Date Submitted: 10/30/23 4:37 pm

Viewing: MEEGBS-AERO : Mechanical Engineering: Aerospace Concentration

Last approved: 05/19/21 9:39 am

Last edit: 12/07/23 9:55 am

Changes proposed by: chstung

Catalog Pages Using this Program

Mechanical Engineering (MEEG)

Submitter: User ID: chstung Phone: 575-5557

Program Status Active

Academic Level Undergraduate

Type of proposal Major/Field of Study

Select a reason for this modification

Revising Curriculum of an Existing Certificate or Degree (making a net change of more than 15 credit hours)--(LON)

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 2024

College/School Code

College of Engineering (ENGR)

Department Code

Department of Mechanical Engineering (MEEG)

Program Code MEEGBS-AERO

In Workflow

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

Approval Path

1. 10/31/23 4:08 pm Kevin Hall (kdhall): Approved for ENGR Dean Initial
2. 10/31/23 4:56 pm Jim Gigantino (jgiganti): Approved for Provost Initial
3. 11/07/23 9:18 am Lisa Kulczak (lkulcza): Approved for Director of Curriculum Review

Degree	Bachelor of Science in Mechanical Engineering
CIP Code	

and Program Assessment

4. 11/08/23 7:48 am Gina Daugherty (gdaugher): Approved for Registrar Initial
5. 11/27/23 11:13 am Doug Miles (dmiles): Approved for Institutional Research
6. 11/27/23 3:10 pm Darin Nutter (dnutter): Approved for MEEG Chair
7. 11/28/23 7:41 am Manuel Rossetti (rossetti): Approved for ENGR Curriculum Committee
8. 11/29/23 1:04 pm Kevin Hall (kdhall): Approved for ENGR Faculty
9. 11/29/23 3:18 pm Christopher Liner (liner): Approved for ARSC Dean
10. 12/01/23 12:44 pm Kevin Hall (kdhall): Approved for ENGR Dean
11. 12/01/23 5:50 pm Suzanne Kenner (skenner): Approved for Global Campus
12. 12/01/23 7:18 pm Jim Gigantino (jgiganti): Approved for Provost Review

13. 12/20/23 3:12 pm Lisa Kulczak (lkulcza): Approved for Undergraduate Council

History

1. May 21, 2019 by Lisa Kulczak (lkulcza)
2. May 19, 2021 by Steve Tung (chstung)

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

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.

Select at least two courses from the following list of primary courses:		6
~~MEEG 4503~~	~~Course MEEG 4503 Not Found~~	
~~MEEG 4523~~	~~Course MEEG 4523 Not Found~~	
~~MEEG 4433~~	~~Course MEEG 4433 Not Found~~	
~~MEEG 5503~~	~~Course MEEG 5503 Not Found~~	
~~MEEG 5533~~	~~Course MEEG 5533 Not Found~~	
MEEG 45003	Introduction to Flight	
MEEG 45203	Astronautics	
MEEG 44303	Aerospace Propulsion	
MEEG 55003	Advanced Fluid Dynamics I	
MEEG 55303	Fundamentals of Aerodynamics	
If needed, select additional courses that meet the following requirements:		6
~~MEEG 4903H~~	~~Course MEEG 4903H Not Found~~	
~~MEEG 491V~~	~~Course MEEG 491V Not Found~~	
~~MEEG 492V~~	~~Course MEEG 492V Not Found~~	
~~MEEG 5473~~	~~Course MEEG 5473 Not Found~~	
~~ASTR 4033~~	~~Course ASTR 4033 Not Found~~	
~~ASTR 4043~~	~~Course ASTR 4043 Not Found~~	
~~GEOS 3213~~	~~Course GEOS 3213 Not Found~~	
~~SPAC 5033~~	~~Course SPAC 5033 Not Found~~	

• Any MEEG 4000 and 5000 electives pre-approved by the Aerospace and MEEG Curriculum Committees

• Any 3000 level or above ASTR, GEOS, and SPAC courses pre-approved by the Aerospace and MEEG Curriculum Committees

• One course from either MEEG 490H3 Honors Research (for honors students only) or MEEG 4920V (or MEEG 5920V) Special Projects (3 hours)

