








Computer Systems Occupations

Labor Market Analysis: Imperial County

June 2021

Summary

NEW PROGRAM RECOMMENDATION?	EVIDENCE OF A SUPPLY GAP?	AT OR ABOVE THE LIVING WAGE?	EXPECTED EDUCATION FOR MAJORITY OF OCCUPATIONS ANALYZED
 <p>Proceed with Caution</p>	 	 	<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	
<p>The COE defers to the region</p>	<p>MEDIUM</p> 	<p>MEDIUM</p> 	

This brief provides labor market information about *Computer Systems Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. *Computer Systems Occupations* include “Computer Systems Analysts” and “Network and Computer Systems Administrators.” According to available labor market information, *Computer Systems Occupations* in Imperial County have a labor market demand of seven annual job openings (while average demand for a single occupation in Imperial County is 14 annual job openings), and only one institution (Imperial Valley College) supplies 14 awards for these occupations, suggesting that there is an oversupply in the labor market. Entry-level wages and median wages for these occupations are above the living wage. This brief recommends proceeding with caution when developing a new program and defers to the region for a program modification because 1) an oversupply exists in the region and 2) entry-level and median earnings are above the living wage. Colleges should also 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 Imperial County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Computer Systems Analysts** (SOC 15-1211): Analyze science, engineering, business, and other data processing problems to develop and implement solutions to complex applications problems, system administration issues, or network concerns. Perform systems management and integration functions, improve existing computer systems, and review computer system capabilities, workflow, and schedule limitations. May analyze or recommend commercially available software.
- **Network and Computer Systems Administrators** (SOC 15-1244): Install, configure, and maintain an organization's local area network (LAN), wide area network (WAN), data communications network, operating systems, and physical and virtual servers. Perform system monitoring and verify the integrity and availability of hardware, network, and server resources and systems. Review system and application logs and verify completion of scheduled jobs, including system backups. Analyze network and server resource consumption and control user access. Install and upgrade software and maintain software licenses. May assist in network modeling, analysis, planning, and coordination between network and data communications hardware and software.

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

¹ 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 Systems Occupations* are projected to increase by **three** net jobs or **three** percent (Exhibit 1a). Employers in Imperial County will need to hire **seven** workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

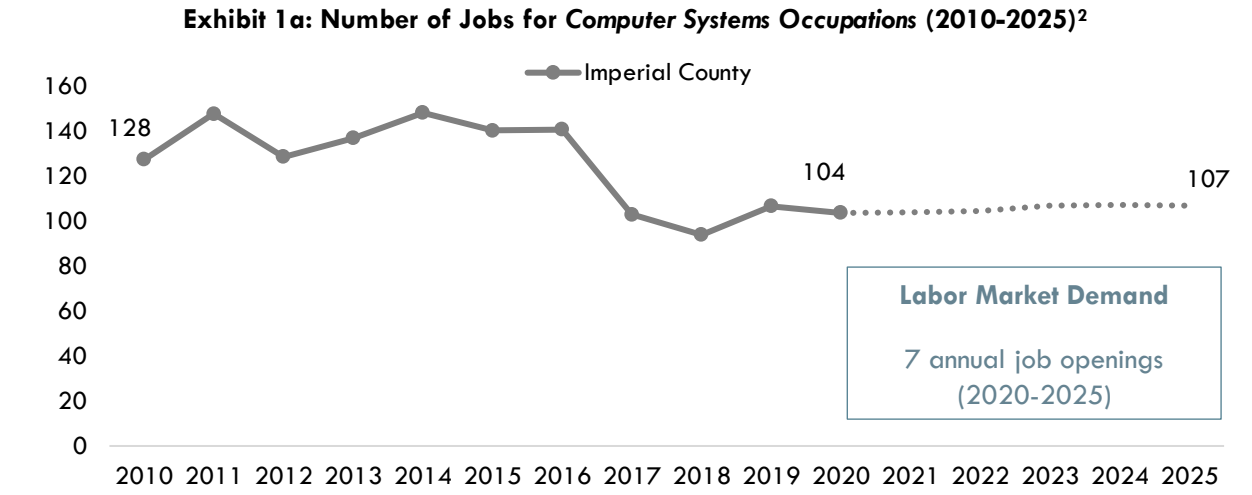


Exhibit 1b disaggregates the projected number of jobs change by occupation. “Computer Systems Analysts” are projected to have the most labor market demand between 2020 and 2025, with **four** annual job openings.

