

**Labor Market Information Report**

**Digital Media Arts Occupations**

**Solano College**

### Prepared by the San Francisco Bay Center of Excellence for Labor Market Research

### April 2023

## Recommendation

Based on all available data, there appears to be an “undersupply” of Digital Media Arts workers compared to the demand for this cluster of occupations in the Bay region and in the North Bay sub-region (Marin, Napa, Solano, Sonoma counties). There is a projected annual gap of about 2,286 students in the Bay region and 109 students in the North Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 1030.00 - Graphic Art and Design 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 Solano College and in the region.

This report profiles Digital Media Arts Occupations in the 12 county Bay region and in the North Bay sub-region for a program modification at Solano College.

* **Web Developers (15-1254):** Develop and implement websites, web applications, application databases, and interactive web interfaces. Evaluate code to ensure that it is properly structured, meets industry standards, and is compatible with browsers and devices. Optimize website performance, scalability, and server-side code and processes. May develop website infrastructure and integrate websites with other computer applications.
  Entry-Level Educational Requirement: Associate degree
  Training Requirement: NA
  Percentage of Community College Award Holders or Some Postsecondary Coursework: NA%
* **Web and Digital Interface Designers (15-1255):** Design digital user interfaces or websites. Develop and test layouts, interfaces, functionality, and navigation menus to ensure compatibility and usability across browsers or devices. May use web framework applications as well as client-side code and processes. May evaluate web design following web and accessibility standards, and may analyze web use metrics and optimize websites for marketability and search engine ranking. May design and test interfaces that facilitate the human-computer interaction and maximize the usability of digital devices, websites, and software with a focus on aesthetics and design. May create graphics used in websites and manage website content and links.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: NA
  Percentage of Community College Award Holders or Some Postsecondary Coursework: NA%
* **Special Effects Artists and Animators (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: NA
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%
* **Commercial and Industrial Designers (27-1021):** Develop and design manufactured products, such as cars, home appliances, and children’s toys. Combine artistic talent with research on product use, marketing, and materials to create the most functional and appealing product design.
  Entry-Level Educational Requirement: Bachelor’s degree
  Training Requirement: NA
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 24%
* **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: NA
  Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%

## Occupational Demand

**Table 1. Employment Outlook for Digital Media Arts Occupations in Bay Region**

| **Occupation** | **2021 Jobs** | **2026 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Web Developers | 5,450 | 6,474 | 1,024 | 19% | 3,200 | 640 | $36 | $51 |
| Web and Digital Interface Designers | 5,549 | 6,581 | 1,032 | 19% | 3,520 | 704 | $42 | $62 |
| Special Effects Artists and Animators | 2,247 | 2,391 | 145 | 6% | 1,381 | 276 | $37 | $52 |
| Commercial and Industrial Designers | 1,328 | 1,370 | 41 | 3% | 639 | 128 | $36 | $47 |
| Graphic Designers | 7,554 | 8,006 | 451 | 6% | 3,964 | 793 | $26 | $36 |
| **Total** | **22,128** | **24,821** | **2,693** | **12%** | **12,704** | **2,541** |  |  |
| Source: Lightcast 2022.3 |
| **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 Digital Media Arts Occupations in North Bay Sub-region**

| **Occupation** | **2021 Jobs** | **2026 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Web Developers | 213 | 225 | 11 | 5% | 93 | 19 | $29 | $41 |
| Web and Digital Interface Designers | 199 | 212 | 13 | 7% | 99 | 20 | $33 | $48 |
| Special Effects Artists and Animators | 139 | 144 | 5 | 3% | 82 | 16 | $35 | $50 |
| Commercial and Industrial Designers | 116 | 124 | 8 | 7% | 61 | 12 | $27 | $40 |
| Graphic Designers | 721 | 753 | 32 | 4% | 369 | 74 | $23 | $30 |
| **Total** | **1,388** | **1,457** | **69** | **5%** | **704** | **141** |  |  |
| Source: Lightcast 2022.3 |
| **North Bay Sub-Region includes:** Marin, Napa, Solano, Sonoma Counties |

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

**Table 3. Number of Job Postings by Occupation for latest 12 months (Mar. 2022 - Feb. 2023)**

| **Occupation** | **Bay Region** | **North Bay** |
| --- | --- | --- |
| Web Developers | 2,561 | 44 |
| Commercial and Industrial Designers | 841 | 12 |
| Graphic Designers | 420 | 37 |
| Web and Digital Interface Designers | 228 | 11 |
| Special Effects Artists and Animators | 125 | 1 |
| Source: Lightcast |

