



CSUSM /MSJC/ MVUSD Software Engineering Pathway



Jackie Trischman, Ph.D., Dean, CSTEM
Ricardo D. Fierro, Ph.D., Associate Dean & PD, CSTEM
Jeffrey Morales, Engineering Pathways Advisor, CSTEM
Aaron Guy, Associate Dean, Extended Learning
Erika Ervin, Director, Credit Programs, Extended Learning

Dr. Marilyn Harvey, Dean of Career Education
Sonia Verduzco, Career Education Counselor
Christine Abriam, Administrative Associate III
Jenny Hughes, Director of K-12 Partnerships



Mary Walters, Asst. Superintendent, Ed Services
Jennifer Schriver, Exec. Director of Secondary Education
Valerie Backus, CTE Coordinator





Welcome!

Information Session for 3 Pathways to the Software Engineering degree at CSUSM



California State University
SAN MARCOS

- SE at CSUSM/SJSU/Cal Poly
- Jobs!
- High Salaries!
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Welcome!

Information Session for 3 Pathways to the Software Engineering degree at CSUSM



- SE at CSUSM
- Jobs!
- High Salaries!
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Jobs! (High Demand Everywhere, Mobility, & Flexibility)



| TOP 10 TECH OCCUPATIONS | MONTHLY JOB POSTINGS | MONTH-OVER % CHANGE |
|---|----------------------|---------------------|
| Software Developers and Software Quality Assurance Analysts | 4,535 | 3% |
| Computer Occupations, All Other | 1,991 | 9% |
| Network and Computer Systems Administrators | 1,118 | 5% |
| Computer User Support Specialists | 1,112 | -4% |
| Computer Systems Analysts | 922 | 3% |
| Web Developers and Digital Interface Designers | 716 | 4% |
| Information Security Analysts | 667 | 4% |
| Computer Programmers | 267 | 10% |
| Computer and Information Research Scientists | 224 | 6% |
| Database Administrators and Architects | 173 | 14% |

<https://www.sdnedc.org/tech-talent-pulse-report/>



- SE at CSUSM
- **Jobs!**
- High Salaries!
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

High Salaries!



| TOP 10 JOB TITLES | UNIQUE POSTINGS |
|-----------------------------|-----------------|
| Software Engineers | 279 |
| Senior Software Engineers | 243 |
| Systems Engineers | 136 |
| DevOps Engineers | 102 |
| Systems Administrators | 93 |
| Embedded Software Engineers | 91 |
| Business Systems Analysts | 80 |
| Firmware Engineers | 80 |
| Software Developers | 78 |
| Network Engineers | 77 |

| TOP 10 CERTIFICATIONS | UNIQUE POSTINGS |
|---|-----------------|
| CompTIA Security+ | 418 |
| Certified Information Systems Security Professional | 323 |
| IAT Level II Certification | 280 |
| Project Management Professional Certification | 269 |
| Cisco Certified Network Associate | 256 |
| Microsoft Certified Systems Engineer | 179 |
| Microsoft Certified Systems Administrator (MCSA) | 172 |
| Cisco Certified Network Professional | 137 |
| GIAC Certifications | 130 |
| Master Of Business Administration (MBA) | 120 |

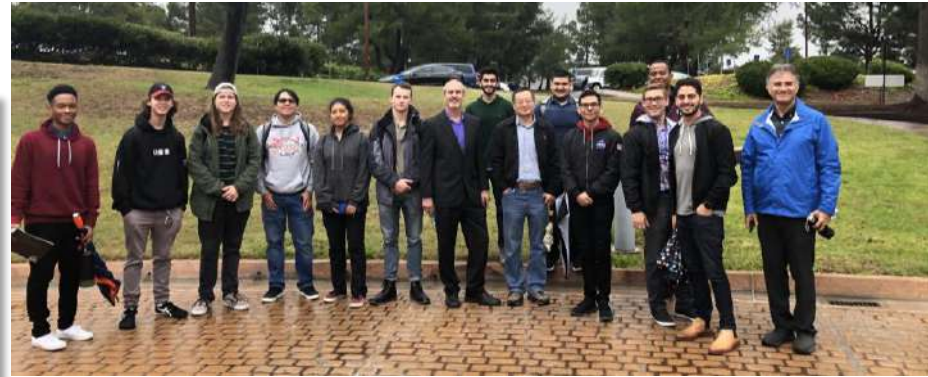
| JOBS WITH MEDIAN ADVERTISED SALARIES | ADVERTISED |
|--------------------------------------|------------|
| Computer Science | \$104,320 |
| Python (Programming Language) | \$120,192 |
| Software Engineering | \$122,240 |
| Agile Methodology | \$115,456 |
| Integration | \$111,360 |
| Leadership | \$102,144 |
| Software Development | \$114,432 |
| Operations | \$91,008 |
| Java (Programming Language) | \$121,600 |
| SQL (Programming Language) | \$109,440 |

