

Standing Requirements

Program Mission Statement

The Master of Science in Aerospace Engineering program exists in fulfillment of the University's mission "to provide a comprehensive education to prepare graduates for productive careers and responsible citizenship with special emphasis on the needs of aviation, aerospace engineering and related fields".

The program provides formal advanced study, preparing students for careers in the aerospace industry, and in research and development. The ERAU Worldwide program adds depth in the structures and materials concentration. Focus topics of study include: aero-acoustics, structural analysis, vibration, nondestructive testing, thermal stresses and fatigue, composites, smart materials, and elasticity.

Applicants must have an undergraduate degree in Aerospace Engineering, Mechanical Engineering, or related fields. Applicants should also possess a strong academic background as demonstrated by their undergraduate CGPA and a healthy GRE score.

The program, offering only a non-thesis-option, requires a total of 30 credit hours. Candidates will take courses within the structures and materials area of concentration and 3 credit hours of graduate mathematics. A maximum of 6 credit hours from non-aerospace-engineering courses may be applied towards the degree program.

Last Modified: 10/14/2019 11:47:40 AM EDT

ERAU University Mission Statement

Our mission is to teach the science, practice and business of aviation and aerospace, preparing students for productive careers¹ and leadership roles in service around the world.²

Our technologically enriched, student-centered environment³ emphasizes learning through collaboration and teamwork,⁴ concern for ethical and responsible behavior,⁵ cultivation of analytical⁶ and management abilities,⁷ and a focus on the development of the professional skills needed for participation in a global community.⁸ We believe a vibrant future for aviation and aerospace rests in the success of our students. Toward this end, Embry-Riddle is committed to providing a climate that facilitates the highest standards of academic achievement⁹ and knowledge discovery,¹⁰ in an interpersonal environment that supports the unique needs of each individual.¹¹ Embry-Riddle Aeronautical University is the world's leader in aviation and aerospace education. The University is an independent, non-profit, culturally diverse institution providing quality education and research in aviation, aerospace, engineering and related fields leading to associate's, baccalaureate's, master's and doctoral degrees.

Program Alignment to University Mission

Select all that apply.

- ¹Preparing students for productive careers
- ²Preparing students for leadership roles in service around the world
- ³Technologically enriched environment
- ⁴Emphasize learning through collaboration and teamwork
- ⁵Concern for ethical and responsible behavior
- ⁶Cultivate analytical abilities
- ⁷Cultivate management abilities
- ⁸Develop the professional skills needed for participation in a global community
- ⁹Facilitating the highest standards of academic achievement
- ¹⁰Facilitating knowledge discovery
- ¹¹Providing an interpersonal environment that supports the unique needs of each individual

Standing Requirements

Program Outcomes

WW MS Aerospace Engineering Outcome Revised Set

Outcome

Outcome	Mapping
WW_MSAE_PO_01 Students will demonstrate an ability to use analytical methods to analyze and solve engineering problems.	Embry-Riddle General Education Competency Set: Critical Thinking (DB, PC, WW), Quantitative Reasoning (DB, PC, WW), Scientific Literacy (DB, PC, WW)
WW_MSAE_PO_02 Students will demonstrate an ability to conduct research and/or independent study.	Embry-Riddle General Education Competency Set: Critical Thinking (DB, PC, WW), Information Literacy (DB, PC, WW), Lifelong Personal Growth (WW Only), Quantitative Reasoning (DB, PC, WW), Scientific Literacy (DB, PC, WW)
WW_MSAE_PO_03 Students will demonstrate an ability to use written and oral communication effectively.	Embry-Riddle General Education Competency Set: Communication (DB, PC, WW), Information Literacy (DB, PC, WW)
WW_MSAE_PO_04 Students will demonstrate an ability to use numerical methods to analyze and solve engineering problems.	Embry-Riddle General Education Competency Set: Critical Thinking (DB, PC, WW), Information Literacy (DB, PC, WW), Quantitative Reasoning (DB, PC, WW), Scientific Literacy (DB, PC, WW)

