

# 257: ENGINEERING MANAGEMENT GRADUATE CERTIFICATE

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## In Workflow

1. APA Coordinator Programs (janice.nave-abele@oregonstate.edu)
2. Catalog Coordinator (belinda.sykes@oregonstate.edu)
3. 16 Dean Designee (david.blunck@oregonstate.edu)
4. Provost Designee (alix.gitelman@oregonstate.edu)
5. Ecampus Programs (shannon.riggs@oregonstate.edu; ecampus.academicprograms@oregonstate.edu; kathryn.howard@oregonstate.edu)
6. 14 Day Review (none)
7. June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj@oregonstate.edu)
8. 16 College Committee Approver (frank.chaplen@oregonstate.edu)
9. APA Coordinator Programs (janice.nave-abele@oregonstate.edu)
10. June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj@oregonstate.edu)
11. Budgets and Fiscal Planning Committee Chair (jeff.luck@oregonstate.edu)
12. Graduate Council Co-Chairs (john.becker-blease@bus.oregonstate.edu)
13. APA Coordinator Programs (janice.nave-abele@oregonstate.edu)
14. Curriculum Council Co-Chairs (iannie@oregonstate.edu; jim.coakley@oregonstate.edu)
15. Executive Committee (vickie.nunnemaker@oregonstate.edu)
16. Faculty Senate (vickie.nunnemaker@oregonstate.edu)
17. Curriculum Management Programs (janice.nave-abele@oregonstate.edu)
18. NWCCU (janice.nave-abele@oregonstate.edu)
19. Catalog Coordinator (belinda.sykes@oregonstate.edu)
20. Graduate Curriculum Tables (jared.thomas@oregonstate.edu; john.henry@oregonstate.edu)
21. Catalog Coordinator (belinda.sykes@oregonstate.edu)

## Approval Path

1. Tue, 31 Jan 2023 23:32:53 GMT  
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
2. Thu, 02 Feb 2023 05:16:27 GMT  
Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for Catalog Coordinator
3. Wed, 01 Mar 2023 05:22:07 GMT  
David Blunck (College of Engineering, Associate Dean for Undergraduate Programs) (david.blunck): Approved for 16 Dean Designee
4. Fri, 03 Mar 2023 16:11:21 GMT  
Alix Gitelman (Vice Provost for Academic Affairs) (alix.gitelman): Approved for Provost Designee
5. Fri, 03 Mar 2023 18:08:05 GMT  
Kathryn Howard (Ecampus, Program Intake Coordinator) (kathryn.howard): Approved for Ecampus Programs
6. Sat, 18 Mar 2023 09:21:50 GMT  
0/1 votes cast.  
Yes: 0% No: 0%  
Approved for 14 Day Review
7. Sat, 18 Mar 2023 16:13:49 GMT  
June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj): Approved for worleyj
8. Mon, 27 Mar 2023 21:52:00 GMT  
Brian Bay (School of Mechanical, Industrial & Manufacturing Engineering, Associate Professor) (Brian.Bay): Approved for 16 College Committee Approver
9. Wed, 29 Mar 2023 00:59:50 GMT  
Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for APA Coordinator Programs
10. Wed, 29 Mar 2023 01:14:19 GMT  
June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj): Approved for worleyj
11. Wed, 19 Apr 2023 00:09:58 GMT  
Frank Chaplen (Biological & Ecological Engineering, Associate Professor) (frank.chaplen): Rollback to worleyj for Budgets and Fiscal Planning Committee Chair
12. Tue, 09 May 2023 15:24:10 GMT  
June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj): Approved for worleyj
13. Mon, 22 May 2023 18:12:52 GMT

Frank Chaplen (Biological & Ecological Engineering, Associate Professor) (frank.chaplen): Approved for Budgets and Fiscal Planning Committee Chair

14. Tue, 30 May 2023 17:38:20 GMT  
John Becker-Blease (College of Business, Associate Dean of Graduate Programs, and Graduate Council Chair) (john.becker-blease): Approved for Graduate Council Co-Chairs
15. Tue, 30 May 2023 21:14:28 GMT  
Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
16. Mon, 09 Oct 2023 22:55:47 GMT  
Jim Coakley (College of Business, Associate Professor and Curriculum Council Co-Chair) (jim.coakley): Approved for Curriculum Council Co-Chairs

## History

1. Dec 21, 2020 by June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor) (worleyj)
2. May 23, 2022 by Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes)

Date Submitted: Thu, 26 Jan 2023 17:44:57 GMT

**Viewing: CG22 : Engineering Management Graduate Certificate**

**Last approved: Mon, 23 May 2022 06:44:37 GMT**

**Last edit: Wed, 19 Apr 2023 18:24:21 GMT**

Changes proposed by: worleyj

## Proposal

### Effective Term

Summer 2023

### Type of Change

Reorganize a program (merge, move, split)

### Justification

This proposal will accomplish two goals:

1. Move the Engineering Management certificate from Mechanical, Industrial & Manufacturing Engineering to Civil and Construction Engineering (CCE).
2. Align the required courses with the proposed Master of Engineering in Engineering Management (currently in CIM).

