




# Computer Support

## Labor Market Analysis for San Diego College of Continuing Education

September 2021

### Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <b>Proceed with New Program</b>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Bachelor's Degree+ <input type="checkbox"/> Associate Degree <input type="checkbox"/> Some College or Certificate <input type="checkbox"/> HS Diploma or Equivalent <input type="checkbox"/> Less than a HS Diploma <input type="checkbox"/> Apprenticeship
SUPPORT FOR PROGRAM MODIFICATION?	NUMBER OF INSTITUTIONS THAT PROVIDE TRAINING	NUMBER OF ANNUAL JOB OPENINGS	
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<div style="background-color: #4a7c9c; color: white; padding: 2px; font-weight: bold;">LOW</div> 	<div style="background-color: #4a7c9c; color: white; padding: 2px; font-weight: bold;">HIGH</div> 	

This report provides labor market information for occupations selected by San Diego College of Continuing Education for its *Computer Support* program. These occupations include “Computer Network Support Specialists” and “Computer User Support Specialists.” According to available labor market information, *Computer Support Occupations* in San Diego County have a labor market demand of 556 annual job openings (while average demand for a single occupation in San Diego County is 242 annual job openings). On average, two institutions supply three for-credit awards and one institution supplies 116 noncredit awards in San Diego County for these occupations. In short, the region supplies 119 for-credit and noncredit awards for 556 annual job openings, suggesting that there is a supply gap in the labor market. Entry-level and median wages for these occupations are above the living wage. This brief recommends that the colleges proceed with a new program or program modification because 1) there is a supply gap; and 2) these occupations’ entry-level and median earnings are above the living wage. The college should note that **employers typically require a bachelor’s degree as the minimum educational requirement for these occupations.**

## Introduction

This report provides labor market information in San Diego County for occupations related to the six-digit Taxonomy of Programs (TOP)<sup>1</sup> code, Computer Support (TOP 0708.20). The purpose of this brief is to assist noncredit program providers in the region, such as San Diego College of Continuing Education (SDCCE), with program development and review. SDCCE identified the following occupational codes from the Standard Occupational Classification (SOC)<sup>2</sup> system for *Computer Support*, which will be the focus of this report:

- **Computer Network Support Specialists** (SOC 15-1231): Analyze, test, troubleshoot, and evaluate existing network systems, such as local area networks (LAN), wide area networks (WAN), cloud networks, servers, and other data communications networks. Perform network maintenance to ensure networks operate correctly with minimal interruption.
- **Computer User Support Specialists** (SOC 15-1232): Provide technical assistance to computer users. Answer questions or resolve computer problems for clients in person, 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.

For the purpose of this report, these occupations are referred to as *Computer Support Occupations*.

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<sup>1</sup> Taxonomy of Programs (TOP) is a system of codes used by the California Community Colleges for the purpose of collecting, calculating, or disseminating data about similar training programs.

<sup>2</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

## Projected Occupational Demand

Between 2020 and 2025, *Computer Support Occupations* are projected to increase by 600 net jobs or nine percent (Exhibit 1a). Employers in San Diego County will need to hire 556 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