Last Modified: 10/16/2019 03:05:39 PM

WW_MS Aerospace Engineering

WW_MS Aerospace Engineering Revised Curriculum Map

Courses and Activities Mapped to WW MS Aerospace Engineering Outcome Revised Set

	Outcome			
	WW_MSAE_PO_01 Students will demonstrate an ability to use analytical methods to analyze and solve engineering problems.	WW_MSAE_PO_02 Students will demonstrate an ability to conduct research and/or independent study.	WW_MSAE_PO_03 Students will demonstrate an ability to use written and oral communication effectively.	WW_MSAE_PO_04 Students will demonstrate an ability to use numerical methods to analyze and solve engineering problems.
Courses and Learning Activities				
AENG514 Introduction to the Finite Element Method	P	I	P	M
AENG 522 Analysis of Aircraft Composite Materials	P	I	P	P
AENG 502 Strength and Fatigue of Materials	P	I	I	P
AENG 511 Engineering Materials Selection	P	I	P	P
AENG 510 Aircraft Structural Dynamics	P	I	P	P
AENG 525 Structural Design Optimization	P	I	P	M
AENG 540 Structural Health Monitoring	P	I	I	P
AENG 612 Analysis of Aircraft Plate and Shell Structures	P	I	P	P

Legend : I Introduced P Practiced M Mastered

Last Modified: 10/16/2019 04:00:22 PM

WW_MS Aerospace Engineering

WW_MS Aerospace Engineering Assessment Schedule

Courses and Activities Mapped to WW_MS Aerospace Engineering Outcome Set

	Outcome				
	WW_MSAE_PO_01 Students will demonstrate an ability to use analytical methods to analyze and solve engineering problems.	WW_MSAE_PO_02 Students will demonstrate an ability to conduct research and/or independent study.	WW_MSAE_PO_03 Students will demonstrate an ability to use written and oral communication effectively.	WW_MSAE_PO_04 Students will demonstrate an ability to use numerical methods to analyze and solve engineering problems.	WW_MSAE_PO_05 Students will demonstrate an ability to use experimental methods to analyze and solve engineering problems.
Courses and Learning Activities					
2016-2017 Assessment Cycle	✓	✓	✓		
2017-2018 Assessment Cycle	✓	✓	✓		
2018-2019 Assessment Cycle	✓	✓	✓		
2019-2020 Assessment Cycle	✓	✓	✓		

Legend : ✓ = Aligned

Last Modified: 10/25/2017 03:10:39 PM

2018-2019 Assessment Cycle

Assessment Plan

Measures

WW MS Aerospace Engineering Outcome Set

Outcome

Outcome: WW_MSAE_PO_04

Students will demonstrate an ability to use written and oral communication effectively.

▼ **Measure:** Thesis Defense *Program level Indirect - Interview*

Details/Description:	Students who prepared a thesis as part of their Master will orally defend their work in a 1-hour long presentation including a Q&A session.
Criterion for Success:	80% of students will receive a passing grade for their thesis oral defense.
Timeframe of Data Collection:	Academic year: Fall 2017 and Spring 2018.
Key/Responsible Personnel:	Thesis advisors and graduate program coordinator

▼ **Measure:** Thesis Report or AE 699 Final Report *Program level Direct - Student Artifact*

Details/Description:	Students who prepared a thesis as part of their Master program or students who take AE 699 Independent Research will deliver a written report outlining their hypothesis, approach, and findings.
Criterion for Success:	80% of students will receive either a passing grade "P" for their thesis report or will receive a grade of

Timeframe of Data
Collection:
Key/Responsible
Personnel:

"B" or higher in AE 699.

Academic year: Fall 2017 and Spring 2018.

Thesis advisors, AE 699 instructors, and the
graduate program coordinator.

Outcome: WW_MSAE_PO_05

Students will demonstrate an ability to use numerical methods to analyze and solve engineering problems.

▼ **Measure:** Sample Student Projects or HW or Exams
Course level Direct - Student Artifact

Details/Description:

To assess this measure the instructor will collect sample student work and deliver to PC.

Criterion for Success:

80% of students will score 80% or higher.

Timeframe of Data
Collection:

AY

Key/Responsible
Personnel:

Course instructor collects samples and deliver to PC.

Outcome: WW_MSAE_PO_06

Students will demonstrate an ability to use experimental methods to analyze and solve engineering problems.

▼ **Measure:** AE 699 or thesis reports
Course level Direct - Other

Details/Description:	Use of experimental methods will be assessed by examining results of special topics courses or thesis work that employed experimental methods.
Criterion for Success:	Successful experimental results by 75% of students or greater.
Timeframe of Data Collection:	AY
Key/Responsible Personnel:	Instructor or student delivers AE 699 or thesis report to PC.

▼ **Measure:** Sample Student Projects or HW or Exams
Course level Direct - Student Artifact

Details/Description:	To assess this measure the instructor will collect sample student work and deliver to PC.
Criterion for Success:	80% of students will score 80% or higher.
Timeframe of Data Collection:	AY
Key/Responsible Personnel:	Course instructor collects samples and deliver to PC.

Last Modified: 10/07/2019 03:30:43 PM EDT