Mechanical Engineering (B.S.M.E.)

College of Engineering and Computer Science
Department of Mechanical and Aerospace Engineering, Engineering I, Room: 381

http://www.mae.ucf.edu
Email: mmaeugrad@ucf.edu

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 Mechanical 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 Mechanical 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 Mechanical 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 hasalue 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 Mechanical 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 within 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 courses 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)
   Required 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.
- See “Common Prerequisites” in the Transfer and Transitions Services section for more information.

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

   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

   -or- First alternative: Select all of the following: 6 hrs
   CHM 2040 Chemistry Fundamentals I 3 hrs
   CHM 2041 Chemistry Fundamentals II 3 hrs

   -or- Second alternative
   CHM 2045C Chemistry Fundamentals I 4 hrs

3. Core Requirements: Basic Level (2 hrs)

   Required Courses: Basic 2 hrs

   - The College of Engineering and Computer Science requires all engineering students to achieve a minimum 2.25 GPA in completing these courses, together with the core requirements, restricted electives, and senior design courses listed below.

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

4. Core Requirements: Advanced Level (63 hrs)

   Required Courses: Advanced 36 hrs

   EGN 3310 Engineering Analysis-Statics 3 hrs
   EGN 3343 Thermodynamics 3 hrs
   EGN 3365 Structure and Properties of Materials 3 hrs
   EGN 3373 Principles of Electrical Engineering 3 hrs
   STA 3032 Probability and Statistics for Engineers GEPE 3 hrs
   EML 3034C Modeling Methods in Mechanical and Aerospace Engineering 3 hrs
   EML 3033C Mechanical Engineering Measurements 3 hrs
   EML 3601 Solid Mechanics 3 hrs
   EML 3701 Fluid Mechanics I 3 hrs
   EML 4142 Heat Transfer 3 hrs
   EGN 3321 Engineering Analysis-Dynamics 3 hrs
   EML 4225 Introduction to Vibrations and Controls 3 hrs
   EML 3500 Design and Analysis of Machine Components 3 hrs

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### 5. Restricted Electives

**Approved Electives**

- Technical electives are available in the BSME program to address specific student interests in a variety of technical areas. Students should consult with their Department for a list of approved restricted technical electives and the terms when specific courses of this type are offered.

### 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.

### 7. Foreign Language Requirements

**Admissions**

- Two years of one foreign language in high school, or one year of one 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

- None

### 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

### Related Programs

- Aerospace Engineering

### Certificates

- None

### Related Minors

- Intelligent Robotic Systems (IRS) - Interdisciplinary
- Engineering Leadership

### Advising Notes

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

### Career and Academic Advising

- The department requires all students in the program 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.
- EML 3933 Mechanical Career and Academic Faculty
- EML 4931 Mechanical Career and Academic Faculty

### Transfer Notes

- EGS 1006C and EGN 1007C are required courses for incoming freshmen only. The two credit hours for these courses will be substituted by an approved Mechanical Engineering technical elective for transfer students.
- Courses transferred must be formally evaluated for equivalency credit. The student must provide all supporting information with his/her petition for this evaluation.

### Acceptable Substitutes for Transfer Courses

- None

### Plan of Study

- **(128 hrs)**
- Tentative Course Schedule for Entering Freshmen: 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 Department to develop and maintain an appropriate plan of study.

#### Freshman Year - Fall

- **12 hrs**
  - EGS 1006C Introduction to the Engineering Profession
  - ENC 1101 Composition I
  - MAC 2311C Calculus with Analytic Geometry I

#### Freshman Year - Spring

- **15 hrs**
  - EGN 1007C Engineering Concepts and Methods
  - ENC 1102 Composition II
  - MAC 2312 Calculus with Analytic Geometry II
  - PHY 2048C General Physics Using Calculus
  - GEP

#### Freshman Year - Summer

- **10 hrs**
  - MAC 2313 Calculus with Analytic Geometry III
  - GEP
  - EGN 3365 Structure and Properties of Materials

#### Sophomore Year - Fall

- **13 hrs**
  - MAP 2302 Ordinary Differential Equations I
  - EGN 3510 Engineering Analysis-Statics
  - STA 3032 Probability and Statistics for Engineers
  - PHY 2045C General Physics Using Calculus II

#### Sophomore Year - Spring

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

#### Sophomore Year - Summer

- **9 hrs**
  - GEP
  - GEP
  - GEP

#### Junior Year - Fall

- **15 hrs**
  - EML 3701 Fluid Mechanics I
  - EML 3034C Modelling Methods in Mechanical and Aerospace Engineering
  - EML 3303C Mechanical Engineering Measurements
  - GEP
  - EML 3933 Mechanical Career and Academic Faculty
  - GEP
  - EML 3500 Design and Analysis of Machine Components
## UCF Degree Programs

### Junior Year - Spring  
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<tr>
<td>EML 4142</td>
<td>Heat Transfer</td>
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<td>EML 4225</td>
<td>Introduction to Vibrations and Controls</td>
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<td>Upper Division Elective</td>
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<tr>
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<td>GEP</td>
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<tr>
<td>EML 4501C</td>
<td>Engineering Design I</td>
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<tr>
<td>EML 4931</td>
<td>Mechanical Career and Academic Faculty Advising II</td>
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<td>EML 4143</td>
<td>Heat Transfer II or</td>
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<td>EML 4313</td>
<td>Intermediate System Dynamics and Controls or</td>
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<td>EML 4703</td>
<td>Fluid Mechanics II or</td>
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<tr>
<td>EML 4504</td>
<td>Design &amp; Analysis of Machine Components II</td>
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### Senior Year - Spring  
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<td>Mechanical Systems Lab or</td>
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<tr>
<td>EML 4306C</td>
<td>Energy Systems Lab</td>
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### Program Academic Learning Compacts
- Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at: [http://www.oelas.ucf.edu/alc/academic_learning_compacts.htm](http://www.oelas.ucf.edu/alc/academic_learning_compacts.htm)

### Equipment Fees
- Part-Time Student: $45 per term
- Full-Time Student: $90 per term