

SOFTWARE ENGINEERING

- This worksheet is intended for supplemental use only. The University will use your Academic Requirements Report (ARR) to track your graduation requirements, including those for your major. Please continue to check your ARR for accuracy.
- If your ARR requires a correction, please submit an [ARR Correction Form](#).
- Your [Degree Planner](#) (in [mycsusm.edu](#)) will display the following requirements in the University’s recommended sequence.
- All courses used for the major and preparation for the major must be completed with a grade of C (2.0) or higher.
- Transfer students are encouraged to consult with faculty/academic advisor to ensure their courses in computer science, mathematics, and sciences are applicable toward the Preparation for the Major requirements.
- All non-articulated courses MUST be reviewed and approved by a faculty advisor in the corresponding department.
- A minimum of 15 upper-division units counted for the major must be completed at CSUSM.

PREPARATION FOR THE MAJOR (42 UNITS)

Lower-division Computing Essential Courses (12 units):

✓	Course	Units
<input type="checkbox"/>	CS 111: Computer Science I (^MATH 125 or 160)	4
<input type="checkbox"/>	CS 211: Computer Science II (*CS 111; ^MATH 160)	4
<input type="checkbox"/>	CS 231: Assembly Language and Digital Circuits (*CS 111)	4

Mathematics and Science Supporting Courses (30 units):

✓	Course	Units
<input type="checkbox"/>	BIOL 104: Principles of Biology – Human Emphasis	4
<input type="checkbox"/>	MATH 160: Calculus with Applications I (*MATH 125, 126 or MATH Placement Exam)	5
<input type="checkbox"/>	MATH 162: Calculus with Applications II (*MATH 160)	4
<input type="checkbox"/>	MATH 242: Introduction to Statistics (*MATH Category 1 or 2 or MATH 105 or MATH 115)	3
<input type="checkbox"/>	MATH 264: Linear Algebra (*MATH 162)	3
<input type="checkbox"/>	MATH 270: Basic Discrete Mathematics (*MATH 160)	3

Choose 1 of the following Physics or Chemistry sequences:

- PHYS 101: Introduction to Physics I (4) (*GE B4)
PHYS 102: Introduction to Physics II (4) (*PHYS 101)
- PHYS 201: Physics of Mechanics and Sound (4) (*MATH 160)
PHYS 202: Physics of Electromagnetism and Optics (4) (*PHYS 201 or 205 and MATH 162)
- CHEM 150: General Chemistry (4) (*MATH 101, 105 or MATH Category 1 or 2)
CHEM 150L: General Chemistry Laboratory (1) (^CHEM 150)
CHEM 160: General Chemistry II (3) (*MATH 125, 126 or 160 and CHEM 150, 150L)

✓	Course	Units
<input type="checkbox"/>		4
<input type="checkbox"/>		4

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UPPER-DIVISION COURSEWORK (45 UNITS)

Computing Essential Courses (15 units)

✓ <input type="checkbox"/>	Course	Units
<input type="checkbox"/>	CS 311: Data Structures (*CS 211, ^MATH 270)	3
<input type="checkbox"/>	CS 351: Programming Languages (^MATH 270, CS 311)	3

Choose 1 of the following sequences:

- a. CS 331: Computer Architecture (*CS 231)
 CS 433: Operating Systems (*CS 231, 311)
 CS 435: Real-Time Concepts for Embedded Systems (*CS 231, 311)

- b. CS 443: Database Management Systems (*CS 311)
 CIS 444: Web Programming (*CS 443)
 CS 446: Cloud Computing (*CS 443)

✓ <input type="checkbox"/>	Course	Units
<input type="checkbox"/>		3
<input type="checkbox"/>		3
<input type="checkbox"/>		3

Software Engineering Core Courses (24 units):

✓ <input type="checkbox"/>	Course	Units
<input type="checkbox"/>	PHIL 348: Ethics in Engineering	3
<input type="checkbox"/>	SE/CS 370: Introduction to Software Engineering (^MATH 270, CS 311)	3
<input type="checkbox"/>	SE 451: Software Requirements and Design (^SE 370)	3
<input type="checkbox"/>	SE 461: Software Testing and Quality (*MATH 242, SE 370)	3
<input type="checkbox"/>	SE 471: Software Architecture (*SE 370)	3
<input type="checkbox"/>	SE 481: Software Project Planning and Management (*SE 451)	3
<input type="checkbox"/>	SE 490: Senior Project I (^SE 481; *SE 461, 471)	3
<input type="checkbox"/>	SE 491: Senior Project II (*SE 490)	3

Software Engineering Electives (6 units):

Choose from CS 331 or other Software Engineering or Computer Science courses numbered 400 or higher, excluding CS 490.

✓ <input type="checkbox"/>	Course	Units
<input type="checkbox"/>		3
<input type="checkbox"/>		3