**User Experience and Interaction Design Occupations Labor Market Information Report**

**Mission College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

November 2020

# Recommendation

Based on all available data, there appears to be an undersupply of User Experience and Interaction Design 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 1,926 students in the Bay region and 598 students in the Silicon Valley Sub-Region.

**Introduction**

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

This report profiles User Experience and Interaction Design Occupations in the 12 county Bay region and in the Silicon Valley sub-region for a proposed new program at Mission College.

|  |
| --- |
| * **Web Developers / Web Developers and Digital Interface Designers (15-1134 / 15-1257)**: 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% |
|  |
| * **Graphic Designers (27-1024):** Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects. |
| Entry-Level Educational Requirement: Bachelor's degree |
| Training Requirement: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 29% |

**Occupational Demand**

**Table 1. Employment Outlook for User** **Experience and Interaction Design Occupations in Bay Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Web Developers / Web Developers and Digital Interface Designers | 11,305 | 13,309 | 2,004 | 18% | 6,679 | 1,336 | $29.02 | $45.01 |
| Graphic Designers | 11,352 | 11,849 | 497 | 4% | 6,330 | 1,266 | $22.35 | $31.39 |
| **TOTAL** | **22,657** | **25,158** | **2,501** | **11%** | **13,009** | **2,602** | **$25.68** | **$38.18** |

*Source: EMSI 2020.3*

**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 User** **Experience and Interaction Design Occupations in Silicon Valley Sub-Region**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Occupation | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | 5-Yr Open-ings | Average Annual Open-ings | 25% Hourly Wage | Median Hourly Wage |
| Web Developers / Web Developers and Digital Interface Designers | 3,128 | 3,851 | 723 | 23% | 2,049 | 410 | $29.40 | $42.61 |
| Graphic Designers | 2,427 | 2,588 | 162 | 7% | 1,418 | 284 | $21.50 | $31.08 |
| **TOTAL** | **5,555** | **6,440** | **885** | **16%** | **3,467** | **693** | **$25.95** | **$37.57** |

*Source: EMSI 2020.3*

**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 (October 2019 - September 2020)**

| Occupation | Bay Region | **Silicon** Valley Sub-Region |
| --- | --- | --- |
| Web Developers | 24,265 | 9,310 |
| Graphic Designers | 3,179 | 922 |
| **TOTAL** | **27,444** | **10,232** |

*Source: Burning Glass*

**Table 4a. Top Job Titles for User** **Experience and Interaction Design Occupations for latest 12 months (October 2019 - September 2020) Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Front End Engineer | 1,024 | Senior Frontend Engineer | 199 |
| Senior Front End Engineer | 994 | Senior UI Developer | 198 |
| Senior Backend Engineer | 967 | Senior Front End Developer | 178 |
| Backend Engineer | 942 | Hired Front End Engineer | 172 |
| UX Designer | 615 | Hired Backend Engineer | 172 |
| Front End Developer | 594 | Frontend Engineer | 158 |
| UI Developer | 553 | Php Developer | 148 |
| Graphic Designer | 547 | Ruby On Rails Developer | 134 |
| Web Developer | 436 | User Experience Designer | 133 |
| Senior UX Designer | 320 | Front End Developer Entry Level | 125 |
| UX Researcher | 309 | Senior UI Engineer | 122 |
| Visual Designer | 293 | Frontend Developer | 120 |
| UX/UI Designer | 224 | Senior Graphic Designer | 117 |
| UI/UX Designer | 219 | Node JS Developer | 117 |