### Primary Originator

#### Name

June Worley (School of Mechanical, Industrial & Manufacturing Engineering, Instructor)

Glencora Borradaile (School of Electrical Engineering & Computer Science, Associate Dean of Graduate Programs)

Robert Bertini (School of Civil & Construction Engineering, School Head)

Shane Brown (School of Civil & Construction Engineering, Professor)

Carley Ries (College of Engineering, Assistant Dean-Online Learning)

Andy Dong (School of Mechanical, Industrial & Manufacturing Engineering, Head)

Brian Mills (College of Engineering, Assistant Dean Curriculum & Assessment)

### Liaisons

#### Academic Unit

College of Engineering - Graduate (ENGR, OP)

School of Civil & Construction Engineering (ARE, CE, CCE, CEM)

School of Mechanical, Industrial & Manufacturing Engineering (AAE, ESC, ESE, HEST, IE, MATS, ME, MFGE, MIME, ROB)

College of Business - Graduate (BA)

School of Management, Entrepreneurship & Supply Chain (MGMT, SCLM)

School of Marketing, Analytics & Design (BANA, DSGN, MRKT)

College of Forestry

Forest Engineering, Resources & Management (FE, FOR)

Wood Science and Engineering (WSE)

Agricultural Education & General Agriculture (AED, AG, LEAD)

## Program Information

### Program Level

Graduate

### Program Type

Certificate

### Name

Engineering Management Graduate Certificate

### Program (SIS) Code

CG22

### CIP Code

151501 - Engineering/Industrial Management.

### College

Engineering (16)

### Academic Unit

College of Engineering

### Is this program jointly administered?

No

### What degree types are available for this graduate or professional program?

Certificate

### Campus Locations

Ecampus

### Is this program currently or planned to be offered in hybrid format?

No

### Will this program lead to professional licensure in any U.S. state or territory?

No

## Executive Summary

### Executive Summary

The Engineering Management certificate was created to provide an option to students who want to build skills, without committing to a full Master's degree. The certificate requires a minimum of 18 credits. If the student wishes to continue with the Master of Engineering (MEng) in Engineering Management, the courses used for the certificate can be transferred to the MEng.

Since Winter 2020, the certificate has attracted the interest of two types of students: Currently enrolled OSU students pursuing a graduate degree in another program and new students interested only in the certificate.

## Reorganize a Program

**Explain how the academic program(s) or academic unit(s) current objectives, functions, and/or activities will change. Where applicable, address issues such as course offerings, program requirements, admission requirements, student learning outcomes and experiences, and how the advising structure and availability will be changed as a result of this proposal**

Moving the certificate to Civil and Construction Engineering (CCE) will allow the Engineering Management program to align with the Construction Engineering Management (CEM) undergraduate degree.

The deletion of one of the previously required courses will better meet the needs of all students and allow more elective choices.

It is anticipated that CCE will have more online courses available in the future. Some of the courses may provide additional course options for the Engineering Management students.

The program director is the current advisor for the Engineering Management program. As the program grows, it is anticipated that more of the advising duties will be shifted to the CCE advising team, providing additional support for students.

Admission requirements, student learning outcomes, and experiences will not change.

**Describe the extent to which affected faculty and staff support this change**

Engineering Management faculty have been moved to CCE with little impact. As the program is online, all personnel are geographically dispersed and do not require any physical resources from OSU.

**If new resources will be required (e.g., for new faculty positions, graduate research/teaching assistants, facilities, equipment, etc.), explain where these resources will be coming from. Specify internal reallocation, Ecampus, college, OSU, federal, state, private, other funding sources or combination of funding sources**

No new resources needed.

**How will the proposed change to the academic program(s) or academic unit(s) support OSU's mission, vision, and goals?**

As outlined in the proposal for the Master of Engineering for Engineering Management, the certificate will provide an accessible, cost-effective education to students from a broad range of backgrounds, supporting the mission to provide economic, social, and cultural progress. The certificate allows students to achieve an intermediate goal before committing to a full Master of Engineering.

