

# Occupations for Information Technology Labor Market Analysis: Imperial County

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December 2018

## Summary

According to available labor market information, there is a demand for occupations for which individuals could be trained by an *Information Technology* program. For the purpose of this report, these occupations are referred to as “*Information Technology Occupations*.” *Information Technology Occupations* in Imperial County have a labor market demand of 19 annual job openings. Imperial Valley College (IVC) supplies 13 awards, suggesting that there is a supply gap for this occupation. These occupations’ median earnings are higher than the Self-Sufficiency Standard, suggesting that students who successfully complete a program and obtain employment in a related field may earn a living wage.

The following list summarizes findings from the labor market analysis for *Information Technology Occupations*:

- Between 2017 and 2022, *Information Technology Occupations* are projected to increase by 11 jobs or five percent.
- Employers in Imperial County will need to hire 19 workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.
- Between 2010 and 2017, there was an average of 37 online job postings per year for *Information Technology Occupations* in Imperial County.
- On average, the median hourly earnings for *Information Technology Occupations* is \$30.79; this is more than the Self-Sufficiency Standard for two adults and two children (school-age) in Imperial County, which is \$13.20 per hour.
- There are 13 TOP codes associated with these occupations, including Electronic Game Design (061420), Information Technology (070100), Computer Information Systems (070200), Software Applications (070210), Computer Systems Analysis (070730), Computer Infrastructure and Support (070800), Computer Networking (070810), etc. There are 26 related CIP codes.
- According to TOP and CIP data, Imperial Valley College is the only educational institution that supplies the region with awards.

- Comparing labor demand (annual openings) with labor supply suggests that there is a supply gap for these occupations in Imperial County, with 19 annual openings and 13 awards. Comparatively, there are 17,050 annual openings in California and 5,378 awards.
- Between January 1, 2015 and December 31, 2017, the top five employers in Imperial County for these occupations were Best Buy, Imperial Irrigation District, El Centro Regional Medical Center, Imperial County, and Brawley Elementary School District.
- Based on online job postings between January 1, 2015 and December 31, 2017, the top listed educational requirement for *Information Technology Occupations* is a high school diploma or vocational training.

## Introduction

This report analyzes four occupations for which an individual could be trained by an *Information Technology* program. The occupations are:

- **Computer Network Support Specialist** (SOC<sup>1</sup> 15-1152): Apply electrical and electronic theory and related knowledge, usually under the direction of engineering staff, to design, build, repair, calibrate, and modify electrical components, circuitry, controls, and machinery for subsequent evaluation and use by engineering staff in making engineering design decisions.
- **Network and Computer Systems Administrators** (SOC 15-1142): Repair, adjust, or install audio or television receivers, stereo systems, camcorders, video systems, or other electronic home entertainment equipment.
- **Computer User Support Specialists** (SOC 15-1151): Install, program, maintain, or repair security or fire alarm wiring and equipment. Ensure that work is in accordance with relevant codes.
- **Computer Occupations, All Other** (SOC 15-1199): Perform work involving the skills of two or more maintenance or craft occupations to keep machines, mechanical equipment, or the structure of an establishment in repair. Duties may involve pipe fitting; boiler making; insulating; welding; machining; carpentry; repairing electrical or mechanical equipment; installing, aligning, and balancing new equipment; and repairing buildings, floors, or stairs, including more specific titles such as:
  - **Software Quality Assurance Engineers and Testers** (15-1199.01): Develop and execute software test plans in order to identify software problems and their causes.

