243: MANUFACTURING ENGINEERING UNDERGRADUATE MAJOR (BS, HBS)

In Workflow

1. APA Coordinator Programs (APA Coordinator Programs@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. 14 Day Review (none)
6. MIME Head (andy.dong@oregonstate.edu)
7. 16 College Committee Approver (frank.chaplen@oregonstate.edu)
8. Curriculum Management Programs (janice.nave-abele@oregonstate.edu)
9. Samantha Shaver (School of Mechanical, Industrial & Manufacturing Engineering, Administrative Program Assistant) (samantha.shaver@oregonstate.edu)
10. Budgets and Fiscal Planning Committee Chair (jeff.luck@oregonstate.edu)
11. 16 Curriculum Council College Rep (bram.lewis@oregonstate.edu)
12. Curriculum Management Programs (janice.nave-abele@oregonstate.edu)
13. Curriculum Council Co-Chairs (iannie@oregonstate.edu; jim.coakley@oregonstate.edu)
14. Executive Committee (vickie.nunnemaker@oregonstate.edu)
15. Faculty Senate (vickie.nunnemaker@oregonstate.edu)
16. Curriculum Management Programs (janice.nave-abele@oregonstate.edu)
17. NWCCU (janice.nave-abele@oregonstate.edu)
18. Catalog Coordinator (belinda.sykes@oregonstate.edu)

Approval Path

1. Wed, 14 Jun 2023 22:38:28 GMT
   Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for APA Coordinator Programs
2. Tue, 27 Jun 2023 02:57:13 GMT
   Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes): Approved for Catalog Coordinator
3. Tue, 27 Jun 2023 16:44:50 GMT
   David Blunck (College of Engineering, Associate Dean for Undergraduate Programs) (david.blunck): Approved for 16 Dean Designee
4. Tue, 27 Jun 2023 19:35:56 GMT
   Alix Gitelman (Vice Provost for Academic Affairs) (alix.gitelman): Approved for Provost Designee
5. Wed, 12 Jul 2023 09:29:19 GMT
   0/1 votes cast.
   Yes: 0% No: 0%
   Approved for 14 Day Review
6. Wed, 12 Jul 2023 14:29:47 GMT
   Andy Dong (School of Mechanical, Industrial & Manufacturing Engineering, Head) (andy.dong): Approved for MIME Head
7. Thu, 31 Aug 2023 13:06:22 GMT
   Frank Chaplen (Biological & Ecological Engineering, Associate Professor) (frank.chaplen): Approved for 16 College Committee Approver
8. Thu, 31 Aug 2023 17:24:51 GMT
   Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs
9. Thu, 31 Aug 2023 17:28:39 GMT
   Samantha Shaver (School of Mechanical, Industrial & Manufacturing Engineering, Administrative Program Assistant) (samantha.shaver): Approved for shavers
10. Thu, 26 Oct 2023 18:42:25 GMT
    Jeffrey Luck (School of Social & Behavioral Health Sciences, Associate Professor, and Budgets & Fiscal Planning Committee Chair) (jeff.luck): Approved for Budgets and Fiscal Planning Committee Chair
11. Sat, 04 Nov 2023 20:26:51 GMT
    Bram Lewis (School of Electrical Engineering & Computer Science, Instructor) (bram.lewis): Approved for 16 Curriculum Council College Rep
12. Mon, 06 Nov 2023 17:30:56 GMT
    Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele): Approved for Curriculum Management Programs

13. Wed, 22 Nov 2023 14:38:23 GMT
    Jim Coakley (College of Business, Associate Professor and Curriculum Council Co-Chair) (jim.coakley): Approved for Curriculum Council Co-Chairs
14. Wed, 29 Nov 2023 06:35:24 GMT
    Vickie Nunnemaker (Faculty Senate, Special Assistant to the Faculty Senate President) (vickie.nunnemaker): Approved for Executive Committee

History

1. Oct 13, 2019 by clmig-jwehrheim
2. Dec 31, 2019 by Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes)
3. Jan 2, 2020 by Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes)
4. Jun 1, 2020 by Belinda Sykes (Office of the Registrar, Catalog & Curriculum Coordinator) (belinda.sykes)
5. May 26, 2021 by Annie Ingersoll (College of Engineering, Assistant to Associate Dean of Undergraduate Programs) (annie.ingersoll)
6. Jan 25, 2023 by Sara Hoyt (Office of the Registrar, University Scheduling Specialist) (sara.hoyt)
7. Apr 3, 2023 by Janice Nave-Abele (Curriculum Management, Curriculum Coordinator) (janice.nave-abele)

