**Augmented Reality and Virtual Reality
Immersive Design Occupations**

**Labor Market Information Report**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

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# Recommendation

Based on all available data, there appears to be a significant undersupply of Augmented Reality/Virtual Reality (AR/VR) Immersive Design workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda and Contra Costa Counties). The annual gap in the Bay region is over 14,050 students annually. In the East Bay, the annual gap is 1,800.

Since all of the SOC codes selected are for occupations which typically require a Bachelor’s degree for entry, those four-year awards issued in the region, potentially training for this cluster of occupations, are also included in the supply. It is recommended that Laney College consider exploring and developing career pathways into the four-year college programs listed in Table 7, since it appears that an Associate degree or certificate may not be adequate for students to get hired into these occupations, unless those students in the program are incumbent workers who need upskill training in this area.

This report also provides student outcomes data on employment and earnings for programs on TOP 0699.00 – “Other Media and Communications” in the state and region. It is recommended that this 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 Laney and in the region.

However, there are very few students taking courses or getting awards on this TOP code in the region. Therefore, the data is very limited for supply and for student outcomes. In addition, the programs on this TOP code are most likely not comparable to the new program for AR/VR Immersive Design occupations proposed by Laney, since this TOP code is for emerging program areas which cannot be coded to other six-digit TOP codes under TOP 06.0000 -Media and Communications.

# Introduction

This report profiles Augmented Reality/Virtual Reality Immersive Design Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new AR/VR Immersive Design program at Laney College.

* **Training and Development Specialists (SOC 13-1151)** Design and conduct training and development programs to improve individual and organizational performance. May analyze training needs.

*Entry-Level Educational Requirement:* *Bachelor’s Degree*

*Training Requirement:* *None*

*Percentage of Community College Award Holders or Some Postsecondary Coursework:* 32%

* **Multimedia Artists and Animators (SOC 27-1014)** Create special effects, animation, or other visual images using film, video, computers, or other electronic tools and media for use in products or creations, such as computer games, movies, music videos, and commercials.

*Entry-Level Educational Requirement:* *Bachelor’s Degree*

*Training Requirement:* *None*

*Percentage of Community College Award Holders or Some Postsecondary Coursework:* 27%

* **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%

* **Software Developers, Systems (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 Occupations, All Other (SOC 15-1199)** All computer occupations not listed separately.
	+ **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.
	NOTE: Traditional labor market information is not available at the eight-digit level. Therefore, the six-digit SOC code is not included in the table below. However, LMI from online postings is available at the eight-digit SOC code level.

*Entry-Level Educational Requirement:* *Bachelor’s Degree*

*Training Requirement:* *None*

*Percentage of Community College Award Holders or Some Postsecondary Coursework:* 37%

# Occupational Demand

**Table 1. Employment Outlook for AR/VR Immersive Design Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Year Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Training & Development Specialists | 9,587 | 10,693 | 1,106  | 12% | 5,915 | 1,183 | $20.16  | $36.96  |
| Multimedia Artists and Animators | 4,339 | 4,691 | 352  | 8% | 2,158 | 432 | $12.63  | $35.44  |
| Software Developers, Applications | 82,169 | 97,071 | 14,902 | 18% | 43,042 | 8,608 | $37.31 | $60.35 |
| Software Developers, Systems Software | 49,022 | 54,407 | 5,385 | 11% | 21,670 | 4,334 | $43.39 | $66.36 |
| **Total** | **145,118** | **166,862** | **21,744** | **15%** | **72,786** | **14,557** | **$37.50**  | **$60.09**  |

*Source: EMSI 2018.1*

**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 AR/VR Immersive Design Occupations in East Bay Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation  | 2017 Jobs | 2022 Jobs | 5-Yr Change | 5-Yr % Change | 5-Year Open-ings | Annual Open-ings | 10% Hourly Wage | Median Hourly Wage |
| Training & Development Specialists | 2,006 | 2,211 | 205  | 10% | 1,203 | 241 | $22.32  | $39.29  |
| Multimedia Artists and Animators | 707 | 760 | 53  | 8% | 341 | 68 | $11.16  | $24.39  |
| Software Developers, Applications | 9,797 | 11,410 | 1,614  | 16% | 4,939 | 988 | $34.52  | $60.39  |
| Software Developers, Systems Software | 6,441 | 7,146 | 705  | 11% | 2,841 | 568 | $36.56  | $61.72  |
| **Total** | **18,952** | **21,527** | **2,576** | **14%** | **9,324** | **1,865** | **$33.05**  | **$57.27**  |