Exhibit 1b: Number of Jobs for Computer Systems Occupations in Imperial County (2020-2025)³

Occupational Title	2020 Jobs	2025 Jobs	2020 - 2025 Net Jobs Change	2020-2025 % Net Jobs Change	Annual Job Openings (Demand)
Computer Systems Analysts	58	60	2	3%	4
Network and Computer Systems Administrators	46	47	1	2%	3
Total	104	107	3	3%	7

² EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

³ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

Earnings

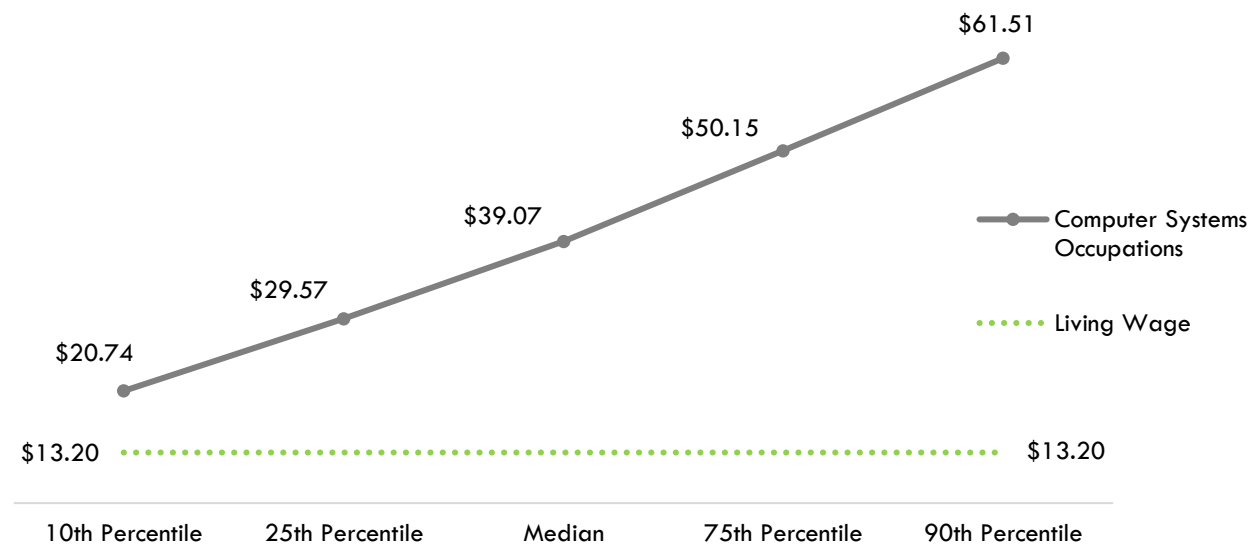
Exhibit 2a disaggregates hourly earnings by occupation. The entry-level hourly earnings for *Computer Systems Occupations* range from \$27.20 to \$31.94.

Exhibit 2a: Hourly Earnings for Computer Systems Occupations in Imperial County⁴

Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Network and Computer Systems Administrators	\$31.94	\$41.03	\$52.32
Computer Systems Analysts	\$27.20	\$37.11	\$47.97

On average, the entry-level hourly earnings for *Computer Systems Occupations* are \$29.57; this is more than the living wage for a household of two adults and two school-age children in Imperial County, which is \$13.20 per hour (Exhibit 2b).⁵

Exhibit 2b: Average Hourly Earnings⁶ for Computer Systems Occupations in Imperial County⁷



⁴ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

⁵ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightccd.org/2018-self-sufficiency-standard.

⁶ 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.

⁷ EMSI 2021.1; 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.⁸ There are **nine** TOP codes and **eleven** CIP codes related to *Computer Systems Occupations* (Exhibit 3).