**Table 4b. Top Job Titles for User Experience and Interaction Design Occupations for latest 12 months (October 2019 - September 2020) Silicon Valley Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | **Silicon** Valley | Common Title | **Silicon** Valley |
| UI Developer | 316 | UI/UX Designer | 96 |
| Front End Developer | 300 | Senior Front End Developer | 90 |
| UX Designer | 298 | UI Designer | 78 |
| Backend Engineer | 243 | Visual Designer | 74 |
| Web Developer | 179 | Webmethods Developer | 71 |
| Front End Engineer | 172 | Backend Developer | 71 |
| Senior Front End Engineer | 153 | Node JS Developer | 70 |
| Senior Backend Engineer | 139 | UI Engineer | 65 |
| UX Researcher | 134 | Senior UI Engineer | 63 |
| Senior UI Developer | 122 | Java Full Stack Developer | 63 |
| UX/UI Designer | 121 | User Experience Designer | 57 |
| Graphic Designer | 120 | Frontend Full Stack Engineer | 57 |
| Senior UX Designer | 109 | Frontend Developer | 56 |
| Ruby On Rails Developer | 104 | UI Designer IV | 54 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring User** **Experience and Interaction Design Workers in Bay Region**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Industry – 6 Digit NAICS (No. American Industry Classification) Codes | Jobs in Industry (2019) | Jobs in Industry (2024) | % Change (2019-24) | % Occupation Group in Industry (2019) |
| Internet Publishing and Broadcasting and Web Search Portals | 2,929 | 3,717 | 27% | 13% |
| Custom Computer Programming Services | 2,628 | 3,032 | 15% | 12% |
| Graphic Design Services | 1,711 | 1,640 | -4% | 7% |
| Software Publishers | 1,628 | 2,085 | 28% | 7% |
| Interior Design Services | 1,484 | 1,622 | 9% | 7% |
| Computer Systems Design Services | 1,446 | 1,620 | 12% | 6% |
| Data Processing, Hosting, and Related Services | 503 | 655 | 30% | 2% |
| Corporate, Subsidiary, and Regional Managing Offices | 506 | 493 | -3% | 2% |
| Advertising Agencies | 469 | 469 | 0% | 2% |
| Other Computer Related Services | 418 | 491 | 17% | 2% |
| Electronic Shopping and Mail-Order Houses | 413 | 492 | 19% | 2% |
| Other Specialized Design Services | 338 | 366 | 8% | 1% |
| Industrial Design Services | 333 | 359 | 8% | 1% |
| Administrative Management and General Management Consulting Services | 311 | 371 | 19% | 1% |

*Source: EMSI 2020.3*

**Table 6. Top Employers Posting User Experience and Interaction Design Occupations in Bay Region and Silicon** **Valley Sub-Region (October 2019 - September 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Employer** | **Bay** | **Employer** | **Bay** | **Employer** | **Silicon** Valley |
| Amazon | 340 | IBM | 58 | Apple Inc. | 191 |
| Apple Inc. | 207 | Salesforce | 57 | Paypal | 100 |
| Wells Fargo | 136 | Vmware Incorporated | 53 | Cisco Systems Inc | 80 |
| Facebook | 136 | Anthem Blue Cross | 53 | Amazon | 76 |
| Paypal | 106 | Splunk | 51 | Nsys Design Systems | 62 |
| Infobahn Softworld Inc | 99 | Intelliswift Software | 48 | Xoriant Incorporated | 61 |
| Cisco Systems Incorporated | 94 | Adobe Systems | 48 | Vmware Incorporated | 53 |
| Osi Engineering | 83 | Exploratorium | 47 | Osi Engineering | 53 |
| Xoriant Incorporated | 78 | Tranzeal, Inc | 46 | Intuit | 53 |
| Google Inc. | 76 | Akorbi | 46 | Infobahn Softworld Inc | 53 |
| Bayone Solutions | 72 | Osi Engineering, Inc | 45 | IBM | 53 |
| NTT Data | 68 | Ascent Technology Services | 44 | Google Inc. | 50 |
| The Mom Project | 66 | Servicenow | 43 | Tranzeal, Inc | 46 |
| Nsys Design Systems | 62 | Samsung America, Inc. | 43 | Akorbi | 40 |
| Gap Inc. | 61 | Oracle | 43 | eBay | 38 |
| Intuit | 60 | Jefferson Frank | 43 | Samsung America, Inc. | 38 |
| eBay | 58 | Infoobjects Inc | 42 | Systems Integration Solutions | 34 |

*Source: Burning Glass*

# Educational Supply

There are nine (9) community colleges in the Bay Region issuing 39 awards on average annually (last 3 years ending 2018-19) on TOP 0614.30-Website Design and Development. There are three colleges in the Silicon Valley Sub-Region issuing six (6) awards on average annually (last 3 years) on this TOP code.

