



ANNUAL PROGRAM REPORT

College	Science
Department	Engineering
Program	B.S. Construction Management
Reporting for Academic Year	2020-2021
Last 5-Year Review	2017-2018
Next 5-Year Review	2022-2023
Department Chair	Saeid Motavalli
Date Submitted	10/8/2021

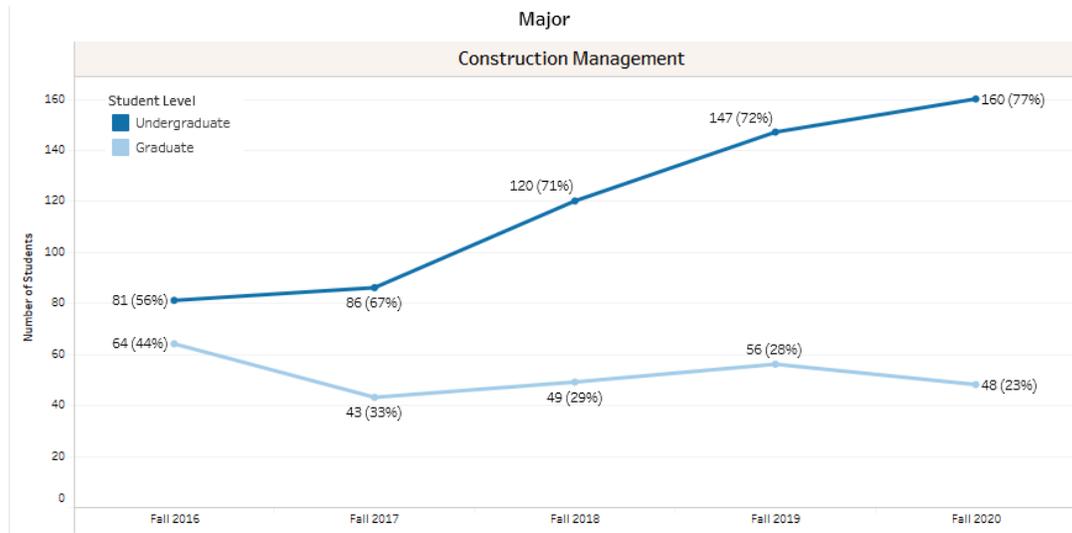
SELF-STUDY (suggested length of 1-3 pages)

A. Five-Year Review Planning Goals

1. Along with the rest of the university, we transitioned to online teaching, starting March of 2020. This has been a major undertaking as industry-based projects, site visits and laboratory courses had to be modified or eliminated. The faculty have worked hard to substitute these activities with computer simulation, virtual tours and other active learning practices. We just completed the Accreditation Board of Engineering and Technology (**ABET**) visit in September 2021.
2. Faculty: We have hired one faculty (Bita Astaneh) and lost two.
3. Research: The Construction Management faculty are active in research and are being successful in securing funds for their research. The construction management faculty actively pursue funding opportunities, specifically in areas related to the advancement of construction/engineering education. STEM camp for high school students from Contra Costa County (Funded by industry for the 8th consecutive year in summer 2021). They are also involved in several other STEM education grants.

4. Equipment: Through A2E2 annual funding and the normal refresh cycle of computers by IT and the support from College of Science, we have been able to maintain and upkeep the Construction Management laboratories.

5. Enrollment: Student enrollment in Construction Management program has significantly increased since its inception in Winter of 2009 from 6 students to 160 students in the Fall of 2020.



6. Excess credits: n/a.

B. Progress Towards Five-Year Review Planning Goals

1. Successfully transformed the curriculum to a semester-based program.

2. We have successfully completed the Accreditation Board of Engineering and Technology (ABET) visit in September 2021.

2. We have lost two tenure track faculty during this period and have hired a new tenure track faculty. With the increasing enrollment we need one additional faculty.