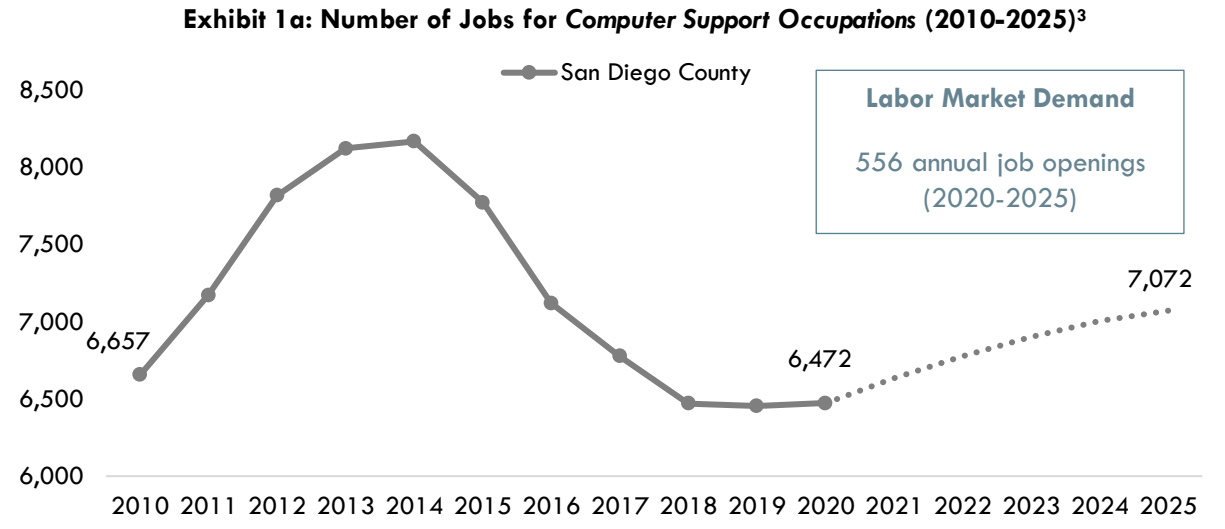


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Computer User Support Specialists” are projected to have the most labor market demand between 2020 and 2025, with 439 annual job openings.

**Exhibit 1b: Number of Jobs for Computer Support Occupations in San Diego County (2020-2025)<sup>4</sup>**

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Computer User Support Specialists	5,076	5,566	490	10%	439
Computer Network Support Specialists	1,396	1,506	110	8%	117
<b>Total</b>	<b>6,472</b>	<b>7,072</b>	<b>600</b>	<b>9%</b>	<b>556</b>

<sup>3</sup> EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

<sup>4</sup> EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

## Earnings

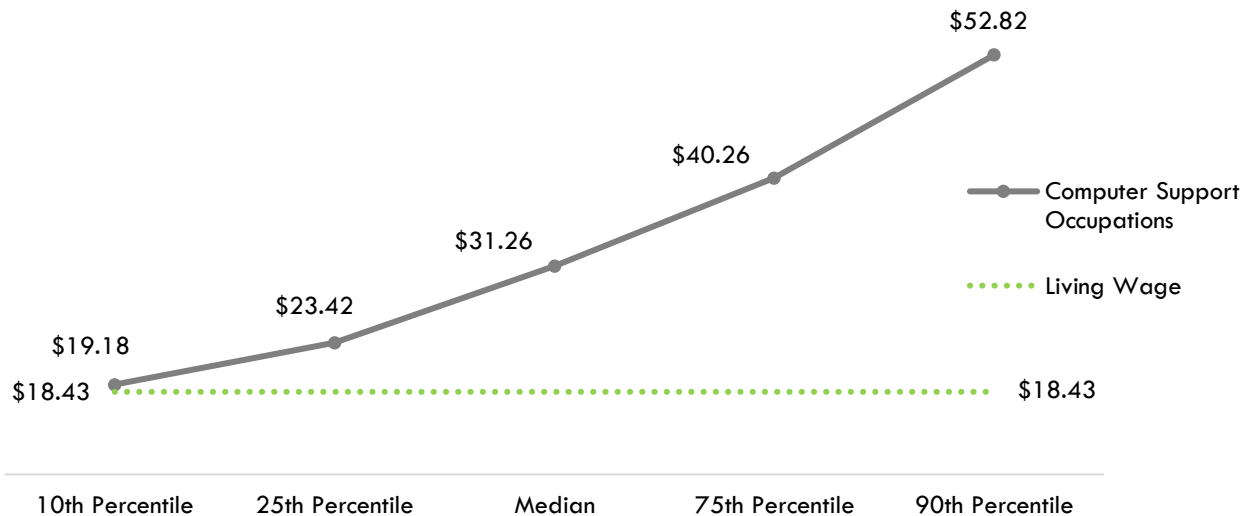
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Computer Support Occupations* range from \$21.90 to \$24.94.