<https://www.sdnedc.org/tech-talent-pulse-report/>



- SE at CSUSM
- Jobs!
- **High Salaries!**
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

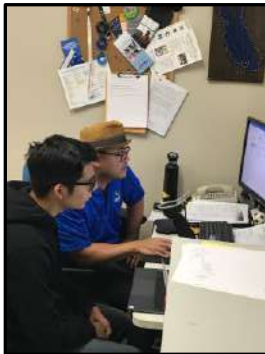
Specialized Support!



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- **Specialized Support**
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

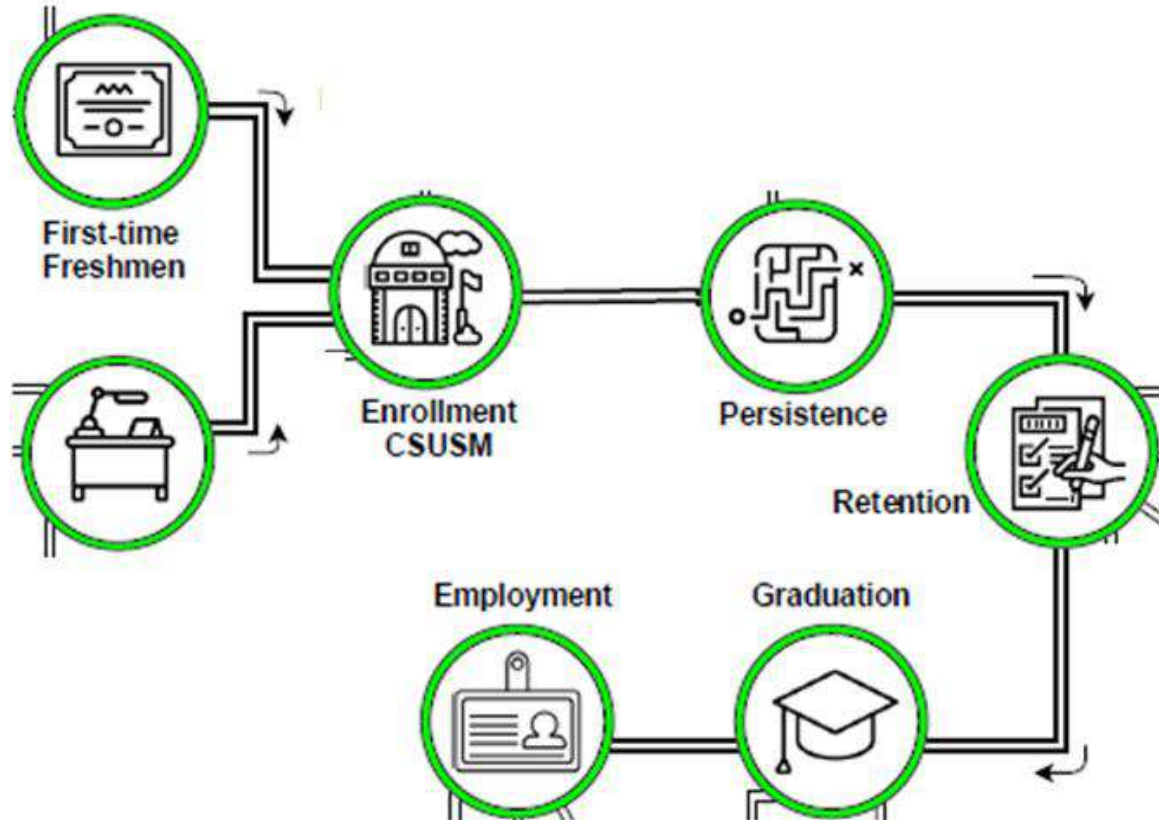
Specialized Support!