Exhibit 3: Related TOP and CIP Codes for Computer Systems Occupations

TOP or CIP Code	TOP or CIP Program Title
TOP 0509.70	E-Commerce
TOP 0701.00	Information Technology, General
TOP 0702.00	Computer Information Systems
TOP 0707.30	Computer Systems Analysis
TOP 0708.00	Computer Infrastructure and Support
TOP 0708.10	Computer Networking
TOP 0708.20	Computer Support
TOP 0709.00	World Wide Web Administration
TOP 0934.30	Telecommunications Technology
CIP 11.0101	Computer and Information Sciences, General
CIP 11.0103	Information Technology
CIP 11.0199	Computer and Information Sciences, Other
CIP 11.0501	Computer Systems Analysis/Analyst
CIP 11.0901	Computer Systems Networking and Telecommunications
CIP 11.1001	Network and System Administration/Administrator
CIP 11.1003	Computer and Information Systems Security/Information Assurance
CIP 11.1004	Web/Multimedia Management and Webmaster
CIP 15.0305	Telecommunications Technology/Technician
CIP 47.0103	Communications Systems Installation and Repair Technology
CIP 52.0208	E-Commerce/Electronic Commerce

⁸ 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).

According to TOP data, **one** community college supplies the region with awards for these occupations: **Imperial Valley College**. According to CIP data, **no** non-community-college institution supplies the region with awards (Exhibit 4).

**Exhibit 4: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions
(Program Year 2016-17 through PY2019-20 Average)**

TOP or CIP Code	TOP or CIP Program Title	3-Yr Annual Average CC Awards (PY17-18 to PY19-20)	Other Educational Institutions 3-Yr Annual Average Awards (PY16-17 to PY18-19)	3-Yr Total Average Supply (PY16-17 to PY19-20)
0701.00	Information Technology, General	3	0	3
	• Imperial Valley	3	0	
0702.00	Computer Information Systems	8	0	8
	• Imperial Valley	8	0	
0708.00	Computer Infrastructure and Support	2	0	2
	• Imperial Valley	2	0	
0934.30	Telecommunications Technology	1	0	1
	• Imperial Valley	1	0	
			Total	14

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁹ suggests that there is an **oversupply** for these occupations in Imperial County, with **seven** annual openings and **14** awards. Comparatively, there are **8,642** annual openings in California and **7,980** awards, suggesting that there is a supply gap across the state¹⁰ (Exhibit 5).

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

	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Imperial	7	14	7
California	8,642	7,980	662

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.

