** IT Support Occupations**

**Labor Market Information Report**

**Santa Rosa Junior College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

February 2019

# Recommendation

Based on all available data, there appears to be a significant undersupply of IT Support workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano and Sonoma Counties). There is a projected annual gap of about 16,253 students in the Bay region and 317 students in the North Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0708.20 - Computer Support in the state and region. It is recommended that these data be reviewed to better understand how outcomes for students taking courses on this TOP code compare to potentially similar programs at colleges in the state and region, as well as to outcomes across all CTE programs at Santa Rosa Junior College (SRJC) and in the region.

# Introduction

This report profiles IT Support Occupations in the 12 county Bay region and in the North Bay sub-region for the review of an existing program at Santa Rosa Junior College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Information Technology Project Managers (15-1199.09), therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates demand for Information Technology Project Managers.

|  |
| --- |
| * **Software Developers, Systems Software (SOC 15-1133):** Research, design, develop, and test operating systems-level software, compilers, and network distribution software for medical, industrial, military, communications, aerospace, business, scientific, and general computing applications. Set operational specifications and formulate and analyze software requirements. May design embedded systems software. Apply principles and techniques of computer science, engineering, and mathematical analysis.
 |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 13%* |
| * **Computer Network Support Specialists (SOC** **15-1152):** Analyze, test, troubleshoot, and evaluate existing network systems, such as local area network (LAN), wide area network (WAN), and Internet systems or a segment of a network system. Perform network maintenance to ensure networks operate correctly with minimal interruption. Excludes “Network and Computer Systems Administrators” (15-1142) and “Computer Network Architects” (15-1143).
 |
| *Entry-Level Educational Requirement: Associate's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 41%* |
| * **Software Developers, Applications (SOC** **15-1132):** Develop, create, and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers.
 |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 13%* |
|  |
| * **Computer Occupations, All Other (SOC 15-1199):** All computer occupations not listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011).
 |
| *Entry-Level Educational Requirement: Bachelor's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 35%* |

# Occupational Demand

**Table 1. Employment Outlook for IT Support Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Software Developers, Systems Software | 40,748 | 44,919 | 4,171  | 10% | 17,637 | 3,527 | $40.21  | $65.42  |
| Computer Network Support Specialists | 6,569 | 7,551 | 982  | 15% | 3,509 | 702 | $22.43  | $37.33  |
| Software Developers, Applications | 89,372 | 109,872 | 20,499  | 23% | 51,391 | 10,278 | $38.68  | $62.13  |
| Computer Occupations, All Other | 19,731 | 21,972 | 2,242  | 11% | 9,101 | 1,820 | $26.99  | $53.32  |
| **Total** | **156,420** | **184,314** | **27,895** | **18%** | **81,637** | **16,328** | **$36.92**  | **$60.83**  |

*Source: EMSI 2018.4*

**Bay Region** includes Alameda, Contra Costa, Marin, Monterey, Napa, San Benito, San Francisco, San Mateo, Santa Clara, Santa Cruz, Solano and Sonoma Counties

**Table 2. Employment Outlook for IT Support Occupations in North Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Software Developers, Systems Software | 1,173 | 1,190 | 18  | 2% | 400 | 80 | $31.94  | $53.35  |
| Computer Network Support Specialists | 398 | 420 | 22  | 6% | 171 | 34 | $22.65  | $31.13  |
| Software Developers, Applications | 1,732 | 1,904 | 172  | 10% | 739 | 148 | $32.93  | $54.52  |
| Computer Occupations, All Other | 928 | 938 | 10  | 1% | 326 | 65 | $22.38  | $41.11  |
| **TOTAL** | **4,232** | **4,453** | **221**  | **5%** | **1,636** | **327** | **$29.37**  | **$49.05**  |

