TO: The Academic Senate
FROM: Committee on Instruction and Curriculum (CIC)
SUBJECT: 15-16 CIC 76: Revision request for M.S. Engineering Management
PURPOSE: Information to the Academic Senate
ACTION REQUESTED: That the Senate accept the information that the revision request for M.S. Engineering Management program has been approved by CIC.

BACKGROUND INFORMATION:
The Senate process for approving transformed degree programs for the semester calendar is defined by 14-15 CIC 36. The Graduate Programs Subcommittee unanimously approved the M.S. Engineering Management program at its meeting on May 26 with the acknowledgement that some non-substantive changes may occur in the Catalog copy. The program was approved by consent of CIC per the policy on June 6, 2016. The proposal may be viewed within Curriculog: per the request of ExCom, a PDF attachment with information from Curriculog is provided.
Engineering Management, M.S.
1. Semester Conversion Request for Approval of Revision of the Graduate Degree Program/Major

General Catalog Information

Please see the Guidelines for Master’s Program Conversion

Select Shared Core unless otherwise instructed by APGS

Select SHARED CORE
- Program
- Shared Core

First Year of Offering: Fall 2018
Effective Catalog: 2018-2019

Notes: If you want to move an existing degree program to online (i.e. 50% or more of the program can be completed online (a hybris course counts as .50 online), elevate an option to a degree, or change the degree type, please e-mail Donna Wiley, Interim Associate Vice President, Academic Programs and Graduate Studies; and copy Sarah Aubert, Catalog and Curriculum Specialist, Academic Programs and Graduate Studies; for additional instructions as soon as possible.

Department: Department of Engineering

Full and exact title of Major including degree earned: Engineering Management, M.S.

Has your program received transformation funding? Yes ☐ No ☐

If the program received transformation funding, please summarize the transformative changes made:

- Decoupled graduate courses from undergraduate (tiered) courses.
- Redefined course outcomes and generated a new mapping of course outcomes to program outcomes.
- Developed curriculum maps that specify how the courses satisfy program learning outcomes, and mapped the program learning outcomes to institutional outcomes.
- Integrated course themes and timing to promote transfer of existing learning in
teamwork & communication. -Incorporated cross-cutting theme in sustainability utilizing problem based learning (PBL), allowing students to become immersed in complex systems understanding and solutions.

- Incorporated high impact practices into transformed courses (see course outlines).

Program Description

The California State University, East Bay School of Engineering, in cooperation with the College of Business and Economics, provides an interdisciplinary master's of science degree in Engineering Management. This degree is designed for working engineers and professionals who are in leadership/management positions or who are planning to advance their careers into the management of technical enterprises. It is also designed to benefit engineering or science graduates who are interested in assuming leadership positions in industry. Students gain theoretical and practical training in how to plan, organize, allocate resources, and direct and control activities that have technological components. The curriculum is distinctive in that it provides a blend of qualitative management and quantitative industrial engineering skills. Courses are offered in engineering, business, computer science and statistics.

Career Opportunities

The Engineering Management Degree MS is designed for engineering or science graduates interested in assuming leadership positions in industry. Students gain theoretical and practical training in how to plan, organize, optimize and allocate resources, and to direct and control projects and activities that have technological components. Examples include: Managing technical enterprises and technical personnel; System analyst; Technical project leader. These positions occur in diverse industry sectors such as telecommunications, software development, healthcare, financial institutions and service industries.

Admission Requirements
The M.S. Degree in Engineering Management is open to students planning a career, or seeking to advance their career in managing technical enterprises who: (1) have a baccalaureate degree in engineering, basic science or related technical field from an accredited institution, and (2) have earned an overall grade point average of 2.5 (4.0 basis) or better in their undergraduate work. Degrees from foreign institutions will be individually evaluated. Submission of your GRE and/or GMAT results is highly recommended. In addition to the University Graduate and Post-baccalaureate Application, all applicants should submit the following materials along with their application to Graduate Admissions:

(1) submit a personal statement with the application stating their reasons for wanting to pursue the M.S. in Engineering Management degree, describing relevant work experience, and explaining their past academic performance;

(2) submit two letters of recommendation; and

(3) submit a resume.

Admission to the university and admission to the M.S. in Engineering Management degree program are separate steps. International students check CSUEB Center for International Education (CIE) for further requirements.

Student Standing and Progress Toward the Degree

There are three categories of student status which reflect student progress toward the degree: “Conditionally Classified Graduate,” “Classified Graduate,” and “Advancement to Candidacy.

