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ANNUAL PROGRAM REPORT

College	Science
Department	Engineering
Program	B.S. Construction Management
Reporting for Academic Year	2019-2020
Last 5-Year Review	2017-2018
Next 5-Year Review	2022-2023
Department Chair	Saeid Motavalli
Date Submitted	10/1/2020

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. Currently we are preparing a readiness self-study for program accreditation.
2. Faculty: One faculty (Reza Akhavian) is on Leave for the second year in 20-21. He is a tenure-track faculty at San Diego State University. It is unlikely that he would return. Therefore, we anticipate hiring an additional faculty next year.
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 7<sup>th</sup> 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 increased steadily since its inception in Winter of 2009 from 6 students at the graduate level to a combined over 210 students at undergraduate and graduate levels in the Fall of 2020.
6. Excess credits: The program required 180 credit hours under the quarter system to complete. We have managed to transform the program from quarter to semester requiring 120 credit hours as well. We have kept the program requirements at the minimum level required for accreditation.

## B. Progress Towards Five-Year Review Planning Goals

1. Successfully transformed the curriculum to a semester-based program.
2. We have one faculty on leave for the second year and is unlikely that he will return. We are requesting an additional tenure-track position.
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.

## 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. Since 2009, we have hired four faculty members for this program.

**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.

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 Shahbodaghlou 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. Dr. Akhavian is on leave for the second year. He is unlikely to return. Drs. Shahbodaghlou and Gaedicke are tenured and Drs. Akhavian and Castronovo are 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.

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 is in place 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)

1. 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),
2. Have knowledge in broad areas of construction management beyond the core areas,
3. Communicate effectively,
4. Function in teams,
5. Have the knowledge of sustainable building and construction techniques and relevant state regulations,
6. Have an awareness of the complex environment (involving professional and ethical responsibilities) in which they will practice their profession,
7. Educate themselves and be prepared for lifelong learning and professional development, and
8. Have experience in solving real life problems.

*practice. ILO to PLO mapping is shown below:*

ILO	THINK CRITICALLY AND CREATIVELY AND APPLY ANALYTICAL AND QUANTITATIVE REASONING TO ADDRESS COMPLEX CHALLENGES AND EVERYDAY PROBLEMS	COMMUNICATE IDEAS, PERSPECTIVES, AND VALUES CLEARLY AND PERSUASIVELY WHILE LISTENING OPENLY TO OTHERS	APPLY KNOWLEDGE OF DIVERSITY AND MULTICULTURAL COMPETENCIES TO PROMOTE EQUITY AND SOCIAL JUSTICE IN OUR COMMUNITIES	WORK COLLABORATIVELY AND RESPECTFULLY AS MEMBERS AND LEADERS OF DIVERSE TEAMS AND COMMUNITIES	ACT RESPONSIBLY AND SUSTAINABLY AT LOCAL, NATIONAL, AND GLOBAL LEVELS	DEMONSTRATE EXPERTISE AND INTEGRATION OF IDEAS, METHODS, THEORY AND PRACTICE IN A SPECIALIZED DISCIPLINE OF STUDY
B.S. PLO	6,7	3	6	4	5	1,2,8

**Program Learning Outcome(S) Assessed**

*List the PLO(s) assessed. Provide a brief background on your program's history of assessing the PLO(s) (e.g., annually, first time, part of other assessments, etc.)*

*We have assessed the following PLOs for the Construction Management program during the 2018-19 Academic Year:*

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

Year 1: 2019-2020	
1. Which PLO(s) to assess	PLO b - Have knowledge in broad areas of construction management beyond the core areas. (ILO 1,6)
2. Is it aligned to an ILO?	Yes, ILO 1,6
3. Sample (courses/# of students)	b-CMGT 101 Introduction to Construction Management
4. SLO from course	1. Identify various sectors of the construction industry, and the stakeholders, processes, and documentation involved in completing a construction project. 2. Master the terminology of the construction industry and be conversant with the definitions applied by the industry to the practice of design and construction. 3. Have an understanding of the career opportunities in construction and construction-related industries. 4. Identify construction associations, trade publications and web resources and recognize and appreciate the importance of ethical practice in the industry.
5. Assessment indicators	b-Final Exam

6. <i>Assessment Instrument</i>	Program rubric
7. <i>Time (which semester(s))</i>	b-Fall 2019;
8. <i>Responsible person(s)</i>	b-Prof. Shahbodaghlu
9. <i>Ways of reporting (how, to who)</i>	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. <i>Ways of closing the loop</i>	Interaction between chair, faculty and industry advisory board

### Assessment of SLO:

The Construction Management Jump Start, 2nd edition, by Barbara Jackson is the textbook used in this course. The book gives a comprehensive overview of the construction project management from pre-design through commissioning. We use the original slides for the book to give a comprehensive review of construction project management from pre-design through commissioning. The end of the chapter Review Questions and Terms were also assigned for each chapter to review the content. The student performance in the final exam was as follows:

Grade	# of students
90-100	(5)
80-90	(12)
70-80	(16)
<70	(18)

Considering our threshold for considering an outcome achieve is 70, 65% of students have achieved this outcome. The instructor proposes to administer intermittent quizzes to encourage students to read the provided text and material.

### 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 2: 2020-2021	
1. <i>Which PLO(s) to assess</i>	PLO h - Have experience in solving real life problems. (ILO 1,6)
2. <i>Is it aligned to an ILO</i>	Yes, ILO 1,6
3. <i>Sample (courses/# of students)</i>	h-CMGT 440; Construction Project Management;
4. <i>SIO from the course</i>	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. <i>Assessment indicators</i>	h-Project and exams;
6. <i>Assessment instrument</i>	Program rubric
7. <i>Time (which semester(s))</i>	h-Fall 2020;
8. <i>Responsible person(s)</i>	h-Prof Castronovo;
9. <i>Ways of reporting (how, to who)</i>	The results (quantitative) will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
10. <i>Ways of closing the loop</i>	Interaction between chair, faculty and industrial 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 are requesting to hire a tenure-track faculty member to replace Reza Akhavian.

## Request for Other Resources

N/A

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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 2015		Fall 2016		Fall 2017		Fall 2018		Fall 2019	
	n	%	n	%	n	%	n	%	n	%
Undergraduate Female	10	13%	11	14%	12	14%	17	14%	21	14%
Male	70	88%	70	86%	74	86%	103	86%	126	86%
Total	80	100%	81	100%	86	100%	120	100%	147	100%
Grand Total	80	100%	81	100%	86	100%	120	100%	147	100%

According to the data above, program enrollments is steadily increasing. The CSUEB The 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. We are requesting a tenure-track faculty to replace Reza Akhavian.

#### *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 are currently preparing a readiness review for accreditation.
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.

*Request for Tenure-Track Hires:*

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

*Request for Other Resources*