*Source: EMSI 2018.4*

**North Bay Sub-Region** includes Marin, Napa, Solano and Sonoma Counties

### Job Postings in Bay Region and North Bay Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (Feb 2018 - Jan 2018)**

| Occupation | Bay Region | North Bay |
| --- | --- | --- |
| Software Developers, Applications (15-1132.00) | 103,488 | 1,724 |
| Information Technology Project Managers (15-1199.09) | 14,634 | 462 |
| Software Developers, Systems Software (15-1133.00) | 1,330 | 93 |
| Computer Network Support Specialists (15-1152.00) | 1,120 | 26 |
| **Total** | **120,572** | **2,305** |

*Source: Burning Glass*

**Table 4. Top Job Titles for IT Support Occupations for latest 12 months (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | North Bay | Common Title | Bay | North Bay |
| Software Development Engineer | 30,561 | 373 | Technical Project Manager | 1,047 | 20 |
| Java Developer | 6,986 | 126 | Information Technology Project Manager | 1,043 | 1 |
| Devops Engineer | 3,724 | 30 | Senior Devops Engineer | 1,002 | 4 |
| Applications Engineer | 2,820 | 27 | .Net Developer | 917 | 75 |
| Software Developer | 2,602 | 118 | Software Engineering Manager | 859 | 3 |
| Java Engineer | 2,541 | 18 | Project Manager | 855 |  |
| Python Developer | 1,734 | 4 | Information Technology Manager | 758 | 46 |
| Senior Developer | 1,471 | 25 | Senior Engineer | 754 | 19 |
| Developer | 1,463 | 28 | Software Architect | 677 |  |
| Applications Developer | 1,429 | 87 | Salesforce Developer | 613 | 7 |
| Android Developer | 1,407 | 11 | Software Development Manager | 599 | 14 |
| Principal Software Engineer | 1,223 | 3 | Full Stack Developer | 556 | 4 |
| Engineer | 1,134 | 8 | Mobile App Developer | 538 | 9 |
| iOS Developer | 1,050 | 3 | Lead Developer | 527 | 3 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring IT Support Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2017) | Jobs in Industry (2022) | % Change (2017-22) | % in Industry (2017) |
| Custom Computer Programming Services (541511) | 32,126 | 33,111 | 20% | 20.5% |
| Computer Systems Design Services (541512) | 19,974 | 20,374 | 17% | 12.6% |
| Software Publishers (511210) | 16,820 | 17,787 | 26% | 11.0% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 16,332 | 17,314 | 41% | 10.7% |
| Electronic Computer Manufacturing (334111) | 13,598 | 14,050 | 10% | 8.7% |
| Data Processing, Hosting, and Related Services (518210) | 5,931 | 6,431 | 39% | 4.0% |
| Other Computer Related Services (541519) | 4,372 | 4,485 | 25% | 2.8% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 3,563 | 3,787 | 14% | 2.3% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 2,247 | 2,349 |  (2%) | 1.5% |
| Semiconductor and Related Device Manufacturing (334413) | 2,083 | 2,082 |  (5%) | 1.3% |
| Engineering Services (541330) | 1,615 | 1,635 | 12% | 1.0% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 1,617 | 1,595 |  (2%) | 1.0% |

*Source: EMSI 2019.1*

**Table 6. Top Employers Posting IT Support Occupations in Bay and North Bay Sub-Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | North Bay |
| Apple Inc. | 2,254 | Amazon Lab126 | 292 | Revature | 77 |
| Capital Markets Placement | 1,634 | eBay | 281 | Data Incorporated | 75 |
| Amazon | 1,455 | Deloitte | 279 | Wex | 69 |
| Cisco Systems Incorporated | 1,238 | Techfetch Com | 276 | IDEXX Laboratories, Inc | 68 |
| Google Inc. | 980 | Etouch Systems Corp | 265 | U.S. Bancorp | 68 |
| Scoop Technologies | 934 | Splunk | 258 | Chandra Technologies  | 51 |
| Facebook | 676 | Bayone Solutions | 257 | American Express | 46 |
| Oracle | 589 | Redolent, Inc | 252 | Icst | 42 |
| IBM | 577 | Linkedin Limited | 250 | Unum Group | 38 |
| Workday, Inc | 502 | Infoobjects Inc | 242 | Capital Markets Placement | 31 |
| Microsoft Corporation | 434 | Twitter | 240 | NTT Data | 29 |
| Vmware Incorporated | 402 | Xoriant Incorporated | 228 | TD Bank | 26 |
| Salesforce | 396 | Redpoint Ventures | 225 | Tyler Technologies Incorporated | 23 |
| Walmart / Sam's | 391 | Adobe Systems | 224 | CGI Group | 17 |
| Intel Corporation | 372 | Tesla Motors | 222 | Seaglass It | 16 |
| Accenture | 367 | Matchpoint Solutions  | 218 | Vets First Choice | 16 |
| Nvidia Corporation | 360 | Dell | 210 | Anthem Blue Cross | 13 |
| SAP | 338 | Palo Alto Networks | 210 | MaineHealth | 13 |
| Paypal | 322 | Uber | 210 | University of Maine System | 12 |
| Wipro | 315 | Symantec | 204 | General Dynamics | 11 |