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- **Specialized Support**
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

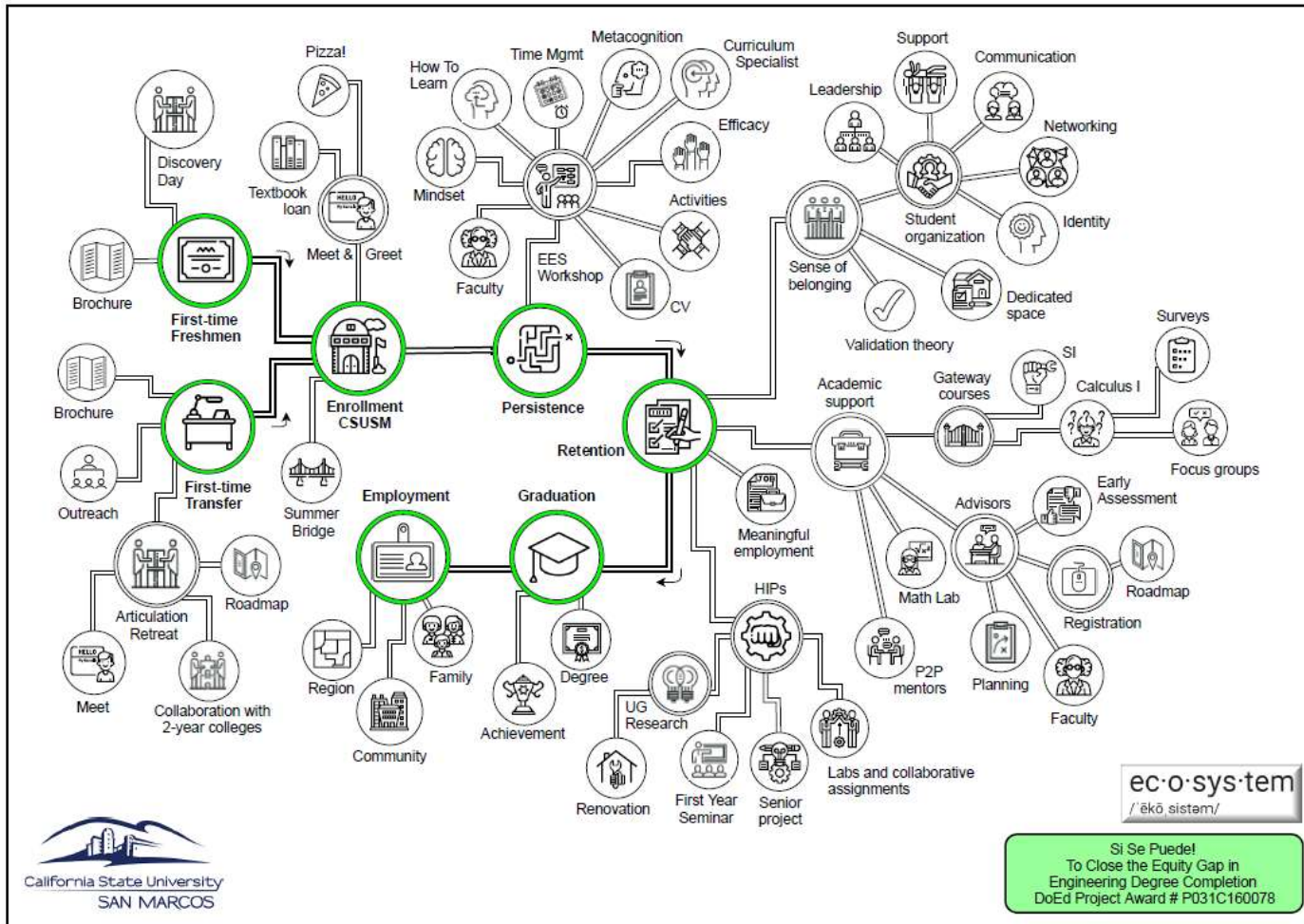
Specialized Support Ecosystem!



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- **Specialized Support**
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Specialized Support Ecosystem!



