

Date Submitted: 02/24/21 3:13 pm

Viewing: **MEEGBS-AERO : Mechanical Engineering: Aerospace Concentration**

Last approved: 05/21/19 11:44 am

Last edit: 03/01/21 10:45 am

Changes proposed by: chstung

Catalog Pages Using
this Program

[Mechanical Engineering_\(MEEG\)](#)

Submitter: User ID: **chstung tkuteza** Phone:
575-5557 7456

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

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

College of Engineering (ENGR)

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. 02/24/21 3:38 pm
Norman Dennis
(ndennis): Approved for ENGR Dean Initial
2. 03/01/21 10:45 am
Alice Griffin
(agriffin): Approved for Director of

Department Code

Department of Mechanical Engineering (MEEG)

Program Code

MEEGBS-AERO

Degree

Bachelor of Science in Mechanical Engineering

CIP Code

Program

Assessment and
Review

3. 03/09/21 5:38 pm

Lisa Kulczak

(lkulcza): Approved
for Registrar Initial

4. 03/09/21 6:46 pm

Gary Gunderman

(ggunderm):

Approved for
Institutional
Research

5. 03/09/21 7:50 pm

Darin Nutter

(dnutter): Approved
for MEEG Chair

6. 03/10/21 5:06 pm

Manuel Rossetti

(rossetti): Approved
for ENGR

Curriculum

Committee

7. 03/10/21 5:54 pm

Norman Dennis

(ndennis): Approved
for ENGR Faculty

8. 03/10/21 9:15 pm

Jeannie Hulen

(jhulen): Approved

for ARSC Dean

9. 03/10/21 9:21 pm

Norman Dennis

(ndennis): Approved
for ENGR Dean

10. 03/11/21 7:36 am

Suzanne Kenner

(skenner): Approved
for Global Campus

11. 03/11/21 7:49 am
Terry Martin
(tmartin): Approved
for Provost Review

History

1. May 21, 2019 by
Lisa Kulczak (lkulcza)

14.1901 - Mechanical Engineering.

Program Title

Mechanical Engineering: Aerospace Concentration

Program Delivery

Method

On Campus

Is this program interdisciplinary?

No

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

Yes ~~No~~

College(s)/School(s)

College/School Name

Fulbright College of Arts and Sciences (ARSC)

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

Program Requirements and Description

Requirements

Requirements for Aerospace Concentration: The Aerospace Concentration in Mechanical Engineering provides students an opportunity to concentrate on engineering and scientific issues associated with aircraft, spacecraft, and space exploration. The Aerospace Concentration consists of the 112-credit hour Mechanical Engineering B.S. core and 12 hours of specified elective courses.

Choose at least two of the following courses:

[MEEG 4503](#) Introduction to Flight

6

MEEG 4523	Astronautics
MEEG 4433	Aerospace Propulsion
MEEG 5503	Advanced Fluid Dynamics I
MEEG 5533	Fundamentals of Aerodynamics

Choose an additional 6 hours from any of the above courses not yet taken or any following technical elective: 6

MEEG 4903H	Honors Mechanical Engineering Research
MEEG 491V	Special Topics in Mechanical Engineering
MEEG 492V	Individual Study in Mechanical Engineering
MEEG 5473	Radiation Heat Transfer
ASTR 4033	Astrophysics I: Stars and Planetary Systems
ASTR 4043	Astrophysics II: Galaxies and the Large-Scale Universe
GEOS 3213	Principles of Remote Sensing
SPAC 5033	Astrophysics I: Stars and Planetary Systems

8-Semester Plan

B.S.M.E. with Aerospace Concentration

Eight-Semester Plan

First Year	Units
	FallSpring
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
MATH 2554 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)1	4
GNEG 1111 Introduction to Engineering I	1
Select one of the following to satisfy 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)	
GNEG 1121 Introduction to Engineering II	1
PHYS 2054 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)	4
MATH 2564 Calculus II (ACTS Equivalency = MATH 2505)	4
ENGL 1033 Technical Composition II (ACTS Equivalency = ENGL 1023) (Satisfies General Education Outcome 1.2)	3
Freshman Science Elective, select one of the following:	4
ASTR 2003 Survey of the Universe (ACTS Equivalency = PHSC 1204 Lecture)	
& ASTR 2001L Survey of the Universe Laboratory (ACTS Equivalency = PHSC 1204 Lab)	
BIOL 1543 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	

