



**COMMITTEE ON ACADEMIC PLANNING AND REVIEW
ANNUAL PROGRAM REPORT**

| | |
|-----------------------------|----------------------------------|
| College | CoS |
| Department | Engineering |
| Program Unit | Construction Management Master's |
| Reporting for Academic Year | 2015-2016 |
| Department Chair | Saeid Motavalli |
| Date Submitted | 10/8/2016 |

1. SELF-STUDY (about 1 page)

A. Five-year Review Planning Goals

The School of Engineering offers a graduate degree program in Construction Management. The The Construction Management program started at the graduate level in Winter 2009, and the undergraduate degree program was initiated in Fall 2010. This is the fourth CAPR report for the Construction Management program.

The University has approved our request to add an undergraduate Civil Engineering Degree program to the master plan. The graduates of this new program will be ideal candidates for entering into the graduate Construction Management program. We are planning to extend our teaching and research capabilities to the area of high technology application in construction such as Virtual Design, Modelling in Construction.

B. Five-year Review Planning Goals Progress

The Department achieved the objective of hiring Dr. Fadi Castronovo, who became our fourth TT Faculty for 2016-2017. Dr. Castronovo has extensive experience in virtual reality applied to construction processes. We are developing a virtual reality and building information modelling lab, which will be used in teaching and research, and also on projects in collaboration with the local industry.

C. Program Changes and Needs

We plan to continue to grow the program and embed high technology and sustainability into our courses.

2. SUMMARY OF ASSESSMENT (about 1 page)

A. Program Student Learning Outcomes

A yearly schedule for assessment of program LOs has been generated. The PLOs have remained unchanged to match our students and industry needs. The outcomes are:

1. Apply critical thinking and creativity to Construction Management problems
2. Evaluate problems and develop effective problem solving and decision making
3. Demonstrate the ability to effectively communicate orally and in writing
4. Apply information and communication technology
5. Understand the principles of leadership in business and management
6. Analyze current issues in construction
7. Evaluate projects and implement complex project decision making and associated risk management
8. Apply professional ethics including application to situations and choices
9. Evaluate advanced construction management practices
10. Apply Research Methods to solve complex construction problems.

B. Program Student Learning Outcome(s) Assessed

The assessed outcome was 7. Based on outcome 7 students will “Evaluate projects and implement complex project decision making and associated risk management”

Tha-Midterm exam question; e- Final exam performance

a-CMGT 6700

a-Spring 2016

a-Prof. Gaedicke

C. Summary of Assessment Process

Outcome 7 was assessed using the final course project in Spring 2016. The purpose of this project was to use analytical methods for complex project decision making and associated risk management. The emphasis of this project focused mainly on your ability to properly describe, document, characterize and evaluate risks in a project.

As part of the project students did:

1. Identify a project under construction.
2. Obtain the base cost for the project.
3. Identify six risks for the given project (ideally discuss the risks with the project manager).
4. Quantify the probability and impact for each of the identified risks
5. Run the Risk Assessment spreadsheet (given on blackboard) to evaluate the
6. impact of the two risks on the project. How did the risks affect the project cost and schedule?
7. Discuss methods to mitigate those risks (use the plots obtained from the spreadsheet)
8. Reevaluate your results using the Risk Assessment spreadsheet (given on blackboard)
9. Compare the outcomes of the pre-mitigated (step 5) and post-mitigated (step 8) risk analysis.
10. Obtain the selected project schedule and repeat steps from 1-8 to conduct time impact analysis.
11. Obtain the cost loaded version of the project schedule and repeat steps from 1-8 to conduct proper cost forecasting using stochastic analysis.
12. Conduct comparisons between simulations using different distribution types.

D. Summary of Assessment Results

Students that fulfilled the outcome had a total score of at least 80 out of 100 (80%). Based on this threshold, 35 out of 39 students (89.7%) achieved the outcome. We propose to change the deadlines for submission of the report, to give the students more time to improve their report based on the instructor's feedback.

3. STATISTICAL DATA (about 1 page)

Planning and Institutional Research produce program statistics annually in standard format. These statistics will be attached to the Annual Report of the Program Unit. This statistical document is expected to be approximately one page long and will contain the same data as required for the five-year review including student demographics of majors, student level of majors (e.g. Juniors, Seniors), faculty and academic allocation, and course data.