3. The remodeling of materials lab SSC 247 has been completed and it is used as lab/active learning classroom as well as the Surveying lab. In addition (VBT 217), for the past three years, space for an advanced technology laboratory/center in construction has been secured, new faculty in the field of technology hired and equipment acquired to develop a state-of-the-art facility to serve students, faculty research and collaboration with the industry. We have retrofitted the lab for online instruction in the spring of 2020. We intend to use this space to train our students in the field of construction management/technology as well as conduct research with graduate students and collaborate with the industry.

4. Enrollment in Construction Management has increased substantially over the ten years since its inception and seems to be continuing to grow in the past two years. Our student population is diverse, 56% of our students are URM, 73% are 1st generation, and 33 % are low income. Our student demographics is 56% Latinx, 9% Asian, 2% Black, and 16% White. There are 17% female and 83 % male students. As can be seen, our student population is very diverse.

C. Program Changes and Needs

Report on changes and emerging needs not already discussed above. Include any changes related to SB1440, significant events that have occurred or are imminent, program demand projections, notable changes in resources, retirement/new hires, curricular changes, honors received, etc., and their implications for attaining program goals. Organize your discussion using the following subheadings.

Overview: The Construction Management program started in the year of 2010 and has been steadily growing with the enrollment increasing in the past two years.

Curriculum: The transformed curriculum is designed to include more active learning practices and includes courses and material that are in line with the employment trends for construction managers. We have successfully completed the ABET visit, the official results will be known in July 2022. We successfully returned to campus, all our undergraduate classes are on campus.

Students: Demand for construction management graduates is very strong. The majority of our graduates are employed in construction management positions mainly in the Bay Area.

Faculty: Since 2009, we have hired four faculty members. In 2009, Dr. Farzad Shahbodaghlu joined the School of Engineering in the capacity of Director of Construction Management Program. In 2012 Dr. Cristian Gaedicke joined the program followed by Drs. Akhavian in 2015 and Castronovo in 2016. Drs. Akhavian and Castronovo left for other opportunities, we hired Dr. Bita Astaneh. Drs. Shahbodaghlu and Gaedicke are tenured and Dr. Astaneh is a tenure-track faculty.

Staff: We have one full time staff advisor for the School of Engineering, Mrs. Lisa Holmstrom and a laboratory technician, Mr. Linh Nguyen. In addition, we have a part-time assistant for the office of the School of Engineering. Mrs. Holmstrom is currently on medical leave.

Resources: Room SCS 247, Materials Testing Laboratory, has been remodeled to a lab-lecture room with a capacity of 36. Flexible furniture suitable for active learning practices have been installed.

Assessment: An extensive assessment process has been successfully completed for the Construction Management program. Sample results are provided in the following section.

SUMMARY OF ASSESSMENT (suggested length of 1-2 pages)

Program Learning Outcomes (PLO)

Students graduating with a B.S. in Construction Management will be able to:	
<i>PLO a</i> <i>ILO 6</i>	Have knowledge in the core construction management areas (construction materials and methods, safety, codes, scheduling, commissioning, planning and control, project management, construction law, cost accounting, human resources management, environmental and safety issues in construction).
<i>PLO b</i> <i>ILO 1,6</i>	Have knowledge in broad areas of construction management beyond the core areas.
<i>PLO c</i> <i>ILO 2</i>	Ability to communicate effectively.
<i>PLO d</i> <i>ILO 3,4</i>	Ability to function in teams.
<i>PLO e</i> <i>ILO 5,6</i>	Have the knowledge of sustainable building and construction techniques and relevant state regulations.
<i>PLO f</i> <i>ILO 4,5</i>	Have an awareness of the complex environment (involving professional and ethical responsibilities) in which they will practice their profession.
<i>PLO g</i> <i>ILO 1,6</i>	Ability to educate themselves and be prepared for lifelong learning and professional development.
<i>PLO h</i> <i>ILO 1,6</i>	Have experience in solving real life problems.