Date Submitted: Mon, 12 Jun 2023 18:26:04 GMT

Viewing: 317 : Manufacturing Engineering Undergraduate Major (BS, HBS)

Last approved: Tue, 04 Apr 2023 04:18:14 GMT

Last edit: Tue, 27 Jun 2023 02:56:47 GMT

Changes proposed by: shavers

Proposal

Effective Term

Summer 2024

Type of Change

Suspend a program (or terminate a degree type)

Justification

Enrollment (counted as unduplicated headcount of students who declare the Bachelor of Science in Manufacturing Engineering only and not as part of a dual major with another degree in the School of Mechanical, Industrial, and Manufacturing Engineering) in this major has been very low for over a decade. The major enrolls fewer than a dozen new students per year who declare the Bachelor of Science in Manufacturing Engineering only. Most students who declare the Bachelor of Science in Manufacturing Engineering as a major do so as a dual major with the Bachelor of Science in Mechanical Engineering or the Bachelor of Science in Industrial Engineering. Given this trend, two new Options in the Bachelor of Science in Mechanical Engineering were established, Product Design and Manufacturing and Materials Design and Manufacturing, and one new Option was established in the Bachelor of Science in Industrial Engineering, Industrial Automation. These Options incorporate all of the courses and learning outcomes from the Bachelor of Science in Manufacturing Engineering. Therefore, admission into the Bachelor of Science in Manufacturing Engineering major can be suspended without an impact on new students, as they can enroll in either the Bachelor of Science in Mechanical Engineering or the Bachelor of Science in Industrial Engineering and choose the relevant Options (MFGE courses are not being deleted as a result of these changes and will continue to be taught.) Suspending admission decreases the administrative costs associated with marketing and managing a major.

Primary Originator

Name
Samantha Shaver (School of Mechanical, Industrial & Manufacturing Engineering, Administrative Program Assistant)
Andy Dong (School of Mechanical, Industrial & Manufacturing Engineering, Head)

Liaisons

Academic Unit
ENGR
School of Mechanical, Industrial & Manufacturing Engineering (AAE, ESC, ESE, HEST, IE, MATS, ME, MFGE, MIME, ROB)
School of Management, Entrepreneurship & Supply Chain (MGMT, SCLM)
School of Civil & Construction Engineering (ARE, CE, CCE, CEM)
Forest Engineering, Resources & Management (FE, FOR)

Program Information

Program Level
Undergraduate

Program Type
Major / Degree

Name
Manufacturing Engineering Undergraduate Major (BS, HBS)

Program (SIS) Code
317

CIP Code
143601 - Manufacturing Engineering.

College
Engineering (16)

Academic Unit
School of Mechanical, Industrial & Manufacturing Engineering

Is this program jointly administered?
No

What degree types are available for this undergraduate program?
Bachelor of Science (BS/HBS)

Campus Locations
Corvallis

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

Program Relationships

Are all degree types and options (if applicable) available at all locations?
Yes

Does this program use a pre/pro school model?
No

Does this program use an alternative admissions process or have grade/GPA standards that are different from the university minimum?
No

Does this major have options?
Yes

Select Options

Option Name
Manufacturing Systems Option
Product Development Option

Is completion of an option required to earn the major?
No

Suspend or Terminate a Degree

Do you wish to suspend this program for three years or terminate it permanently?

Suspend the major (all degree types)

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.

Student learning outcomes and experiences associated with the Bachelor of Science in Manufacturing Engineering have already been incorporated into two new Options in the Bachelor of Science in Mechanical Engineering, Product Design and Manufacturing and Materials Design and Manufacturing, and one new Option in the Bachelor of Science in Industrial Engineering, Industrial Automation. Students in those Options must take several MFGE courses as a mixture of required and elective courses to complete the requirements of those Options, thereby obtaining the relevant learning outcomes and experiences. Advisors will inform new (including transfer) students who express interest in manufacturing engineering to declare either the Bachelor of Science in Mechanical Engineering and choose either the Product Design and Manufacturing or Materials Design and Manufacturing Option or declare the Bachelor of Science in Industrial Engineering with the Industrial Automation Option. Students who have an interest in the product development aspect of manufacturing will be advised to declare the Bachelor of Science in Mechanical Engineering whereas students with an interest in manufacturing systems will be advised to declare the Bachelor of Science in Industrial Engineering. There will be no reduction in the number of advisors or the availability of advising since the advisors support all undergraduate programs in the School.

