

Date Submitted: 01/25/21 3:46 pm

# Viewing: **MEEGBS : Mechanical Engineering, Bachelor of Science in Mechanical Engineering**

Last approved: 05/08/18 12:29 pm

Last edit: 02/03/21 5:04 pm

Changes proposed by: chstung

Catalog Pages Using this Program

- [Mechanical Engineering B.S.M.E.](#)
- [Mechanical Engineering.\(MEEG\)](#)

Submitter: User ID: **chstung crsleaf1** Phone: **575-5557 575-4153**

Program Status Active

Academic Level Undergraduate

Type of proposal Major/Field of Study

Select a reason for this modification

Making Minor Changes to an Existing Degree (e.g. changing 15 or fewer hours, changing admission/graduation requirements, adding/changing Focused Study or Track)

Are you adding a concentration?

**No** ~~Yes~~

Are you adding or modifying a track?

No

Are you adding or modifying a focused study?

No

Effective Catalog Year Fall 2021

College/School Code

## In Workflow

1. ENGR Dean Initial
2. Director of Program Assessment and Review
3. Registrar Initial
4. Institutional Research
5. MEEG Chair
6. ENGR Curriculum Committee
7. ENGR Faculty
8. ARSC Dean
9. ENGR Dean
10. Global Campus
11. Provost Review
12. University Course and Program Committee
13. Faculty Senate
14. Provost Final
15. Provost's Office-- Notification of Approval
16. Registrar Final
17. Catalog Editor Final

## Approval Path

1. 03/15/19 3:56 pm Norman Dennis (ndennis): Approved for ENGR Dean Initial
2. 03/18/19 4:32 pm Alice Griffin (agriffin): Approved for Director of

College of Engineering (ENGR)

Department Code

Department of Mechanical Engineering (MEEG)

Program Code MEEGBS

Degree Bachelor of Science in Mechanical Engineering

CIP Code

Program

Assessment and  
Review

3. 03/26/19 3:06 pm

Lisa Kulczak

(lkulcza): Approved  
for Registrar Initial

4. 03/26/19 5:08 pm

Gary Gunderman

(ggunderm):

Approved for

Institutional

Research

5. 03/26/19 6:34 pm

Darin Nutter

(dnutter): Approved

for MEEG Chair

6. 04/01/19 1:34 pm

Manuel Rossetti

(rossetti): Approved

for ENGR

Curriculum

Committee

7. 04/01/19 2:24 pm

Norman Dennis

(ndennis): Approved

for ENGR Faculty

8. 04/01/19 2:29 pm

Norman Dennis

(ndennis): Approved

for ENGR Dean

9. 04/01/19 2:30 pm

Leigh Ann Marshall

(lamarsh): Approved

for Global Campus

10. 04/04/19 10:43 am

Terry Martin

(tmartin): Approved

for Provost Review

11. 04/19/19 4:30 pm  
Alice Griffin  
(agriffin): Approved  
for University  
Course and Program  
Committee
12. 05/09/19 5:48 pm  
Kathleen Lehman  
(kalehman):  
Approved for  
Faculty Senate
13. 05/10/19 7:33 am  
Terry Martin  
(tmartin): Approved  
for Provost Final
14. 05/10/19 8:26 am  
Terry Martin  
(tmartin): Approved  
for ADE Licensure  
Approval
15. 05/10/19 8:27 am  
Terry Martin  
(tmartin): Approved  
for Provost's Office--  
Notification of  
Approval
16. 05/20/19 6:14 pm  
Lisa Kulczak  
(lkulcza): Approved  
for Registrar Final
17. 05/20/19 9:51 pm  
Lisa Kulczak  
(lkulcza): Rollback to  
Registrar Final for  
Catalog Editor Final
18. 09/27/19 9:47 am  
Lisa Kulczak  
(lkulcza): Rollback to  
MEEG Chair for  
Registrar Final

19. 09/27/19 11:23 am  
Lisa Kulczak  
(lkulcza): Rollback to Initiator
20. 02/06/20 2:44 pm  
Norman Dennis  
(ndennis): Rollback to Initiator
21. 12/08/20 2:24 pm  
Norman Dennis  
(ndennis): Approved for ENGR Dean Initial
22. 12/08/20 3:31 pm  
Alice Griffin  
(agriffin): Rollback to Initiator
23. 01/14/21 7:10 pm  
Norman Dennis  
(ndennis): Rollback to Initiator
24. 01/29/21 11:27 am  
Norman Dennis  
(ndennis): Approved for ENGR Dean Initial
25. 02/03/21 5:04 pm  
Alice Griffin  
(agriffin): Approved for Director of Program Assessment and Review
26. 02/09/21 5:12 pm  
Lisa Kulczak  
(lkulcza): Approved for Registrar Initial
27. 02/09/21 5:30 pm  
Gary Gunderman  
(ggunderm):

