** Web Design and Development Occupations**

**Labor Market Information Report**

**Foothill College**

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 an undersupply of Web Design and Development workers compared to the demand for this cluster of occupations in the Bay region and in the Silicon Valley sub-region (Santa Clara County.) There is a projected annual gap of about 1,108 students in the Bay region and 366 students in the Silicon Valley Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0614.30 - Website Design and Development 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 Foothill College and in the region.

# Introduction

This report profiles Web Design and Development Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Foothill College.

|  |
| --- |
| * **Web Developers (SOC 15-1134):** Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes “Multimedia Artists and Animators” (27-1014). |
| *Entry-Level Educational Requirement: Associate's degree* |
| *Training Requirement: None* |
| *Percentage of Community College Award Holders or Some Postsecondary Coursework: 25%* |

# Occupational Demand

**Table 1. Employment Outlook for Web Design and Development 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 |
| Web Developers | 10,785 | 12,579 | 1,794 | 17% | 5,764 | 1,153 | $27.66 | $42.99 |

*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 Web Design and Development Occupations in Silicon Valley 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 |
| Web Developers | 3,323 | 3,963 | 640 | 19% | 1,870 | 374 | $29.12 | $41.76 |

*Source: EMSI 2019.3*

**Silicon Valley Sub-Region** includes Santa Clara County

### Job Postings in Bay Region and Silicon Valley Sub-Region

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

| Occupation | Bay Region | Silicon Valley |
| --- | --- | --- |
| Web Developers | 28,798 | 12,422 |

*Source: Burning Glass*

**Table 4a. Top Job Titles for Web Design and Development Occupations for latest 12 months (December 2018 - November 2019) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| User Experience (UX) Designer | 3,003 | Engineer | 399 |
| User Interface (UI) Developer | 2,213 | Web Engineer | 357 |
| Front End Developer | 2,136 | Ruby on Rails Developer | 327 |
| Web Developer | 1,891 | PHP Developer | 306 |
| Software Development Engineer | 1,334 | Web Designer | 292 |
| User Interface (UX)/User Experience (UX) Designer | 1,118 | Developer | 288 |
| Front End Engineer | 685 | Front End Web Developer | 261 |
| User Interface (UI) Designer | 615 | Web Producer | 228 |
| Senior Engineer | 611 | Javascript Developer | 212 |
| Ux Researcher | 577 | Frontend Engineer | 212 |
| Senior Front End Engineer | 535 | Senior Ux Researcher | 211 |
| Backend Engineer | 474 | Senior Ui Engineer | 192 |
| Java Developer | 469 | Senior Developer | 191 |
| Senior Backend Engineer | 430 | Back End Engineer | 183 |

**Table 4b. Top Job Titles for Web Design and Development Occupations for latest 12 months (December 2018 - November 2019) Silicon Valley Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| User Experience (UX) Designer | 1,273 | Ruby on Rails Developer | 168 |
| User Interface (UI) Developer | 1,238 | Developer | 151 |
| Front End Developer | 1,061 | Senior Front End Engineer | 141 |
| Web Developer | 748 | Front End Web Developer | 115 |
| Software Development Engineer | 558 | Javascript Developer | 110 |
| User Interface (UX)/User Experience (UX) Designer | 441 | Senior Ui Engineer | 105 |
| User Interface (UI) Designer | 387 | Ui Engineer | 98 |
| Java Developer | 297 | Python Developer | 97 |
| Front End Engineer | 289 | Senior Backend Engineer | 93 |
| Backend Engineer | 224 | PHP Developer | 92 |
| Engineer | 223 | Backend Developer | 90 |
| Ux Researcher | 187 | Web Applications Developer | 88 |
| Senior Engineer | 175 | Senior Developer | 84 |
| Web Engineer | 171 | Back End Engineer | 82 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Web Design and Development 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) |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 2,640 | 3,476 | 32% | 25% |
| Custom Computer Programming Services (541511) | 2,306 | 2,633 | 14% | 22% |
| Computer Systems Design Services (541512) | 1,302 | 1,429 | 10% | 12% |
| Software Publishers (511210) | 420 | 535 | 27% | 4% |
| Data Processing, Hosting, and Related Services (518210) | 381 | 503 | 32% | 4% |
| Other Computer Related Services (541519) | 361 | 415 | 15% | 3% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 228 | 241 | 6% | 2% |
| Electronic Shopping and Mail-Order Houses (454110) | 227 | 269 | 19% | 2% |
| Administrative Management and General Management Consulting Services (541611) | 135 | 163 | 21% | 1% |
| Advertising Agencies (541810) | 107 | 116 | 8% | 1% |