**Exhibit 2a: Hourly Earnings for Computer Support Occupations in San Diego County<sup>5</sup>**

Occupational Title	Entry-Level Hourly Earnings (25 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 <sup>th</sup> Percentile)
Computer Network Support Specialists	\$24.94	\$34.52	\$45.10
Computer User Support Specialists	\$21.90	\$28.00	\$35.41

On average, the entry-level hourly earnings for *Computer Support Occupations* are \$23.42; this is more than the living wage for a single adult in San Diego County, which is \$18.43 per hour (Exhibit 2b).<sup>6</sup>

**Exhibit 2b: Average Hourly Earnings<sup>7</sup> for Computer Support Occupations in San Diego County<sup>8</sup>**



<sup>5</sup> EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

<sup>6</sup> "Family Needs Calculator (formerly the California Family Needs Calculator)," Insight: Center for Community Economic Development, last updated 2021. [insightccd.org/family-needs-calculator/](https://insightccd.org/family-needs-calculator/).

<sup>7</sup> 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

<sup>8</sup> EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

## Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.<sup>9</sup> According to TOP and CIP<sup>10</sup> data, two community colleges supply the region with for-credit awards for Computer Support (TOP 0708.20): MiraCosta College and Southwestern College (Exhibit 3a).

**Exhibit 3a: Number of For-Credit Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Years 2017-18 through 2019-20)**

College	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
MiraCosta	Associate Degree	0	2	0	1
	Certificate 12 to < 18 units	0	2	0	1
	<b>Total</b>	<b>0</b>	<b>4</b>	<b>0</b>	<b>1*</b>
Southwestern	Associate Degree	3	1	0	1
	<b>Total</b>	<b>3</b>	<b>1</b>	<b>0</b>	<b>1</b>
<b>Total</b>		<b>3</b>	<b>5</b>	<b>0</b>	<b>3*</b>

*Note: The numbers may not add up exactly due to rounding.*

By for-credit award type, the colleges supplied the most awards for **associate degrees** based on the three-year average (program years 2017-18 through 2019-20) (Exhibit 3b).

**Exhibit 3b: Total Number of For-credit Awards by Type for Computer Support (TOP 0708.20) in San Diego County (3-Yr Average)**



<sup>9</sup> TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

<sup>10</sup> There are two CIP codes related to Computer Support (TOP 0708.20): Computer and Information Systems Security/Information Assurance (CIP 11.1003) and Computer Support Specialist (CIP 11.1006).

In terms of noncredit awards, only San Diego College of Continuing Education provides noncredit awards for Computer Support (TOP 0708.20), with a three-year average of 116 noncredit awards (program years 2017-18 through 2019-20) (Exhibit 4).

**Exhibit 4: Number of Noncredit Awards Conferred by SDCCE  
(Program Years 2017-18 through 2019-20)**

Program Title	Award Type	PY 17-18	PY 18-19	PY 19-20	3-Yr Total Average
Computer Repair Technician	Noncredit	0	0	4	1
Desktop Operating Systems	Noncredit	9	24	0	11
Desktop Technician	Noncredit	1	1	25	9
Linux Server Administration	Noncredit	30	37	12	26
Network Technician	Noncredit	6	8	6	7
Server Essentials	Noncredit	17	31	12	20
Web Server Technologies and Applications	Noncredit	9	3	2	5
Windows System Administration	Noncredit	31	52	28	37
<b>Total</b>		<b>103</b>	<b>156</b>	<b>89</b>	<b>116</b>

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>11</sup> suggests that there is a **supply gap** in San Diego County, with **556** annual openings and **119** for-credit and noncredit awards supplied by the region (Exhibit 5).

