Computer Engineering - Digital Circuits Track
(B.S.Cp.E.)

College of Engineering and Computer Science
Department of Electrical and Computer Engineering
Harris Corp. Engineering Center, Room: 346
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Charlese Hilton-Brown
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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 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 Computer 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 Computer 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 the 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 Computer 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 Computer 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 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
Preferred
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
Select 1: 3 hrs
Preferred
ECO 2023 Principles of Macroeconomics or 3 hrs
Preferred
ECO 2013 Principles of Microeconomics 3 hrs
Select one class from Social Foundations 3 hrs

E: Science Foundations
Required
PHY 2048C General Physics Using Calculus I 4 hrs
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 CpE major courses, a 2.0 (C or better) in each course is required.

See “Common Prerequisites” in the Transfer and Transitions Services section for more information.

MAC 2311C Calculus with Analytic Geometry I GEP
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
PHY 2049C General Physics Using Calculus II 4 hrs
MAP 2302 Ordinary Differential Equations I 3 hrs

Select 1: 4 hrs
1 CHS 1440 Principles of Chemistry or 4 hrs
1 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 2.25 GPA in completing these courses, together with the courses required for the major in section 4 below, 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 (48 hrs)

Engineering Core
STA 3032 Probability and Statistics for Engineers GEP

Courses Required for the Major
EGN 3211 Engineering Analysis and Computation 3 hrs
COT 3100C Introduction to Discrete Structures 3 hrs
COP 3502C Computer Science I 3 hrs
COP 3503C Computer Science II 3 hrs
COP 3330 Object Oriented Programming 3 hrs
EEL 3926L Junior Design 1 hr
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
EEL 3801C Computer Organization 4 hrs
EEL 4742C Embedded Systems 3 hrs
EEL 4768 Computer Architecture 3 hrs
EEL 4781 Computer Communication Networks 3 hrs

Select 2: 6 hrs
EEL 4346C Hardware Security and Trusted Circuit Design or 3 hrs
EEL 4314 Device Electronics for Integrated Circuits or 3 hrs
EEL 4783 Hardware Description Languages in Digital Systems Design or 3 hrs
EEL 5704 Computer Aided Logical Design or 3 hrs

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UCF Degree Programs

EEE 5353  Semiconductor Device Modeling and Simulation or 3 hrs
EEE 5356C  Fabrication of Solid-State Devices or 4 hrs
EEE 5378  CMOS Analog and Digital Circuit Design or 3 hrs
EEE 5390C  Full-Custom VLSI Design 3 hrs

5. Restricted Electives
- Technical electives are available in the BScP E program to address specific student interests in a variety of technical areas such as Software Engineering. 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 15 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
- Computer 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 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
- Computer Science
- Electrical Engineering
- Information Technology
- Mathematics - Engineering/Physics Track
- Physics
Certificates
- None
Related Minors
- Intelligent Robotic Systems (IRS) - Interdisciplinary
- Engineering Leadership
- Mathematics
- Physics

Advising Notes
- Each engineering student should meet regularly with an academic advisor in the major department.
- The Computer 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.
- 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.
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
- 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 15 hrs
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
CHS 1440  Principles of Chemistry or 4 hrs
CHM 2045C  Chemistry Fundamentals I 4 hrs

Sophomore Year - Fall 14 hrs
PHY 2048C  General Physics Using Calculus I 4 hrs
COT 3100C  Introduction to Discrete Structures 3 hrs

Sophomore Year - Spring 15 hrs
EGN 3211  Engineering Analysis and Computation 3 hrs
MAC 2313  Calculus with Analytic Geometry III 4 hrs

Sophomore Year - Summer 10 hrs
EEL 3004C  Electrical Networks 3 hrs
EEL 3342C  Digital Systems 3 hrs
MAP 2302  Ordinary Differential Equations I 3 hrs
ENC 1102  Composition II 3 hrs
GEP-Historical Foundation 3 hrs

Junior Year - Fall 16 hrs
COP 3330  Object Oriented Programming 3 hrs
COP 3502C  Computer Science I 3 hrs
STA 3032  Probability and Statistics for Engineers 3 hrs
EEE 3307C  Probability and Statistics for Engineers 3 hrs
GEP-Social Foundation 3 hrs

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### Senior Year - Spring

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<thead>
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<th>Course</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EEL 4915L  Computer Communication Networks</td>
<td>3 hrs</td>
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<tr>
<td>Technical Elective</td>
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<tr>
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**Program Academic Learning Compacts**

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

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