*Source: EMSI 2019.3*

**Table 6. Top Employers Posting Web Design and Development Occupations in Bay Region and Silicon Valley Sub-Region (December 2018 - November 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | Silicon Valley |
| Apple Inc. | 231 | Xoriant Incorporated | 64 | Apple Inc. | 216 |
| Amazon | 182 | Systems Integration Solutions | 58 | Cisco Systems Incorporated | 143 |
| Cisco Systems Incorporated | 171 | Williams-Sonoma | 57 | Google Inc. | 120 |
| Google Inc. | 159 | Bayone Solutions | 57 | IBM | 85 |
| Facebook | 126 | Vmware Incorporated | 56 | Paypal | 76 |
| Scoop Technologies | 123 | Salesforce | 56 | Systems Integration Solutions | 58 |
| IBM | 98 | Coinbase | 56 | Amazon | 57 |
| Walmart / Sam's | 89 | Uber | 50 | Vmware Incorporated | 56 |
| Paypal | 81 | eBay | 48 | Xoriant Incorporated | 45 |
| Adobe Systems | 81 | Workday, Inc | 48 | Osi Engineering | 45 |
| Oracle | 78 | Jobot | 48 | Gorilla Logic | 44 |
| JP Morgan Chase Company | 77 | Redolent, Inc | 47 | eBay | 43 |
| SAP | 73 | Ascent Technology Services | 45 | SAP | 43 |
| Splunk, Inc | 69 | Gorilla Logic | 44 | Walmart / Sam's | 42 |
| NTT Data | 67 | Jefferson Frank | 43 | Redolent, Inc | 39 |
| Splunk | 66 | Intelliswift Software | 43 | Intuit | 37 |
| Osi Engineering | 66 | Servicenow | 40 | Servicenow | 34 |

*Source: Burning Glass*

# Educational Supply

There are nine (9) community colleges in the Bay Region issuing 45 awards on average annually (last 3 years) on TOP 0614.30 - Website Design and Development. There are three colleges in the Silicon Valley Sub-Region issuing 8 awards on average annually (last 3 years) on this TOP code.

**Table 7. Awards on TOP 0614.30 - Website Design and Development in Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| College | Sub-Region | Associates | Certificate 18+ units | Certificate Low unit | Total |
| Berkeley City College | East Bay | 1 |  | 2 | 3 |
| Cabrillo College | Santa Cruz-Monterey | 6 | 6 | 11 | 23 |
| Cañada College | Mid-Peninsula |  |  | 4 | 4 |
| City College of San Francisco | Mid-Peninsula |  |  | 1 | 1 |
| Mission College | Silicon Valley |  | 5 |  | 5 |
| Ohlone College | East Bay |  |  | 3 | 3 |
| San Jose City College | Silicon Valley | 1 | 1 |  | 2 |
| Skyline College | Mid-Peninsula | 2 | 1 |  | 3 |
| West Valley College | Silicon Valley |  | 1 |  | 1 |
| **Total Bay Region** | | **10** | **14** | **21** | **45** |
| **Total Silicon Valley Sub-Region** | | **1** | **7** | **0** | **8** |