We have assessed the following PLOs for the Construction Management program during the 2020-21 Academic Year:

The following SLOs for the **Construction Management Bachelor Program** were assessed during the 2019-20 Academic Year:

Year 2: 2020-2021	
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1. Which PLO(s) to assess	PLO h - Have experience in solving real life problems. (ILO 1,6)
2. Is it aligned to an ILO	Yes, ILO 1,6
3. Sample (courses/# of students)	h-CMGT 440; Construction Project Management;
4.SIO from the course	Determine accurate costs and schedules for maintaining projects within budget and time constraints. Identify project delivery methods and associated risks. Analyze contractual information and bidding and procurement processes.
5.Assessment indicators	h-Project and exams;
6.Assessment instrument	Program rubric
7.Time (which semester(s))	h-Fall 2020;
8.Responsible person(s)	h-Prof Castronovo;
9.Ways of reporting (how, to who)	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

Assessment of SLO:

CMGT 440 – Construction Project Management. The outcome was assessed through a semester project, in which students needed to work in a group and prepare a presentation. The objective of this project is for the students to practice initial steps required to start a business in construction. This assignment made the students think about and research the steps they should take towards this goal and explore different options available. This project had two major components. In the first part, students developed a comprehensive plan to start their construction and project management company. In the second part, they developed a simple but real pre-qualification process of CM/GC companies. We consider this outcome met when at least 70% of students achieve above a score of 80%. As shown in Figure 4.3, the outcome was met, with 89% of students (Fall 2019 and Fall 2020) achieving a score above 80% in the project.

In addition, the instructor structured the course to maximize students' engagement through rapid and frequent assessments. The faculty engages the students to participate in weekly class activities, collaborative quizzes, and learning computer software. For example, the faculty incorporated selected building information modeling (BIM) packages. The faculty introduced to students the process of managing projects with the use of Procore, developing 4D simulations with Navisworks, and developing schedules with Primavera 6 and Microsoft Project.

Based on the Outcome 2 assessment as seen in CMGT 440, the instructor suggests additional scaffolding and breaking up of the project in smaller submissions to support continuous improvement assessment.

Assessment Plans for Next Year

Summarize your assessment plans for the next year, including the PLO(s) you plan to assess, any revisions to the program assessment plan presented in your last five-year plan self-study, and any other relevant information.

We will assess the following PLO's in this academic year.

Year 3: 2021-2022	
1. Which PLO(s) to assess	PLO d - Ability to function in teams. (ILO 3,4)
2. Is it aligned with ILO	Yes, ILO 3,4
3. Course name and number	CMGT 430; Environmental Issues and Green Building
4. SLO form the course	Students will evaluate the sustainability of a new or existing construction (Life Cycle Analysis, LCA)4. Students will describe indoor environmental quality issues and problems, including Sick Building Syndrome (SBS).
5. Assessment indicators	d-Team Project
6. Assessment Instrument	Program rubric
7. Time (which semester(s))	d-Spring 2022
8. Responsible person(s)	d-Prof. Gaedicke
9. Ways of reporting (how, to who)	The results (quantitative and qualitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. Ways of closing the loop	Interaction between chair, faculty and industry advisory board

DISCUSSION OF PROGRAM DATA & RESOURCE REQUESTS

Each program should provide a one-page discussion of the program data available through CAPR. This discussion should include an analysis of trends and areas of concern. Programs should also include in this discussion requests for additional resources including space and tenure-track hires. Resource requests must be supported by reference to CAPR data only. Requests for tenure-track hires should indicate the area and rank that the program is requesting to hire. If a program is not requesting resources in that year, indicate that no resources are requested.

Discussion of Trends & Reflections

Notable Trends:

Summarize and discuss any notable trends occurring in your program over the past 3-5 years based on program statistics (1-2 paragraphs). You may include 1-2 pages of supplemental information as appendices to this report (e.g., graphs and tables).

- Recruiting and employment
- Enrollment
- resources

Reflections on Trends and Program Statistics:

Provide your reflections on the trends discussed above and statistics and supplemental information presented in this report.

Request for Resources:

A2E2 provides sufficient funding for laboratory maintenance.