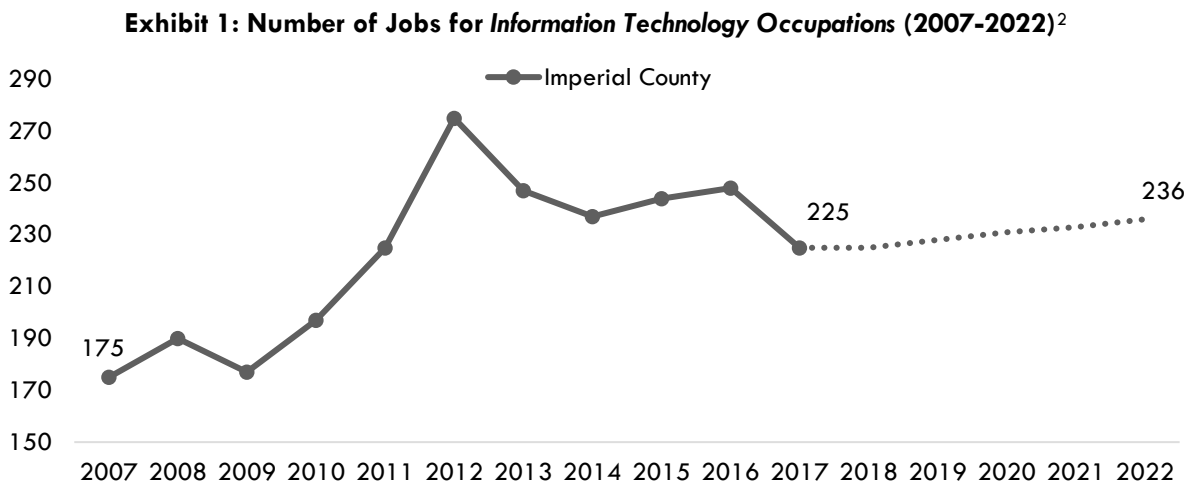
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<sup>1</sup> The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](http://bls.gov/soc).

- **Web Administrators** (15-1199.03): Manage web environment design, deployment, development and maintenance activities. Perform testing and quality assurance of web sites and web applications.
- **Database Architects** (15-1199.06): Design strategies for enterprise database systems and set standards for operations, programming, and security. Design and construct large relational databases. Integrate new systems with existing warehouse structure and refine system performance and functionality.
- **Video Game Designers** (15-1199.11): Design core features of video games. Specify innovative game and role-play mechanics, story lines, and character biographies. Create and maintain design documentation. Guide and collaborate with production staff to produce games as designed.

## Projected Occupational Demand

Between 2017 and 2022, *Information Technology Occupations* are projected to increase by 11 jobs or five percent (Exhibit 1). Employers in Imperial County will need to hire 19 workers annually to fill new jobs and backfill jobs due to attrition such as retirement or turnover.

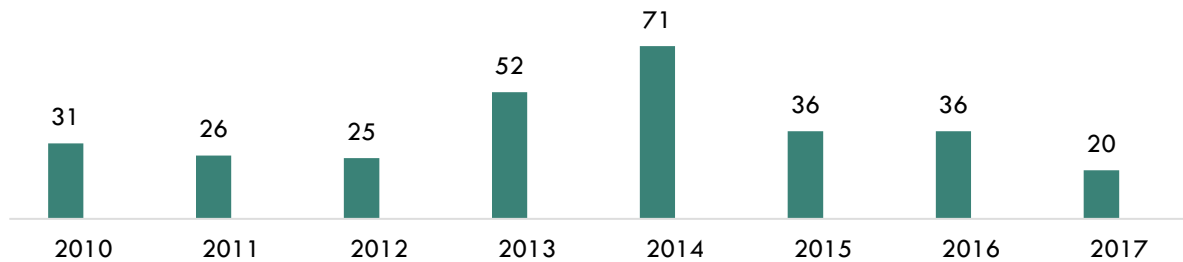


<sup>2</sup> Economic Modeling Specialists, Int'l. (EMSI). Imperial (6025). 2018.04 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2007-2022.

## Online Job Postings

Between 2010 and 2017, there was an average of 37 online job postings per year for *Information Technology Occupations* in Imperial County (Exhibit 2).

**Exhibit 2: Number of Online Job Postings for *Information Technology Occupations* in Imperial County (2010-2017)<sup>3</sup>**



## Earnings

The median hourly earnings of *Information Technology Occupations* range from \$21.78 to \$35.36 (Exhibit 3b). On average, the median hourly earnings for *Information Technology Occupations* is \$30.79; this is more than the Self-Sufficiency Standard for two adults and two children (school-age) in Imperial County, which is \$13.20 per hour (Exhibit 3b).<sup>4</sup>