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

The suspension of the Bachelor of Science in Manufacturing Engineering will reduce the amount of time that faculty in the advanced manufacturing discipline devote to managing an undergraduate major. Faculty time can then be redirected toward starting a new graduate program related to advanced manufacturing, which is in line with the strategic direction of the School, College, and University.

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

There will be no substantive impact to the other undergraduate programs administered by the School of Mechanical, Industrial, and Manufacturing. None of the courses associated with the Bachelor of Science in Manufacturing Engineering will be deleted. Students in the Bachelor of Science in Manufacturing Engineering already take courses in mechanical engineering and industrial engineering, and vice versa. Since the number of students enrolled solely in manufacturing engineering are so low, and the number of students enrolled in the other programs is comparatively larger, there is no concern that the suspension of this program will decrease enrollment in courses to the extent that it jeopardizes the viability of other courses and programs.

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

This proposal has no negative impact on the long-range strategic goals and plans for the school or the college. It is important to emphasize that while the major is being suspended, none of the courses are being deleted and those courses are now part of larger programs (mechanical engineering and industrial engineering). This alignment may increase the number of students enrolled in MFGE courses, thereby ensuring the viability of those courses. If more students enroll in MFGE courses, additional students may be encouraged to pursue advanced manufacturing in their graduate studies. Increasing research and the number of graduate students in advanced manufacturing supports the long-range strategic goals for the College of Engineering, which has designated advanced manufacturing as a strategic area of research. The Bachelor of Science in Manufacturing Engineering has no significant contribution to OSU's three signature areas of distinction.

What is the current relationship with other higher education institutions in Oregon? Describe how this relationship might be altered based on the proposed change

While MECOP (the Multiple Engineering Cooperative Program) is not a higher education institution, the suspension of this major was noted as impacting an important external partner. MECOP have been informed of the program's suspension and briefed on the expectation of no impact on the number of manufacturing-oriented students who will enroll in MECOP for an internship experience because most of these students are already enrolled in either the Bachelor of Science in Mechanical Engineering or the Bachelor of Science in Industrial Engineering.

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

Suspension of the Bachelor of Science in Manufacturing Engineering will not affect the accreditation of any other programs. Current ABET accreditation for the Bachelor of Science in Manufacturing Engineering is valid until September 30, 2027.

Teach-Out Plan

When did the program last have student enrollment?

Spring 2023 (current)

What is the teach-out plan for students currently enrolled in the program? If any core courses will stop being taught, what substitutions will be offered in their place so that students can still complete their requirements?

There are no MFGE courses being deleted. Students currently enrolled in the program will still be able to take all required courses.

Information for the Catalog

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

182

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

The Bachelor of Science and Honors Bachelor of Science degrees in Manufacturing Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.ABET.org.

The curriculum in Manufacturing Engineering supports a range of career paths in the areas of manufacturing process development, manufacturing systems analysis, and new product development, among others. The degree prepares students for industry, graduate study, or other career paths, specializing or broadening further their knowledge and skills.

Program Educational Objectives—Manufacturing Engineering

Note: The Bachelor of Science and Honors Bachelor of Science degrees in Manufacturing Engineering are accredited by the Engineering Accreditation Commission of ABET, http://www.ABET.org, which requires stated program educational objectives and student outcomes to support these.

OSU Manufacturing Engineering graduates receive an innovative education, and within 3 to 5 years of graduation will have:

1. Created value to organizations through the analysis, evaluation, and improvement of engineered systems and processes using appropriate manufacturing engineering methods and tools.
2. Communicated effectively across disciplines and cultures to manage and/or lead activities in support of organizational goals and objectives.
3. Innovated systems and processes, in response to organizational challenges, though the application of structured and unstructured manufacturing engineering methodologies, including engineering design and problem solving.

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	Identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics.
2	Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.
3	Communicate effectively with a range of audiences.
4	Recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts.
5	Function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives.
6	Develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions.
7	Acquire and apply new knowledge as needed, using appropriate learning strategies.
8	Design products and the equipment, tooling, and environment necessary for their manufacture.
9	Create competitive advantage through manufacturing planning, strategy, quality, and control.
10	Analyze, synthesize, and control manufacturing operations using statistical methods.
11	Measure manufacturing process variables and develop technical inferences about the process.