**Exhibit 5: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)**

TOP6 Program	Demand (Annual Openings)	Supply (Total Annual Average Supply)		Supply Gap or Oversupply
		Noncredit	For-Credit	
Computer Support (TOP 0708.20)	556	116	3	<b>437</b>

**Please note:** This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

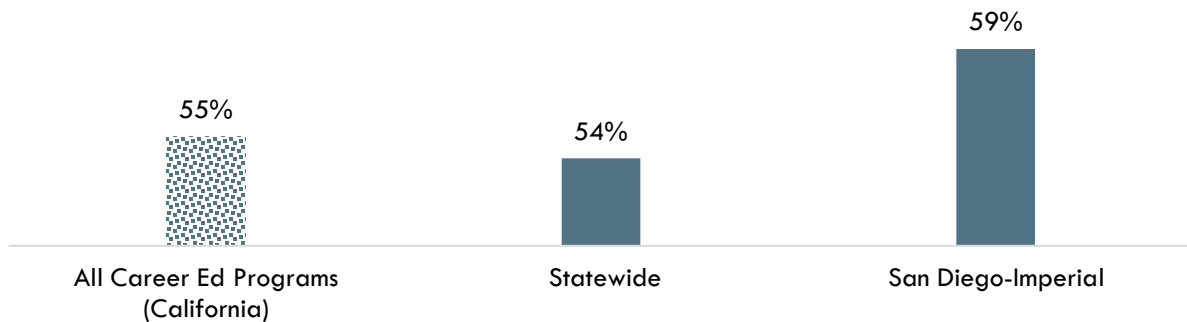
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<sup>11</sup> Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

## Student Outcomes and Regional Comparisons

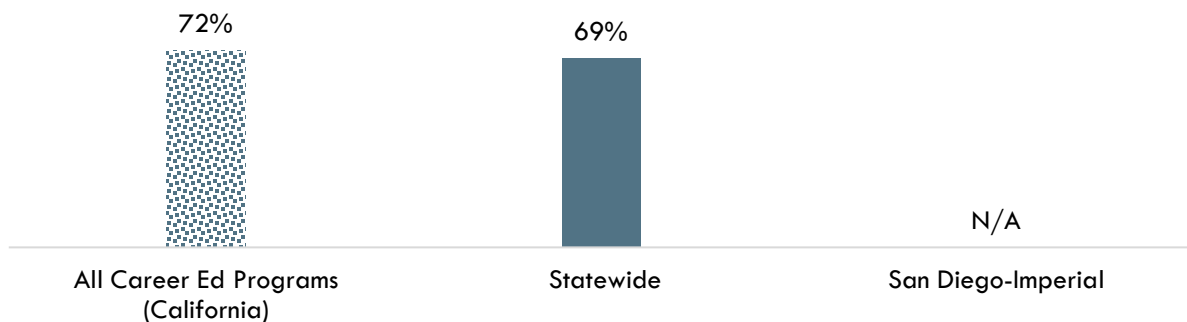
According to the California Community Colleges LaunchBoard, 59 percent of students in the San Diego-Imperial region earned a living wage after completing a Computer Support (0708.20) program, compared to 54 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).<sup>12</sup>

**Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program  
(Computer Support, PY 2017-18)<sup>13</sup>**



According to the California Community Colleges LaunchBoard, 69 percent of students statewide obtained a job closely related to their field of study after completing a Computer Support (0708.20) program, compared to 72 percent of students in Career Education programs in general across the state (Exhibit 6b).<sup>14</sup>

**Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program  
(Computer Support, PY 2016-17)<sup>15</sup>**



"N/A" indicates insufficient data

<sup>12</sup> "California Community Colleges Strong Workforce Program," California Community Colleges, [calpassplus.org/LaunchBoard/SWP.aspx](http://calpassplus.org/LaunchBoard/SWP.aspx).