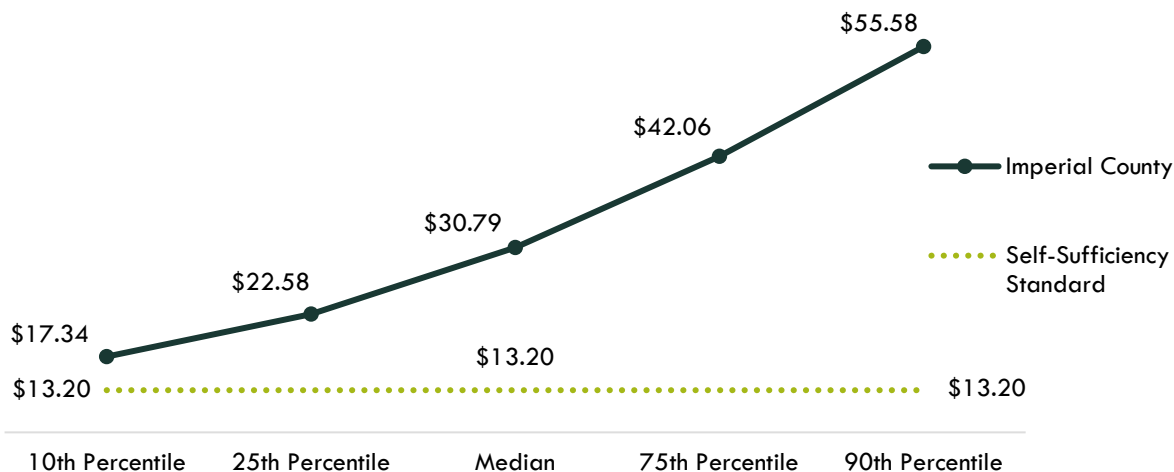
**Exhibit 3a: Hourly Earnings for *Information Technology Occupations* in Imperial County**

Occupational Title	Entry-Level Hourly Earnings (10 <sup>th</sup> Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (90 <sup>th</sup> Percentile)
Computer Network Support Specialists	\$19.87	\$30.75	\$47.54
Computer Occupations, All Other	\$18.56	\$35.28	\$61.08
Network and Computer Systems Administrators	\$17.42	\$35.36	\$67.40
Computer User Support Specialists	\$13.53	\$21.78	\$46.31

<sup>3</sup> Labor Insight Jobs. Burning Glass Technologies. Imperial, CA. Full years 2010-2017.

<sup>4</sup> The standard for two adults and two children was chosen due to the 3.68 persons per household (2012-2016) as determined by the U.S. Census for Imperial County ([insightccd.org/2018-self-sufficiency-standard](http://insightccd.org/2018-self-sufficiency-standard)).

**Exhibit 3b: Hourly Earnings for Information Technology Occupations in Imperial County<sup>5</sup>**



## 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>6</sup> There are 13 TOP codes and 26 CIP codes related to the *Information Technology Occupations* (Exhibit 4).

**Exhibit 4: Related TOP and CIP Codes for Information Technology Occupations**

<b>Information Technology Occupations</b>
TOP 061420: Electronic Game Design
TOP 070100: Information Technology, General
TOP 070200: Computer Information Systems
TOP 070210: Software Applications
TOP 070710: Computer Programming
TOP 070730: Computer Systems Analysis
TOP 070800: Computer Infrastructure and Support
TOP 070810: Computer Networking
TOP 070820: Computer Support

<sup>5</sup> EMSI. Imperial (6025). 2018.04 Class of Worker. QCEW + Non-QCEW + Self-Employed. 2017-2022.

<sup>6</sup> TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart ([datamart.cccco.edu](http://datamart.cccco.edu)) and CIP data comes from the Integrated Postsecondary Education Data System ([nces.ed.gov/ipeds/use-the-data](http://nces.ed.gov/ipeds/use-the-data)).

## **Information Technology Occupations**

TOP 070900: World Wide Web Administration

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TOP 079900: Other Information Technology

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TOP 093430: Telecommunications Technology

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TOP 220610: Geographic Information Systems

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CIP 10.0304: Animation, Interactive Technology, Video Graphics and Special Effects

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CIP 11.0101: Computer and Information Sciences, General

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CIP 11.0103: Information Technology

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CIP 11.0199: Computer and Information Sciences, Other

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CIP 11.0201: Computer Programming/Programmer, General

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CIP 11.0202: Computer Programming, Specific Applications

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CIP 11.0203: Computer Programming, Vendor/Product Certification

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CIP 11.0299: Computer Programming, Other

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CIP 11.0501: Computer Systems Analysis/Analyst

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CIP 11.0601: Data Entry/Microcomputer Applications, General

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CIP 11.0602: Word Processing

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CIP 11.0899: Computer Software and Media Applications, Other

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CIP 11.0901: Computer Systems Networking and Telecommunications

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CIP 11.1001: Network and System Administration/Administrator