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

First Year		Credits
CH 201	CHEMISTRY FOR ENGINEERING MAJORS	3
CH 202	CHEMISTRY FOR ENGINEERING MAJORS [1]	3
CH 205	LABORATORY FOR CH 202	1
COMM 111Z or COMM 114	*PUBLIC SPEAKING or *ARGUMENT AND CRITICAL DISCOURSE	3-4
ENGR 100	THE OREGON STATE ENGINEERING STUDENT	3
ENGR 102	DESIGN ENGINEERING AND PROBLEM SOLVING	3
ENGR 103	ENGINEERING COMPUTATION AND ALGORITHMIC THINKING	3

HHS 231	*LIFETIME FITNESS FOR HEALTH	2
HHS 241	*LIFETIME FITNESS (or any PAC course)	1
MTH 251	*DIFFERENTIAL CALCULUS	4
MTH 252	INTEGRAL CALCULUS	4
MTH 254	VECTOR CALCULUS I	4
PH 211	*GENERAL PHYSICS WITH CALCULUS	4
WR 121Z	*COMPOSITION I	4
*Perspectives Courses		6
	Credits	**48-49**
Second Year		
ENGR 201	ELECTRICAL FUNDAMENTALS I	3
ENGR 211	STATICS	3
ENGR 212	DYNAMICS	3
ENGR 213	STRENGTH OF MATERIALS	3
ENGR 248	ENGINEERING GRAPHICS AND 3-D MODELING	3
MATS 321	INTRODUCTION TO MATERIALS SCIENCE	4
ME 250	INTRODUCTION TO MANUFACTURING PROCESSES	1
MTH 256	APPLIED DIFFERENTIAL EQUATIONS	4
MTH 341	LINEAR ALGEBRA I	3
PH 212 & PH 213	*GENERAL PHYSICS WITH CALCULUS and *GENERAL PHYSICS WITH CALCULUS	8
ST 314	INTRODUCTION TO STATISTICS FOR ENGINEERS [1]	3
Restricted Electives [1,2]		5
	Credits	**43**
Third Year		
ME 311/NSE 311	INTRODUCTION TO THERMAL-FLUID SCIENCES	4
ME 382	INTRODUCTION TO DESIGN	4
MFGE 336	PRODUCTION ENGINEERING	4
WR 227Z	*TECHNICAL WRITING	4
Restricted Electives [1,2]		20
*Perspectives Courses		6
*Biological Science Elective		4
	Credits	**46**
Fourth Year		
MFGE 337	MATERIALS AND MANUFACTURING PROCESSES	4
MFGE 413	COMPUTER AIDED DESIGN AND MANUFACTURING	4
MFGE 436	LEAN MANUFACTURING SYSTEMS ENGINEERING	4
MFGE 437	COMPUTER CONTROL OF MANUFACTURING PROCESSES	4
MIME 497	^MIME CAPSTONE DESIGN	4
MIME 498	^MIME CAPSTONE DESIGN	4
Restricted Electives [1,2]		12
*Difference, Power & Discrimination		3
*Synthesis Courses		6
	Credits	**45**
	Total Credits	**182-183**

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Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

1

Prerequisite for several upper-division courses

2

May be selected to satisfy the requirements of an approved manufacturing keystone option

Sample Curriculum Plan (this will display on the Sample Plan tab in the Catalog and be added to a MyDegrees template)

First Year		
Fall		**Credits**
CH 201	CHEMISTRY FOR ENGINEERING MAJORS	3
ENGR 100	THE OREGON STATE ENGINEERING STUDENT	3
MTH 251	*DIFFERENTIAL CALCULUS	4
WR 121Z	*COMPOSITION I	4
*Perspectives Course		3
	Credits	**17**
Winter		
CH 202	CHEMISTRY FOR ENGINEERING MAJORS	3