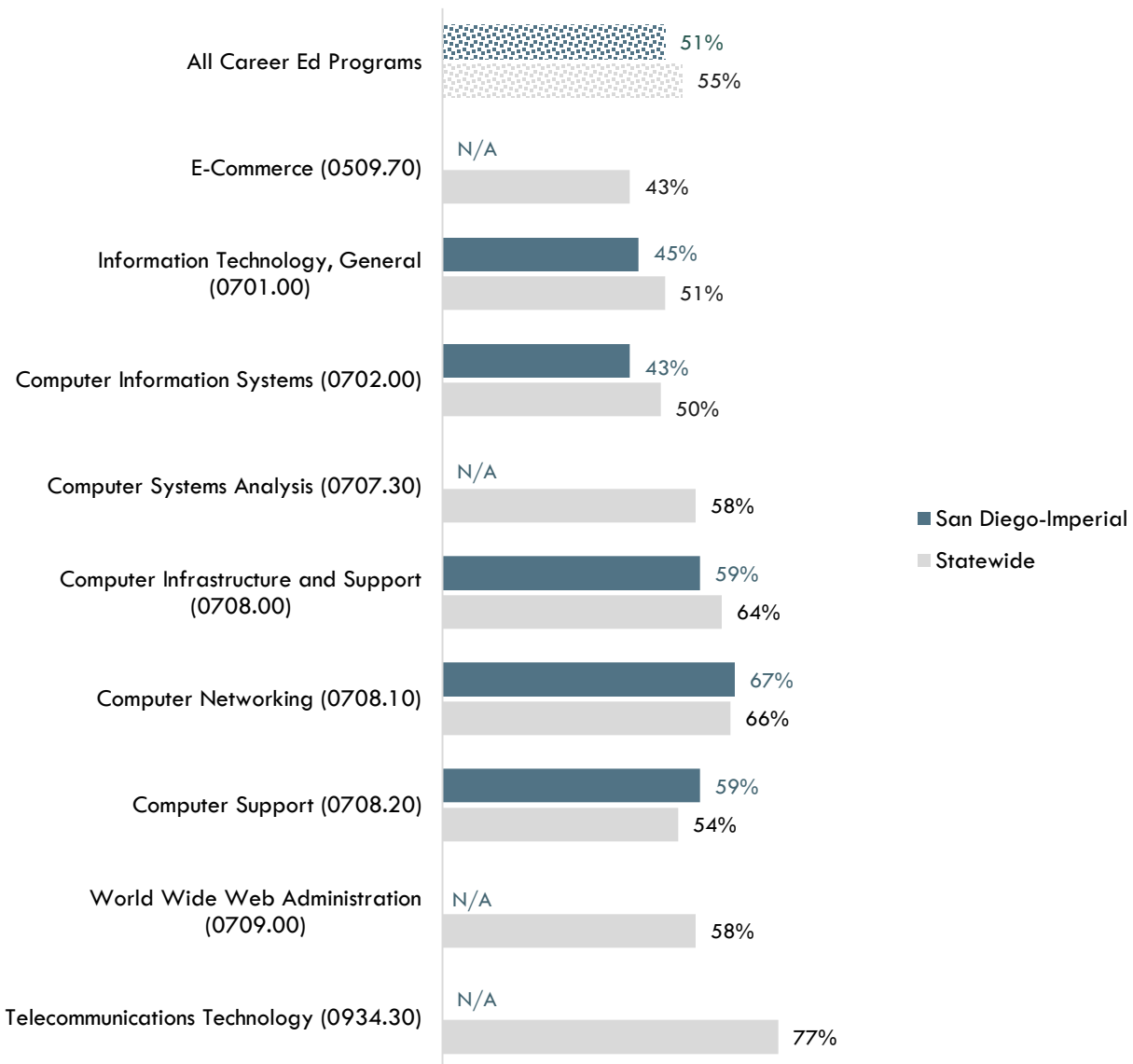
⁹ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

¹⁰ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

According to the California Community Colleges LaunchBoard, 43 to 67 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Computer Systems Occupations*, compared to 43 to 77 percent statewide and 55 percent of students in Career Education programs in general across the state (Exhibit 6a).¹¹

Exhibit 6a: Percentage of Students Who Earned a Living Wage by Program, PY2017-18¹²