**Table 4a. Top Job Titles for Digital Media Arts Occupations for latest 12 months (Mar. 2022 - Feb. 2023) Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Product Designers | 317 | UI/UX Designers | 80 |
| Front End Engineers | 220 | Front End Software Engineers | 77 |
| Back End Engineers | 206 | Product Engineers | 49 |
| Front End Developers | 128 | Lead Product Designers | 47 |
| UX Designers | 118 | User Experience Designers | 46 |
| Graphic Designers | 109 | Back End Developers | 43 |
| UX Researchers | 106 | Visual Designers | 43 |
| Web Developers | 94 | UI Developers | 42 |
| Back End Software Engineers | 89 | Product Design Engineers | 40 |
| Source: Lightcast |

**Table 4b. Top Job Titles for Digital Media Arts Occupations for latest 12 months (Mar. 2022 - Feb. 2023) North Bay Sub-Region**

| **Title** | **North Bay** | **Title** | **North Bay** |
| --- | --- | --- | --- |
| Graphic Designers | 13 | Art Producers | 2 |
| Product Designers | 8 | Cloud Developers | 2 |
| UI/UX Designers | 4 | Customer Experience Specialists | 2 |
| Web Developers | 4 | Digital Media Specialists | 2 |
| Full Stack JavaScript Developers | 3 | Environment Artists | 2 |
| Graphic Design Instructors | 3 | Full Stack Web Developers | 2 |
| Production Artists | 3 | Genius Administrators | 2 |
| User Researchers | 3 | Graphic Artists | 2 |
| Analog Design Engineers | 2 | Graphic Illustrators | 2 |
| Source: Lightcast |

## Industry Concentration

**Table 5. Industries hiring Digital Media Arts Workers in Bay Region**

| **Industry - 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2021)** | **Jobs in Industry (2026)** | **% Change (2021-26)** | **% Occupation Group in Industry (2022)** |
| --- | --- | --- | --- | --- |
| Internet Publishing and Broadcasting and Web Search Portals | 3,480 | 4,250 | 22% | 15% |
| Custom Computer Programming Services | 2,699 | 3,182 | 18% | 12% |
| Software Publishers | 2,190 | 2,553 | 17% | 10% |
| Computer Systems Design Services | 975 | 1,068 | 10% | 4% |
| Data Processing, Hosting, and Related Services | 598 | 860 | 44% | 3% |
| Interior Design Services | 570 | 716 | 26% | 3% |
| Graphic Design Services | 534 | 471 | -12% | 2% |
| Corporate, Subsidiary, and Regional Managing Offices | 508 | 484 | -5% | 2% |
| Advertising Agencies | 471 | 440 | -7% | 2% |
| Electronic Shopping and Mail-Order Houses | 470 | 523 | 11% | 2% |
| Source: Lightcast 2022.3 |

**Table 6. Top Employers Posting Digital Media Arts Occupations in Bay Region and North Bay Sub-Region (Mar. 2022 - Feb. 2023)**

| **Employer** | **Bay** | **Employer** | **North Bay** |
| --- | --- | --- | --- |
| Motion Recruitment | 176 | Recruiting From Scratch | 6 |
| Braintrust Group | 136 | Sacred Heart University | 4 |
| CyberCoders | 119 | General Dynamics | 3 |
| Capital One | 93 | ADP | 2 |
| Apple | 81 | Activision Blizzard | 2 |
| Jobot | 77 | Air Mobility Command | 2 |
| Google | 61 | Another Source | 2 |
| Source: Lightcast |

## Educational Supply

There are 13 community colleges in the Bay Region issuing 182 awards on average annually (last 3 years ending 2019-20) on TOP 1030.00 - Graphic Art and Design. In the North Bay Sub-Region, there are three (3) community colleges that issued 25 awards on average annually (last 3 years) on this TOP code.

There are a six (6) other CTE educational institutions in the Bay Region issuing 73 awards on average annually (last 3 years ending 2019-20) on CIP 50.04 – Graphic Design. There are two (2) other CTE educational institution in the North Bay Sub-Region issuing seven (7) awards on average annually (last 3 years) on this TOP code.

**Table 7a. Community College Awards on TOP 1030.00 - Graphic Art and Design in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **High unit Certificate** | **Low unit Certificate** | **Total** |
| --- | --- | --- | --- | --- | --- |
| De Anza | Silicon Valley | 11 | 5 | 8 | 24 |
| Diablo Valley | East Bay | 7 | 2 | 0 | 9 |
| Foothill | Silicon Valley | 19 | 5 | 2 | 26 |
| Laney | East Bay | 5 | 5 | 1 | 11 |
| Las Positas | East Bay | 3 | 0 | 2 | 5 |
| Los Medanos | East Bay | 10 | 2 | 0 | 12 |
| Marin | North Bay | 0 | 0 | 1 | 1 |
| Mission | Silicon Valley | 12 | 5 | 0 | 17 |
| Monterey | SC-Monterey | 5 | 1 | 1 | 7 |
| Napa | North Bay | 6 | 0 | 0 | 6 |
| Ohlone | East Bay | 2 | 0 | 0 | 2 |
| San Francisco | Mid-Peninsula | 9 | 6 | 29 | 44 |
| Santa Rosa | North Bay | 5 | 7 | 6 | 18 |
| **Total** |  | **94** | **38** | **50** | **182** |
| Source: Data Mart |
| Note: The annual average for awards is 2017-18 to 2019-20. |

