- Mike VanGessel, CM alum, received the Businessperson of the Year Award by the Economic Club of Grand Rapids.

I. Rate and Types of Employment of Graduates

According to the destination survey, all 31 respondents were employed full-time and two reported 'seeking continuing education.' Average starting salary was $66,763 (i.e., $47,500-$114,000). Majority of the students were employed in MI (Figure 7). Our graduates have been hired by commercial, residential, civil, institutional, and industrial sectors of the industry with commercial sector being dominant recently.

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

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 future leaders.

CM Career Fair has been well attended, with 57 companies attending last year. Employer to graduating CM senior rate has been consistently at around 1.5 (i.e., 1.6 in Fall 2021). Below are select testimonials from recent 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.