# *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 labor market gap in the Bay region with 1,153 annual openings for the Web Design and Development occupational cluster and 45 annual (3-year average) awards for an annual undersupply of 1,108 students. In the Silicon Valley Sub-Region, there is also a gap with 374 annual openings and 8 annual (3-year average) awards for an annual undersupply of 366 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0614.30 - Website Design and Development**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | Foothill College (All CTE Programs) | State (0614.30) | Bay (0614.30) | Silicon Valley (0614.30) | Foothill College (0614.30) |
| % Employed Four Quarters After Exit | 74% | 77% | 60% | 62% | 50% | 76% |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $15,301 | $8,399 | $10,242 | $11,841 | $15.047 |
| Median % Change in Earnings | 46% | 82% | 48% | 47% | 50% | 81% |
| % of Students Earning a Living Wage | 63% | 76% | 53% | 59% | 65% | 72% |

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

# Skills, Certifications and Education

**Table 9. Top Skills for Web Design and Development Occupations in Bay Region (December 2018 - November 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| JavaScript | 13,392 | Git | 3,140 | Agile Development | 1,846 |
| Java | 6,082 | Adobe Photoshop | 2,986 | E-Commerce | 1,843 |
| React Javascript | 5,283 | jQuery | 2,927 | Hypertext Preprocessor (PHP) | 1,791 |
| Web Application Development | 5,227 | Node.js | 2,922 | Scrum | 1,789 |
| HTML5 | 5,079 | User Research | 2,781 | Human Computer Interaction | 1,754 |
| Web Development | 4,978 | Prototyping | 2,717 | Product Development | 1,729 |
| Software Engineering | 4,693 | Product Management | 2,652 | JavaScript Object Notation (JSON) | 1,726 |
| AngularJS | 4,302 | Visual Design | 2,628 | Cross-browser | 1,711 |
| Software Development | 4,068 | Interaction Design | 2,424 | Bootstrapping | 1,693 |
| Front-end Development | 4,050 | Unit Testing | 2,423 | Project Management | 1,595 |
| Python | 3,505 | Web Site Design | 2,344 | Adobe Indesign | 1,548 |
| CSS | 3,496 | Object-Oriented Analysis and Design (OOAD) | 2,088 | Ruby on Rails | 1,508 |
| SQL | 3,359 | Syntactically Awesome Style Sheets (SASS) | 2,047 | Scalability Design | 1,497 |
| User Interface (UI) Design | 3,276 | MySQL | 1,999 | Quality Assurance and Control | 1,493 |
| UX Wireframes | 3,182 | AJAX | 1,892 | TypeScript | 1,480 |

*Source: Burning Glass*

**Table 10. Certifications for Web Design and Development Occupations in Bay Region (December 2018 - November 2019)**

Note: 98% 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 |
| Security Clearance | 182 | First Aid Cpr Aed | 8 |
| Project Management Certification | 47 | Certified Scrum Professional (CSP) | 8 |
| Driver's License | 27 | Microsoft Certified Solutions Developer (MCSD) | 7 |
| IT Infrastructure Library (ITIL) Certification | 23 | Certified Salesforce Platform Developer I | 7 |
| Project Management Professional (PMP) | 22 | Certified Salesforce Administrator | 7 |
| Mbe Certified | 19 | ITIL Certification | 6 |
| CompTIA Security+ | 16 | CompTIA Linux+ | 6 |
| Food Handler Certification | 11 | Certified Usability Analyst | 6 |
| Certified Information Systems Security Professional (CISSP) | 10 | Certified ScrumMaster (CSM) | 6 |
| Automation Certification | 10 | Certified Salesforce Platform Developer | 6 |
| Certified Novell Administrator | 9 | Systems Security Certified Practitioner (SSCP) | 5 |
| SANS/GIAC Certification | 8 | SAP Certification | 5 |

*Source: Burning Glass*

**Table 11. Education Requirements for Web Design and Development Occupations in Bay Region**

Note: 52% 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 | 243 | 2% |
| Associate Degree | 113 | 1% |
| Bachelor’s Degree or Higher | 12,471 | 97% |

*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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