

## UCF Degree Programs

### Aerospace Engineering (B.S.A.E.)

College of Engineering and Computer Science

Department of Mechanical and Aerospace Engineering,

Engineering 1, Room: 381

<http://www.mae.ucf.edu>

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#### Admission Requirements

■ Students wanting to declare a major in an engineering discipline must be in good academic standing and must have a "C" (2.0) or better in each of the following courses or their equivalents: MAC 2311C, MAC 2312, PHY 2048C, and CHM 2045C or CHS 1440.

■ Students wanting to declare a major in an engineering discipline must complete a change of major in the term of completion of the final pending prerequisite course(s) listed above.

#### Degree Requirements

■ Students in the Aerospace Engineering major are expected to make consistent good progress toward their degrees to remain enrolled in, or eligible for, any major in the College of Engineering and Computer Science (CECS) or the College of Optics and Photonics (COP). Therefore, any student majoring in Aerospace Engineering who repeats any UCF course and does not earn a grade of "C" (2.0) or better on the second attempt will be placed on Lack of Progress Probation and remain on Lack of Progress Probation as long as the student is enrolled in a CECS or COP major. If a student on Lack of Progress Probation does not receive a grade of "C" (2.0) or better by the third attempt in the same UCF course, the student will be excluded from all CECS and COP majors. Any student majoring in Aerospace Engineering who has accumulated 7 or more unsuccessful attempts (i.e., grades below "C" (2.0) and withdrawals) over all courses taken at UCF will be placed on Lack of Progress Probation and remain on Lack of Progress Probation as long as the student is enrolled in a CECS or COP major. If a student on Lack of Progress Probation has a tenth unsuccessful attempt over all courses taken at UCF, the student will be excluded from all CECS and COP majors.

■ A student who is excluded from CECS and COP majors may seek readmission to a major in CECS or COP after at least one full year has passed since exclusion. Readmission is not automatic and is dependent upon a high probability of success after readmission. Any student who is readmitted to the Aerospace Engineering major will be subject to all probation conditions that applied at the time of exclusion.

#### 1. UCF General Education Program (GEP) (38 hrs)

■ The UCF General Education Program (GEP) is described in the General Education Program section, located elsewhere in this catalog. Engineering students should closely study the requirements of the UCF GEP and the allowable substitutions detailed in paragraphs A. through E. below to minimize excess hours. Students transferring to UCF from the Florida College System or State University System should complete the GEP and the Common Program Prerequisites before transferring.

#### A: Communication Foundations (9 hrs)

Required	ENC 1101	Composition I	3 hrs
Required	ENC 1102	Composition II	3 hrs

#### Select 1: (3 hrs)

Prefer	SPC 1603C	Fundamentals of Technical Presentations or	3 hrs
Suggested	SPC 1608	Fundamentals of Oral Communication	3 hrs

#### B: Cultural & Historical Foundations (9 hrs)

Select two classes from Historical Foundations		6 hrs
Select one class from Cultural Foundations		3 hrs

#### C: Mathematical Foundations (7 hrs)

Required	MAC 2311C	Calculus with Analytic Geometry I	4 hrs
Required	STA 3032	Probability and Statistics for Engineers	3 hrs

#### D: Social Foundations (6 hrs)

##### Select 1: (3 hrs)

Prefer	ECO 2013	Principles of Macroeconomics or	3 hrs
Prefer	ECO 2023	Principles of Microeconomics	3 hrs
Select one class from Social Foundations			3 hrs

#### E: Science Foundations (7 hrs)

Suggested	PHY 2048C	General Physics Using Calculus I	4 hrs
Select one class from Science Foundations			3 hrs

#### 2. Common Program Prerequisites (CPP) (19 hrs)

■ These courses are specifically required for all engineering students of the Florida State University System. CPP courses are also available at other Florida post-secondary schools and may be transferred directly to UCF programs. To enroll in MMAE major courses, a 2.0 (C or better) in each course is required for those courses in section 2.

■ See "Common Prerequisites" in the Transfer and Transitions Services section for more information.

<sup>1</sup> MAC 2311C	Calculus with Analytic Geometry I	GEP
<sup>1</sup> MAC 2312	Calculus with Analytic Geometry II	4 hrs
<sup>1</sup> MAC 2313	Calculus with Analytic Geometry III	4 hrs
<sup>1</sup> MAP 2302	Ordinary Differential Equations I	3 hrs
<sup>1</sup> PHY 2048C	General Physics Using Calculus I	GEP
PHY 2049C	General Physics Using Calculus II	4 hrs

<sup>1</sup> A "C" (2.0) or better is required in this course.

