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
	CS 111: Computer Science I (^MATH 160) PC CSCI 112 + CSCI 222	4
	CS 211: Computer Science II (*CS 111) PC CSCI 114 + CSCI 210	4
	CS 231: Assembly Language and Digital Circuits (*CS 111) PC CSCI 212	4

Mathematics and Science Supporting Courses (30 units):

✓	Course	Units
	BIOL 104: Principles of Biology – Human Emphasis PC BIOL 105 or BIOL 100 or BIOL 101+BIOL 101L	4
	MATH 160: Calculus with Applications I (*MATH 125, 126 or MATH 160 Placement Exam) PC MATH 140	5
	MATH 162: Calculus with Applications II (*MATH 160) PC MATH 141	4
	MATH 242: Introduction to Statistics PC MATH 120	3
	MATH 264 or MATH 374: Linear Algebra (*MATH 160) PC MATH 200	3
	MATH 270: Basic Discrete Mathematics (*MATH 160) PC MATH 245	3

Choose 1 of the following Physics or Chemistry sequences:

    a. **PHYS 101:** Introduction to Physics I (4) (*HS Trigonometry) PC PHYS 120
        PHYS 102: Introduction to Physics II (4) (*PHYS 101) PC PHYS 121

    b. **PHYS 201:** Physics of Mechanics and Sound (4) (*MATH 160) PC PHYS 230
        PHYS 202: Physics of Electromagnetism and Optics (4) (*PHYS 201 or 205, MATH 162) PC PHYS 231

    c. **CHEM 150:** General Chemistry (4) (*Chemistry Placement Exam, CHEM 101 or CHEM 105) PC CHEM 110
        CHEM 150L: General Chemistry Laboratory (1) (^CHEM 150) PC CHEM 110L
        CHEM 160: General Chemistry II (3) (*MATH 125 or 132, CHEM 150, 150L) PC CHEM 115

✓	Course	Units
		4
		4

SOFTWARE ENGINEERING

UPPER-DIVISION COURSEWORK (42 UNITS)

Computing Essential Courses (15 units)

✓	Course	Units
☐	**CS 311:** Data Structures (*CS 211, ^MATH 270)	3
☐	**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)

✓	Course	Units
☐		3
☐		3
☐		3

Software Engineering Core Courses (21 units):

✓	Course	Units
☐	**SE 370:** Software Structures (*CS 111)	3
☐	**SE 451:** Software Requirements and Design (*CS 441, SE 370)	3
☐	**SE 461:** Software Testing and Quality (*SE 451)	3
☐	**SE 471:** Software Architecture (*SE 451)	3
☐	**SE 481:** Software Project Planning and Management (*SE 451)	3
☐	**SE 490:** Senior Project I (*SE 451)	3
☐	**SE 491:** Senior Project II (*SE 490)	3

Software Engineering Electives (6 units):

Choose from Software Engineering, Computer Science and/or Computer Information Systems courses numbered 400 or higher.

✓	Course	Units
☐		3
☐		3