

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

Dept: **Computer Science**
 College: **Mathematics and Science**
 Major Code: **6110**

University Core (Total Listed 42-44)

Specific courses within the University Core are listed on pages 95-96.

• 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**

**Minimum
Required Hours**

Support Courses

Support Courses.....0-9

Students majoring in Software Engineering are encouraged to complete the following courses in high school.

Advanced Placement High School Programming Course **OR**
 CMSC 1513 Beginning Programming

- *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.

Upon completion of the above courses, corresponding university core requirements will be satisfied. (These courses are required for this major regardless of previous degrees conferred.)

Major Requirements

Software Engineering77-80

Required..... 54

- ^CMSC 1613 Programming I
- ^CMSC 1621 Programming I Laboratory
- ^CMSC 2123 Discrete Structures
- ^CMSC 2613 Programming II
- ^CMSC 2621 Programming II Laboratory
- ^CMSC 2833 Computer Organization I
- ^SE 3103 Object Oriented Software Design and Construction
- ^CMSC 3613 Data Structures and Algorithms
- ^CMSC 4003 Applications of Database Management Systems
- ^SE 4283 Software Engineering I
- ^CMSC 4323 Computer and Network Security
- ^CMSC 4401 Ethics in Computing
- ^SE 4423 Software Engineering II
- ^SE 4433 Software Architecture and Design
- ^SE 4513 Software Engineering Senior Project *
- ^MATH 2313 Calculus 1
- ^MATH 2323 Calculus 2
- ^MATH 2333 Calculus 3

- ^MATH 3143 Linear Algebra
- ^STAT 2113 Statistical Methods OR
- ^STAT 2103 Introduction to Statistics for Sciences **OR**
- ^STAT 4113 Mathematical Statistics I

^ A grade of 'C' or better must be earned in all required CMSC, SE, MATH and STAT courses.

* SE 4513 is recommended to be taken in the last semester prior to graduation.

Elective Science/Math courses 8-11

Select a minimum of eight (8) hours including at least one of the CHEM or PHY lab courses:

- CHEM 1103 General Chemistry I
 - CHEM 1112 General Chemistry I Recitation/Laboratory
 - CHEM 1223 General Chemistry II
 - CHEM 1232 General Chemistry II Recitation/Laboratory
 - PHY 1114 General Physics I and Laboratory
 - PHY 1214 General Physics II and Laboratory
 - PHY 2014 Physics for Science & Engineering I and Lab
 - PHY 2114 Physics for Science & Engineering II and Lab
- Any non-required 2/3/4000 level MATH or STAT courses with the following exceptions: MATH 2013, 2053, 2113, 2123, 2133, 2153, 2743, 3323, or 4843.

Elective Courses 9

Choose nine (9) hours from one of the two application areas:

- Application Development
- CMSC 3413 Enterprise Programming
- CMSC 4133 Concepts of Artificial Intelligence
- CMSC 4303 Mobile Apps Programming
- CMSC 4373 Web Server Programming
- System Development
- CMSC 4023 Programming Languages
- CMSC 4063 Networks
- CMSC 4153 Operating Systems
- CMSC 4173 Translator Design
- CMSC 4193 Introduction to Robotics

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**Minimum
Required Hours**

- CONTINUED FROM PREVIOUS PAGE -

Elective CMSC or SE Courses..... 6
Any 3/4000 level CMSC or SE courses except CMSC 4513

No more than three (3) hours of Internship and Individual Study combined may be used to satisfy the CMSC or SE elective requirement.

Credit cannot be received for both CMSC 3303 and SE 4283.

Electives to bring total to..... 124

Minimum Grade Requirements

Average in (a) all college course work, (b) course work at UCO,
and (c) major courses..... **2.00**

**For other regulations pertaining to graduation, see
pages 66-67 of the 2019-2020 catalog.**