There are three (3) Other Educational Institutions in the Bay Region issuing 52 awards on average annually (last 3 years ending 2016-17) on TOP 0614.00-Digital Media. There is one Other Educational Institution in the Silicon Valley Sub-Region issuing two (2) awards on average annually (last 3 years) on this TOP code.

There are 11 Institutions in the Bay Region issuing 585 Bachelor’s Degrees on average annually (last 3 years ending 2016-17) on TOP 0614.00-Digital Media. There are three (3) Institutions in the Silicon Valley Sub-Region issuing 87 Bachelor’s Degrees on average annually (last 3 years ending 2016-17) on this TOP code.

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **College** | **Sub-Region** | **Associates** | **Certificate Low Unit** | **Total** |
| Berkeley City | East Bay | 2 | 3 | 5 |
| Cabrillo | SC - Monterey | 6 | 14 | 20 |
| Canada | Mid-Peninsula |  | 4 | 4 |
| Mission | Silicon Valley |  | 5 | 5 |
| Ohlone | East Bay |  | 1 | 1 |
| San Francisco | Mid-Peninsula |  | 1 | 1 |
| San Jose City | Silicon Valley | 1 |  | 1 |
| Skyline | Mid-Peninsula | 1 |  | 1 |
| West Valley | Silicon Valley |  | 1 | 1 |
| **Total Bay Region** | | **10** | **29** | **39** |
| **Total Silicon** **Valley Sub-Region** | | **2** | **4** | **6** |

# Source: Data Mart

Note: The annual average for awards is 2016-17 to 2018-19.

**Table 7b. Other Education Institutions Awards on TOP 0614.00 - Digital Media in Bay Region**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **College** | **Sub-Region** | **Associate Degree** | **Award 1 < 2 academic yrs** | **Award 2 < 4 academic yrs** | **Total** |
| Academy of Art University | Mid-Peninsula | 44 |  | 1 | 45 |
| Argosy University-The Art Institute of California-San Francisco | Mid-Peninsula | 3 | 2 |  | 5 |
| Argosy University-The Art Institute of California-Silicon Valley | Silicon Valley | 1 | 1 |  | 2 |
| **Total Bay Region** | | **48** | **3** | **1** | **52** |
| **Total Silicon Valley Sub-Region** | | **1** | **1** | **0** | **2** |

# Source: Data Mart

Note: The annual average for awards is 2014-15 to 2016-17.

**Table 7c. Bachelor’s Degree Awards on TOP 0614.00 - Digital Media in Bay Region**

|  |  |  |
| --- | --- | --- |
| **College** | **Sub-Region** | **Bachelor’s Degree** |
| Academy of Art University | Mid-Peninsula | 312 |
| Argosy University-The Art Institute of California-San Francisco | Mid-Peninsula | 65 |
| Argosy University-The Art Institute of California-Silicon Valley | Silicon Valley | 34 |
| California College of the Arts | Mid-Peninsula | 49 |
| Cogswell College | Silicon Valley | 43 |
| Holy Names University | East Bay | 4 |
| Mills College | East Bay | 3 |
| SAE Expression College | East Bay | 62 |
| San Francisco Art Institute | Mid-Peninsula | 1 |
| Santa Clara University | Silicon Valley | 10 |
| University of California-Santa Cruz | SC - Monterey | 2 |
| **Total Bay Region** | | **585** |
| **Total Silicon** **Valley Sub-Region** | | **87** |

# Source: Data Mart

Note: The annual average for awards is 2014-15 to 2016-17.

# Gap Analysis

Based on the data included in this report, there is a labor market gap in the Bay region with 2,602 annual openings for the User Experience and Interaction Design occupational cluster and 676 annual (3-year average) awards for an annual undersupply of 1,926 students. In the Silicon Valley Sub-Region, there is also a gap with 693 annual openings and 95 annual (3-year average) awards for an annual undersupply of 598 students.