*Source: Burning Glass*

# Educational Supply

There are seven community colleges in the Bay Region issuing 75 awards on average annually on TOP 0708.20 - Computer Support. SRJC is the only college in the North Bay Sub-Region issuing awards on this TOP code, issuing10 awards on average annually.

**Table 7. Awards on TOP 0708.20 - Computer Support in the Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Headcount | Associates | Certificates | Total |
| Alameda | East Bay |  29  |  |  |  |
| Cabrillo | Santa Cruz & Monterey |  n/a  | 3 | 8 | 11 |
| Contra Costa | East Bay |  n/a  |  | 5 | 5 |
| Diablo Valley | East Bay |  n/a  | 6 | 7 | 14 |
| Gavilan | Santa Cruz & Monterey |  23  |  |  |  |
| Hartnell | Santa Cruz & Monterey |  n/a  | 3 | 2 | 4 |
| Monterey Peninsula | Santa Cruz & Monterey |  18  |  |  |  |
| Ohlone | East Bay |  n/a  | 2 | 2 | 4 |
| San Francisco | Mid-Peninsula |  260  |  | 27 | 27 |
| San Francisco College Centers | Mid-Peninsula |  n/a  |  |  |  |
| Santa Rosa | North Bay | 86 |  | 10 | 10 |
| **Total Bay Region** |  **416**  |  **14**  |  **61**  |  **75**  |
| **Total North Bay Sub-Region** | **86** |  | **10** | **10** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for awards is 2014-17 unless there are only awards in 2016-17. The annual average for other postsecondary is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 16,328 annual openings for the IT Support occupational cluster and 75 annual (3-year average) awards for an annual undersupply of 16,253. In the North Bay Sub-Region, there is also a gap with 327 annual openings and 10 annual (3-year average) awards for an annual undersupply of 317.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0708.20 - Computer Support**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | Santa Rosa Junior College (All CTE Programs) | State (0708.20) | Bay (0708.20) | North Bay (0708.20) | Santa Rosa Junior College (0708.20) |
| % Employed Four Quarters After Exit | 74% | 76% | 70% | 71% | 69% | 69% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $20,775 | 18,121 | 18,121 | 13,157 | 13,157 |
| Median % Change in Earnings | 46% | 50% | 57% | 81% | 159% | 159% |
| % of Students Earning a Living Wage | 63% | 62% | 53% | 63% | 62% | 62% |