CH 205	LABORATORY FOR CH 202	1
ENGR 102	DESIGN ENGINEERING AND PROBLEM SOLVING	3
COMM 111Z or COMM 114	*PUBLIC SPEAKING or *ARGUMENT AND CRITICAL DISCOURSE	3-4
MTH 252	INTEGRAL CALCULUS	4
HHS 231	*LIFETIME FITNESS FOR HEALTH	2
*Any PAC Course		1
	Credits	**17-18**
Spring		
ENGR 103	ENGINEERING COMPUTATION AND ALGORITHMIC THINKING	3
MTH 254	VECTOR CALCULUS I	4
PH 211	*GENERAL PHYSICS WITH CALCULUS	4
*Perspectives Course		3
	Credits	**14**
Second Year		
Fall		
ENGR 211	STATICS	3
ENGR 248	ENGINEERING GRAPHICS AND 3-D MODELING	3
IE 112	SPREADSHEET SKILLS FOR INDUSTRIAL & MANUFACTURING ENGINEERS	1
MTH 256	APPLIED DIFFERENTIAL EQUATIONS	4
PH 212	*GENERAL PHYSICS WITH CALCULUS	4
	Credits	**15**
Winter		
ENGR 213	STRENGTH OF MATERIALS	3
IE 212	COMPUTATIONAL METHODS FOR INDUSTRIAL ENGINEERING	4
MTH 341	LINEAR ALGEBRA I	3
PH 213	*GENERAL PHYSICS WITH CALCULUS	4
	Credits	**14**
Spring		
ENGR 201	ELECTRICAL FUNDAMENTALS I	3
ENGR 212	DYNAMICS	3
IE 255	INTRODUCTORY QUANTITATIVE ANALYSIS OF INDUSTRIAL AND MANUFACTURING SYSTEMS	3
MATS 321	INTRODUCTION TO MATERIALS SCIENCE	4
ME 250	INTRODUCTION TO MANUFACTURING PROCESSES	1
	Credits	**14**
Third Year		
Fall		
IE 355	QUANTITATIVE METHODS FOR SYSTEM ANALYSIS AND IMPROVEMENT	4
IE 367	PRODUCTION PLANNING AND CONTROL	4
MFGE 336	PRODUCTION ENGINEERING	4
ME 311	INTRODUCTION TO THERMAL-FLUID SCIENCES	4
	Credits	**16**
Winter		
ENGR 390	ENGINEERING ECONOMY	3
IE 356	QUANTITATIVE METHODS FOR SYSTEM MODELING AND EXPERIMENTATION	4
IE 366	WORK SYSTEMS ENGINEERING	4
IE 368	FACILITY DESIGN AND OPERATIONS MANAGEMENT	4
	Credits	**15**
Spring		
ME 382	INTRODUCTION TO DESIGN	4
WR 227Z	*TECHNICAL WRITING	4
*Perspectives Courses		6
*Biological Science & Lab		4
	Credits	**18**
Fourth Year		
Fall		
MIME 497	^MIME CAPSTONE DESIGN	4
MFGE 436	LEAN MANUFACTURING SYSTEMS ENGINEERING	4
Restricted Elective		4
	Credits	**12**
Winter		
MIME 498	^MIME CAPSTONE DESIGN	4
MFGE 337	MATERIALS AND MANUFACTURING PROCESSES	4
Restricted Electives		5
	Credits	**13**
Spring		
MFGE 413	COMPUTER AIDED DESIGN AND MANUFACTURING	4
MFGE 437	COMPUTER CONTROL OF MANUFACTURING PROCESSES	4

*Difference, Power & Discrimination	3
*Synthesis Courses	6
Credits	**17**
Total Credits	**182-183**

*****
Baccalaureate Core Course (BCC)

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Writing Intensive Course (WIC)

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
Budget Info - Suspension of BS MFGE.docx

Reviewer Comments

Belinda Sykes (Office of the Registrar, Catalog Curriculum Coordinator) (belinda.sykes) (Tue, 27 Jun 2023 02:55:28 GMT): This proposal suspends the Manufacturing Engineering UG Major and two options. There are currently enrolled students but MIME have confirmed that all required courses will continue to be taught so those students will be able to complete their requirements. Suspensions pause admission for up to three years but the program will continue to be listed in the Catalog. After three years (if not before), the program will be formally terminated or reactivated.

Jack Istok (School of Civil Construction Engineering, Associate Head of Undergraduate Affairs) (jack.istok) (Tue, 27 Jun 2023 19:50:48 GMT): no objections CCE

Kevin Lyons (Forest Engineering, Resources Management, Endowed Professor) (kevin.lyons) (Tue, 27 Jun 2023 20:00:02 GMT): No concerns

Joseph Fradella III (School of Civil Construction Engineering, Senior Instructor I) (joe.fradella) (Wed, 28 Jun 2023 00:16:47 GMT): no concerns

John Bailey (Forest Engineering, Resources Management, Professor) (john.bailey) (Thu, 29 Jun 2023 00:20:12 GMT): No concerns

Andy Dong (School of Mechanical, Industrial Manufacturing Engineering, Head) (andy.dong) (Wed, 12 Jul 2023 14:29:44 GMT): The program suspension has been made possible through the curriculum for the BSME, which includes two new "manufacturing engineering" Options. Current BS MFGE students will be able to complete their degree. No MFGE courses are actually being deleted.

Arup Indra (College of Pharmacy, Associate Professor) (arup.indra) (Fri, 27 Oct 2023 00:52:17 GMT): I approve and have no concerns. Thank you, Arup

Bram Lewis (School of Electrical Engineering Computer Science, Instructor) (bram.lewis) (Sat, 04 Nov 2023 20:26:47 GMT): No concerns.

Key: 243