As with the Master of Engineering, students are expected to begin development of critical thinking skills. Reflecting on real-world problems is built into several of the courses.

The streamlined admissions process for the certificate supports OSU's focus on advancing economic prosperity and social progress. The admission requirements for the certificate are not as rigorous as the MEng (one less reference letter and no requirement for work experience).

**Describe the potential positive and negative impacts of the proposed changes on the academic program(s) and/or academic units(s) involved. Identify other OSU academic programs or academic units which might be affected, and describe the potential positive and negative impact on their mission and activities**

Moving the certificate to CCE will allow additional alignment with the undergraduate program in Construction Engineering Management. With CCE's active alumni base, it is anticipated that interest in the certificate will grow.

In collaboration with the College of Business (COB), twelve COB electives were identified for Engineering Management students. Certificate students are allowed to take one elective course outside of the College of Engineering to fulfill certificate requirements. Engineering Management students are allowed in COB courses as space is available. A negative impact on COB is not anticipated as COB controls access to courses through registration restrictions. A positive impact to COB may be realized if unfilled course sections can be filled by Engineering Management students.

No additional negative impacts identified.

**Describe how the proposal will affect the long-range strategic goals and plans for the academic program(s) or academic unit(s). Compare with OSU's current strategic plan and its three signature areas of distinction**

The proposal to move the certificate to CCE will support three of the long-range strategic goals in the College of Engineering:

1. Transformational Education: The Engineering Management certificate will continue to provide adult learners with a unique option to continue their education, without the commitment to a full Master of Engineering. It also provides current OSU students with an opportunity to gain skills to supplement their major. (Aligns with OSU's strategic goal of providing accessible, transformative education.)
2. Community: Courses in the Engineering Management curriculum often include students from across OSU who are interested in learning about a particular facet of engineering management. The student-to-student engagement in the courses allows students to network with colleagues from outside of their major, exposing them to other ideas and perspectives. (Aligns with OSU's strategic goal of building a culture of belonging and collaboration.)
3. Partner of Choice: The move to CCE will allow the Engineering Management program to interact with the active CCE alumni base and build collaborative partnerships. Leveraging these partnerships provides opportunities to build a stronger curriculum to better meet current and future industry needs. (Aligns with OSU's strategic goal to impact Oregon (and beyond) significantly and visibly.)

The Engineering Management certificate supports OSU's third signature area of distinction: Economic Prosperity and Social Progress. Creating and growing organizations requires a management team prepared to tackle the complexities associated with new ideas and technologies. The Engineering Management certificate is uniquely positioned to provide an opportunity to learn the foundational skills needed to help organizations effectively meet these future challenges.

**What is the current relationship of the proposed academic program(s) or academic unit(s) with other higher education institutions in Oregon? Describe how this relationship might be altered based on the proposed change**

The program does not have a current relationship with other higher education institutions in Oregon.

**Describe how the proposed change will affect other constituencies outside of OSU (e.g., federal state, local, private)**

No affect on outside constituencies is anticipated.

**If the academic program is professionally accredited, identify the accrediting body and describe how the proposed change may affect accreditation**

The academic program is not accredited.

## Information for the Catalog

### How many total credits are required for completion of this program?

18

### Catalog Description (this will display on the Overview tab in the Catalog)

The Engineering Management certificate provides a path for technical professionals to advance into management and leadership roles. Required courses include instruction in management functions, engineering economy, and project management.

The Engineering Management certificate is a fully online program. It is designed to be completed in five quarters.

### Are you adding, removing or changing learning outcomes in this proposal?

No

### Student Learning Outcomes (this will display on the Learning Outcomes tab in the Catalog)

#### Upon successful completion of the program, students will be able to:

- |   |   |
|---|---|
| 1 | Conduct research and produce creative work. |
| 2 | Demonstrate synthesis of subject material.  |

### Requirements (this will display on the Requirements tab in the Catalog and be coded into MyDegrees)

The Engineering Management certificate requires a minimum of 18 credit hours of coursework.