*Source: Launchboard Pipeline (version available on 2/5/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for IT Support Occupations in Bay Region (Feb 2018 - Jan 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Java | 44,688 | UNIX | 9,897 | Kubernetes | 6,908 |
| Software Engineering | 42,940 | Unit Testing | 9,851 | Docker Software | 6,800 |
| Software Development | 31,887 | Web Application Development | 9,007 | Software Architecture | 6,644 |
| Python | 30,860 | Continuous Integration (CI) | 8,996 | Machine Learning | 6,639 |
| JavaScript | 22,585 | Quality Assurance and Control | 8,710 | Extensible Markup Language (XML) | 6,560 |
| SQL | 21,917 | NoSQL | 8,379 | PERL Scripting Language | 6,527 |
| Linux | 20,415 | Data Structures | 8,147 | JavaScript Object Notation (JSON) | 6,383 |
| C++ | 18,457 | Agile Development | 8,134 | Apache Kafka | 6,296 |
| Git | 13,151 | MySQL | 7,648 | Product Management | 6,050 |
| Project Management | 12,998 | Scalability Design | 7,491 | Relational Databases | 6,015 |
| DevOps | 12,391 | Microsoft C# | 7,467 | React Javascript | 5,863 |
| Object-Oriented Analysis and Design (OOAD) | 11,836 | AngularJS | 7,324 | jQuery | 5,833 |
| Debugging | 11,705 | Apache Hadoop | 7,177 | Salesforce | 5,667 |
| Oracle | 11,476 | Ruby | 7,086 | Software as a Service (SaaS) | 5,604 |
| Scrum | 11,055 | Big Data | 6,988 | Scheduling | 5,367 |

*Source: Burning Glass*

**Table 10. Certifications for IT Support Occupations in the Bay Region (Feb 2018 - Jan 2018)**

Note: 93% of records have been excluded because they do not include a certification. As a result, the chart below may not be representative of the full sample.

|  |  |  |  |
| --- | --- | --- | --- |
| Certification | Postings | Certification | Postings |
| Project Management Certification | 2,538 | Certified Salesforce Administrator | 161 |
| Project Management Professional (PMP) | 1,657 | PMI Agile Certified Practitioner (PMI-ACP) | 146 |
| IT Infrastructure Library (ITIL) Certification | 959 | SANS/GIAC Certification | 146 |
| Certified ScrumMaster (CSM) | 943 | CompTIA Security+ | 138 |
| Security Clearance | 674 | Certified Information Security Manager (CISM) | 135 |
| Driver's License | 538 | Microsoft Certified Professional (MCP) | 126 |
| ITIL Certification | 413 | Certified Salesforce Platform Developer II | 89 |
| Certified Information Systems Security Professional (CISSP) | 382 | Six Sigma Certification | 86 |
| Cisco Certified Network Associate (CCNA) | 309 | Certified A+ Technician | 83 |
| Agile Certification | 253 | Java Certification | 80 |
| Salesforce Developer | 246 | Microsoft Certified Solutions Expert (MCSE) | 79 |
| Cisco Certified Network Professional (CCNP) | 243 | Capability Model Maturity Integration (CMMI) Certification | 78 |
| Cisco Certified Internetwork Expert (CCIE) | 241 | Certified Salesforce Advanced Developer | 76 |
| Certified Scrum Professional (CSP) | 231 | Microsoft Certified Solutions Associate (MCSA) | 71 |
| Certified Salesforce Platform Developer | 192 | Certified Salesforce Advanced Administrator | 69 |
| Certified Scrum Trainer (CST) | 178 | Automation Certification | 67 |
| Certified Information Systems Auditor (CISA) | 169 | CompTIA Network+ | 66 |

*Source: Burning Glass*

**Table 11. Education Requirements for IT Support Occupations in Bay Region**

Note: 47% of records have been excluded because they do not include a degree level. As a result, the chart below may not be representative of the full sample.

|  |  |
| --- | --- |
| Education (minimum advertised) | Latest 12 Mos. Postings |
| High school or vocational training | 788 (1%) |
| Associate Degree | 484 (1%) |
| Bachelor’s Degree or Higher | 62,526 (98%) |

*Source: Burning Glass*

# Methodology

Occupations for this report were identified by use of skills listed in O\*Net descriptions and job descriptions in Burning Glass. Labor demand data is sourced from Economic Modeling Specialists International (EMSI) occupation data and Burning Glass job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CTE Launchboard and CCCCO Data Mart.

# Sources

O\*Net Online

Labor Insight/Jobs (Burning Glass)

Economic Modeling Specialists International (EMSI)

CTE LaunchBoard [www.calpassplus.org/Launchboard/](http://www.calpassplus.org/Launchboard/)

Statewide CTE Outcomes Survey

Employment Development Department Unemployment Insurance Dataset

Living Insight Center for Community Economic Development

Chancellor’s Office MIS system

# Contacts

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