UCF Degree Programs

Electrical Engineering - RF and Microwaves Track
(B.S.E.E.)

College of Engineering and Computer Science
Department of Electrical and Computer Engineering
Harris Corp. Engineering Center, Room: 346

http://www.ece.ucf.edu
Email: undergraduate@ece.ucf.edu

Dr. Parveen Wahid
Charlese Hilton-Brown
Phone: 407-823-3327

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 CHS 1440 or CHM 2045C.

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 Electrical 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 Electrical 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 Electrical 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 Electrical 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 section, General Education Program, found 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 1803C Fundamentals of Technical Presentations or
Suggested SPC 1608 Fundamentals of Oral Communication 3 hrs

B: Cultural & Historical Foundations (9 hrs)

Select two courses from Cultural 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
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
Required PHY 2049C General Physics Using Calculus II 4 hrs

Select one course 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 EE major courses, a 2.0 (C or better) in each course is required.

MAC 2311C Calculus with Analytic Geometry I GEP 4 hrs
MAC 2312 Calculus with Analytic Geometry II 4 hrs
MAC 2313 Calculus with Analytic Geometry III 4 hrs
PHY 2048C General Physics Using Calculus I GEP 4 hrs
PHY 2049C General Physics Using Calculus II 4 hrs

MAP 2302 Ordinary Differential Equations I 3 hrs

Select 1: 4 hrs

CHS 1440 Principles of Chemistry or
CHM 2045C Chemistry Fundamentals I 4 hrs

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 courses required for the major, technical elective courses, and with the senior design courses. 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 (49 hrs)

Courses Required for the Engineering Core 3 hrs
STA 3032 Probability and Statistics for Engineers GEP 3 hrs

Courses Required for the Major 46 hrs

EEL 3282L Junior Design 1 hr
EGN 3211 Engineering Analysis and Computation 3 hrs
EEL 3004C Electrical Networks 3 hrs
EEL 3123C Networks and Systems 3 hrs
EEE 3307C Electronics I 4 hrs
EEE 3342C Digital Systems 3 hrs
EEE 3601C Computer Organization 4 hrs
EEE 3470 Electromagnetic Fields 3 hrs
EEE 4309C Electronics II 4 hrs
EEE 4742C Embedded Systems 3 hrs

Junior Level Electives 6 hrs

EEE 3350 Semiconductors Devices I or
EEE 3922C Signal Analysis and Analog Communication or
EEL 3657 Linear Control Systems 3 hrs

Senior Level Electives 9 hrs

EEL 4436C Microwave Engineering or
EEL 4140C Analog Filter Design or
EEL 4512C Communication Systems or
EEL 4518 Satellite Communications or
EEL 5437C Microwave Engineering or
EEL 5462C Antenna Analysis and Design or

UNIVERSITY OF CENTRAL FLORIDA

Undergraduate Catalog 2017-2018
5. Restricted Electives

Technical electives are available in the BSEE program to address specific student interests in a variety of technical areas. Students should consult with their academic advisor for the identification of courses that are approved technical electives and the terms when specific courses of this type are to be offered.

Technical Electives 14 hrs
- Technical elective courses are to be selected by the student from department approved courses.

6. Capstone Requirements (6 hrs)
- EEL 4914 Senior Design I 3 hrs
- EEL 4915L Senior Design II 3 hrs

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
- Electrical engineering students must earn at least 32 hours in residence at UCF.
- 24 of the 32 Residency hours must be at the 3000-5000 level courses taken from the ECE Department at UCF and applicable to the degree program.

10. Required Minors
- None

11. Departmental Exit Requirements
- CECs encourages all engineering students to take the Fundamentals Exam during their senior year.

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 residence 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
- Computer Engineering
- Computer Science
- Mathematics - Engineering/Physics Track
- Physics

Certificates
- None

Related Minors
- Engineering Leadership
- Intelligent Robotic Systems (IRS) - Interdisciplinary
- Mathematics
- Physics

UCF Degree Programs

Advising Notes
- Each engineering student should meet with their academic advisor in the department of their major regularly.
- Each student should seek academic advisement before registering for classes each semester to minimize excess hours and to ensure that satisfactory academic progress is being maintained.