<sup>13</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

<sup>14</sup> "California Community Colleges Strong Workforce Program," California Community Colleges, [calpassplus.org/LaunchBoard/SWP.aspx](http://calpassplus.org/LaunchBoard/SWP.aspx).

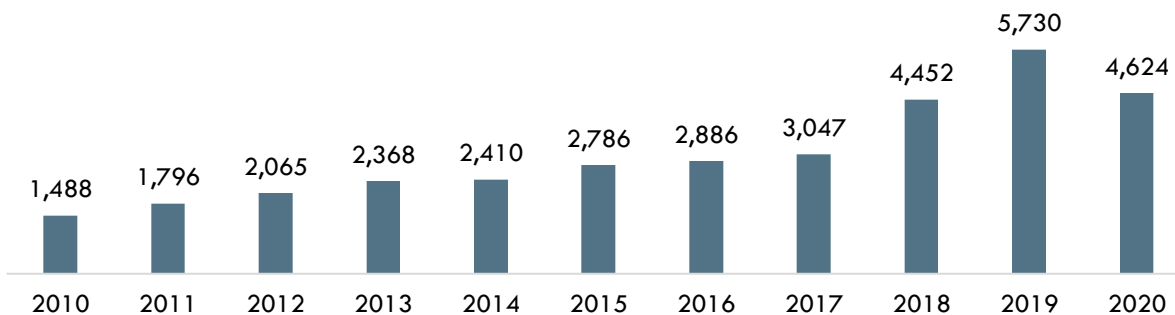
<sup>15</sup> Most recent year with available data is Program Year 2016-17. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.



## Online Job Postings

This report analyzes not only historical and projected (traditional LMI) data, but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market that are not captured by historical data. Between 2010 and 2020, there was an average of 3,059 online job postings per year for *Computer Support Occupations* in San Diego County (Exhibit 7). Please note that online job postings do **not** equal labor market demand; demand is represented by annual job openings (see Exhibit 1b). Employers may post a position multiple times for various reasons, such as increasing the pool of applicants, for example.

**Exhibit 7: Number of Online Job Postings for Computer Support Occupations in San Diego County (2010-2020)<sup>16</sup>**



## Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in San Diego County for *Computer Support Occupations* were Best Buy, University of California San Diego, U.S. Government, Jack Henry & Associates, and General Atomics based on online job postings (Exhibit 8).

**Exhibit 8: Top Employers for Computer Support Occupations in San Diego County<sup>17</sup>**

Top Employers	
<ul style="list-style-type: none"> <li>• Best Buy</li> <li>• University of California San Diego</li> <li>• U.S. Government</li> <li>• Jack Henry &amp; Associates</li> <li>• General Atomics</li> </ul>	<ul style="list-style-type: none"> <li>• SAIC</li> <li>• Jacobs Engineering Group Incorporated</li> <li>• ACI Federal</li> <li>• CACI</li> <li>• Leidos</li> </ul>

<sup>16</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

<sup>17</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

## Education, Skills, and Certifications

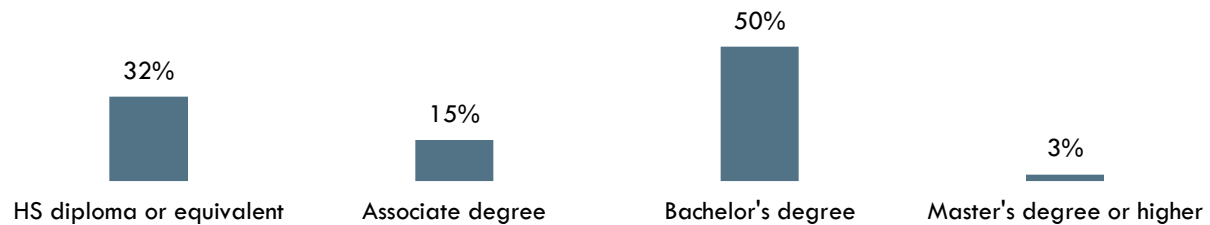
Computer Support Occupations have a national educational attainment ranging from a [some college, no degree](#) to an [associate degree](#) (Exhibit 9a).