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- **Specialized Support**
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost



Traditional A-G Graduation Plan

College Calculus 1 Ready

3 course sequence: Biology, Chemistry, Physics

Roadmap for Software Engineering Majors at MSJC to CSUSM

Semester 1 – MSJC Fall

| | |
|--|-----------|
| CSIS 113A C++ Programming 1 | 3 |
| MATH 211 Analytic Geometry & Calc I (GE Area B4) | 4 |
| GE (A2) Written Communication (ENGL 101) | 4 |
| GE (E) Lifelong Learning (CSCR 100) | 3 |
| GE (C1) Arts (Art 100) | 3 |
| Total | 17 |

Semester 2 – MSJC Spring

| | |
|--|-----------|
| CSIS 123A C++ Programming 2 | 3 |
| MATH 212 Analytic Geometry & Calculus II | 4 |
| CSIS 211 Intro to Data Struct and Algos (<i>pending</i>) | 3 |
| GE (A1) Oral Comm (COMM 100) | 3 |
| GE (A3) Critical Thinking (ENGL 103) | 3 |
| Total Units | 16 |

Semester 3 – MSJC Fall

| | |
|--|-----------|
| CSIS 118B Comp Organiz. & Assembly Lang (<i>pending</i>) | 3 |
| MATH 218 Linear Algebra | 3 |
| PHYS 101 Intro to Physics I (GE Area B1) | 4 |
| GE (D #1) Social Science (PSYC 101) | 3 |
| GE (C2) Humanities (PHIL 101) | 3 |
| GE (D #2): Social Science (HIST 111 or HIST 112) | 3 |
| Total Units | 19 |

Semester 4 – MSJC Spring

| | |
|--|-----------|
| CSIS 213 Discrete Structures | 3 |
| MATH 140 Statistics (<i>pending</i>) | 3 |
| PHYS 102 Intro to Physics II | 4 |
| GE (C3) Language Course | 3 |
| GE (B2/B3) BIOL 100 or BIOL 150 | 4 |
| Total Units | 17 |



- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost



California State University
SAN MARCOS

Accelerated A-G Plus Plan

Leveraging All MVUSD Opportunities
(AP/IB/DE/CE/Annex)

MVUSD Accelerated Coursework for the Software Engineering Majors MSJC / CSUSM

| MVUSD Coursework Accelerated | | | |
|--|-----------|--|-----------|
| 11th Grade - Semester 1 | | 11th Grade - Semester 2 | |
| AP English Language or Equivalent | 5 | AP English Language or Equivalent | 5 |
| AP US History / DE US History 111 | 5 | AP US History / DE US History 112 | 5 |
| Physics / AP Physics | 5 | Physics / AP Physics | 5 |
| World Language | 5 | World Language | 5 |
| CTE Pathway or Elective | 5 | CTE Pathway or Elective | 5 |
| College Prep Elective | 5 | College Prep Elective | 5 |
| IB Math Analysis / DE College Algebra 105 / AP Calc AB | 5 | IB Math Analysis / DE College Precalc 110 / AP Calc AB | 5 |
| Total Units | 35 | Total Units | 35 |
| 12th Grade - Semester 1 | | 12th Grade - Semester 2 | |
| AP English Literature or Equivalent | 5 | AP English Literature or Equivalent | 5 |
| AP Government or AP Economics or Equivalent | 5 | AP Government or AP Economics or Equivalent | 5 |
| AP Physics / AP Biology | 5 | AP Physics / AP Biology | 5 |
| AP Calculus BC / IB Math Analysis | 5 | AP Calculus BC / IB Math Analysis | 5 |
| World Language | 5 | World Language | 5 |
| CTE Pathway or Elective | 5 | CTE Pathway or Elective | 5 |
| College Prep Elective | 5 | College Prep Elective | 5 |
| Total Units | 35 | Total Units | 35 |



- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Accelerated Roadmap for Software Engineering Majors at MSJC/CSUSM – 4 Semesters

Semester 1 – MSJC Fall

| | |
|---|-----------|
| *CSIS 113A C++ Programming 1 (Annex) | 3 |
| *MATH 211 Analytic Geometry & Calc I (GE Area B4) | 4 |
| *GE (A2) Written Communication (ENGL 101) | 4 |
| *GE (E) Lifelong Learning (CSCR 100) (Annex) | 3 |
| *GE (C1) Arts (Art 100) (Annex or DE) | 3 |
| Total | 17 |