- Approved for  
Institutional  
Research
28. 02/09/21 5:49 pm  
Darin Nutter  
(dnutter): Approved  
for MEEG Chair
29. 02/18/21 9:37 am  
Manuel Rossetti  
(rossetti): Approved  
for ENGR  
Curriculum  
Committee
30. 02/18/21 9:43 am  
Norman Dennis  
(ndennis): Approved  
for ENGR Faculty
31. 02/18/21 9:50 am  
Jeannie Hulen  
(jhulen): Approved  
for ARSC Dean
32. 02/18/21 10:32 am  
Norman Dennis  
(ndennis): Approved  
for ENGR Dean
33. 02/18/21 10:37 am  
Suzanne Kenner  
(skenner): Approved  
for Global Campus
34. 02/18/21 10:47 am  
Terry Martin  
(tmartin): Approved  
for Provost Review

## History

1. Aug 15, 2014 by  
Leepfrog  
Administrator  
(clhelp)

- 2. Feb 24, 2015 by Charlie Alison (calison)
- 3. Mar 8, 2016 by Charlie Alison (calison)
- 4. Mar 8, 2016 by Charlie Alison (calison)
- 5. May 8, 2018 by Melynda Hart (melhart)

14.1901 - Mechanical Engineering.

Program Title

Mechanical Engineering, Bachelor of Science in Mechanical Engineering

Program Delivery

Method

On Campus

Is this program interdisciplinary?

No

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

Yes

College(s)/School(s)

College/School Name
<del>Fulbright College of Arts and Sciences (ARSC)</del>
<b>Fulbright College of Arts and Sciences (ARSC)</b>

What are the total hours needed to complete the program? 124

## Program Requirements and Description

### Requirements

**Requirements for the B.S.M.E.:** The Bachelor of Science in Mechanical Engineering curriculum includes, in addition to the required 18 hours of history, government, fine arts/humanities/social science elective courses, a total of 12 hours of technical and science electives. A student must select all electives with the approval of his or her adviser. The fine arts/humanities/social science electives must be selected from the [University Core](#) in the Academic Regulations chapter for university requirements for the program. It is expected that technical and science electives will be chosen to provide a coherent program within one or more areas of specialization or options available to mechanical engineers. Traditional areas of specialization are available in mechanical systems, materials, and energy systems. Other areas include pre-medical, management, and aerospace. The first-year curriculum is essentially the same as prescribed for all engineering freshmen. Students entering the mechanical engineering program are required to take two, four hour laboratory based science electives. One of the four hour science electives must be [PHYS 2074](#). The other four hour science elective must be chosen from one of the following:

<a href="#">ASTR 2003</a>	Survey of the Universe (ACTS Equivalency = PHSC 1204 Lecture)	4
& <a href="#">ASTR 2001L</a>	and Survey of the Universe Laboratory (ACTS Equivalency = PHSC 1204 Lab)	
<a href="#">BIOL 1543</a>	Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	4
& <a href="#">BIOL 1541L</a>	and Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
<a href="#">BIOL 2213</a>	Human Physiology (ACTS Equivalency = BIOL 2414 Lecture)	4
& <a href="#">BIOL 2211L</a>	and Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)	
<del>CHEM 1103</del>	<del>University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)</del>	<del>4</del>
& <del>CHEM 1101L</del>	<del>and University Chemistry I Laboratory (ACTS Equivalency = CHEM 1414 Lab)</del>	
<a href="#">CHEM 1123</a>	<b>University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)</b>	<b>4</b>
& <a href="#">CHEM 1121L</a>	<b>and University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)</b>	
<a href="#">GEOS 1113</a>	Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)	4
& <a href="#">GEOS 1111L</a>	and Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
<a href="#">PHYS 2094</a>	University Physics III	4
<a href="#">PHYS 3544</a>	Optics	4
<del>PHYS 3603</del>	<del>Introduction to Modern Physics</del>	<del>4</del>
& <del>PHYS 360VL</del>	<del>and Modern Physics Laboratory</del>	
<a href="#">PHYS 3613</a>	<b>Modern Physics</b>	<b>4</b>
& <a href="#">PHYS 361VL</a>	<b>and Modern Physics Laboratory</b>	

## Fine Arts/Humanities/Social Science Electives

---

Students must follow the University Core curriculum in selecting their history, government, fine arts, humanities, and social science electives. Each student in the College of Engineering is required to complete 18 semester hours in the humanities and social sciences.