# Student Outcomes

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

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **2017-18** | **Bay** All CTE Programs | **Mission College** All CTE Programs | **State** 0614.30 | **Bay** 0614.30 | **Silicon** **Valley** 0614.30 | **Mission College** 0614.30 |
| % Employed Four Quarters After Exit | 67% | 77% | 57% | 55% | 61% | 61% |
| Median Quarterly Earnings Two Quarters After Exit | $11,466 | $10,336 | $8,555 | $9,988 | $8,177 | $11,856 |
| Median % Change in Earnings | 31% | 49% | 18% | 24% | 41% | 38% |
| % of Students Earning a Living Wage | 53% | 66% | 51% | 45% | 43% | 57% |

*Source: Launchboard Pipeline (version available on (10/23/20)*

# Skills, Certifications and Education

**Table 9. Top Skills for User Experience and Interaction Design Occupations in Bay Region (October 2019 - September 2020)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Skill** | **Postings** | **Skill** | **Postings** | **Skill** | **Postings** |
| JavaScript | 11,434 | AngularJS | 3,808 | User Interface (UI) Design | 2,445 |
| React Javascript | 6,039 | Git | 3,718 | UX Wireframes | 2,349 |
| Java | 6,007 | Web Application Development | 3,599 | Content Management Systems (CMS) | 2,275 |
| Adobe Photoshop | 5,792 | HTML5 | 3,574 | Web Site Design | 2,214 |
| Front-end Development | 5,774 | Software Development | 3,152 | Drupal | 2,206 |
| Software Engineering | 5,625 | Unit Testing | 3,053 | User Research | 2,146 |
| Web Development | 4,954 | MySQL | 3,033 | Version Control | 2,127 |
| Adobe Indesign | 4,593 | Graphic Design | 2,901 | Google Analytics | 2,100 |
| Adobe Illustrator | 4,259 | Cross-browser | 2,864 | Prototyping | 2,076 |
| Adobe Acrobat | 3,955 | Scalability Design | 2,822 | Node.js | 2,009 |
| Adobe Creative Suite | 3,905 | Hypertext Preprocessor (PHP) | 2,724 | Product Management | 1,978 |
| Python | 3,892 | Visual Design | 2,692 | jQuery | 1,977 |
| SQL | 3,865 | PostgreSQL | 2,610 | Microsoft C# | 1,949 |
| Ruby | 3,820 | CSS | 2,496 | Docker Software | 1,936 |
| Ruby on Rails | 3,811 | ECMAScript 2015 (ES2015 / ES6) | 2,469 | Django | 1,862 |

*Source: Burning Glass*

**Table 10. Certifications for User Experience and Interaction Design Occupations in Bay Region (October 2019 - September 2020)**

Note: 99% 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 | 77 | Leadership In Energy And Environmental Design (LEED) Certified | 4 |
| Driver's License | 60 | Graphic Design Certification | 4 |
| Certified Novell Administrator | 32 | Drafting and Design | 4 |
| Certified Scrum Professional (CSP) | 27 | CompTIA Security+ | 4 |
| Project Management Certification | 24 | Certified Information Systems Security Professional (CISSP) | 4 |
| Certified Scrum Trainer (CST) | 21 | Certified Information Security Manager (CISM) | 4 |
| Mbe Certified | 19 | Certified Graphic Designer | 4 |
| IT Infrastructure Library (ITIL) Certification | 10 | Acquired Immune Deficiency Syndrome (AIDS) Certification | 4 |
| Project Management Professional (PMP) | 9 | ServSafe | 3 |
| Food Handler Certification | 7 | Makeup Artist | 3 |
| Microsoft Certified IT Professional (MCITP) | 5 | Cisco Certified Network Associate (CCNA) | 3 |
| Salesforce Pardot Specialist | 4 | Cisco Certified Internetwork Expert (CCIE) | 3 |

*Source: Burning Glass*

**Table 11. Education Requirements for User Experience and Interaction 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** | **Percent 12 Mos. Postings** |
| High school or vocational training | 256 | 2% |
| Associate Degree | 165 | 1% |
| Bachelor’s Degree or Higher | 13,224 | 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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