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CIP 11.1002: System, Networking, and LAN/WAN Management/Manager

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CIP 11.1003: Computer and Information Systems Security/Information Assurance

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CIP 11.1004: Web/Multimedia Management and Webmaster

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CIP 11.1005: Information Technology Project Management

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CIP 11.1006: Computer Support Specialist

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CIP 11.1099: Computer/Information Technology Services Administration and Management, Other

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CIP 11.9999: Computer and Information Sciences and Support Services, Other

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CIP 15.0305: Telecommunications Technology/Technician

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CIP 15.1202: Computer Technology/Computer Systems Technology

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CIP 45.0702: Geographic Information Science and Cartography

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### Information Technology Occupations

CIP 47.0103: Communications Systems Installation and Repair Technology

CIP 50.0411: Game and Interactive Media Design

According to TOP and CIP data, Imperial Valley College is the only educational institution that supplies the region with awards (Exhibit 5).

**Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2013-14 through PY2016-17 Average)**

TOP6	TOP6 Title	3-Yr Annual Average CC Awards (PY14-15 to PY16-17)	Other Educational Institutions 3-Yr Annual Average Awards (PY13-14 to PY15-16)	3-Yr Total Average Supply (PY13-14 to PY16-17)
070200	Computer Information Systems	11	0	11
	• Imperial	11	0	
070800	Computer Infrastructure and Support	2	0	2
	• Imperial	2	0	
			Total	13

## Demand vs. Supply

Comparing labor demand (annual openings) with labor supply<sup>7</sup> suggests that there is a **supply gap** for these occupations in Imperial County, with **19** annual openings and **13** awards. Comparatively, there are **17,050** annual openings in California and **5,378** awards<sup>8</sup> (Exhibit 6).

<sup>7</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.

<sup>8</sup> Centers of Excellence Student Outcomes supply table. (coecc.net/Supply-and-Demand.aspx).

**Exhibit 6: Labor Demand (Annual Openings) Compared to Labor Supply (Average Annual Awards)**

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or Oversupply
Imperial	19	13	6
California	17,050	5,378	11,672

**Please note:** This is a basic analysis of supply and demand of labor. 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. Additionally, the data does not include workers who are currently in the labor force who could fill these positions or workers who are not captured by publicly available data.

**Student Outcomes**

Based on the information available in the CTE LaunchBoard, students who took courses in the related TOP codes exhibited the following outcomes (Exhibit 7).

**Exhibit 7: Strong Workforce Program Metrics for TOP 070100: Information Technology, General Imperial Valley College vs. California (PY2015-16)**

Metric	Imperial Valley	California
Number of course enrollments <sup>9</sup>	603	73,658
Completed 12+ CTE units in one year <sup>10</sup>	89	9,158
Completed 48+ CTE contact hours in one year <sup>11</sup>	0	766
Number of students who got a degree or certificate <sup>12</sup>	N/A	142
Number of students who transferred <sup>13</sup>	31	6,653
Employed in the second fiscal quarter after exit <sup>14</sup>	N/A	66%
Employed in the fourth fiscal quarter after exit <sup>15</sup>	N/A	65%

<sup>9</sup> The number of enrollments in courses assigned to the TOP code in the selected year.

<sup>10</sup> The number of students who completed 12 or more credit CTE units.

<sup>11</sup> The number of students who completed 48 or more noncredit CTE instructional contact hours.

<sup>12</sup> The number of unduplicated students who earned a locally-issued certificate, Chancellor's Office approved certificate, associate degree, and/or California Community Colleges bachelor's degree in the selected TOP code.

<sup>13</sup> Students who took non-introductory courses or completed a California Community Colleges Chancellor's Office award in the selected TOP code in selected year who subsequently enrolled for the first time in a four-year institution the following year.

<sup>14</sup> Among all exiters with a valid SSN, the percentage who were employed two quarters after exiting California Community Colleges.

<sup>15</sup> Among exiting students with a valid SSN, the percentage who were employed four quarters after exiting California Community Colleges.



Metric	Imperial Valley	California
Job closely related to field of study <sup>16</sup>	N/A	N/A
Median earnings in the second fiscal quarter after exit <sup>17</sup>	N/A	\$8,013
Median change in earnings <sup>18</sup>	N/A	50%
Attained a living wage <sup>19</sup>	N/A	53%

## Top Employers and Work Locations

Between January 1, 2015 and December 31, 2017, the top five employers in Imperial County for these occupations were [Best Buy](#), [Imperial Irrigation District](#), [El Centro Regional Medical Center](#), [Imperial County and Brawley Elementary School District](#) (Exhibit 8).