California State University, East Bay APR Summary Data, Fall 2010 - 2015

| Engineering | Fall Quarter | | | | |
|---|---------------|-------|-------|-------|-------|
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| A. Students Headcount | | | | | |
| 1. Undergraduate | 172 | 217 | 223 | 226 | 233 |
| 2. Postbaccalaureate | 1 | 0 | 0 | 0 | 0 |
| 3. Graduate | 97 | 70 | 86 | 150 | 161 |
| 4. Total Number of Majors | 270 | 287 | 309 | 376 | 394 |
| | College Years | | | | |
| | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 |
| 1. Undergraduate | 11 | 12 | 19 | 24 | 38 |
| 2. Graduate | 18 | 30 | 32 | 32 | 34 |
| 3. Total | 29 | 42 | 51 | 56 | 72 |
| | Fall Quarter | | | | |
| | 2011 | 2012 | 2013 | 2014 | 2015 |
| C. Faculty | | | | | |
| Tenured/Track Headcount | | | | | |
| 1. Full-Time | 5 | 6 | 7 | 8 | 10 |
| 2. Part-Time | 0 | 0 | 0 | 0 | 0 |
| 3a. Total Tenure Track | 5 | 6 | 7 | 8 | 10 |
| 3b. % Tenure Track | 83.3% | 85.7% | 77.8% | 88.9% | 90.9% |
| Lecturer Headcount | | | | | |
| 4. Full-Time | 0 | 0 | 0 | 0 | 0 |
| 5. Part-Time | 1 | 1 | 2 | 1 | 1 |
| 6a. Total Non-Tenure Track | 1 | 1 | 2 | 1 | 1 |
| 6b. % Non-Tenure Track | 16.7% | 14.3% | 22.2% | 11.1% | 9.1% |
| 7. Grand Total All Faculty | 6 | 7 | 9 | 9 | 11 |
| Instructional FTE Faculty (FTEF) | | | | | |
| 8. Tenured/Track FTEF | 3.6 | 6.0 | 5.2 | 6.7 | 8.0 |
| 9. Lecturer FTEF | 0.4 | 0.5 | 0.6 | 0.4 | 0.8 |
| 10. Total Instructional FTEF | 4.1 | 6.5 | 5.8 | 7.1 | 8.8 |

| | Fall Quarter | | | | |
|---------------------------------------|----------------------|--------------|--------------|--------------|--------------|
| Headcount Enrollment | 2011 | 2012 | 2013 | 2014 | 2015 |
| <i>Computer Engineering</i> | | | | | |
| 1. Undergraduate | 0 | 19 | 58 | 102 | 129 |
| 2. Postbaccalaureate | 0 | 0 | 0 | 0 | 0 |
| 3. Graduate | 0 | 0 | 0 | 0 | 0 |
| 4. Total Number of Majors | 0 | 19 | 58 | 102 | 129 |
| <i>Engineering</i> | | | | | |
| 1. Undergraduate | 155 | 158 | 109 | 54 | 24 |
| 2. Postbaccalaureate | 1 | 0 | 0 | 0 | 0 |
| 3. Graduate | 0 | 0 | 0 | 0 | 0 |
| 4. Total Number of Majors | 156 | 158 | 109 | 54 | 24 |
| <i>Engineering Management</i> | | | | | |
| 1. Undergraduate | 0 | 0 | 0 | 0 | 0 |
| 2. Postbaccalaureate | 0 | 0 | 0 | 0 | 0 |
| 3. Graduate | 40 | 27 | 42 | 79 | 87 |
| 4. Total Number of Majors | 40 | 27 | 42 | 79 | 87 |
| <i>Construction Management</i> | | | | | |
| 1. Undergraduate | 17 | 40 | 56 | 70 | 80 |
| 2. Postbaccalaureate | 0 | 0 | 0 | 0 | 0 |
| 3. Graduate | 57 | 43 | 44 | 71 | 74 |
| 4. Total Number of Majors | 74 | 83 | 100 | 141 | 154 |
| | College Years | | | | |
| Degrees Awarded | 10-11 | 11-12 | 12-13 | 13-14 | 14-15 |
| <i>Engineering</i> | | | | | |
| 1. Undergraduate | 11 | 12 | 16 | 18 | 18 |
| 2. Graduate | 0 | 0 | 0 | 0 | 0 |
| 3. Total Number of Majors | 11 | 12 | 16 | 18 | 18 |
| <i>Engineering Management</i> | | | | | |
| 1. Undergraduate | 0 | 0 | 0 | 0 | 0 |
| 2. Graduate | 17 | 13 | 17 | 12 | 19 |
| 3. Total Number of Majors | 17 | 13 | 17 | 12 | 19 |
| <i>Computer Engineering</i> | | | | | |
| 1. Undergraduate | 0 | 0 | 1 | 1 | 7 |
| 2. Graduate | 0 | 0 | 0 | 0 | 0 |
| 3. Total Number of Majors | 0 | 0 | 1 | 1 | 7 |
| <i>Construction Management</i> | | | | | |
| 1. Undergraduate | 0 | 0 | 2 | 5 | 13 |
| 2. Graduate | 1 | 17 | 15 | 20 | 15 |
| 3. Total Number of Majors | 1 | 17 | 17 | 25 | 28 |