Request for Tenure-Track Hires:

We have hired a tenure-track faculty member to replace Reza Akhavian. We need an additional tenure track line to replace Fadi Castronovo

Request for Other Resources

N/A

DISCUSSION OF PROGRAM DATA & RESOURCE REQUESTS

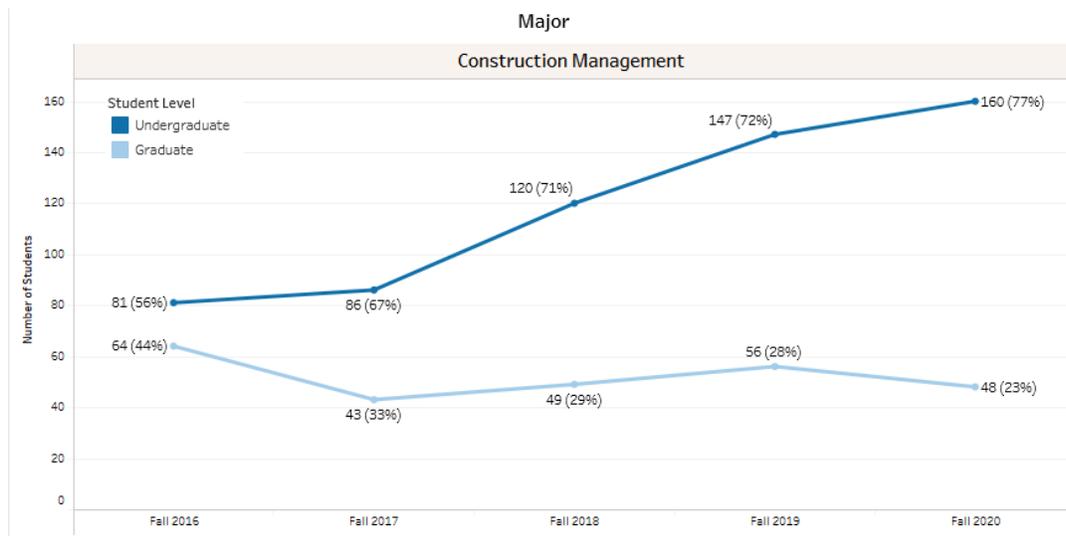
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Discussion of Trends & Reflections

According to data from CSUEB data warehouse the BS in construction management is growing steadily. Such that the number of first time freshmen for this year is at 40.

Student Headcount by Program:

		Construction Management: Sex									
		Fall 2016		Fall 2017		Fall 2018		Fall 2019		Fall 2020	
		n	%	n	%	n	%	n	%	n	%
Undergraduate	Female	11	14%	12	14%	17	14%	21	14%	27	17%
	Male	70	86%	74	86%	103	86%	126	86%	133	83%
	Total	81	100%	86	100%	120	100%	147	100%	160	100%
Grand Total		81	100%	86	100%	120	100%	147	100%	160	100%



According to the data above, program enrollments is steadily increasing. The CSUEB Construction Management Program is the only program of its kind in the Bay Area. The closest undergraduate program is at Sacramento State University and there are no similar Master’s program in Northern California.

Notable Trends:

Summarize and discuss any notable trends occurring in your program over the past 3-5 years based on program statistics (1-2 paragraphs). You may include 1-2 pages of supplemental information as appendices to this report (e.g., graphs and tables).

1. We have successfully completed a visit by ABET.
2. We have offered an exclusive bi-annual Career Day/Job fair for CMGT students starting in 2012. The first event was attended by 1 construction company and 14 students and since it has grown to 35 companies and between 75 -80 students participating.

Reflections on Trends and Program Statistics:

Provide your reflections on the trends discussed above and statistics and supplemental information presented in this report.

We anticipate that this program will be growing given the level of interest and our outreach efforts to community colleges.

Request for Resources (suggested length of 1 page)

Upkeep of the laboratory software and hardware, access to large computer lab/classes for some of the courses. The calibration of our lab equipment is not current. We anticipate that calibrating the equipment will cost approximately \$10 - \$15k.

Request for Tenure-Track Hires:

We are requesting one tenure-track position for the CMGT Program at this time.

Request for Other Resources