

# Program Change Request

## New Program Proposal

Date Submitted: 10/20/21 9:40 am

Viewing: **EMSAGM : Systems Engineering**

## **Analytics Graduate MicroCertificate**

Last edit: 11/03/21 4:02 pm

Changes proposed by: richardh

Submitter:	User ID:	richardh	Phone:
4795755521			
Program Status	Active		
Academic Level	Graduate		
Type of proposal	MicroCertificate		
Select a reason for this new program	Adding a New Graduate MicroCertificate		
Effective Catalog Year	Summer 2022		
College/School Code	College of Engineering (ENGR)		
Department Code	Department of Industrial Engineering (INEG)		
Program Code	EMSAGM		
Degree	Graduate MicroCertificate		
CIP Code			

### In Workflow

1. ENGR Dean Initial
2. GRAD Dean Initial
3. Director of Curriculum Review and Program Assessment
4. Registrar Initial
5. Institutional Research
6. INEG Chair
7. ENGR Curriculum Committee
8. ENGR Faculty
9. ENGR Dean
10. Global Campus
11. Provost Review
12. University Course and Program Committee
13. Graduate Council
14. Faculty Senate
15. Provost Final
16. Registrar Final
17. Catalog Editor Final

### Approval Path

1. 11/03/21 2:32 pm  
Kevin Hall (kdhall):  
Approved for ENGR Dean Initial
2. 11/03/21 2:45 pm  
Pat Koski (pkoski):  
Approved for GRAD Dean Initial

3. 11/03/21 4:03 pm  
Alice Griffin  
(agriffin): Approved  
for Director of  
Curriculum Review  
and Program  
Assessment
4. 11/09/21 1:05 pm  
Gina Daugherty  
(gdaugher):  
Approved for  
Registrar Initial
5. 11/10/21 10:38 am  
Doug Miles  
(dmiles): Approved  
for Institutional  
Research
6. 11/10/21 10:39 am  
Ed Pohl (epohl):  
Approved for INEG  
Chair
7. 12/03/21 7:36 am  
Manuel Rossetti  
(rossetti): Approved  
for ENGR  
Curriculum  
Committee
8. 12/17/21 1:59 pm  
Kevin Hall (kdhall):  
Approved for ENGR  
Faculty
9. 12/17/21 3:06 pm  
Kevin Hall (kdhall):  
Approved for ENGR  
Dean
10. 12/17/21 4:15 pm  
Suzanne Kenner  
(skenner): Approved  
for Global Campus

- 11. 12/21/21 9:08 am  
Ketevan  
Mamiseishvili  
(kmamisei):  
Approved for  
Provost Review
- 12. 01/28/22 4:36 pm  
Alice Griffin  
(agriffin): Approved  
for University  
Course and Program  
Committee
- 13. 02/17/22 2:11 pm  
Jim Gigantino  
(jgiganti): Approved  
for Graduate  
Council

14.2701 - Systems Engineering.

Program Title

Systems Engineering Analytics Graduate MicroCertificate

Program Delivery

Method

Online/Web-based

Is this program interdisciplinary?

No

Does this proposal impact any courses from another College/School?

No

What are the total       6  
hours needed to  
complete the  
program?

## **On-line/Web-based Information**

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Reason for offering

Web-based Program

Students are working professionals who need flexible course offerings.

Maximum Class Size 35  
for Web-based  
Courses

Course delivery  
mode

<b>Method(s)</b>
Blended Delivery Methods

Describe Blended  
Delivery Methods

Hybrid, lecture, video synchronous, asynchronous delivery methods.

Class interaction  
mode

<b>Method(s):</b>
Other

Specify Other  
Interaction Methods

All synchronous and asynchronous tools are available in current classes. Includes, but is not limited to video, discussion boards, email, synchronous video, and self-paced materials.

Percent Online

100% with No Required Campus Component  
50-99%

Provide a List of  
Services Supplied by  
Consortia Partners or  
Outsourced  
Organization

Normal university supported services; LinkedIn Learning, Blackboard.

