

Program: **Computer Engineering**
 Major: **Computer Engineering**
 Degree: **Bachelor of Science (B.S.)**

Dept & School: **Computer Science and Engineering and Physics**
 College: **Mathematics and Science**
 Major Code: **6280**

University Core (Total Listed 42-44)

For a full list of courses see [University Core](#).

- Courses from the major may apply to the areas marked in the University Core.

Written and Oral Communication 9

Quantitative Reasoning/Scientific Method 10-11

- Math..... 3
- Life Science 4
- Physical Science 3-4

Critical Inquiry and Aesthetic Analysis 6

- Aesthetic Analysis 3
- Critical Inquiry 3

American Historical and Political Analysis 6

- American National Government 3
- American History 3

Cultural and Language Analysis 3-4

- Second Language 4
- OR
- Cultural Analysis 3

• Social and Behavioral Analysis..... 3

Life Skills 5

- Required Health Course..... 2
- Elective Life Skills..... 3

**Minimum
Required Hours**

Support Courses 9-18

- PHIL 1123 Contemporary Moral Problems
- ECON 1103 Introduction to Economics
- FMKT 2323 Global Protocol and Diversity (or Second Language)

- *MATH 1533 Precalculus-Algebra **OR**
- MATH 1513 College Algebra **OR** Placement Score **AND**
- *MATH 1593 Plane Trigonometry **OR** Placement Score

*A grade of 'C' or better is required for either MATH 1513 or MATH 1533 and MATH 1593 to take MATH 2313.

Students majoring in the Computer Engineering program are encouraged to complete the following course in high school.

- One year of high school physics **OR**
- PHY 1003 Introduction to Physics

Major Requirements

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Physics..... 8

- Required courses:
- PHY 2014 Physics for Science and Engineering I and Lab
 - PHY 2114 Physics for Science and Engineering II and Lab

Engineering..... 34

- Required courses:
- ENGR 1112 Introduction to Engineering and Laboratory
 - ENGR 1213 Engineering Computing and Laboratory
 - ENGR 2303 Electrical Science
 - ENGR 2311 Electrical Science Laboratory
 - ENGR 3223 Digital Logic Design and Laboratory
 - ENGR 3303 Engineering Probability & Statistics
 - #ENGR 3323 Signals and Systems
 - ENGR 3331 Signals and Systems Laboratory
 - ENGR 3403 Analog Electronics
 - ENGR 3421 Analog Electronics Laboratory
 - ENGR 3613 Microprocessors and Laboratory
 - #ENGR 4333 Digital Signal Processing

**Minimum
Required Hours**

- ENGR 4351 Digital Signal Processing Laboratory
- #ENGR 4842 CE Senior Engineering Design I
- #ENGR 4892 Senior Engineering Design II

Computer Science 27

- Required courses:
- CMSC 1613 Programming in C++
 - CMSC 1621 Laboratory for Programming in C++
 - CMSC 2123 Discrete Structures
 - CMSC 2613 Fundamental Data Structures
 - CMSC 2621 Laboratory for Fundamental Data Structures
 - CMSC 2833 Computer Organization and Architecture I
 - SE 3103 Object-Oriented Design and Patterns
 - CMSC 3613 Algorithms and Advanced Data Structures
 - CMSC 3621 Laboratory for Algorithms and Advanced Data Structures
 - CMSC 3833 Computer Organization and Architecture II
 - CMSC 4133 Concepts of Artificial Intelligence

Mathematics 15

- Required courses:
- MATH 2313 Calculus 1
 - MATH 2323 Calculus 2
 - MATH 2333 Calculus 3
 - MATH 2343 Calculus 4
 - MATH 3103 Differential Equations

Choose one Concentration 9

Control Systems Concentration (Choose 9 hours from the following)

- CMSC 4193 Introduction to Robotics
- CMSC 4303 Mobile Application Programming
- #ENGR 4803 Mechatronics & Lab
- #ENGR 4303 Control Systems
- #ENGR 4403 Advanced Control Systems Design & Lab

Cybersecurity Engineering Concentration (Take these 9 hours)

- CMSC 4083 Cybersecurity
- #ENGR 4323 Digital and Analog Communications
- #ENGR 4253 Cybersecurity for Internet of Things Devices & Lab

Internet of Things Concentration (Take these 6 hours)

- CMSC 4313 Internet of Things
- #ENGR 4243 Internet of Things Systems & Lab

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**Minimum
Required Hours**

(Choose 3 additional hours from the following)

- CMSC 4303 Mobile Application Programming
- CMSC 4373 Cloud Web Apps Development
- #ENGR 4803 Mechatronics & Lab

into upper division unless they secure formal approval from the School of Engineering and Physics.

Admission to Engineering and Physics Upper Division is required to enroll in these courses.

Electives to bring total to..... 126*

* Total hours required for this major may exceed the minimum 124 credit hour institutional requirement and will vary according to course selection. It is recommended students complete high school algebra II, trigonometry, physics and two years of a second language in high school.

Minimum Grade Requirements

1. Average in (a) all college course work, and (b) course work at UCO **2.00**
2. A minimum grade of “C” must be earned in all courses in the major to count toward meeting degree requirements.

Admission into Engineering and Physics Upper Division

Students seeking the B.S. in Computer Engineering are required to make formal application to the Chairperson of the School of Engineering and Physics for admission into the upper division of this major. Applications must be submitted to the School of Engineering and Physics on or before the last Monday of January for Fall admission and the last Monday of August for Spring admission.

To be admitted into upper division, the student must have:

- A minimum retention grade point average (GPA) of 2.00 in all course work completed by the time the student is formally admitted into upper division.
- Completed 60 semester credit hours by the time the student is formally admitted into upper division.
- Completed the following courses or their equivalent with a minimum grade of “C” by the time the student is formally admitted into upper division:

- CMSC 1613 Programming I
- CMSC 1621 Programming I Lab
- CMSC 2613 Programming II
- CMSC 2621 Programming II Lab
- CMSC 2833 Computer Organization and Architecture I
- MATH 2313 Calculus 1
- MATH 2323 Calculus 2
- MATH 2333 Calculus 3
- MATH 2343 Calculus 4
- PHY 2014 Physics for Science & Engineering I & Lab
- PHY 2114 Physics for Science & Engineering II & Lab
- ENGR 1112 Introduction to Engineering & Lab
- ENGR 1213 Engineering Computing & Lab
- ENGR 2303 Electrical Science
- ENGR 2311 Electrical Science Lab

Formal approval by the school Faculty Advisor and School Chair is required for admission. The student may enroll in no more than nine (9) hours of 3000 and 4000 level courses in the major prior to admission