| | | | | | |
|---------------------------------------|---------------------------------------|-------|-------|-------|--------|
| D. Student Faculty Ratios | Engineering ENGR | | | | |
| 1. Tenured/Track | 23.7 | 14.1 | 17.3 | 18.5 | 22.8 |
| 2. Lecturer | 48.1 | 24.9 | 83.1 | 11.9 | 30.7 |
| 3. SFR By Level (All Faculty) | 25.2 | 14.6 | 18.9 | 18.3 | 23.3 |
| 4. Lower Division | 25.8 | 15.9 | 16.5 | 14.0 | 17.1 |
| 5. Upper Division | 27.4 | 16.9 | 17.7 | . | . |
| 6. Graduate | 20.4 | 10.5 | 25.9 | 22.5 | 29.2 |
| E. Section Size | | | | | |
| 1. Number of Sections Offered | 17.8 | 20.6 | 18.8 | 9.5 | 14.4 |
| 2. SCU taught | 1060.0 | 932.0 | 911.0 | 519.0 | 692.0 |
| 3. Average Section Size | 21.5 | 19.5 | 23.3 | 23.8 | 32.0 |
| 4. Average Section Size for LD | 33.3 | 27.0 | 23.8 | 26.0 | 27.3 |
| 5. Average Section Size for UD | 16.4 | 21.5 | 21.0 | 0.0 | 0.0 |
| 6. Average Section Size for GD | 22.0 | 9.3 | 30.0 | 20.0 | 46.0 |
| 7. LD Section taught by Tenured/Track | 3 | 4 | 5 | 5 | 8 |
| 8. UD Section taught by Tenured/Track | 11 | 10 | 12 | 0 | 0 |
| 9. GD Section taught by Tenured/Track | 7 | 9 | 5 | 4 | 6 |
| 10. LD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 |
| 11. UD Section taught by Lecturer | 3 | 1 | 1 | 0 | 0 |
| 12. GD Section taught by Lecturer | 0 | 1 | 0 | 1 | 1 |
| D. Student Faculty Ratios | Construction Management (CMGT) | | | | |
| 1. Tenured/Track | 18.1 | 12.9 | 14.4 | 20.0 | 16.2 |
| 2. Lecturer | 51.9 | 23.0 | 33.0 | 66.9 | 34.5 |
| 3. SFR By Level (All Faculty) | 25.3 | 14.1 | 18.3 | 25.6 | 18.9 |
| 4. Lower Division | . | . | . | . | . |
| 5. Upper Division | 6.6 | 8.4 | 17.1 | 19.2 | 15.8 |
| 6. Graduate | 32.7 | 18.6 | 19.7 | 34.5 | 23.9 |
| E. Section Size | | | | | |
| 1. Number of Sections Offered | 4.0 | 6.0 | 10.0 | 10.0 | 11.0 |
| 2. SCU taught | 480.0 | 480.0 | 704.0 | 860.0 | 1004.0 |
| 3. Average Section Size | 38.0 | 23.5 | 17.3 | 19.3 | 30.1 |
| 4. Average Section Size for LD | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 |
| 5. Average Section Size for UD | 9.0 | 12.5 | 16.7 | 16.7 | 25.2 |
| 6. Average Section Size for GD | 52.5 | 34.5 | 19.0 | 27.0 | 38.3 |
| 7. LD Section taught by Tenured/Track | 0 | 0 | 0 | 0 | 0 |
| 8. UD Section taught by Tenured/Track | 1 | 2 | 4 | 6 | 5 |
| 9. GD Section taught by Tenured/Track | 2 | 3 | 5 | 4 | 4 |
| 10. LD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 |
| 11. UD Section taught by Lecturer | 0 | 1 | 2 | 1 | 1 |
| 12. GD Section taught by Lecturer | 1 | 1 | 1 | 1 | 1 |
| D. Student Faculty Ratios | Compter Engineering (CMPE) | | | | |
| 1. Tenured/Track | . | . | . | 3.81 | 4.04 |
| 2. Lecturer | . | . | . | . | . |
| 3. SFR By Level (All Faculty) | . | . | . | 3.81 | 4.04 |
| 4. Lower Division | . | . | . | . | . |
| 5. Upper Division | . | . | . | 3.81 | 4.04 |
| 6. Graduate | . | . | . | . | . |
| E. Section Size | | | | | |
| 1. Number of Sections Offered | 0 | 0 | 0 | 4 | 4 |
| 2. SCU taught | 0 | 0 | 0 | 60 | 72 |
| 3. Average Section Size | 0 | 0 | 0 | 7.5 | 9 |
| 4. Average Section Size for LD | 0 | 0 | 0 | 0 | 0 |
| 5. Average Section Size for UD | 0 | 0 | 0 | 7.5 | 9 |
| 6. Average Section Size for GD | 0 | 0 | 0 | 0 | 0 |
| 7. LD Section taught by Tenured/Track | 0 | 0 | 0 | 0 | 0 |
| 8. UD Section taught by Tenured/Track | 0 | 0 | 0 | 4 | 4 |
| 9. GD Section taught by Tenured/Track | 0 | 0 | 0 | 0 | 0 |
| 10. LD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 |
| 11. UD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 |
| 12. GD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 |