8-Semester Plan

B.S.M.E. with Aerospace Concentration

Eight-Semester Plan

First Year	Units Fall	Spring
~~ENGL 1013~~ ~~Course ENGL 1013 Not Found~~ ~~(Satisfies General Education Outcome 1.1)~~	~~3~~	-
~~CHEM 1103~~ ~~Course CHEM 1103 Not Found~~	~~3~~	-
~~MATH 2554~~ ~~Course MATH 2554 Not Found~~ ~~(Satisfies General Education Outcome 2.1)~~[1]	~~4~~	-
~~GNEG 1111~~ ~~Course GNEG 1111 Not Found~~	~~1~~	-
ENGL 10103 Composition I (ACTS Equivalency = ENGL 1013) (Satisfies General Education Outcome 1.1)	3	-
CHEM 14103 University Chemistry I (ACTS Equivalency = CHEM 1414 Lecture)	3	-
MATH 24004 Calculus I (ACTS Equivalency = MATH 2405) (Satisfies General Education Outcome 2.1)[1]	4	-
GNEG 11101 Introduction to Engineering I	1	-
Select one of the following to satisfy General Education Outcome 4.2:	3	
~~HIST 2003~~ ~~Course HIST 2003 Not Found~~		
~~HIST 2013~~ ~~Course HIST 2013 Not Found~~		
~~PLSC 2003~~ ~~Course PLSC 2003 Not Found~~		
HIST 20003 History of the American People to 1877 (ACTS Equivalency = HIST 2113)		
HIST 20103 History of the American People, 1877 to Present (ACTS Equivalency = HIST 2123)		
PLSC 20003 American National Government (ACTS Equivalency = PLSC 2003)		
~~GNEG 1121~~ ~~Course GNEG 1121 Not Found~~	-	~~1~~
~~PHYS 2054~~ ~~Course PHYS 2054 Not Found~~ ~~(Satisfies General Education Outcome 3.4)~~	-	~~4~~
~~MATH 2564~~ ~~Course MATH 2564 Not Found~~	-	~~4~~
~~ENGL 1033~~ ~~Course ENGL 1033 Not Found~~ ~~(Satisfies General Education Outcome 1.2)~~	-	~~3~~
GNEG 11201 Introduction to Engineering II	-	1
PHYS 20304 University Physics I (ACTS Equivalency = PHYS 2034) (Satisfies General Education Outcome 3.4)	-	4
MATH 25004 Calculus II	-	4
ENGL 10303 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~~ ~~Course ASTR 2003 Not Found~~	-	-
~~& ASTR 2001L~~ ~~Course ASTR 2001L Not Found~~		
~~BIOL 1543~~ ~~Course BIOL 1543 Not Found~~	-	-
~~& BIOL 1541L~~ ~~Course BIOL 1541L Not Found~~		
~~BIOL 2213~~ ~~Course BIOL 2213 Not Found~~	-	-
~~& BIOL 2211L~~ ~~Course BIOL 2211L Not Found~~		
~~CHEM 1123~~ ~~Course CHEM 1123 Not Found~~	-	-
~~& CHEM 1121L~~ ~~Course CHEM 1121L Not Found~~		
~~GEOS 1113~~ ~~Course GEOS 1113 Not Found~~	-	-
~~& GEOS 1111L~~ ~~Course GEOS 1111L Not Found~~		

~~PHYS 2094~~ ~~Course PHYS 2094 Not Found~~		
~~PHYS 3544~~ ~~Course PHYS 3544 Not Found~~		
~~PHYS 3613~~ ~~Course PHYS 3613 Not Found~~	-	-
~~& PHYS 361VL~~ ~~Course PHYS 361VL Not Found~~		
ASTR 20003 Survey of the Universe (ACTS Equivalency = PHSC 1204 Lecture)	-	-
& ASTR 20001 Survey of the Universe Laboratory (ACTS Equivalency = PHSC 1204 Lab)		
BIOL 10103 Principles of Biology (ACTS Equivalency = BIOL 1014 Lecture)	-	-
& BIOL 10101 Principles of Biology Laboratory (ACTS Equivalency = BIOL 1014 Lab)		
BIOL 24103 Human Physiology (ACTS Equivalency = BIOL 2414 Lecture)	-	-
& BIOL 24101 Human Physiology Laboratory (ACTS Equivalency = BIOL 2414 Lab)		
CHEM 14203 University Chemistry II (ACTS Equivalency = CHEM 1424 Lecture)	-	-
& CHEM 14201 University Chemistry II Laboratory (ACTS Equivalency = CHEM 1424 Lab)		
GEOL 11103 Physical Geology (ACTS Equivalency = GEOL 1114 Lecture)	-	-
& GEOL 11101 Physical Geology Laboratory (ACTS Equivalency = GEOL 1114 Lab)		
PHYS 20504 University Physics III		
PHYS 35404 Optics		
PHYS 36103 Modern Physics	-	-
& PHYS 3610V Modern Physics Laboratory		
Year Total:	14	16