**Exhibit 9a: National Educational Attainment for Computer Support Occupations<sup>18</sup>**

Occupational Title	Typical Entry-Level Education
Computer Network Support Specialists	Associate degree
Computer User Support Specialists	Some college, no degree

Based on online job postings between January 1, 2018 and December 31, 2020 in San Diego County, employers posted a [bachelor's degree](#) as the educational requirement for *Computer Support Occupations* (Exhibit 9b).<sup>19</sup>

**Exhibit 9b: Educational Requirements for Computer Support Occupations in San Diego County<sup>20</sup>**



\*may not total 100 percent due to rounding

<sup>18</sup> EMSI 2021.2; QCEW, Non-QCEW, Self-Employed.

<sup>19</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

<sup>20</sup> "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified April 9, 2021. [bls.gov/emp/tables/educational-attainment.htm](https://bls.gov/emp/tables/educational-attainment.htm).

Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2018 and December 31, 2020.

**Exhibit 10: Top Skills for Computer Support Occupations in San Diego County<sup>21</sup>**

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• Technical Support</li> <li>• Customer Service</li> <li>• Repair</li> <li>• Help Desk Support</li> <li>• Hardware and Software Installation</li> <li>• Printers</li> <li>• It Support</li> <li>• Customer Contact</li> <li>• Information Systems</li> <li>• Hardware and Software Configuration</li> <li>• Hardware Troubleshooting</li> <li>• Software Installation</li> <li>• Troubleshooting Technical Issues</li> <li>• Computer Installation and Setup</li> <li>• Network Troubleshooting</li> </ul>	<ul style="list-style-type: none"> <li>• Troubleshooting</li> <li>• Communication Skills</li> <li>• Problem Solving</li> <li>• Detail-Oriented</li> <li>• Teamwork / Collaboration</li> <li>• Research</li> <li>• Organizational Skills</li> <li>• Writing</li> <li>• Computer Literacy</li> <li>• Written Communication</li> <li>• Physical Abilities</li> <li>• Planning</li> <li>• Multi-Tasking</li> <li>• Time Management</li> <li>• Verbal / Oral Communication</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft Excel</li> <li>• Microsoft Operating Systems</li> <li>• Linux</li> <li>• SQL</li> <li>• Virtual Private Networking</li> <li>• Windows Server</li> <li>• Microsoft PowerPoint</li> <li>• Microsoft Word</li> <li>• MacIntosh OS</li> <li>• Software Development</li> <li>• Voice over IP</li> <li>• VMware</li> <li>• Microsoft Exchange</li> <li>• SAP</li> <li>• Microsoft SharePoint</li> </ul>

<sup>21</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Exhibit 11 lists the top certifications that appeared in online job postings between January 1, 2018 and December 31, 2020.

**Exhibit 11: Top Certifications for Computer Support Occupations in San Diego County<sup>22</sup>**

Top Certifications in Online Job Postings

1. Security Clearance
  2. Certified A+ Technician
  3. CompTIA Network+
  4. CompTIA Security+
  5. IT Infrastructure Library (ITIL) Certification
  6. Cisco Certified Network Associate (CCNA)
  7. Microsoft Certified Solutions Associate (MCSA)
  8. Microsoft Certified Professional (MCP)
  9. Microsoft Certified Technology Specialist (MCTS)
  10. Microsoft Certified Solutions Expert (MCSE)
  11. Certified Information Systems Security Professional (CISSP)
  12. Microsoft Technology Associate (MTA)
  13. SANS/GIAC Certification
  14. Cisco Certified Network Professional (CCNP)
  15. Systems Security Certified Practitioner (SSCP)
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<sup>22</sup> Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

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### Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor's Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.