### Exhibit 8: Top Employers in Imperial County for *Information Technology Occupations*<sup>20</sup>

Top Employers	
<ul style="list-style-type: none"> <li>• Best Buy</li> <li>• Imperial Irrigation District</li> <li>• El Centro Regional Medical Center</li> <li>• Imperial County</li> <li>• Brawley Elementary School District</li> </ul>	<ul style="list-style-type: none"> <li>• Imperial County Office Of Education</li> <li>• Central Union High School District</li> <li>• Heber Elementary</li> <li>• Imperial Unified School District</li> <li>• Apollo Group</li> </ul>

## Skills, Education, and Certifications

*Information Technology Occupations* have varying educational requirements; however, they range from some college, no degree to a bachelor's degree (Exhibit 9a).

<sup>16</sup> Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

<sup>17</sup> Among exiting students, the median second-quarter earnings one year after the year in which they exited California Community Colleges.

<sup>18</sup> Among exiting students with a valid SSN, the percentage change in earnings one year before and one year after exiting California Community Colleges.

<sup>19</sup> Among completers and skills builders who exited, the proportion of students who attained a living wage.

<sup>20</sup> Labor Insight Jobs. Burning Glass Technologies. Imperial, CA. Full years 2015-2017.

### Exhibit 9a: Educational Requirements for Information Technology Occupations

Occupational Title	Typical Entry-Level Education
Computer Occupations, All Other	Bachelor's degree
Network and Computer Systems Administrators	Bachelor's degree
Computer Network Support Specialists	Associate degree
Computer User Support Specialists	Some college, no degree

Based on online job postings between January 1, 2015 and December 31, 2017, the top listed educational requirement for the four *Information Technology Occupations* is a [high school diploma or vocational training](#) (Exhibit 9b).<sup>21</sup>

### Exhibit 9b: Educational Requirements for Information Technology Occupations in Imperial County<sup>22</sup>

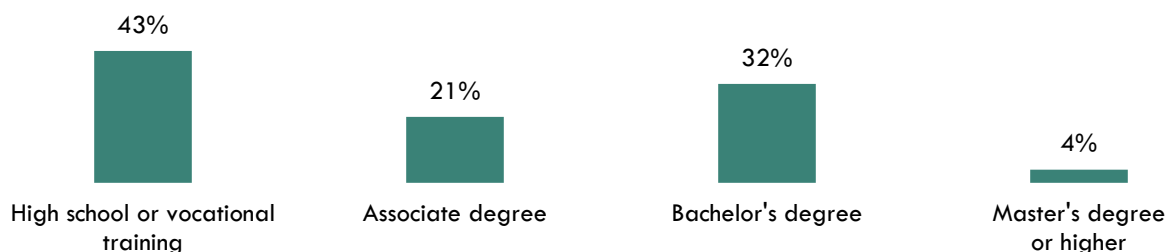


Exhibit 10 lists the top specialized, soft, and software skills that appeared in online job postings between January 1, 2015 and December 31, 2017.

### Exhibit 10: Top Skills for Information Technology Occupations in Imperial County<sup>23</sup>

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> <li>• Repair</li> <li>• Technical Support</li> <li>• Information Systems</li> <li>• Customer Service</li> <li>• Retail Industry Knowledge</li> </ul>	<ul style="list-style-type: none"> <li>• Troubleshooting</li> <li>• Communication Skills</li> <li>• Planning</li> <li>• Writing</li> <li>• Computer Literacy</li> </ul>	<ul style="list-style-type: none"> <li>• Microsoft Windows</li> <li>• Microsoft Office</li> <li>• SAP</li> <li>• Geographic Information System (GIS)</li> <li>• Linux</li> </ul>

<sup>21</sup> Labor Insight Jobs. Burning Glass Technologies. Imperial, CA. Full years 2015-2017.

<sup>22</sup> Bureau of Labor Statistics, Educational attainment for workers 25 years and older by detailed occupation. [bls.gov/emp/ep\\_table\\_111.htm](https://www.bls.gov/emp/ep_table_111.htm).

<sup>23</sup> Labor Insight Jobs. Burning Glass Technologies. Imperial, CA. Full years 2015-2017.

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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.