Estimate Costs of the 1000  
Program over the  
First 3 Years

List Courses Taught  
by Adjunct Faculty

Upload  
Memorandum of  
Understanding Forms  
(if required)

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## Program Requirements and Description

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### Requirements

Admission Requirements: The Systems Engineering Analytics Graduate MicroCertificate credential is open to students with a STEM undergraduate degree. Course pre-requisites or departmental consent for some courses may be required.

Students must apply for the Systems Engineering Analytics Graduate MicroCertificate credential and be admitted to the Graduate School; the GRE requirement is waived for the Systems Engineering Analytics Graduate MicroCertificate credential.

Students with an ABET-accredited engineering undergraduate degree after completion of the Graduate MicroCertificate may apply to the Master of Science in Engineering Management or Master of Science in Engineering. Students who have a STEM degree may apply to Graduate Certificates in Engineering Management, Project Management, Operations Management, Lean Six Sigma, Homeland Security, and the Master of Science in Operations Management.

Requirements for the Systems Engineering Analytics Graduate MicroCertificate (6 hours):

Required Course (3 Hours):		3
<a href="#"><u>EMGT 5603</u></a>	Systems Thinking and Systems Engineering	
Electives (select one):		3
<a href="#"><u>INEG 5433</u></a>	Cost Estimation Models	
or <a href="#"><u>OMGT 5433</u></a>	Cost Estimation Models	
<a href="#"><u>EMGT 5053</u></a>	Tradeoff Analytics for Engineering Management	
<a href="#"><u>INEG 5443</u></a>	Decision Models	
or <a href="#"><u>OMGT 5443</u></a>	Decision Models	
Total Hours		6

### Program Costs

Cost less than \$1000 for miscellaneous costs such as instructor materials, ASEM professional membership provided for students. No new course development is required. The MicroCertificate uses existing courses.

### Library Resources

No additional library resources required.

### Instructional

#### Facilities

No additional instructional facilities are required.

### Faculty Resources

Additional faculty not required.

List Existing Certificate or Degree Programs  
that Support the Proposed Program

<b>Program(s)</b>
EMGTMS - Engineering Management, Master of Science in Engineering Management

Are Similar Programs available in the area?

No

Estimated Student Demand for Program      25

Scheduled Program Review Date      na

Program Goals and Objectives

**Program Goals and Objectives**

- Program Goals:
1. Use systems thinking and system engineering concepts, tools, and techniques to inform the system design and development process.
  2. Use quantitative analysis to perform trade-off analysis for data-driven engineering decisions.

- Program Objectives:
1. Apply systems thinking and systems engineering concepts to the acquisition and/or development of systems with a focus on life cycle models, development of system architectures and architecture frameworks, system configurations, system requirements, requirements allocation, interface analysis, testing, verification, and validation, and post-development activities.
  2. Apply techniques for quantitative trade-off analysis for data-driven engineering management decisions.

Learning Outcomes

**Learning Outcomes**

- Expected Student Learning Outcomes:
1. Apply and evaluate systems thinking and systems engineering (SE) concepts, techniques, methods, and tools to inform the engineered system development process.
  2. Analyze and evaluate quantitative trade-off analysis for data-driven decisions system decisions.

Description and Justification for this request

<b>Description of request</b>	<b>Justification for request</b>

Description of request	Justification for request
Adding new Graduate MicroCertificate to meet demand; based on industry/student feedback and market research.	Market research and student feedback point toward a growing need for flexibility in program offerings based on working professionals, travel schedules, and family requirements.

Upload attachments

Reviewer Comments

**Alice Griffin (agriffin) (11/03/21 3:59 pm):** Changed effective date from spring to summer 2022. This request is too late to complete approval before the start of the spring semester.

**Alice Griffin (agriffin) (11/03/21 4:02 pm):** Changed title of credential in program requirements to match the title submitted for the program above: Systems Engineering Analytics Graduate MicroCertificate. College is encourage to review language for accuracy.