** Computer Technical Support Occupations**

**Labor Market Information Report**

**City College of San Francisco**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

December 2019

# Recommendation

Based on all available data, there appears to be a significant undersupply of Computer Technical Support workers compared to the demand for this cluster of occupations in the Bay region and in the Mid-Peninsula sub-region (San Francisco and San Mateo Counties.) There is a projected annual gap of about 3,081 students in the Bay region and 1,154 students in the Mid-Peninsula Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0708.10 - Computer Networking 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 City College of San Francisco and in the region.

# Introduction

This report profiles Computer Technical Support Occupations in the 12 county Bay region and in the Mid-Peninsula sub-region for a proposed new program at City College of San Francisco.

|  |
| --- |
| * **Computer User Support Specialists (SOC 15-1151):** Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, or via telephone or electronically. May provide assistance concerning the use of computer hardware and software, including printing, installation, word processing, electronic mail, and operating systems. Excludes “Network and Computer Systems Administrators” (15-1142).
 |
| Entry-Level Educational Requirement: Some college, *no degree* |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 41% |

# Occupational Demand

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

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Computer User Support Specialists |  31,368  |  35,797  | 4,428 | 14% |  16,537  |  3,307  | $20.86 | $34.77 |

*Source: EMSI 2019.3*

**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 Computer Technical Support Occupations in Mid-Peninsula Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2018 Jobs | 2023 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Computer User Support Specialists |  9,996  |  12,077  | 2,081 | 21% |  6,057  |  1,211  | $22.20 | $36.89 |

*Source: EMSI 2019.3*

**Mid-Peninsula Sub-Region** includes San Francisco and San Mateo Counties

### Job Postings in Bay Region and Mid-Peninsula Sub-Region

**Table 3. Number of Job Postings by Occupation for latest 12 months (December 2018 - November 2019)**

| Occupation | Bay Region | Mid-Peninsula |
| --- | --- | --- |
|  Computer User Support Specialists | 16,673 | 5,876 |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Computer Technical Support Occupations for latest 12 months (December 2018 - November 2019) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Desktop Support | 1,160 | Help Desk Specialist | 205 |
| Technical Support Engineer | 921 | Geek Squad Agent | 204 |
| Information Technology Support Specialist | 599 | Customer Support Engineer | 203 |
| Desktop Support Technician | 566 | Desktop Support Analyst | 196 |
| Information Technology Specialist | 504 | Help Desk Support | 195 |
| Information Technology Technician | 501 | Desktop Support Specialist | 187 |
| Help Desk Technician | 458 | Computer Technician | 165 |
| Technical Support Specialist | 456 | Help Desk Analyst | 154 |
| Information Technology Support Technician | 286 | Applications Engineer | 142 |
| Field Service Technician | 270 | Help Desk | 138 |
| Lead Technician | 255 | Technical Support Representative | 117 |
| PC Technician | 222 | Sap | 117 |
| Desktop Technician | 216 | Applications Analyst | 117 |
| Technical Support Analyst | 208 | Service Technician | 115 |

**Table 4b. Top Job Titles for Computer Technical Support Occupations for latest 12 months (December 2018 - November 2019) Mid-Peninsula Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Mid-Peninsula | Common Title | Mid-Peninsula |
| Desktop Support | 470 | Desktop Support Analyst | 79 |
| Technical Support Engineer | 338 | Help Desk Specialist | 75 |
| Information Technology Support Specialist | 321 | Help Desk Support | 73 |
| Information Technology Technician | 193 | Field Service Technician | 69 |
| Desktop Support Technician | 192 | Desktop Technician | 65 |
| Help Desk Technician | 158 | It Support | 62 |
| Technical Support Specialist | 155 | Technical Support | 57 |
| Information Technology Specialist | 144 | Information Technology Support Analyst | 51 |
| Information Technology Support Tech | 119 | Customer Support Engineer | 50 |
| Technical Support Analyst | 96 | PC Technician | 48 |
| Desktop Support Specialist | 82 | Technical Support Representative | 45 |
| Lead Technician | 79 | Support Specialist | 45 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Computer Technical Support Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2018) | Jobs in Industry (2022) | % Change (2018-22) | % in Industry (2018) |
| Custom Computer Programming Services (541511) | 5,886 | 6,017 | 17% | 19% |
| Computer Systems Design Services (541512) | 3,572 | 3,594 | 13% | 11% |
| Software Publishers (511210) | 2,394 | 2,548 | 29% | 8% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 1,976 | 2,011 | 32% | 6% |
| Electronic Computer Manufacturing (334111) | 1,860 | 1,894 | 9% | 6% |
| Data Processing, Hosting, and Related Services (518210) | 1,381 | 1,397 | 36% | 4% |
| Colleges, Universities, and Professional Schools (State Government) (902612) | 1,233 | 1,278 | 12% | 4% |
| Colleges, Universities, and Professional Schools (611310) | 1,030 | 1,054 | 11% | 3% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 878 | 869 | 8% | 3% |
| Other Computer Related Services (541519) | 818 | 835 | 21% | 3% |
| Local Government, Excluding Education and Hospitals (903999) | 560 | 562 | 4% | 2% |
| Temporary Help Services (561320) | 565 | 560 | 6% | 2% |
| Elementary and Secondary Schools (Local Government) (903611) | 509 | 509 | 5% | 2% |
| Colleges, Universities, and Professional Schools (Local Government) (903612) | 508 | 489 | -13% | 2% |
| Computer and Computer Peripheral Equipment and Software Merchant Wholesalers (423430) | 450 | 426 | -19% | 1% |