*Source: EMSI 2018.1*

**East Bay Sub-Region** includes Alameda and Contra Costa Counties

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

**Table 3. Number of Job Postings by Occupation for latest 12 months (March 2017 – February 2018)**

|  |  |  |
| --- | --- | --- |
| Occupation | Bay Region | East Bay |
| Software Developers, Applications (15-1132.00) | 70,937 | 8,486 |
| Training and Development Specialists (13-1151.00) | 1,473 | 426 |
| Software Developers, Systems Software (15-1133.00) | 997 | 111 |
| Multimedia Artists and Animators (27-1014.00) | 691 | 53 |
| Video Game Designers (15-1199.11) | 816 | 92 |
| **Total** | **74,914** | **9,168** |

*Source: Burning Glass*

**Table 4. Top Job Titles for AR/VR Immersive Design Occupations for latest 12 months (March 2017 – February 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Common Title | Bay | East Bay | Common Title | Bay | East Bay |
| Software Development Engineer | 24,142 |  2,196  | Ios Engineer | 233 |  16  |
| Java Software Developer | 4,389 |  621  | Java Software Architect | 231 |  29  |
| Applications Engineer | 2,155 |  291  | Senior Android Engineer | 220 |  16  |
| Software Developer | 1,921 |  281  | Senior Ios Engineer | 204 |  17  |
| Devops Engineer | 1,338 |  220  | Solutions Engineer | 199 |  26  |
| IOS Developer | 1,250 |  83  | Developer | 195 |  34  |
| Java Software Engineer | 1,208 |  157  | Business Intelligence Developer | 190 |  30  |
| Android Developer | 989 |  78  | Android Engineer | 189 |  19  |
| Principal Software Engineer | 978 |  76  | Applications Architect | 177 |  23  |
| Applications Developer | 883 |  143  | Senior Salesforce Developer | 174 |  38  |
| Python Developer | 823 |  66  | Hadoop Developer | 163 |  38  |
| .Net Developer | 759 |  290  | Sharepoint Developer | 155 |  38  |
| Senior Devops Engineer | 673 |  56  | Training Coordinator | 140 |  37  |
| Software Architect | 575 |  57  | Software Manager | 139 |  20  |
| Java Engineer | 561 |  54  | Senior Ui Engineer | 134 |  10  |
| Software Engineering Manager | 549 |  62  | Windows Engineer | 132 |  19  |
| Full Stack Developer | 498 |  74  | Software Quality Assurance Engineer | 126 |  7  |
| Salesforce Developer | 428 |  83  | Applications Analyst | 120 |  30  |
| Interaction Designer | 395 |  32  | Ui Engineer | 119 |  7  |
| Software Development Manager | 340 |  46  | Java/J2EE Developer | 115 |  12  |
| Training Specialist | 302 |  113  | Applications Specialist | 109 |  26  |
| Oracle Developer | 298 |  75  | Tableau Developer | 109 |  12  |
| Mobile App Developer | 281 |  65  | CRM Developer | 105 |  19  |
| C++ Developer | 270 |  33  | Software Design Engineer | 104 |  11  |
| Senior .Net Developer | 242 |  104  | Animator | 103 |  4  |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring AR/VR Immersive Design 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) | 27,907 | 33,242 | 19% | 19.2% |
| Computer Systems Design Services (541512) | 17,883 | 21,537 | 20% | 12.3% |
| Software Publishers (511210) | 15,903 | 18,514 | 16% | 11.0% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 15,877 | 20,666 | 30% | 10.9% |
| Electronic Computer Manufacturing (334111) | 12,993 | 14,051 | 8% | 9.0% |
| Data Processing, Hosting, and Related Services (518210) | 4,496 | 6,040 | 34% | 3.1% |
| Other Computer Related Services (541519) | 3,820 | 4,960 | 30% | 2.6% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 3,308 | 3,387 | 2% | 2.3% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 2,932 | 3,129 | 7% | 2.0% |
| Semiconductor and Related Device Manufacturing (334413) | 1,767 | 1,627 |  (8%) | 1.2% |
| Engineering Services (541330) | 1,627 | 1,783 | 10% | 1.1% |
| Computer and Computer Peripheral Equipment and Software Merchant Wholesalers (423430) | 1,427 | 1,440 | 1% | 1.0% |