| D. Student Faculty Ratios | Industrial Engineering INDE) | | | | | |
|---------------------------------------|-------------------------------------|---|---|-------|-------|--|
| 1. Tenured/Track | . | . | . | 16.42 | 18.21 | |
| 2. Lecturer | . | . | . | 83.58 | 29.63 | |
| 3. SFR By Level (All Faculty) | . | . | . | 18.74 | 19.06 | |
| 4. Lower Division | . | . | . | . | . | |
| 5. Upper Division | . | . | . | 18.74 | 19.06 | |
| 6. Graduate | . | . | . | . | . | |
| E. Section Size | | | | | | |
| 1. Number of Sections Offered | 0 | 0 | 0 | 10.5 | 8.6 | |
| 2. SCU taught | 0 | 0 | 0 | 544 | 589 | |
| 3. Average Section Size | 0 | 0 | 0 | 16.6 | 21.6 | |
| 4. Average Section Size for LD | 0 | 0 | 0 | 0 | 0 | |
| 5. Average Section Size for UD | 0 | 0 | 0 | 16.6 | 21.6 | |
| 6. Average Section Size for GD | 0 | 0 | 0 | 0 | 0 | |
| 7. LD Section taught by Tenured/Track | 0 | 0 | 0 | 0 | 0 | |
| 8. UD Section taught by Tenured/Track | 0 | 0 | 0 | 10 | 8 | |
| 9. GD Section taught by Tenured/Track | 0 | 0 | 0 | 0 | 0 | |
| 10. LD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 | |
| 11. UD Section taught by Lecturer | 0 | 0 | 0 | 1 | 1 | |
| 12. GD Section taught by Lecturer | 0 | 0 | 0 | 0 | 0 | |