#### Select one of the following sequences of courses:

##### -Preferred course

CHS 1440	Principles of Chemistry	4 hrs
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##### or- First alternative: Select all of the following: 6 hrs

CHM 2040	Chemistry Fundamentals IA and	3 hrs
CHM 2041	Chemistry Fundamentals IB	3 hrs

##### or- Second alternative

CHM 2045C	Chemistry Fundamentals I	4 hrs
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#### 3. Core Requirements: Basic Level (2 hrs)

■ The College of Engineering and Computer Science requires all engineering students to achieve a minimum 2.250 GPA in completing these courses, together with the core requirements listed in section 4, the technical elective courses listed in section 5 below and with the senior design courses listed in section 6 below. Independent study courses generally do not satisfy major requirements.

EGS 1006C	Introduction to the Engineering Profession	1 hr
EGN 1007C	Engineering Concepts and Methods	1 hr

#### 4. Core Requirements: Advanced Level (51 hrs)

EGN 3310	Engineering Analysis-Statics	3 hrs
EGN 3343	Thermodynamics	3 hrs
EMA 3706	Structure and Properties of Aerospace Materials	3 hrs
EGN 3373	Principles of Electrical Engineering	3 hrs
STA 3032	Probability and Statistics for Engineers	GEP
EAS 3101	Fundamentals of Aerodynamics	3 hrs
EAS 3800C	Aerospace Engineering Measurements	3 hrs
EAS 3810C	Design of Aerospace Experiments	3 hrs
EAS 4105	Flight Mechanics	3 hrs
EAS 4134	High-Speed Aerodynamics	3 hrs
EAS 4300	Aerothermodynamics of Propulsion Systems	3 hrs
EML 3034C	Modeling Methods in Mechanical and Aerospace Engineering	3 hrs
EGM 3601	Solid Mechanics	3 hrs

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EGN 3321	Engineering Analysis-Dynamics	3 hrs
EML 4225	Introduction to Vibrations and Controls	3 hrs
EML 3701	Fluid Mechanics I	3 hrs
EML 4142	Heat Transfer	3 hrs
EAS 4200	Analysis & Design of Aerospace Structures	3 hrs

### 5. Restricted Electives (12 hrs)

■ Technical electives are available in the BSAE program to address specific student interests in a variety of technical areas. Students must consult with their assigned academic advisor for a list of the approved technical electives and the semesters when specific courses of this type are to be offered. <http://mmae.ucf.edu/Academics/undergraduate.html>

### 6. Capstone Requirements (6 hrs)

■ These courses are a capstone experience to your engineering program and should be completed in your last 2 major semesters of study.

■ CECS encourages all engineering students to take the Fundamentals Exam during their senior year.

EAS 4700C	Aerospace Design I	3 hrs
EAS 4710C	Aerospace Design II	3 hrs

### 7. Foreign Language Requirements

#### Admissions

■ Two years of one foreign language in high school, or one year of foreign language in college (or equivalent proficiency exam) prior to graduation.

#### Graduation

■ None

### 8. Electives

■ None

### 9. Additional Requirements

■ None

### 10. Required Minors

■ None

### 11. Departmental Exit Requirements

■ 25% of course work must be in residency at UCF.

### 12. University Minimum Exit Requirements

■ A 2.0 UCF GPA

■ 60 semester hours earned after CLEP awarded

■ 48 semester hours of upper division credit completed

■ 30 of the last 39 hours of course work must be completed in residency at UCF.

■ A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted.

■ Complete the General Education Program, the Gordon Rule, and nine hours of Summer credit.

### Total Semester Hours Required

■ 128

### Honors In Major

■ None

### Related Programs

■ Mechanical Engineering

### Certificates

■ None

### Related Minors

■ Intelligent Robotic Systems (IRS) - Interdisciplinary

■ Engineering Leadership

### Advising Notes

■ Double Degree/Double Major requirements listed under college section of the catalog.

### Career and Academic Advising

■ The department requires all students in the program to meet with a faculty member for advising on career and academic issues. These courses must be taken in sequence during the 3rd and 4th year.

EAS 3933	Aerospace Career and Academic Faculty Advising I	0 hrs
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EAS 4931	Aerospace Career and Academic Faculty Advising II	0 hrs
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### Transfer Notes

■ Courses transferred must be formally evaluated for equivalency credit. The student must provide all supporting information with his/her petition for this evaluation.