The courses taken must include:

<a href="#">HIST 2003</a>	History of the American People to 1877 (ACTS Equivalency = HIST 2113)	3
or <a href="#">HIST 2013</a>	History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)	
or <a href="#">PLSC 2003</a>	American National Government (ACTS Equivalency = PLSC 2003)	
<a href="#">ECON 2143</a>	Basic Economics: Theory and Practice	3

or [ECON 2013](#) Principles of Macroeconomics (ACTS Equivalency = ECON 2103)

~~PHIL 3103 Ethics and the Professions~~

3

[CLST 1003](#) Introduction to Classical Studies: Greece

3

or [CLST 1003H](#) Honors Introduction to Classical Studies: Greece

or [CLST 1013](#) Introduction to Classical Studies: Rome

or [PHIL 2003](#) Introduction to Philosophy (ACTS Equivalency = PHIL 1103)

or [PHIL 2103](#) Introduction to Ethics (ACTS Equivalency = PHIL 1003)

or [PHIL 2103C](#) Introduction to Ethics (ACTS Equivalency = PHIL 1003)

The remaining three courses must be selected from an approved list. The humanities and social sciences chart from the [University Core](#) page should be used as a guide for selecting these courses.

## 8-Semester Plan

# Mechanical Engineering B.S.M.E.

## Eight-Semester Degree Program

The following section contains the list of courses required for the Bachelor of Science in Mechanical Engineering degree and a suggested sequence. Not all courses are offered every semester, so students who deviate from the suggested sequence must pay careful attention to course scheduling and course prerequisites. Students interested in obtaining a sequencing schedule of courses may contact the Mechanical Engineering office.

Students wishing to follow the eight-semester degree plan should see the [Eight-Semester Degree Policy](#) in the Academic Regulations chapter for university requirements of the program.

Either the science elective in the second semester of Year 1 or the science elective in the first semester of Year 2 must include [PHYS 2074](#). Other science electives should be chosen from an approved list. See the mechanical engineering office.

First Year

Units

Fall/Spring

[ENGL 1013](#) Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1) 3

[CHEM 1103](#) University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture) 3

~~[PHYS 2054](#) University Physics I (ACTS Equivalency = PHYS 2034) 4 -~~

[MATH 2554](#) Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1) 4

[GNEG 1111](#) Introduction to Engineering I 1

**Select one of the following (Satisfies General Education Outcome 4.2): 3**

[HIST 2003](#) History of the American People to 1877 (ACTS Equivalency = HIST 2113)

[HIST 2013](#) History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)

[PLSC 2003](#) American National Government (ACTS Equivalency = PLSC 2003)

~~Select one of the following: - 3~~



<del>HIST 2003 History of the American People to 1877 (ACTS Equivalency = HIST 2113)</del>	
<del>HIST 2013 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)</del>	
<del>PLSC 2003 American National Government (ACTS Equivalency = PLSC 2003)</del>	
<u>GNEG 1121</u> Introduction to Engineering II	1
<u>MATH 2564</u> Calculus II (ACTS Equivalency = MATH 2505)	4
<del>Freshman Science Elective (See Above)</del>	- 4
<del>ENGL 1023 Composition II (ACTS Equivalency = ENGL 1023)</del>	- 3
<b>Freshman Science Elective (See Above) (Satisfies General Education Outcome 3.4)2</b>	<b>4</b>
<b><u>ENGL 1033</u> Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)</b>	<b>3</b>
<b><u>PHYS 2054</u> University Physics I (ACTS Equivalency = PHYS 2034)</b>	<b>4</b>
Year Total:	14 16
Second Year	Units
	FallSpring
<del>MEEG 2100</del> <del>Course MEEG 2100 Not Found</del>	0 -
<b><u>MEEG 2101</u> Computer-aided Design</b>	<b>1</b>
Science Elective (See Note Above)	4
<u>MATH 2574</u> Calculus III (ACTS Equivalency = MATH 2603)	4
<u>MEEG 2303</u> Introduction to Materials	3
<u>MEEG 2003</u> Statics	3
<u>MATH 2584</u> Elementary Differential Equations	4
<u>MEEG 2013</u> Dynamics	3
<u>MEEG 2403</u> Thermodynamics	3
<u>MEEG 2703</u> Computer Methods in Mechanical Engineering	3
<u>MEEG 2103</u> Introduction to Machine Analysis	3
Year Total:	15 16
Third Year	Units
	FallSpring
<u>MEEG 3013</u> Mechanics of Materials	3
<u>MEEG 3113</u> Fundamentals of Vibrations	3
<u>MEEG 3202L</u> Mechanical Engineering Laboratory I	2
<u>MEEG 3503</u> Mechanics of Fluids	3
<u>ELEG 3903</u> Electric Circuits and Machines	3
<u>ECON 2013</u> Principles of Macroeconomics (ACTS Equivalency = ECON 2103) (Satisfies General Education Outcome 3.3)	3
or <u>ECON 2143</u> Basic Economics: Theory and Practice	
<u>MEEG 3212L</u> Mechanical Engineering Laboratory II	2
<u>MEEG 4413</u> Heat Transfer	3
<del>MEEG 4104</del> <del>Course MEEG 4104 Not Found</del>	- 4