- The Electrical Engineering program offers the Accelerated BS/MS Program to students of high academic standing. This program allows up to twelve hours to be shared between the BS and MS degrees. See your department or the Accelerated Program section in the back of this catalog for more information.

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 freshmen only. The credits for these two courses (one hour each) may, with prior approval of the department academic advisor, be moved to the Restricted Elective area.

Acceptable Substitutes for Transfer Courses
- None

Plan of Study

Freshman Year - Fall
- EGS 1006C Introduction to the Engineering Profession 1 hr
- MAC 2311C Calculus with Analytic Geometry I 4 hrs
- GEP- Historical Foundation 3 hrs
- Select 1: 3 hrs 1
- SPC 1603C Fundamentals of Technical Presentations or 3 hrs
- SPC 1608 Fundamentals of Oral Communication 3 hrs
- Select 1: 4 hrs 1
- CHS 1440 Principles of Chemistry or 4 hrs
- CHM 2045C Chemistry Fundamentals I 4 hrs
- 1 Preferred

Freshman Year - Spring
- EGN 1007C Engineering Concepts and Methods 1 hr
- MAC 2312 Calculus with Analytic Geometry II 4 hrs
- PHY 2046C General Physics Using Calculus I 4 hrs
- ENC 1101 Composition I 3 hrs
- Select 1: 3 hrs 1
- ECO 2013 Principles of Macroeconomics or 3 hrs
- ECO 2023 Principles of Microeconomics 3 hrs

Sophomore Year - Fall
- ENC 1102 Composition II 3 hrs
- PHY 2049C General Physics Using Calculus II 4 hrs
- MAC 2313 Calculus with Analytic Geometry III 4 hrs
- EGN 3211 Engineering Analysis and Computation 3 hrs

Sophomore Year - Spring
- PHY 3101 General Physics Using Calculus III 3 hrs
- EEL 3004C Electrical Networks 3 hrs
- MAP 2302 Ordinary Differential Equations I 3 hrs
- EEE 3342C Digital Systems 3 hrs
- GEP- Industrial Foundation 3 hrs

Sophomore Year - Summer
- EEL 3123C Networks and Systems 3 hrs
- STA 3032 Probability and Statistics for Engineers 3 hrs
- GEP- Social Foundation 3 hrs

Junior Year - Fall
- EEL 3901C Computer Organization 4 hrs
- GEP- Science Foundation 3 hrs
- EEL 3470 Electromagnetic Fields 3 hrs
- Senior Level Elective 3 hrs
- Senior Level Elective 3 hrs

Junior Year - Spring
- EEE 3307C Electronics I 4 hrs
- EEL 4742C Embedded Systems 3 hrs
- Senior Level Elective 3 hrs
- Senior Level Elective 3 hrs
- Senior Level Elective 3 hrs
- EEL 3926L Junior Design 1 hr
## UCF Degree Programs

**Senior Year - Fall**

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<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
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<td>EEE 4309C</td>
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<tr>
<td>EEL 4914</td>
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<tr>
<td>Technical Elective</td>
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<td>Technical Elective</td>
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**Senior Year - Spring**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>EEL 4915L</td>
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<tr>
<td>Technical Elective</td>
<td>4 hrs</td>
</tr>
<tr>
<td>Technical Elective</td>
<td>3 hrs</td>
</tr>
<tr>
<td>GEP- Science Foundation</td>
<td>3 hrs</td>
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### Program Academic Learning Compacts

Program Academic Learning Compacts (student learning outcomes) for undergraduate programs are located at:

[http://www.oeas.ucf.edu/alc/academic_learning_compacts.htm](http://www.oeas.ucf.edu/alc/academic_learning_compacts.htm)