■ EGS 1006C and EGN 1007C are required courses for incoming freshman students only. The two credit hours for these courses will be substituted by an approved Aerospace Engineering Elective for transfer students.

### Acceptable Substitutes for Transfer Courses

■ None

### Plan of Study (128 hrs)

■ The tentative course schedule listed below is a guide for those students who plan on completing their degree in four years. All engineering students should meet with their faculty advisor to develop and maintain an appropriate plan of study.

### Freshman Year - Fall 12 hrs

EGS 1006C	Introduction to the Engineering Profession	1 hr
ENC 1101	Composition I	3 hrs
MAC 2311C	Calculus with Analytic Geometry I	4 hrs

### Select 1: 4 hrs

1 CHS 1440	Principles of Chemistry or	4 hrs
CHM 2045C	Chemistry Fundamentals I or	4 hrs
CHM 2040	Chemistry Fundamentals IA or	3 hrs
CHM 2041	Chemistry Fundamentals IB	3 hrs

<sup>1</sup> Preferred

### Freshman Year - Spring 15 hrs

EGN 1007C	Engineering Concepts and Methods	1 hr
ENC 1102	Composition II	3 hrs
MAC 2312	Calculus with Analytic Geometry II	4 hrs
PHY 2048C	General Physics Using Calculus I	4 hrs

### Select 1: 3 hrs

SPC 1603C	Fundamentals of Technical Presentations or	3 hrs
SPC 1608	Fundamentals of Oral Communication	3 hrs

### Freshman Year - Summer 10 hrs

MAC 2313	Calculus with Analytic Geometry III	4 hrs
EMA 3706	Structure and Properties of Aerospace Materials	3 hrs

GEP 3 hrs

### Sophomore Year - Fall 13 hrs

MAP 2302	Ordinary Differential Equations I	3 hrs
PHY 2049C	General Physics Using Calculus II	4 hrs
EGN 3310	Engineering Analysis-Statics	3 hrs
STA 3032	Probability and Statistics for Engineers	3 hrs

### Sophomore Year - Spring 12 hrs

EGN 3321	Engineering Analysis-Dynamics	3 hrs
EGN 3343	Thermodynamics	3 hrs
EGN 3373	Principles of Electrical Engineering	3 hrs
EGM 3601	Solid Mechanics	3 hrs

### Sophomore Year - Summer 9 hrs

GEP		3 hrs
GEP		3 hrs

### Select 1: 3 hrs

ECO 2013	Principles of Macroeconomics or	3 hrs
ECO 2023	Principles of Microeconomics	3 hrs

### Junior Year - Fall 15 hrs

EML 3034C	Modeling Methods in Mechanical and Aerospace Engineering	3 hrs
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EAS 3800C	Aerospace Engineering Measurements	3 hrs
EAS 3933	Aerospace Career and Academic Faculty Advising I	0 hrs

EML 3701	Fluid Mechanics I	3 hrs
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GEP		3 hrs
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EAS 4200	Analysis & Design of Aerospace Structures	3 hrs
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### Junior Year - Spring 15 hrs

EAS 3101	Fundamentals of Aerodynamics	3 hrs
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EAS 3810C	Design of Aerospace Experiments	3 hrs
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EML 4225	Introduction to Vibrations and Controls	3 hrs
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EML 4142	Heat Transfer	3 hrs
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GEP		3 hrs
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### Senior Year - Fall 15 hrs

EAS 4105	Flight Mechanics	3 hrs
EAS 4134	High-Speed Aerodynamics	3 hrs
EAS 4931	Aerospace Career and Academic Faculty Advising II	0 hrs
EAS 4700C	Aerospace Design I	3 hrs
Upper Division Elective		3 hrs
Upper Division Elective		3 hrs

### Senior Year - Spring 12 hrs

EAS 4300	Aerothermodynamics of Propulsion Systems	3 hrs
EAS 4710C	Aerospace Design II	3 hrs
Upper Division Elective		3 hrs
Upper Division Elective		3 hrs

### Program Academic Learning Compacts

■ Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at:  
[http://www.oas.ucf.edu/alc/academic\\_learning\\_compacts.htm](http://www.oas.ucf.edu/alc/academic_learning_compacts.htm)

### Equipment Fees

- Part-Time Student: \$45 per term
- Full-Time Student: \$90 per term