*Source: EMSI 2018.1*

**Table 6. Top Employers Posting AR/VR Immersive Design Occupations in Bay Region and East Bay Sub-Region for latest 12 months (March 2017 – February 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Employer** | **Bay** | **Employer** | **Bay** | **Employer** | **East Bay** |
| Apple Inc. | 2,224 | California Interviews | 181 | General Electric Company | 164 |
| Amazon.com | 1,059 | Microsoft Corporation | 180 | Hired | 144 |
| Cisco Systems Inc | 687 | Autodesk Incorporated | 175 | Tesla Motors | 116 |
| Oracle | 602 | Khosla Ventures | 172 | Ellie Mae | 103 |
| Salesforce.Com | 550 | Uber Technologies Inc | 170 | Workday, Inc | 94 |
| Google Inc. | 454 | Nityo Infotech | 168 | Pandora Media, Inc | 88 |
| Facebook | 431 | Visa | 161 | Accenture | 81 |
| Intel Corporation | 366 | Hewlett-Packard | 156 | Veeva Systems | 67 |
| Nvidia Corporation | 351 | Xilinx Incorporated | 155 | Pandora | 53 |
| Hired | 326 | Salesforce Incorporated | 148 | Synergisticit | 48 |
| Vmware | 319 | Deloitte | 146 | Okaya Infocom | 45 |
| Infoobjects Inc | 296 | Flexton Incorporated | 145 | Lawrence Livermore National Lab | 44 |
| eBay | 287 | Lab126 | 143 | Oracle | 42 |
| Accenture | 279 | Machine Zone | 141 | Kaiser Permanente | 41 |
| Walmart / Sam's | 279 | Twitter | 139 | Schlumberger | 40 |
| Tesla Motors | 267 | Redpoint Ventures | 137 | Ideahelix | 37 |
| Paypal | 232 | Etouch Systems Corporation | 129 | Mentor Graphics | 35 |
| Yahoo | 229 | Cadence Design Systems Inc | 125 | Xoriant Incorporated | 34 |
| General Electric Company | 221 | Capital One | 123 | Ross Dress for Less | 31 |
| Intuit | 216 | Servicenow | 123 | Wells Fargo | 31 |
| SAP | 212 | Redolent, Inc | 117 | Safeway Incorporated | 29 |
| Palo Alto Networks | 203 | Workday, Inc | 117 | Tesla | 29 |
| Xoriant Incorporated | 200 | Embedded Resource Group | 116 | Mentor Graphics Corporation | 28 |
| Okaya Infocom | 196 | Adobe Systems | 113 | Yapstone | 28 |
| Linkedin Limited | 186 | Gaikai Inc | 110 | Etouch Systems Corporation | 26 |

*Source: Burning Glass*

# Educational Supply

There is one college in the Bay Region issuing three awards annually on TOP 0699.00 – “Other Media and Communications.” Since all of the SOC codes selected usually require a four-year degree for entry, Bachelor’s degrees from educational institutions in the Bay region have been included in the supply table for the following CIP Codes:

|  |  |
| --- | --- |
| -10.0304 Animation, Interactive Technology, Video Graphics & Effects  | - 11.0803 Computer Graphics |
| - 09.0702 Digital Communication/Digital Media | - 50.0411 Game & Interactive Media Design |
| - 11.0801 Web Page, Digital/Multimedia & Information Resources Design |

There are seven other educational institutions issuing 502 Bachelor’s degrees annually on the five CIP codes listed above, for a total of 505 awards issued annually in the region. There may be other Bachelor’s degree programs on other CIP codes in the region that train for this cluster of occupations, but these seemed to be the closet match.