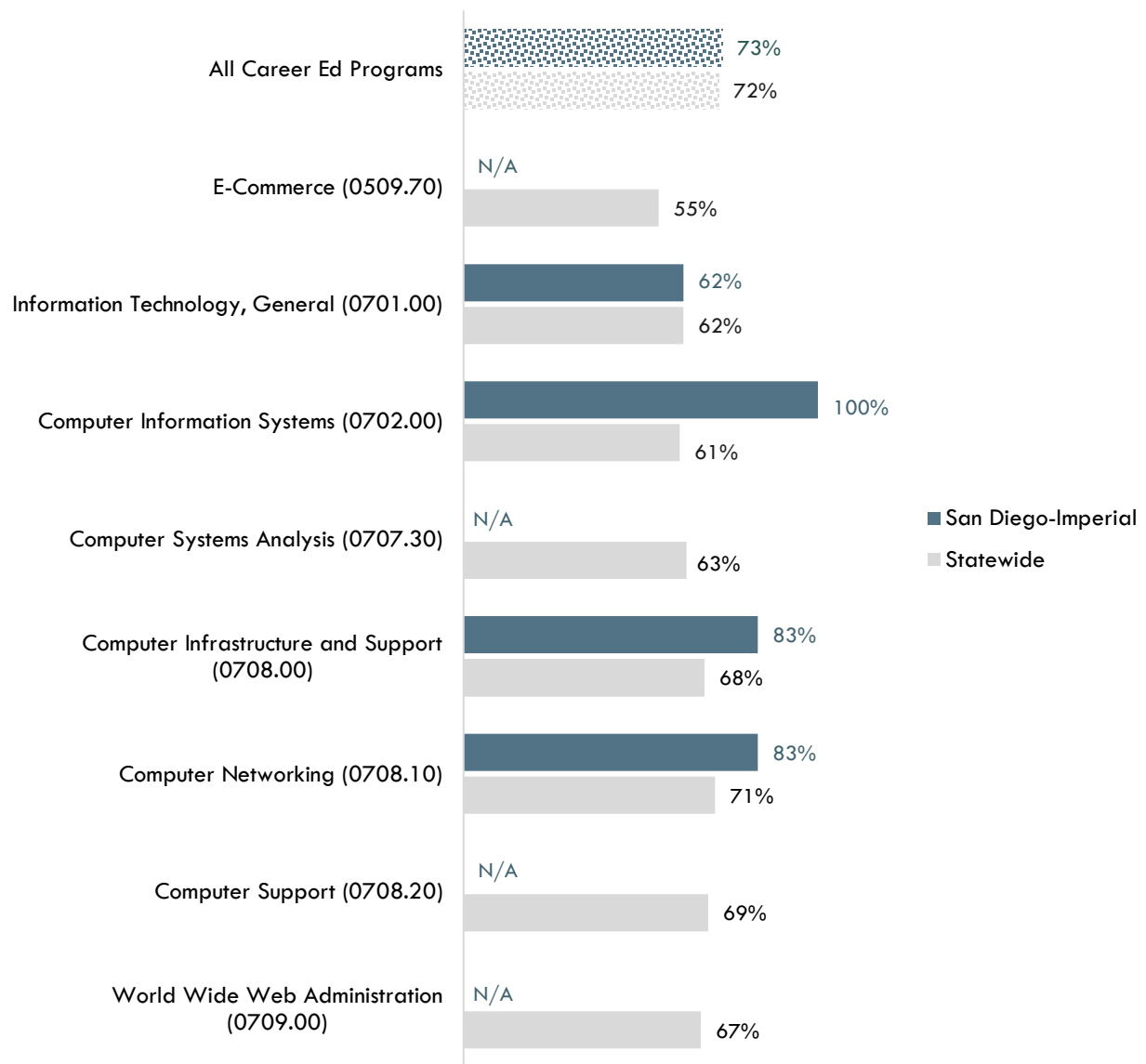
"N/A" indicates insufficient data

¹¹ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹² Among completers and skills builders who exited, the proportion of students who attained a living wage.

According to the California Community Colleges LaunchBoard, 62 to 100 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a program related to *Computer Systems Occupations*, compared to 55 to 71 percent statewide and 72 percent of students in Career Education programs in general across the state (Exhibit 6b).¹³

Exhibit 6b: Percentage of Students in a Job Closely Related to Field of Study by Program, PY2016-17¹⁴



"N/A" indicates insufficient data

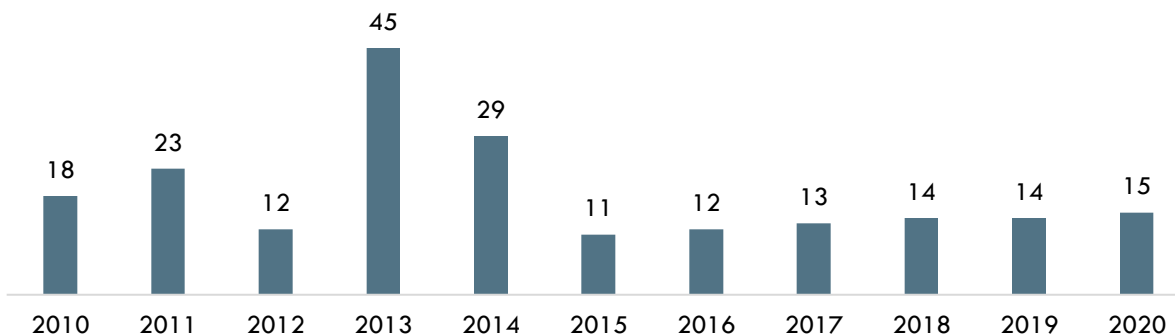
¹³ "California Community Colleges Strong Workforce Program," California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹⁴ 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 19 online job postings per year for *Computer Systems Occupations* in Imperial 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 Systems Occupations in Imperial County (2010-2020)¹⁵