Code	Title	Credits
<b>Required Core</b>		
IE 571	PROJECT MANAGEMENT IN ENGINEERING	3
IE 582	INTRODUCTION TO MANAGEMENT FOR ENGINEERS AND SCIENTISTS	4
IE 583	ADVANCED ENGINEERING ECONOMICS ANALYSIS	4
<b>Electives</b>		
Select two courses from the following: <sup>1</sup>		7-8
EMGT 530	LEAN FOR ENGINEERING MANAGERS	
EMGT 560	ELEVATING PROBLEM-SOLVING TO DRIVE CHANGE	
IE 581	OPERATIONS MANAGEMENT	
IE 584	SYSTEMS ENGINEERING	
IE 585	LEGAL ASPECT OF ENGINEERING MANAGEMENT	
IE 586/CCE 552	PROJECT RISK MANAGEMENT	
IE 587	MANAGEMENT OF INFORMATION SYSTEMS	
IE 588	MANAGEMENT OF NEW PRODUCT DEVELOPMENT	
IE 589/CCE 554	PROFESSIONAL RESPONSIBILITY AND ETHICS	
IE 590	STRATEGIC PLANNING IN ENGINEERING ORGANIZATIONS	
IE 591	STATISTICAL CONCEPTS FOR ENGINEERING MANAGERS	
BA 513	BUSINESS LEGAL ENVIRONMENT	
BA 515	MANAGERIAL DECISION TOOLS	
BA 550	LEADERSHIP AND TEAMS IN ORGANIZATIONS	
BA 561	SUPPLY CHAIN MANAGEMENT	
BA 569	ADVANCED STRATEGIC MANAGEMENT	
BA 572	ADVANCED INFORMATION SYSTEMS	
BA 590	MARKETING MANAGEMENT	
BANA 560	DATA ANALYTICS FOR COMPETITIVE ADVANTAGE	
MGMT 548	EMPLOYEE RECRUITMENT AND SELECTION	
MGMT 552	ORGANIZATIONAL BEHAVIOR	
MGMT 559	MANAGING ETHICS AND CORPORATE SOCIAL RESPONSIBILITY	
SCLM 550	SUPPLY AND SOURCING MANAGEMENT	
<b>Total Credits</b>		<b>18-19</b>

1

Students may take up to one non-IE or non-EMGT course to meet elective requirements. Students should meet with an advisor to discuss all elective course choices

## Accessibility Form

### Accessibility Guidelines

I have reviewed the listed documents

### Faculty Guidelines

I have reviewed the listed documents

### Information Technology Guidelines

I have reviewed the listed documents

**By submitting this form, we affirm that we have reviewed the listed documents and will apply a good faith effort to ensure accessibility in curricular design, delivery, and supporting information.**

### Budget Information

#### Budget Worksheet and Narrative

Copy of Engineering Management budget worksheet\_Feb 3\_BEBC Sig.xlsx  
Engineering Management Budget Narrative.docx

#### Reviewer Comments

**Belinda Sykes (Office of the Registrar, Catalog Curriculum Coordinator) (belinda.sykes) (Fri, 17 Feb 2023 02:41:18 GMT):** I can confirm the learning outcomes have already been reviewed by the Office of Assessment & Accreditation.

**Kathryn Howard (Ecampus, Program Intake Coordinator) (kathryn.howard) (Fri, 03 Mar 2023 18:07:57 GMT):** Affirm that Ecampus pathway still viable with these program changes. Approve.

**John Bailey (Forest Engineering, Resources Management, Professor) (john.bailey) (Fri, 03 Mar 2023 18:12:39 GMT):** No concerns

**Eric Hansen (Wood Science Engineering, Department Head) (eric.hansen) (Fri, 03 Mar 2023 18:50:02 GMT):** No concerns

**Joseph Fradella III (School of Civil Construction Engineering, Senior Instructor I) (joe.fradella) (Fri, 03 Mar 2023 20:01:35 GMT):** ok

**Nicole Kent (College of Forestry, Manager of Undergraduate Curricula Advising) (nicole.kent) (Fri, 03 Mar 2023 20:24:41 GMT):** No concerns.

**Jack Istok (School of Civil Construction Engineering, Associate Head of Undergraduate Affairs) (jack.istok) (Sat, 04 Mar 2023 00:11:09 GMT):** approve for CCE

**Frank Chaplen (Biological Ecological Engineering, Associate Professor) (frank.chaplen) (Wed, 19 Apr 2023 00:09:58 GMT):** Rollback: Originator should attach a budget narrative to go with the budget spreadsheet.

**June Worley (School of Mechanical, Industrial Manufacturing Engineering, Instructor) (worleyj) (Tue, 09 May 2023 15:23:39 GMT):** Email sent to Frank W. Chaplen with additional information on 4/24/2023. Information will be reviewed by budget committee at 5/8/2023 meeting. Budget narrative attached as requested.

Key: 257