**Table 7. Awards on TOP 0699.00 - Other Media and Communications and on the five CIP codes listed above in the Bay Region**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| College | Sub-Region | CIP Code | CC Headcount | Bachelor’s Degrees | Associate Degrees | Certifi-cates | Total Awards |
| San Jose | Silicon Valley | n/a | on another TOP | 0 | 2 | 1 | 3 |
| San Francisco | Mid-Peninsula | n/a | 11 | 0 | 0 | 0 | 0 |
| Holy Names | East Bay | 09.0702 | n/a | 6 | 0 | 0 | 6 |
| Academy of Art University | Mid-Peninsula | 10.0304 | n/a | 162 | 0 | 0 | 162 |
| Academy of Art University | Mid-Peninsula | 11.0801 | n/a | 67 | 0 | 0 | 67 |
| Academy of Art University | Mid-Peninsula | 50.0411 | n/a | 56 | 0 | 0 | 56 |
| Arogsy University-The Art Institute of CA-SF | Mid-Peninsula | 10.0304 | n/a | 2 | 0 | 0 | 2 |
| Arogsy University-The Art Institute of CA-SF | Mid-Peninsula | 11.0801 | n/a | 15 | 0 | 0 | 15 |
| Arogsy University-The Art Institute of CA-SF | Mid-Peninsula | 11.0803 | n/a | 22 | 0 | 0 | 22 |
| Arogsy University-The Art Institute of CA-SF | Mid-Peninsula | 50.0411 | n/a | 14 | 0 | 0 | 14 |
| Arogsy University-The Art Institute of CA-Silicon Valley | Silicon Valley | 11.0801 | n/a | 11 | 0 | 0 | 11 |
| Arogsy University-The Art Institute of CA-Silicon Valley | Silicon Valley | 11.0803 | n/a | 4 | 0 | 0 | 4 |
| Arogsy University-The Art Institute of CA-Silicon Valley | Silicon Valley | 50.0411 | n/a | 9 | 0 | 0 | 9 |
| CA College of the Arts | Mid-Peninsula | 10.0304 | n/a | 23 | 0 | 0 | 23 |
| CA College of the Arts | Mid-Peninsula | 50.0411 | n/a | 11 | 0 | 0 | 11 |
| Cogswell College | Silicon Valley | 10.0304 | n/a | 28 | 0 | 0 | 28 |
| Cogswell College | Silicon Valley | 50.0411 | n/a | 3 | 0 | 0 | 3 |
| SAE Expression | East Bay | 10.0304 | n/a | 29 | 0 | 0 | 29 |
| SAE Expression | East Bay | 11.0803 | n/a | 16 | 0 | 0 | 16 |
| SAE Expression | East Bay | 50.0411 | n/a | 13 | 0 | 0 | 13 |
| Santa Clara University | Silicon Valley | 11.0801 | n/a | 11 | 0 | 0 | 11 |
| **Total Bay Region** |  | **11** | **502** | **2** | **1** | **505** |
| **Total East Bay Sub-Region** |  | **0** | **64** | **0** | **0** | **64** |

# *Source: IPEDS, Data Mart and Launchboard*

NOTE: Headcount of students who took one or more courses is for 2016-17. The annual average for Associate Degrees and Certificates is 2014-17 unless there are only awards in 2016-17. No. of transfer students is for 2015-16. The annual average for Bachelor’s Degrees is for 2013-16.

# Gap Analysis

Based on the data included in this report, there is a very large labor market gap in the Bay region with 14,557 annual openings for the AR/VR Immersive Design occupational cluster and 505 annual awards for an annual gap of 14,052. In the East Bay, there is also a large gap with 1,865 annual openings and 64 annual awards for an annual gap of 1,801.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0699.00 - Other Media and Communications in 2015-16**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **2015-16** | **Bay (All CTE Programs)** | **Laney****(All CTE Programs)** | **State (0699.00)** | **Bay (0699.00)** | **Top College on 0699.00 in the State** |
| % Employed Four Quarters After Exit | 74% | 67% | 62% | 100% (2 students) | Cusesta | 92% (12 students) |
| Median Earnings Two Quarters After Exit | $10,310 | $9,960 | $6,245 | $6,315 (1 student) | Cuesta | $7,115 (11 students) |
| Median % Change in Earnings | 46% | 46% | 49% | 14%(1 student) | Cuesta | 240%(11 students) |
| % of Students Earning a Living Wage | 63% | 61% | 30% | 0%(1 student) | San Diego Continuing Ed | 36% (33 students) |