Top Employers

Between January 1, 2018 and December 31, 2020, the top five employers in Imperial County for *Computer Systems Occupations* were Imperial Irrigation District, El Centro Regional Medical Center, U.S. Customs and Border Protection, Imperial County and Pioneers Memorial Healthcare District based on online job postings (Exhibit 8).

Exhibit 8: Top Employers for Computer Systems Occupations in Imperial County¹⁶

Top Employers	
<ul style="list-style-type: none"> Imperial Irrigation District El Centro Regional Medical Center U.S. Customs and Border Protection Imperial County Pioneers Memorial Healthcare District 	<ul style="list-style-type: none"> Safran Franchisehelp Incorporated Imperial County Office of Education Imperial Valley College Keithly-Williams

¹⁵ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2020.

¹⁶ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

Education, Skills, and Certifications

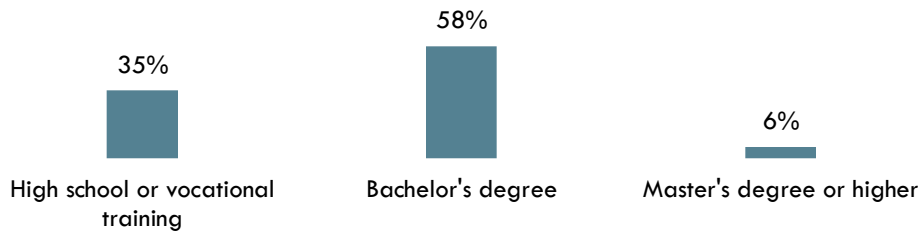
Computer Systems Occupations have a national educational attainment of a **bachelor's degree** (Exhibit 9a).

Exhibit 9a: National Educational Attainment for Computer Systems Occupations¹⁷

Occupational Title	Typical Entry-Level Education
Computer Systems Analysts	Bachelor's degree
Network and Computer Systems Administrators	Bachelor's degree

Based on online job postings between January 1, 2018 and December 31, 2020 in Imperial County, employers posted a **bachelor's degree** as the educational requirement for *Computer Systems Occupations* (Exhibit 9b).¹⁸

Exhibit 9b: Educational Requirements for Computer Systems Occupations in Imperial County¹⁹



*may not total 100 percent due to rounding

¹⁷ EMSI 2021.1; QCEW, Non-QCEW, Self-Employed.

¹⁸ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

¹⁹ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. 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 Systems Occupations in Imperial County²⁰

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Information Systems • Repair • Systems Analysis • System Administration • Compliance - NERC • Network Administration • Scheduling • Systems Engineering • Client/Server • Computer Engineering • Data Analysis • Energy Management • Energy Management System • Legal Compliance • Surveillance 	<ul style="list-style-type: none"> • Problem Solving • Planning • Communication Skills • Troubleshooting • Organizational Skills • Positive Disposition • Writing • Physical Abilities • Preparing Reports • Research • Teamwork / Collaboration • Typing • Written Communication • Building Effective Relationships • English 	<ul style="list-style-type: none"> • SCADA • Computer Engineering • Linux • Microsoft Excel • Microsoft Outlook • Microsoft PowerPoint • Microsoft SharePoint • Microsoft Word • Tableau • VoIP • Cisco Routers • Cisco Switching • Hyper-V • Microsoft Azure • Microsoft Exchange

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 Systems Occupations in Imperial County²¹

Top Certifications in Online Job Postings
<ol style="list-style-type: none"> 1. Project Management Certification 2. Project Management Professional (PMP) 3. Security Clearance 4. CDL Class C

²⁰ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2018-2020.

²¹ 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.