Second Year	Units	
	Fall	Spring
~~MATH 2574~~ ~~Course MATH 2574 Not Found~~	~~4~~	-
~~PHYS 2074~~ ~~Course PHYS 2074 Not Found~~ ~~(Satisfies General Education Outcome 3.4)~~	~~4~~	-
~~MEEG 2003~~ ~~Course MEEG 2003 Not Found~~	~~3~~	-
~~MEEG 2101~~ ~~Course MEEG 2101 Not Found~~	~~1~~	-
~~MEEG 2303~~ ~~Course MEEG 2303 Not Found~~	~~3~~	-
MATH 26004 Calculus III	4	-
PHYS 20404 University Physics II (ACTS Equivalency = PHYS 2044 Lecture) (Satisfies General Education Outcome 3.4)	4	-
MEEG 20003 Statics	3	-
MEEG 21031 Computer-aided Design	1	-
MEEG 23003 Introduction to Materials	3	-
~~MATH 2584~~ ~~Course MATH 2584 Not Found~~	-	~~4~~
~~MEEG 2013~~ ~~Course MEEG 2013 Not Found~~	-	~~3~~
~~MEEG 2103~~ ~~Course MEEG 2103 Not Found~~	-	~~3~~
~~MEEG 2403~~ ~~Course MEEG 2403 Not Found~~	-	~~3~~
~~MEEG 2703~~ ~~Course MEEG 2703 Not Found~~	-	~~3~~
MATH 25804 Elementary Differential Equations	-	4
MEEG 20103 Dynamics	-	3
MEEG 21003 Mechanical Design and Manufacturing	-	3
MEEG 24003 Thermodynamics	-	3
MEEG 27003 Computer Methods in Mechanical Engineering	-	3

Year Total:	15	16
Third Year	Units	
	Fall	Spring
~~ELEG 3903 Course ELEG 3903 Not Found~~	~~3~~	-
~~ECON 2013 Course ECON 2013 Not Found (Satisfies General Education Outcome 3.3)~~	~~3~~	-
~~or ECON 2143 Course ECON 2143 Not Found~~		
~~MEEG 3013 Course MEEG 3013 Not Found~~	~~3~~	-
~~MEEG 3113 Course MEEG 3113 Not Found~~	~~3~~	-
~~MEEG 3202L Course MEEG 3202L Not Found~~	~~2~~	-
~~MEEG 3503 Course MEEG 3503 Not Found~~	~~3~~	-
ELEG 39003 Electric Circuits and Machines	3	-
ECON 21003 Principles of Macroeconomics (ACTS Equivalency = ECON 2103) (Satisfies General Education Outcome 3.3)	3	-
or ECON 21403 Basic Economics: Theory and Practice		
MEEG 30103 Mechanics of Materials	3	-
MEEG 31103 Fundamentals of Vibrations	3	-
MEEG 32002 Mechanical Engineering Laboratory I	2	-
MEEG 35003 Mechanics of Fluids	3	-
~~MEEG 3223 Course MEEG 3223 Not Found~~		
MEEG 32203 Introduction to Mechatronics	-	3
Humanities State Minimum Core Elective (Select a course which satisfies General Education Outcomes 3.2 and 5.1)[2]		3
~~MEEG 3212L Course MEEG 3212L Not Found~~	-	~~2~~
~~MEEG 4103 Course MEEG 4103 Not Found~~	-	~~3~~
~~MEEG 4413 Course MEEG 4413 Not Found~~	-	~~3~~
MEEG 32102 Mechanical Engineering Laboratory II	-	2
MEEG 41003 Machine Element Design	-	3
MEEG 44103 Heat Transfer	-	3
Aerospace Technical Science Elective		3
Year Total:	17	17
Fourth Year	Units	
	Fall	Spring
~~MEEG 4182 Course MEEG 4182 Not Found~~	~~2~~	-
~~MEEG 4132 Course MEEG 4132 Not Found~~	~~2~~	-
~~MEEG 4202L Course MEEG 4202L Not Found~~	~~2~~	-
~~MEEG 4483 Course MEEG 4483 Not Found~~	~~3~~	-
MEEG 41802 Creative Project Design I	2	-
MEEG 41302 Professional Engineering Practices	2	-
MEEG 42002 Mechanical Engineering Laboratory III	2	-
MEEG 44803 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	
~~MEEG 4192 Course MEEG 4192 Not Found (Satisfies General Education Outcome 6.1)~~	~~-~~	~~2~~
MEEG 41902 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