*Source: Launchboard (version available on 3/9/18)*

# Skills, Certificates and Education

**Table 9. Top Skills for AR/VR Immersive Design Occupations in Bay Region (March 2017 – February 2018)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Skill** | **Postings** | **Skill** | **Postings** | **Skill** | **Postings** |
| Software Engineering | 29,068 | Software as a Service (SaaS) | 2,825 | UNIX Shell | 1,554 |
| JAVA | 28,442 | Configuration Management | 2,822 | Data Analysis | 1,524 |
| Software Development | 22,093 | Electrical Engineering | 2,731 | System Architecture | 1,508 |
| Python | 18,350 | Salesforce | 2,704 | Eclipse | 1,503 |
| JavaScript | 14,784 | Web Development | 2,688 | Relational DataBase Management System (RDBMS) | 1,422 |
| LINUX | 14,318 | .NET Programming | 2,677 | Technical Writing / Editing | 1,382 |
| C++ | 13,553 | Node.js | 2,670 | Oracle PL/SQL | 1,368 |
| SQL | 13,350 | Puppet | 2,605 | ASP | 1,359 |
| Git | 8,733 | Customer Service | 2,517 | Information Systems | 1,351 |
| Object-Oriented Analysis and Design (OOAD) | 8,372 | Scheduling | 2,417 | Data Warehousing | 1,328 |
| Debugging | 7,780 | Bash | 2,379 | Embedded Systems | 1,324 |
| UNIX | 7,005 | Shell Scripting | 2,377 | Budgeting | 1,313 |
| Oracle | 6,923 | SQL Server | 2,354 | Automation Tools | 1,271 |
| Microsoft C# | 5,622 | Swift | 2,352 | PostgreSQL | 1,264 |
| Web Application Development | 5,487 | User Interface (UI) Design | 2,270 | Simulation | 1,261 |
| NoSQL | 5,106 | E-Commerce | 2,269 | Java Server Pages (JSP) | 1,260 |
| MySQL | 4,997 | AJAX | 2,210 | Django | 1,255 |
| Agile Development | 4,980 | MongoDB | 2,189 | Troubleshooting Technical Issues | 1,250 |
| Data Structures | 4,968 | Transmission Control Protocol/Internet Protocol (TCP/IP) | 2,166 | Routing | 1,229 |
| Scrum | 4,967 | Atlassian JIRA | 2,160 | Software Testing | 1,225 |
| PERL | 4,818 | Version Control | 2,144 | Systems Integration | 1,220 |
| Software Architecture | 4,689 | Tomcat | 2,117 | Cryptography | 1,206 |
| Extensible Markup Language (XML) | 4,679 | Systems Development Life Cycle (SDLC) | 2,101 | Domain Name System (DNS) | 1,199 |
| Ruby | 4,497 | Network Hardware/Software Maintenance | 2,083 | Microsoft Office | 1,186 |
| Apache Hadoop | 4,198 | Technical Support | 2,059 | SAP | 1,180 |
| Optimization | 4,084 | Business Process | 2,049 | Object-Oriented Programming | 1,158 |
| Project Management | 4,079 | JUnit | 1,979 | JDBC | 1,147 |
| Relational Databases | 4,046 | Android | 1,971 | Splunk | 1,139 |
| JSON | 4,034 | Validation | 1,945 | Spring Framework | 1,133 |
| Product Management | 3,802 | CSS | 1,874 | System Administration | 1,130 |
| Product Development | 3,796 | Scaling | 1,842 | Selenium | 1,128 |
| Big Data | 3,761 | Apache Subversion (SVN) | 1,802 | Middleware | 1,125 |
| HTML5 | 3,693 | Amazon Web Services (AWS) | 1,768 | Adobe Photoshop | 1,115 |
| jQuery | 3,692 | Microsoft Excel | 1,756 | Application Design | 1,115 |
| Computer Engineering | 3,534 | Extraction Transformation and Loading (ETL) | 1,699 | MATLAB | 1,101 |
| AngularJS | 3,425 | Customer Contact | 1,654 | Hardware Experience | 1,098 |
| Machine Learning | 3,325 | Ruby on Rails | 1,627 | Database Design | 1,091 |
| Objective C | 3,322 | VMware | 1,621 | Cassandra | 1,090 |
| Apache Webserver | 2,961 | Data Modeling | 1,602 | Systems Engineering | 1,082 |
| Hypertext Preprocessor (PHP) | 2,957 | Apache Hive | 1,598 | Business Intelligence | 1,080 |
| Chef | 2,839 | System Design | 1,597 | Java Message Service (JMS) | 1,080 |
| Data Management | 2,830 | Prototyping | 1,559 | MapReduce | 1,077 |

*Source: Burning Glass*

**Table 10. Education Requirements for AR/VR Immersive Design 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 | 577 (1%) |
| Associate Degree | 478 (1%) |
| Bachelor’s Degree | 36,952 (91%) |
| Master’s or Doctoral Degree | 2,594 (6%) |

*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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