& <u>BIOL 1541L</u> Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)	
<u>BIOL 2213</u> Human Physiology (ACTS Equivalency = BIOL 2414 Lecture)	
& <u>BIOL 2211L</u> Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)	
<u>CHEM 1123</u> University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	
& <u>CHEM 1121L</u> University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)	
<u>GEOS 1113</u> Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)	
& <u>GEOS 1111L</u> Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)	
<u>PHYS 2094</u> University Physics III	
<u>PHYS 3544</u> Optics	
<u>PHYS 3613</u> Modern Physics	
& <u>PHYS 361VL</u> Modern Physics Laboratory	
Year Total:	14 16
Second Year	Units
	FallSpring
<u>MATH 2574</u> Calculus III (ACTS Equivalency = MATH 2603)	4
<u>PHYS 2074</u> University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Satisfies General Education Outcome 3.4)	4
<u>MEEG 2003</u> Statics	3
<u>MEEG 2101</u> Computer-aided Design	1
<u>MEEG 2303</u> Introduction to Materials	3
<u>MATH 2584</u> Elementary Differential Equations	4
<u>MEEG 2013</u> Dynamics	3
<u>MEEG 2103</u> Introduction to Machine Analysis	3
<u>MEEG 2403</u> Thermodynamics	3
<u>MEEG 2703</u> Computer Methods in Mechanical Engineering	3
Year Total:	15 16
Third Year	Units
	FallSpring
<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 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>MEEG 3223</u> Introduction to Mechatronics	3
Humanities State Minimum Core Elective (Select a course which satisfies General Education Outcomes 3.2 and 5.1)2	3

<u>MEEG 3212L</u> Mechanical Engineering Laboratory II	2
<u>MEEG 4103</u> Machine Element Design	3
<u>MEEG 4413</u> Heat Transfer	3
Aerospace Technical Science Elective	3
Year Total:	17 17

Fourth Year	Units
	FallSpring
<u>MEEG 4182</u> Creative Project Design I	2
<u>MEEG 4132</u> Professional Engineering Practices	2
<u>MEEG 4202L</u> Mechanical Engineering Laboratory III	2
<u>MEEG 4483</u> Thermal Systems Analysis and Design	3
Fine Arts State Minimum Core Elective (Satisfies General Education Outcome 3.1)3	3
Aerospace Technical Science Elective	3
<u>MEEG 4192</u> Creative Project Design II (Satisfies General Education Outcome 6.1)	2
Social Sciences State Minimum Core Elective (Satisfies General Education Outcome 3.3)4	3
Social Sciences State Minimum Core Elective (Satisfies General Education Outcomes 3.3 and 4.1)5	3
Aerospace Technical Science Elective	3
Aerospace Technical Science Elective	3
Year Total:	15 14

Total Units in Sequence: 124

- 1Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 2554.
 - 2The Humanities Elective courses which satisfy General Education Outcomes 3.2 and 5.1 include: CLST 1003, CLST 1003H, CLST 1013, HUMN 1124H, PHIL 2003, PHIL 2003C, PHIL 2003H, PHIL 2103, or PHIL 2103C.
 - 3The Fine Arts Elective courses which 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.
 - 4The 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.
 - 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.
- Note, courses cannot be counted twice in degree requirements.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program **50 na**

Scheduled Program na

Review Date

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. na

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. na**

Description and justification of the request

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. AG</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. Changes to ENGL 1033 requirement will need program change to receive campus approval. AG</p>

Description of specific change	Justification for this change
<p>Inserted revised list of courses into footnotes.</p> <p>Also inserted a new footnote for 2.1. AG</p>	<p>Additional courses were approved for General Education after the initial data entry was conducted.</p> <p>A concern was expressed regarding MATH 2554 not being listed to satisfy learning outcome 2.1. The footnote was approved by the Gen Ed and Core Curriculum Committee Chair. 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>
<p>Switched U.S. History or Government State Minimum Core from spring to fall with PHYS 2054.</p>	<p>Physics was moved from first semester to 2nd semester for all programs in the college in an attempt to improve first term retention. A gen ed course was moved to first semester to fill that void.</p>

Upload attachments

Reviewer Comments

Alice Griffin (agriffin) (03/01/21 10:03 am): Changed learning outcome 3.4 from Freshman Science Elective to PHYS 2054 and PHYS 2074. Moved individual course options for Humanities from plan into footnote 2. Adjusted footnote 4 to only include Social Sciences course options with permission from submitter.

Alice Griffin (agriffin) (03/01/21 10:43 am): Entered the last three descriptions and justifications in consultation with college.

Alice Griffin (agriffin) (03/01/21 10:45 am): ATTENTION: This minor program change will require campus approval due to the course changes effecting another college.