From:	noreply@wsu.edu
To:	curriculum.submit
Subject:	538664 Engineering and Technology Management Requirements Revise - Revise or Drop Graduate Certificate
Date:	Monday, December 16, 2019 10:22:43 AM
Attachments:	2019.12.16.10.22.36.81.FormData.html 2019.12.16.10.22.36.13.currentCatalogFile_Justification__Systems_Engineering_Management.docx 2019.12.16.10.22.36.13.currentCatalogFile1_Grad_Cert_in_Systems_Engineering_Management_f.docx 2019.12.16.10.22.36.13.currentCatalogFile2_Marked_up_SEM_requirements_doc.docx

Patricia Elshafei has submitted a request for a major curricular change. His/her email address is: pelshafei@wsu.edu.

Requested change: Revise or Drop Graduate Certificate

Title: Systems Engineering Management

Requested Effective Date: Fall 2020

Revise certificate requirement: Yes

Dean: Field, David - Assoc Dean - VCEA - Grad,

Chair: Gray, William J.,

Catalog Subcommittee Approval Date	AAC, PHSC, or GSC Approval Date	Faculty Senate Approval Date

From: Gray, William J
To: curriculum.submit
Subject: Re: 538664 Engineering and Technology Management Requirements Revise - Revise or Drop Graduate Certificate
Date: Wednesday, January 8, 2020 5:39:26 PM

I concur with Dr. Field, OK to proceed.

William Gray, PhD, MBA, *Academic Director and Associate Professor*
Engineering and Technology Management
Voiland College of Engineering and Architecture
Washington State University
PO Box 642780 | ETRL 303 | Pullman, WA 99164
wgray@wsu.edu | (253)-208-3745
etm.wsu.edu

From: curriculum.submit <curriculum.submit@wsu.edu>
Sent: Wednesday, January 8, 2020 9:33 AM
To: Field, Dave <dfield@wsu.edu>; Gray, William J <wgray@wsu.edu>
Subject: RE: 538664 Engineering and Technology Management Requirements Revise - Revise or Drop Graduate Certificate

Dr. Gray,

This one as well – Okay to proceed?

Thank you,
Blaine

Blaine Golden, Assistant Registrar
Curriculum, Graduations, Athletic Eligibility

From: Field, Dave
Sent: Monday, December 16, 2019 10:57 AM
To: curriculum.submit <curriculum.submit@wsu.edu>; Gray, William J <wgray@wsu.edu>
Subject: RE: 538664 Engineering and Technology Management Requirements Revise - Revise or Drop Graduate Certificate

1. I approve this proposal in its current form.

From: curriculum.submit@wsu.edu <curriculum.submit@wsu.edu>
Sent: Monday, December 16, 2019 10:23 AM
To: Gray, William J <wgray@wsu.edu>; Field, Dave <dfield@wsu.edu>
Subject: 538664 Engineering and Technology Management Requirements Revise - Revise or Drop Graduate Certificate

Systems Engineering Management Graduate Certificate Change:

Current SEM Graduate Certificate:

- E M 565 Introduction to Systems Management
- E M 566 Systems Analysis and Practice
- E M 568 Risk Assessment and Management (will add EM 570 as a second option)
- E M 569 Systems Architecting (will drop this course)

Proposed SEM Graduate Certificate:

- E M 565 Introduction to Systems Management
- E M 566 Systems Analysis and Practice
- Choose one of two:
    - E M 568 Risk Assessment and Management
    - E M 570 Systems Improvement: Integrating TOC, Lean, and Six Sigma

The Systems Engineering Management graduate certificate will be comprised of the two core courses, plus a choice from two additional courses, listed above. By reducing the requirement from four courses to three courses, the SEM graduate certificate is better aligned with the following:

- Supports technical leaders who are only interested in completing the essential courses needed to gain mastery in systems engineering management – engineering and technical management from a systems engineering perspective – and earn the SEM graduate certificate in a shorter period of time.
- Supports the previously approved program change from 33 to 30 credits and from four to three electives for the overall ETM Master's degree, giving Master's students freedom to focus on any six core courses while pursuing these three specific courses as electives, or to include E M 565 as a core course, and still have a free elective, and still earn in addition to an ETM Master's degree, the SEM graduate certificate.

The E M 568 Risk Assessment and Management course remains a solid choice in support of earning mastery in systems engineering management, however, students that are interested in exposure to the basics of Theory of Constraints in combination with Lean and Six Sigma, can opt instead for the E M 570 Systems Improvement: Integrating TOC, Lean, and Six Sigma course. Both courses support important aspects of systems engineering management and providing a choice allows students more flexibility in choosing between these two topics. In this way, students can focus on the area that they may have had less on the job exposure to during their professional career, or alternatively on the area that is more aligned with their current or future career aspirations, within the domain of systems engineering management.

While the previously approved E M 569 Systems Architecting course supported alignment with the INCOSE Systems Engineering Handbook and related artifacts, the system design and architecture content covered in the course focused on systems engineering technical depth and expertise that appears to be less suitable for an engineering management and systems engineering management focused curriculum, given that the ETM department offered the E M 569 Systems Architecting course on several different occasions (semesters) over the last few years, with little to no enrollment interest. As a result, the E M 569 Systems Architecting course will be dropped as a requirement from the SEM Graduate Certificate, and a technical management perspective of systems architecting will be covered in the existing E M 565 Introduction to Systems Management and E M 566 Systems Analysis and Practice core courses to support the level of understanding needed by technical leaders.

The two core courses, E M 565 Introduction to Systems Management and E M 566 Systems Analysis and Practice, plus a choice of E M 568 Risk Assessment and Management or E M 570 Systems Improvement:

Integrating TOC, Lean, and Six Sigma, represent a broad overview of systems engineering management and related topics. Updating the Systems Engineering Management graduate certificate to be comprised of E M 565, E M 566, and an option to choose from E M 568 and E M 570, was approved by a unanimous vote of department faculty at our October 2019 faculty meeting.

Graduate Certificate in Systems Engineering Management
Approved 4/11/19; Effective Fall 2019

1. *Credit Hours: 12 credit hours total*
2. *Required Courses*
    a. E_M 565
    b. E_M 566
    c. E_M 568
    d. E_M 569
3. *GPA requirement: Cumulative GPA may not fall below a 3.0*

Graduate Certificate in Systems Engineering Management
Approved 4/11/19; Effective Fall 2019

1. *Credit Hours: ~~12~~ 9 credit hours total*
2. *Required Courses*
    a. E_M 565
    b. E_M 566
    c. E_M 568 or EM 570
    ~~d. E_M 569~~

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