<del>ELEG 3933 Circuits &amp; Electronics</del>	<del>- 3</del>
<b>MEEG 4103 Machine Element Design</b>	<b>3</b>
<b>MEEG 3223 Introduction to Mechatronics</b>	<b>3</b>
Technical/Science Elective	3
<del>PHIL 3103 Ethics and the Professions</del>	<del>- 3</del>
<b>Humanities State Minimum Core Elective (Satisfies General Education Outcomes 3.2 and 5.1):</b>	<b>3</b>
<b><u>CLST 1003</u> Introduction to Classical Studies: Greece</b>	
<b>or <u>CLST 1003H</u> Honors Introduction to Classical Studies: Greece</b>	
<b>or <u>CLST 1013</u> Introduction to Classical Studies: Rome</b>	
<b>or <u>PHIL 2003</u> Introduction to Philosophy (ACTS Equivalency = PHIL 1103)</b>	
<b>or <u>PHIL 2103</u> Introduction to Ethics (ACTS Equivalency = PHIL 1003)</b>	
<b>or <u>PHIL 2103C</u> Introduction to Ethics (ACTS Equivalency = PHIL 1003)</b>	
Year Total:	17 17
Fourth Year	Units
	FallSpring
<u>MEEG 4132</u> Professional Engineering Practices	2
<u>MEEG 4182</u> Creative Project Design I	2
<u>MEEG 4202L</u> Mechanical Engineering Laboratory III	2
<u>MEEG 4483</u> Thermal Systems Analysis and Design	3
Technical/Science Elective	3
<del>Fine Arts Elective (from University/State Core List)</del>	<del>3 -</del>
<b>Fine Arts State Minimum Core Elective (Satisfies General Education Outcome 3.1)3</b>	<b>3</b>
<b><u>MEEG 4192</u> Creative Project Design II (Satisfies General Education Outcome 6.1)</b>	<b>2</b>
Two Technical/Science Elective	6
<del>Two Social Science Elective (from University/State Core List)</del>	<del>- 6</del>
<b>Social Sciences State Minimum Core Elective (Satisfies General Education Outcome 3.3)4</b>	<b>3</b>
<b>Social Sciences State Minimum Core Elective (Satisfies General Education Outcomes 3.3 and 4.1)5</b>	<b>3</b>
Year Total:	15 14

Total Units in Sequence: 124

**1**Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554.

**2**The Freshman Science Elective courses that satisfy General Education Outcome 3.4 include:

ASTR 2003/ASTR 2001L, BIOL 1543/BIOL 1541L, BIOL 2213/BIOL 2211L, CHEM 1123/CHEM 1121L, GEOS 1113/GEOS 1111L.

**3**The Fine Arts Elective courses that satisfy General Education Outcome 3.1 include: ARCH 1003, ARHS 1003, COMM 1003, DANC 1003, LARC 1003, MLIT 1003, MLIT 1003H, MLIT 1013, MLIT 1013H, MLIT 1333, THTR 1003, THTR 1013, or THTR 1013H.

**4**The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: AGEC 1103, AGEC 2103, ANTH 1023, COMM 1023, ECON 2013, ECON 2023, ECON 2143, EDST 2003, HDFS 1403.

HDFS 2413, HDFS 2603, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2003, HIST 2013, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2013, INST 2813, INST 2813H, PLSC 2003, PLSC 2013, PLSC 2203, PLSC 2813, PLSC 2813H, PSYC 2003, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033. Note, courses cannot be counted twice in degree requirements.

