ANNUAL PROGRAM REPORT

College	Science
Department	Engineering
Program	M.S. Engineering Management
Reporting for Academic Year	2017-2018
Last 5-Year Review	2012
Next 5-Year Review	2018-2019
Department Chair	Saeid Motavalli
Date Submitted	10/12/2018

I. SELF-STUDY

A. Five-Year Review Planning Goals

1. One of the goals indicated in our previous report was to offer more elective courses. This goal has not been achieved as the number of faculty supporting this program has not changed since 2004. The semester curriculum is designed such that the students are taking all the required courses in the School of Engineering. This change has alleviated the problems students faced in taking courses from the College of Business and Economics. Elective courses will be offered as needs arise.

2. Faculty: The faculty that support this program are also supporting the Industrial Engineering program. The faculty are; Helen Zong, Farnaz Ganjeizadeh and David Bowen.

3. Research: The Engineering Management faculty are active in research and are finding success in securing funds for their research. The faculty plan is to aggressively pursue funding opportunities, specifically in areas related to the advancement of engineering education. We already have on-going funding through MESA Schools Program and Chevron Co.

4. Equipment: Through A2E2 annual funding and the normal refresh cycle of computers by IT, we are keeping the Engineering Management Laboratories current.

5. Enrollment: Student enrollment in Engineering Management program has been decreasing for the past couple of years. This could be the result of lower international student enrollment and a stronger job market.

B. Progress towards Five-Year Review Planning Goals

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

2. Acquired new CNC turning and milling center in VBT 231.

3. The program requires 30 semester hours of course work including a capstone project.

4. Purchased new Robotic arm that is placed in VBT 231 for research in mechatronics and AI.

C. Program Changes and Needs

Overview: The Engineering Management program started in the year 2003 and was steadily growing till 2016. Since then the international student enrollment has been on falling. From 2004 onwards, we have not hired any faculty for this program. The faculty of Industrial Engineering also serve the Engineering Management program.

Curriculum: The transformed curriculum is designed to include more active learning exercises and includes courses and material that are in line with the employment trends in engineering management.

Students: Demand for Engineering Management graduates is relatively strong, especially for domestic students.

Faculty: Since 2004, we have had three faculty dedicated to the Engineering Management and Industrial Engineering programs. The faculty include Drs. Helen Zong, David Bowen and Farnaz Ganjeizadeh.

Staff: We have two full time staff for the School of Engineering, a Student Support Professional, Lisa Holmstrom and a support tech, Praveen Umamaheswaran. Also, a part time ASC supports the School of Engineering Office.

Resources: New equipment and software have been added to Engineering laboratories.

Assessment: An extensive assessment process is in place for the Engineering Management program. Sample results are provided in the following section.

I. SUMMARY of ASSESSMNT

A. PROGRAM LEARNING OUTCOMES (PLOS)

	Students graduating with a M.S. Engineering Management degree from Cal State East Bay will be able to:	**I.L.O Alignment**
a	Develop advanced analytical skills in optimization, planning and control, and other quantitative management techniques.	1, 6
b	Effectively manage teams of multi-disciplinary and multi-cultural professionals.	3, 4
c	Understand the impact of engineering and management decisions in a global, economic, environmental, and societal context.	5
d	Have the ability to effectively and persuasively communicate	2
e	Recognize the need for, and have an ability to engage in, life-long learning.	6

B. Program Learning Outcome(s) Assessed:

1. Which SLO(s) to assess	SLO e - Recognize the need for, and have an ability to engage in life-long learning.
2. Assessment indicators	Capstone projects
3. Sample (courses/# of students)	ENGR 6800
4. Time (which quarter(s))	Spring 2018
5. Responsible person(s)	Prof. Farnaz Ganjeizadeh
6. Ways of reporting (how, to who)	Peer evaluation in group team project evaluations are used as a means to assess the quality of projects and reporting. In addition, faculty in charge of the course and other faculty attending project presentations are completing rubrics for evaluation of the project reports and presentations.
7. Ways of closing the loop	More stringent requirements on the project originality and possible implementation of research results.

C. Summary of Assessment Results: Students work on research projects. Majority of the projects are based on real data from industry. As part of this research, they perform a comprehensive literature review and identify a research problem. A comprehensive report and presentation of research work are required. Alumni have evaluated the course material as valuable in their professional career. The performance indicators for assessment of this outcome and the

rubric used are as follows. The rubric used for assessing communications skills and research weightage are as follows:

Title	Weightage
Project Idea Originality	10%
PowerPoint Presentation	5%
Professional Attire – Visual Appearance	5%
Methodology	10%
Literature Research	15%
Team Co-ordination	5%
Analysis	15%
Individual Contribution	10%
Peer Evaluation	10%
Viva- Q/A	10%
Conclusion/Future Endeavors	5%

According to this rubric, 70% of the grade is based on students' research and analytics. For the 16 students whom participated in this evaluation, the average grade was 85% with the lowest grade of 70% and the highest of 95%. The majority of students achieved this outcome.

D. Assessment Plans for Next Year

1.Which SLO(s) to assess	SLO a - Develop advanced analytical skills in optimization, planning and control, and other quantitative management techniques
2.Assessment indicators	Queuing midterm exam question
3.Sample (courses/# of students)	ENGR 620 System Modeling with Simulation
4.Time (which quarter(s))	Spring 19
5.Responsible person(s)	Prof. Zong
6.Ways of reporting (how, to who)	The results will be reported by faculty to the department chair via completion of the course Faculty Self-Assessment form.
7.Ways of closing the loop	Interaction between chair, faculty and industrial advisory board

III. DISCUSSION OF PROGRAM DATA & RESOURCE REQUESTS

Discussion of Trends & Reflections

The following table is enrollment data extracted from Pioneer Data Warehouse. As the data shows the Engineering Management enrollment has been in a downturn for the past three years. We can identify two trends that contributed to this down turn. A drop in international student enrollment, which could be the result of stricter visa requirements and a drop in domestic student enrollment

that could be the result of stronger job market. During economic booms, fewer students pursue graduate studies. We are hopeful that the drop in enrollment is temporary and it will start to rebound. However, it should be mentioned that the faculty whom serve Engineering Management are also responsible for the Industrial Engineering program.

Term	College	School	Computer Engineering	Industrial Engineering	Engineering Management	Total	Minor
Fall Quarter 2012	Total	Engineering	24	18	36	78	0
Fall Quarter 2013	Total	Engineering	64	54	49	167	0
Fall Quarter 2014	Total	Engineering	103	78	98	279	0
Fall Quarter 2015	Total	Engineering	130	109	103	212	0
Fall Quarter 2016	Total	Engineering	140	119	89	342	0
Fall Quarter 2017	Total	Engineering	151	121	76	348	0

The combined enrollments in the two programs have fluctuated between 200 and 150. With three faculty members, we are at the minimum faculty requirement for an accredited undergraduate only program.

Notable Trends:

1. Lower enrollment
2. Industry demand for the graduates
3. Active Advisory Board Council

Reflections on Trends and Program Statistics:

We have a pending proposal to add an undergraduate Civil Engineering program. The addition of this program will improve the School of Engineering statistics and lower per FTES costs.

Request for Resources

1. Request for Tenure-Track Hires:

We have not hired any faculty in Industrial Engineering or Engineering Management since 2004. All faculty are full professors. The program has grown substantially requiring the addition of new tenure-track faculty to keep the program current.

2. Request for Other Resources

Upkeep of the laboratory software and hardware, access to large computer lab/classes for some of the courses.