1
Students have demonstrated successful completion of the learning indicators identified for learning outcome 2.1, by meeting the prerequisites for MATH 24004.

2
The Humanities Elective courses which satisfy General Education Outcomes 3.2 and 5.1 include: CLST 10003, CLST 100H3, CLST 10103, HUMN 112H4, PHIL 20003, PHIL 20003, PHIL 200H3, PHIL 21003.

3
The Fine Arts Elective courses which satisfy General Education Outcome 3.1 include: ARCH 10003, ARHS 10003, COMM 10003, DANC 10003, LARC 10003, MLIT 10003, MUSC 100H3, MLIT 10103, MUSC101H3, MLIT 13303, THTR 10003, THTR 10103, or THTR 101H3.

4
The Social Sciences Elective courses which satisfy General Education Outcome 3.3 include: AGEC 11003, AGEC 21003, ANTH 10203, COMM 10203, ECON 21003, ECON 22003, ECON 21403, EDST 20003, HDFS 14003, HDFS 24103, HDFS 26003, HIST 11193, HIST 111H3, HIST 11293, HIST 112H3, HIST 20003, HIST 20103, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20003, PLSC 20103, PLSC 21003, PLSC 28103, PLSC 281H3, PSYC 20003, RESM 28503, SOCI 10103, SOCI 101H3, or SOCI 20103.

5
The Social Sciences Elective courses which satisfy General Education Outcomes 3.3 and 4.1 include: ANTH 10203, COMM 10203, HDFS 14003, HDFS 24103, HIST 11193,HIST 111H3, HIST 11293, HIST 112H3, HIST 20903, HUMN 111H4, HUMN 211H4, INST 28103, INST 281H3, PLSC 20103, PLSC 28103, PLSC 281H3, RESM 28503, SOCI 10103, SOCI 101H3, or SOCI 20103.

Note, courses cannot be counted twice in degree requirements.

Are Similar Programs available in the area?

No

Estimated Student Demand for Program: 50

Scheduled Program Review Date: na

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
1. In the additional course category, any MEEG 4000 and 5000 electives are now allowed per advanced approval by the Aerospace and MEEG Curriculum Committee. 2. In the additional course category, current ASTR, GEOS, and SPAC courses with specific course numbers are now changed to encompass entire department/program courses. 3. In the additional course category, restrict honors research (MEEG 4903H) and special projects (MEEG 492V/592V) to 3 hours toward the concentration and MEEG degree.	1. To simplify the program course listing and allow flexibility in adopting new and removing old/retired courses. 2. The requested change will allow flexibility in selecting ASTR, GEOS, and SPAC courses that are outside of MEEG purview and expand the coverage of concentration courses to accommodate growth in the program. 3. To prevent double-dipping of same project efforts registered under different courses.

Upload attachments

Reviewer Comments

Lisa Kulczak (lkulcza) (11/07/23 9:15 am): The reason for the proposal (revising curriculum) seems appropriate for the requested changes; however, since these changes only impact the course options allowed for the concentration, this will not require off-campus approval or a LON. ATTENTION REGISTRAR: Please adjust workflow to remove off-campus approval steps.

Gina Daugherty (gdaugher) (11/08/23 7:48 am): Updated workflow to remove off-campus approval steps.

Manuel Rossetti (rossetti) (11/28/23 7:41 am): Corrected wording of two bullets.

Key: 678