Students achieve “Conditionally Classified Graduate” status when they have been admitted to the M.S. in Engineering Management degree program, but have not yet completed the prerequisites for “Classified Graduate” status in the M.S. in Engineering Management degree program. Students achieve “Classified Graduate” status when they have satisfactorily completed the three prerequisites for the M.S. in Engineering Management degree program or their equivalents, and satisfied the University Writing Skills Requirement. (See “Prerequisites for Classified Graduate Status” below.) Students are Advanced to Candidacy when they have completed the required courses with a 3.0 or better GPA.

Note: Students who fail to maintain progress by falling below a 3.0 GPA in their graduate courses for two or more consecutive semesters will be academically disqualified from the university.

Program Learning Outcomes

- Develop advanced analytical skills in optimization, planning and control, and other quantitative management techniques.

- Effectively manage teams of multi-disciplinary and multi-cultural professionals.
-Understand the impact of engineering and management decisions in a global, economic, environmental, and societal context.

-Have the ability to effectively and persuasively communicate.

-Recognize the need for, and have an ability to engage in, life-long learning.

**Please read before completing Major Requirements Section**

**Instructions:**

1. Start with the View Curriculum Courses icon directly beneath the Major Requirements field. Select the Add Courses button to enter each individual course that will be used in your Major Program. (Optional: Include the Course Units in the Course Title (name) field for ease of review by campus committees).

2. Next select the View Curriculum Schema icon (to the left of the Curriculum Courses icon). Select Add Core to build the headers and requirements for your catalog page (i.e. add headers for Prerequisites, Core Requirements, Electives, Capstone.) **Please include total units in core headers.**

3. (If you have a concentration(s), add a core titled Concentrations and list only the total concentration units. You do not need to list each individual concentration.)

4. Preview your catalog chapter by selecting the Preview Curriculum icon.

**Prerequisites or Foundation Requirements**

- BUS 201 Introduction to Financial Accounting *Units: 3*
- ENGR 320 - Engineering Economy *Units: 3*

**Core Courses**

- Stat 3601 or 3502
- **or**
- INDE 330 - Engineering Statistics and Probability *Units: 3*
Core Courses (21 Units)

ENGR 610 Analytical Methods in Engineering Management
ENGR 615 Finance for Engineers
ENGR 620 System Modeling with Simulation
ENGR 630 Quality and Reliability Management
ENGR 640 Engineering Sustainable Supply Chains
ENGR 650 Project Management
ENGR 660 Sustainable Product Process Design

NOTE: Students who have taken equivalent undergraduate courses may substitute electives from the 'Electives' section below.

Electives

Electives (6 units)

ENGR 670 Design and Management of Human Work Systems
ENGR 680 Engineering Systems Modeling
ENGR 690 Independent Study

Or other 600 level courses from College of Business and Economics or College of Science with departmental approval.

Capstone

Capstone (3 units)

ENGR 688 Applied Research in Engineering Management
or
ENGR 689 Project
or
Comprehensive Exam and one additional 600 level elective course w/departmental approval

To revise an existing concentration (formerly option) or create a new concentration, select form 1a. Semester Conversion Request for Approval of New or Revised Graduate Concentration.

Total Units Required

<table>
<thead>
<tr>
<th>Quarter Based Program:</th>
<th>48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester Based Program:</td>
<td>30</td>
</tr>
</tbody>
</table>
Any additional major information

Is this major approved as an online degree program?*  Yes ☐  No ☐

If no, is there any pathway in the revised degree that is more than 50% online?  Yes ☐  No ☐

Resource implications of the proposed revision, if any:  N/A

Relationship of Revised Program to requirements for teaching credentials, accreditation, and/or licensing, if any:  N/A

Consultation with other affected departments and programs:  

https://csueastbay.curriculog.com/proposal:1177/print
The following department(s) has (have) been consulted and raised no objections:

All affected academic departments and programs at CSUEB were consulted and there were no objections.

None

Attachments

Please scroll to the top of this form and select the Files icon to attach the following documents to your proposal:

- Master's Degree Roadmap
- Curriculum Map 1 - PLOs to Courses
- Curriculum Map 2 - PLOs to ILOs
- Five Year Assessment Plan

Did you attach your Curriculum Maps, Five Year Assessment Plan or other supporting documents to this proposal?*

☑ Yes  ☐ No

Catalog Item Types

Degree Type*  Master of Science

Program Type*  Master
Attachments for Engineering Management, M.S.

- EngineeringMgmt 5 YearSEMESTERS.doc (uploaded by Sandi Jones, 2/4/2016 12:11 pm)
- ENGMGMT MS_SEM_CMap.xlsx (uploaded by Sandi Jones, 2/4/2016 12:12 pm)
- ENGR_MGT_ILO_PLO_curr-map.docx (uploaded by Sandi Jones, 2/4/2016 12:14 pm)