5The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 1023, COMM 1023, HDFS 1403, HDFS 2413, HIST 1113, HIST 1113H, HIST 1123, HIST 1123H, HIST 2093, HUMN 1114H, HUMN 2114H, INST 2013, INST 2813, INST 2813H, PLSC 2013, PLSC 2813, PLSC 2813H, RESM 2853, SOCI 2013, SOCI 2013H, or SOCI 2033.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program 50  
 Scheduled Program Review Date 2020

Program Goals and Objectives

**Program Goals and Objectives**

Beyond the BSME, the objective of the aerospace concentration is to produce graduates who have specialized analytical, experimental and/or computational skills relating to the aerospace engineering industry.

Learning Outcomes

**Learning Outcomes**

In addition to the learning outcomes of the BSME, students with an aerospace concentration can demonstrate:  
 A. An ability to apply fundamental aerospace engineering concepts and applications; and,  
 B. An ability to design aerospace systems, components, and processes.

Description and justification of the request

Description of specific change	Justification for this change
One hour is added to MEEG 2100 computer-aided design and one hour is removed from MEEG 4104 Machine Element Design. The total hour of the program remains unchanged.	Changes are made to better reflect students' effort and revised course contents.

Description of specific change	Justification for this change
<p>Revised formatting of the eight semester degree plan.            Inserted the General Education language.            Also added footnotes and hyper-linked courses for access to course details.</p>	<p>To provide consistency with the General Education curriculum language.            Footnotes provides list of courses that specifically meets each General Education Outcome on behalf of the college.</p> <p>Changes to ENGL 1033 requirement will need program change to receive campus approval. AG</p>
<p>Changing CHEM 1103/1101L to CHEM 1123/1121L.</p>	<p>To correct a long-standing error in the catalog. CHEM 1103 is a required course in our curriculum, and therefore should never have been included in the 4 hour science elective list in the first place. The correct class in the list should be CHEM 1123 instead.</p>
<p>Changing PHYS 3603/3601VLto PHYS 3613/361VL.</p>	<p>The request is a recommendation from Physics. According to them, 3603 is designed for BA major and 3613 for BS major. And 361VL is the lab for 3613.</p>

Upload attachments

Reviewer Comments

**Norman Dennis (ndennis) (03/15/19 3:55 pm):** Added new Course Numbers

**Alice Griffin (agriffin) (03/18/19 2:59 pm):** Changed effective catalog year from fall 2019 to fall 2020. It is too late to complete the campus approval process for this fall.

**Alice Griffin (agriffin) (03/18/19 4:29 pm):** Removed duplicate courses so that the credit hours would total correctly to 124 hours for the program.

**Alice Griffin (agriffin) (03/18/19 4:31 pm):** Verified that the courses in red box have been submitted into the approval workflow. These include changing MEEG from 2100 to 2101 and MEEG 4104 to MEEG 4103. The additional language was removed so that the notes would not appear in the catalog copy.

**Lisa Kulczak (lkulcza) (05/20/19 9:51 pm):** Rollback: Accidentally approved--requested fall 2020 effective date.

**Lisa Kulczak (lkulcza) (09/27/19 9:47 am):** Rollback: Rolling back to make corrections to courses listed in science electives/8 semester plan.

**Lisa Kulczak (lkulcza) (09/27/19 11:23 am):** Rollback: Rolling back to submitter so Melynda can make the necessary updates.

**Norman Dennis (ndennis) (02/06/20 2:44 pm):** Rollback: 1. Please add the restricted list of courses in the state minimum core that will satisfy the Gen Ed Outcomes for your program to the requirements list and to the eight semester plan. 2. I understand why you no longer allow CHEM 1103 to satisfy one of the 4 hour science classes, but CHEM 1123 requires CHEM 1103 as a prerequisite and that course is not listed as required in your program.

**Alice Griffin (agriffin) (12/08/20 3:31 pm):** Rollback: Please change response to the question, Does this proposal impact any courses from another college? Requiring ENGL 1033 impacts ARSC. Only the submitter can influence workflow and changing this response will place ARSC into the approval workflow.

**Norman Dennis (ndennis) (01/14/21 7:10 pm):** Rollback: Steve, would you take care of moving Physics I to second term now before this change moves forward?

**Norman Dennis (ndennis) (01/29/21 11:27 am):** Added Humanities State Minimum Core to third year elective.

**Alice Griffin (agriffin) (01/29/21 4:04 pm):** Indented course options for HUMN in eight semester plan. Reformatting removes the zero error box appearing in hours column.

**Alice Griffin (agriffin) (02/03/21 5:04 pm):** Inserted description and justification for science changes on behalf of the college.