*Source: EMSI 2019.3*

**Table 6. Top Employers Posting Computer Technical Support Occupations in Bay Region and Mid-Peninsula Sub-Region (December 2018 - November 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Mid-Peninsula |
| Best Buy | 243 | Twilio | 28 | Milestone Technologies Inc | 113 |
| Milestone Technologies Inc | 185 | Samsung America, Inc. | 28 | Milestone Technologies | 64 |
| Milestone Technologies | 82 | Getronics | 28 | Best Buy | 37 |
| Wells Fargo | 68 | NTT Data | 27 | Twilio | 28 |
| Excell | 61 | Microsoft Corporation | 25 | Excell | 21 |
| IBM | 60 | Ascent | 25 | Wells Fargo | 20 |
| Wipro | 59 | KLA-Tencor | 24 | Facebook | 20 |
| SAP | 43 | Frys Electronics | 23 | Deloitte | 19 |
| US Army | 40 | Fortinet Incorporated | 23 | SAP | 17 |
| Facebook | 40 | Deloitte | 23 | Citrix | 16 |
| Astreya | 40 | Intelliswift Software | 21 | Salesforce | 15 |
| US Government | 39 | 8X8 Incorporated | 21 | Omega Solutions Inc | 14 |
| Cisco Systems Incorporated | 39 | Stanford University | 20 | Genentech | 14 |
| Accenture | 37 | Scoop Technologies | 20 | Wipro | 13 |
| Astreya Partners | 36 | SAIC | 20 | Visa | 13 |
| Google Inc. | 34 | Idc Technologies | 20 | Rockridge Group | 13 |
| Apple Inc. | 32 | Dgn Technologies | 20 | Accenture | 13 |

*Source: Burning Glass*

# Educational Supply

There are 15 community colleges in the Bay Region issuing 226 awards on average annually (last 3 years) on TOP 0708.10 - Computer Networking. There are two colleges in the Mid-Peninsula Sub-Region issuing 57 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0708.10 - Computer Networking in Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Associates | Certificate 18+ | Certificate Low | Total |
| Cabrillo College  | Santa Cruz-Monterey |  3  |  |  |  3  |
| City College of San Francisco  | Mid-Peninsula |  |  1  |  48  |  49  |
| Contra Costa College  | East Bay |  3  |  |  13  |  16  |
| De Anza College  | Silicon Valley |  13  |  3  |  8  |  24  |
| Diablo Valley College  | East Bay |  7  |  2  |  0  |  9  |
| Foothill College  | Silicon Valley |  1  |  |  |  1  |
| Gavilan College  | Santa Cruz-Monterey |  4  |  2  |  |  6  |
| Las Positas College  | East Bay |  4  |  1  |  |  5  |
| Los Medanos College  | East Bay |  8  |  5  |  3  |  16  |
| Mission College  | Silicon Valley |  14  |  6  |  9  |  29  |
| Monterey Peninsula College  | Santa Cruz-Monterey |  |  1  |  1  |  2  |
| Ohlone College  | East Bay |  3  |  4  |  12  |  19  |
| San Jose City College  | Silicon Valley |  8  |  6  |  2  |  16  |
| Santa Rosa Junior College  | North Bay |  |  |  23  |  23  |
| Skyline College  | Mid-Peninsula |  7  |  1  |  |  8  |
| **Total Bay Region** |  **75**  |  **31**  |  **120**  |  **226**  |
| **Total Mid-Peninsula Sub-Region** | **7** | **2** | **48** | **57** |

# *Source: Data Mart*

Note: The annual average for awards is 2015-16 to 2017-18.

# Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 3,307 annual openings for the Computer Technical Support occupational cluster and 226 annual (3-year average) awards for an annual undersupply of 3,081 students. In the Mid-Peninsula Sub-Region, there is also a gap with 1,211 annual openings and 57 annual (3-year average) awards for an annual undersupply of 1,154 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0708.10 - Computer Networking**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay (All CTE Programs) | City College of San Francisco (All CTE Programs) | State (0708.10) | Bay (0708.10) | Mid-Peninsula (0708.10) | City College of San Francisco (0708.10) |
| % Employed Four Quarters After Exit | 74% | 73% | 72% | 74% | 73% | 74% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $10,170 | $11,383 | $13,397 | $12,411 | $12,482 |
| Median % Change in Earnings | 46% | 50% | 40% | 45% | 38% | 38% |
| % of Students Earning a Living Wage | 63% | 55% | 70% | 74% | 70% | 70% |

*Source: Launchboard Pipeline (version available on 12/10/19)*

# Skills, Certifications and Education

**Table 9. Top Skills for Computer Technical Support Occupations in Bay Region (December 2018 - November 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Technical Support | 7,881 | SQL | 1,452 | Video Conferencing | 915 |
| Customer Service | 5,158 | Computer Installation and Setup | 1,366 | Oracle | 888 |
| Repair | 3,117 | Software Installation | 1,354 | Break/Fix | 882 |
| Microsoft Active Directory | 2,673 | Hardware and Software Configuration | 1,267 | Application Support | 873 |
| Help Desk Support | 2,622 | Transmission Control Protocol / Internet Protocol (TCP / IP) | 1,259 | System Administration | 873 |
| It Support | 2,582 | Virtual Private Networking (VPN) | 1,255 | Scheduling | 847 |
| Printers | 2,534 | Network Troubleshooting | 1,101 | Dynamic Host Configuration Protocol (DHCP) | 835 |
| Hardware and Software Installation | 2,276 | Cisco | 1,089 | OS X | 816 |
| Microsoft Operating Systems | 1,833 | Domain Name System (DNS) | 1,080 | Telecommunications | 814 |
| Customer Contact | 1,783 | Project Management | 1,041 | Network Hardware/Software Maintenance | 812 |
| Linux | 1,705 | Wide Area Network (WAN) | 974 | ITIL | 809 |
| MacIntosh OS | 1,595 | Computer Hardware/ Software Knowledge | 973 | Information Systems | 802 |
| SAP | 1,571 | Java | 942 | System/Network Configuration | 801 |
| Hardware Troubleshooting | 1,559 | Service Level Agreement | 928 | Python | 800 |
| Troubleshooting Technical Issues | 1,556 | Hardware Experience | 915 | Onboarding | 788 |

*Source: Burning Glass*

**Table 10. Certifications for Computer Technical Support Occupations in Bay Region (December 2018 - November 2019)**

Note: 77% 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 |
| Certified A+ Technician | 1,128 | Apple Certified Macintosh Technician | 111 |
| Driver's License | 978 | Cisco Certified Network Professional | 106 |
| IT Infrastructure Library (ITIL) Certification | 857 | ITIL Foundation | 92 |
| CompTIA Network+ | 413 | Cisco Certified Internetwork Expert (CCIE) | 85 |
| Microsoft Certified Professional (MCP) | 360 | Project Management Certification | 81 |
| ITIL Certification | 310 | Certified Information Systems Security Professional (CISSP) | 61 |
| Cisco Certified Network Associate (CCNA) | 310 | Computer Science Certification | 59 |
| Microsoft Certified Solutions Associate (MCSA) | 240 | Microsoft Certified Technology Specialist (MCTS) | 48 |
| Security Clearance | 195 | HDI Desktop Support Technician (DST) | 45 |
| CompTIA Security+ | 178 | CompTIA Server+ | 42 |
| Microsoft Certified Solutions Expert (MCSE) | 176 | Information Technology Certification | 40 |
| Microsoft Certified Desktop Support Technician  | 112 | SAP Certification | 33 |

*Source: Burning Glass*

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

Note: 56% 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 | Percent 12 Mos. Postings |
| High school or vocational training | 1,513 | 21% |
| Associate Degree | 1,047 | 14% |
| Bachelor’s Degree or Higher | 4,426 | 65% |

*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

For more information, please contact:

* Doreen O’Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), doreen@baccc.net or (831) 479-6481
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, jcarrese@ccsf.edu or (415) 267-6544