Semester 2 – MSJC Spring

| | |
|--|-----------|
| *CSIS 123A C++ Programming 2 (Annex) | 3 |
| *MATH 212 Analytic Geometry & Calculus II | 4 |
| CSIS 211 Intro to Data Struct and Algos (<i>pending</i>) | 3 |
| GE (A1) Oral Comm (COMM 100 103) | 3 |
| *GE (A3) Critical Thinking (ENGL 103) (Annex or DE) | 3 |
| Total Units | 16 |

Semester 3 – MSJC Fall

| | |
|--|-----------|
| CSIS 118B Comp Organiz & Assembly Lang (<i>pending</i>) | 3 |
| MATH 218 Linear Algebra | 3 |
| *PHYS 101 Intro to Physics I (GE Area B1) | 4 |
| *GE (D #1) Social Science (PSYC 101/Soc 101) (Annex or DE) | 3 |
| *GE (C2) Humanities (PHIL 101) | 3 |
| *GE (D #2) Social Science (HIST 111 or HIST 112) | 3 |
| Total Units | 19 |

Semester 4 – MSJC Spring

| | |
|---|-----------|
| CSIS 213 Discrete Structures | 3 |
| *MATH 140 Statistics (<i>pending</i>) | 3 |
| PHYS 102 Intro to Physics II | 4 |
| *GE (C3) Language Course | 3 |
| *GE (B2/B3) BIOL 100 or BIOL 150 | 4 |
| Total Units | 17 |

*Fulfilled by AP/IB Exams or Dual Enrollment/Articulated Courses



- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Accelerated Roadmap for Software Engineering Majors at MSJC/CSUSM – 2 Semesters

| *MSJC Courses Fulfilled in High School | |
|--|-----------|
| GE (A2) Written Communication (ENGL 101) | 4 |
| GE (B1) PHYS 101 Intro to Physics I | 4 |
| GE (C2) Humanities (PHIL 101) | 3 |
| GE (D #2) Soc Science (HIST 111 or HIST 112) | 3 |
| MATH 211 (B4) Analytic Geometry & Calc I | 4 |
| Total Units | 18 |

| *MSJC Courses Fulfilled in High School | |
|--|-----------|
| MATH 140 Statistics (<i>pending</i>) | 3 |
| MATH 212 Analytic Geometry & Calculus II | 4 |
| GE (C3) Language Course | 3 |
| GE (B2/B3) BIOL 100 or BIOL 150 | 4 |
| Total Units | 14 |

| Semester 1 – MSJC Fall | |
|--|-----------|
| *CSIS 113A C++ Programming 1 (Annex) | 3 |
| CSIS 118B Comp Organiz. & Assembly Lang (<i>pending</i>) | 3 |
| MATH 218 Linear Algebra | 3 |
| *GE (E) Lifelong Learning (CSCR 100) (Annex) | 3 |
| *GE (C1) Arts (Art 100) (Annex or DE) | 3 |
| *GE (D #1) Social Science (PSYC 101/Soc 101) (Annex or DE) | 3 |
| Total | 18 |

| Semester 2 – MSJC Spring | |
|--|-----------|
| *CSIS 123A C++ Programming 2 (Annex) | 3 |
| CSIS 213 Discrete Structures | 3 |
| CSIS 211 Intro to Data Struct and Algos (<i>pending</i>) | 3 |
| GE (A1) Oral Comm (COMM 100 103) | 3 |
| *GE (A3) Critical Thinking (ENGL 103) (Annex or DE) | 3 |
| PHYS 102 Intro to Physics II | 4 |
| Total Units | 19 |

*Fulfilled by AP/IB Exams or Dual Enrollment/Articulated Courses



- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Roadmap for Software Engineering Majors at MSJC/CSUSM

Semester 5 – CSUSM Fall

| | |
|-----------------------------------|-----------|
| SE 370 Software Principles | 3 |
| SE 451 Software Reqmts and Design | 3 |
| CS 331 Computer Architecture | 3 |
| CS 351 Programming Languages | 3 |
| Total Units | 12 |