**Table 7b. Other CTE Institutions Awards on CIP 50.04 – Graphic Design in Bay Region**

| **College** | **Subregion** | **Associate Degree** | **Bachelor's degree** | **Total** |
| --- | --- | --- | --- | --- |
| California College of the Arts | Mid-Peninsula | 0 | 35 | 35 |
| Dominican University of California | North Bay | 0 | 4 | 4 |
| FIDM-Fashion Institute of Design & Merchandising-San Francisco | Mid-Peninsula | 3 | 0 | 3 |
| Notre Dame de Namur University | Mid-Peninsula | 0 | 3 | 3 |
| Pacific Union College | North Bay | 0 | 3 | 3 |
| San Jose State University | Silicon Valley | 0 | 25 | 25 |
| **Total** |  | **3** | **70** | **73** |
| Source: Data Mart |
| Note: The annual average for awards is 2017-18 to 2019-20. |

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 2,541 annual openings for the Digital Media Arts occupational cluster and 255 annual (3-year average) awards for an annual undersupply of 2,286 students. In the North Bay Sub-Region, there is also a gap with 141 annual openings and 32 annual (3-year average) awards for an annual undersupply of 109 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 1030.00 - Graphic Art and Design**

| **Metric Outcomes** | **Bay All CTE Programs** | **Solano All CTE Programs** | **State 1030.00** | **Bay 1030.00** | **North Bay 1030.00** | **Solano College 1030.00** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 67% | 58% | 65% | 70% | N/A |
| Median Annual Earnings for SWP Exiting Students | $48,926 | $33,528 | $27,204 | $34,774 | $27,737 | $24,527 |
| Median Change in Earnings for SWP Exiting Students | 23% | 27% | 28% | 22% | 47% | 59% |
| Exiting Students Who Attained the Living Wage | 50% | 49% | 31% | 32% | 29% | N/A |
| Source: Launchboard Strong Workforce Program Median of 2018 to 2021. |

## Skills, Certifications and Education

**Table 9. Top Skills for Digital Media Arts Occupations in Bay Region (Mar. 2022 - Feb. 2023)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| User Experience (UX) | 1,200 | Agile Methodology | 673 |
| JavaScript (Programming Language) | 1,111 | Figma (Design Software) | 598 |
| React.js | 921 | Marketing | 544 |
| Product Design | 897 | User Experience (UX) Design | 538 |
| Cascading Style Sheets (CSS) | 877 | Application Programming Interface (API) | 521 |
| User Interface (UI) | 778 | Software Engineering | 517 |
| Computer Science | 766 | Node.js | 498 |
| Prototyping | 764 | Front End Design | 489 |
| Front End (Software Engineering) | 701 | Wireframing | 473 |
| HyperText Markup Language (HTML) | 688 | Amazon Web Services | 472 |
| Source: Lightcast |

**Table 10. Certifications for Digital Media Arts Occupations in Bay Region (Mar. 2022 - Feb. 2023)**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Security Clearance | 26 | Project Management Professional Certification | 5 |
| Enterprise Desktop Administrator (Microsoft Certified IT Professional) | 20 | Top Secret-Sensitive Compartmented Information (TS/SCI Clearance) | 5 |
| Master of Business Administration (MBA) | 20 | Agile Certification | 4 |
| Valid Driver's License | 20 | AWS Certified Solutions Architect | 4 |
| Product Certification | 6 | Certified Scrum Master | 4 |
| Secret Clearance | 6 | SAP Certification | 4 |
| Certified Safety Professional | 5 | Six Sigma Green Belt | 4 |
| Source: Lightcast |

**Table 11. Education Requirements for Digital Media Arts Occupations in Bay Region**

| **Education Level** | **Job Postings** | **% of Total** |
| --- | --- | --- |
| High school or GED | 88 | 3% |
| Associate degree | 52 | 2% |
| Bachelor's degree & higher | 2,666 | 95% |
| Source: Lightcast |
| Note: 53% of records have been excluded because they do not include a degree level. As a result, the chart above may not be representative of the full sample. |

## Methodology

Occupations for this report were identified by use of job descriptions and skills listed in O\*Net. Labor demand data is sourced from Lightcast occupation and job postings data. Educational supply and student outcomes data is retrieved from multiple sources, including CCCCO Data Mart and CTE Launchboard.

## Sources

O\*Net Online
Lightcast
CTE LaunchBoard 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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