Semester 6 - CSUSM Spring

| | |
|-----------------------------------|-----------|
| SE 461 Software Testing & Quality | 3 |
| SE 471 Software Architecture | 3 |
| CS 433 Operating Systems | 3 |
| SE UD Elective (CS 443 Database) | 3 |
| Total Units | 12 |

Semester 7 - CSUSM Fall

| | |
|--------------------------------------|-----------|
| SE 481 Softw Project Planning & Mgmt | 3 |
| SE 490 Capstone I | 3 |
| SE UD Elective (CS 446 Cloud Comput) | 3 |
| PHIL 348 Ethics (UDGE CC) | 3 |
| GE Lower Division D | 3 |
| Total Units | 15 |

Semester 8 - CSUSM Spring

| | |
|-------------------------|-----------|
| SE 491 Capstone II | 3 |
| CS 435 Embedded Systems | 3 |
| GE (F Ethnic Studies) | 3 |
| GE Upper Division DD | 3 |
| Total Units | 12 |



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Projected COST for the 3 Pathways

(w/o room, meals, and personal expenses; subject to change)

| | HS to CSUSM San Marcos (4 to 5 years) | MSJC/CSUSM 2 + (2 to 3 years) Transfer | MSJC/CSUSM 2 + 2 EL (Temecula) 4 years |
|-------------------|---|--|--|
| Tuition | \$22,968 to \$28,710 | \$3,174 + \$11,484 | \$3,174 + \$22,500 |
| Fees | \$7,880 to \$9,850 | \$52 + \$3,940 | \$52 + 3,940 |
| Transp. & Parking | \$8,572 to \$10,715 | \$938 + \$4,286 | \$938 |
| Total Cost | \$39,420 to \$49,275 | \$23,874 to \$31,729 | \$30,604 |

| | | | |
|---------------------------|---------------------|---------------------|----------------|
| Cohort model | | | ✓ |
| Guaranteed Seating | | | ✓ |
| Short commute | | | ✓ |
| CSUSM degree | ✓ | ✓ | ✓ |
| Duration | 4 to 5 years | 4 to 5 years | 4 years |

https://www.msjc.edu/financialaid/documents/2020-2021_Award_Guide.pdf

<https://www.csusm.edu/finaid/costofattendance/index.html>



- SE at CSUSM
- Jobs!
- High Salaries!
- Specialized Support

- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- Cost

Projected COST for the 3 Pathways

(w/o room, meals, and personal expenses; subject to change)

| | MSJC/CSUSM 2 + (2 to 3 yrs) Transfer | MSJC/CSUSM 2 + 2 EL (Temecula) | HS to CSUSM San Marcos (4 to 5 yrs) |
|-------------------|--|--------------------------------------|---|
| Tuition | \$3,174 + 11,484 | \$3,174 + 22,500 | 22,968 – 28,710 |
| Fees | \$52 + 3,940 | \$52 + 3,940 | 7,880 – 9,850 |
| Transp. & Parking | \$938 + 4,286 | \$938 | 8,572 – 10,715 |
| Total Cost | \$23,874 – \$31,729 | \$30,604 | \$39,420 – \$49,275 |

| | | | |
|----------------------|---------------------|----------------|---------------------|
| Cohort model | | ✓ | |
| Short commute | | ✓ | |
| CSUSM degree | ✓ | ✓ | ✓ |
| Duration | 4 to 5 years | 4 years | 4 to 5 years |

https://www.msjc.edu/financialaid/documents/2020-2021_Award_Guide.pdf

<https://www.csusm.edu/finaid/costofattendance/index.html>



California State University
SAN MARCOS

- SE at CSUSM
- Jobs!
- High Salaries!
- Specialized Support
- Cohort Model
- 2 + 2 Program
- AP, DE, or CE Credit
- **Cost**



California State University
SAN MARCOS

INTERESTED IN THE 2+2 SOFTWARE ENGINEERING PROGRAM?

Please complete the following form:

<http://bit.ly/CSUSMEngineeringProgram>





California State University
SAN MARCOS

QUESTIONS

For More Information:

Email your High School Counselor

Or Contact:

MSJC: careereducation@msjc.edu

CSUSM: cstem@csusm.edu

