

# Labor Market Information Report

# Drone Operations Occupations

# Santa Rosa Junior College

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

**July 2022**

## Recommendation

Based on all available data, there appears to be an “undersupply” of Drone Operations 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 1,519 students in the Bay region and 106 students in the North Bay Sub-Region.

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0614.60 Computer Graphics and Digital Imagery 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 Santa Rosa Junior College and in the region.

This report profiles Drone Operations Occupations in the 12 county Bay region and in the North Bay sub-region for a Drone Studies: Applied Drone Operations program review at Santa Rosa Junior College.

* **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: None  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%
* **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: 26%

## Occupational Demand

**Table 1. Employment Outlook for Drone Operations Occupations in Bay Region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Special Effects Artists and Animators | 4,765 | 5,130 | 364 | 8% | 2,909 | 582 | $28 | $41 |
| Graphic Designers | 10,230 | 10,292 | 62 | 1% | 4,917 | 983 | $22 | $33 |
| **Total** | **14,995** | **15,422** | **427** | **3%** | **7,825** | **1,565** |  |  |
| Source: EMSI 2021.4 | | | | | | | | |

**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 Drone Operations Occupations in North Bay Sub-region**

| **Occupation** | **2020 Jobs** | **2025 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Special Effects Artists and Animators | 287 | 285 | -1 | -1% | 151 | 30 | $11 | $27 |
| Graphic Designers | 1,162 | 1,143 | -19 | -2% | 533 | 107 | $19 | $30 |
| **Total** | **1,449** | **1,428** | **-21** | **-1%** | **684** | **137** |  |  |
| Source: EMSI 2021.4 | | | | | | | | |

**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**

| **Occupation** | **Bay Region** | **North Bay** |
| --- | --- | --- |
| Graphic Designers | 3,428 | 159 |
| Multimedia Artists and Animators | 710 | 40 |
| Source: Burning Glass | | |

**Table 4a. Top Job Titles for Drone Operations Occupations for latest 12 months - Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Graphic Designer | 641 | Ux/Visual Designer | 42 |
| Visual Designer | 245 | Interaction Designer | 36 |
| Ux/Visual Designer III | 94 | Junior Graphic Designer | 36 |
| Senior Graphic Designer | 93 | Graphic Designer III | 27 |
| Ux/Visual Designer II | 76 | Senior Digital Design Engineer | 24 |
| Senior Visual Designer | 73 | Senior Interaction Designer | 24 |
| Motion Graphic Designer | 60 | Ux/Visual Designer I | 21 |
| Production Artist | 60 | Creative Designer | 19 |
| Production Designer | 52 | 3D Animator | 18 |
| Source: Burning Glass | | | |

**Table 4b. Top Job Titles for Drone Operations Occupations for latest 12 months - North Bay Sub-Region**

| **Title** | **North Bay** | **Title** | **North Bay** |
| --- | --- | --- | --- |
| Graphic Designer | 46 | Associate Manager, Graphic | 2 |
| Junior Graphic Designer | 9 | Digital Content Producer Remote | 2 |
| Designer W/Motion Graphic | 8 | Digital Graphic Designer | 2 |
| Digital Graphic Manager | 7 | Graphic Artist | 2 |
| 3D Professional Scanner | 4 | Graphic Design Assistant | 2 |
| Animation Art Producer | 3 | Graphic Design Instructor Pool | 2 |
| Graphic Designer - Vionic | 3 | Graphic Design Instructor (PT) | 2 |
| Senior Graphic Designer | 3 | Graphic Design, Website Assistant | 2 |
| Animator, Facial | 2 |  |  |
| Source: Burning Glass | | | |

## Industry Concentration

**Table 5. Industries hiring Drone Operations Workers in Bay Region**

| **Industry - 6 Digit NAICS (No. American Industry Classification) Codes** | **Jobs in Industry (2020)** | **Jobs in Industry (2025)** | **% Change (2020-25)** | **% Occupation Group in Industry (2020)** |
| --- | --- | --- | --- | --- |
| Graphic Design Services | 1,958 | 1,847 | -6% | 13% |
| Software Publishers | 1,822 | 1,962 | 8% | 12% |
| Interior Design Services | 1,648 | 1,825 | 11% | 11% |
| Internet Publishing and Broadcasting and Web Search Portals | 1,305 | 1,609 | 23% | 9% |
| Custom Computer Programming Services | 638 | 702 | 10% | 4% |
| Motion Picture and Video Production | 393 | 392 | 0% | 2% |
| Industrial Design Services | 361 | 387 | 7% | 2% |
| Computer Systems Design Services | 354 | 364 | 3% | 2% |
| Other Specialized Design Services | 342 | 362 | 6% | 2% |
| Advertising Agencies | 367 | 293 | -20% | 2% |
| Source: EMSI 2021.4 | | | | |

**Table 6. Top Employers Posting Drone Operations Occupations in Bay Region and North Bay Sub-Region**

| **Employer** | **Bay** | **Employer** | **North Bay** |
| --- | --- | --- | --- |
| Google Inc. | 76 | Ascendant Studios | 6 |
| U.S. Bancorp | 54 | 2K Games | 6 |
| Facebook | 36 | Class Valuation | 4 |
| Nvidia Corporation | 34 | Visual Concepts | 3 |
| Apple Inc. | 33 | Take-Two Interactive | 3 |
| Gap Inc. | 31 | Solano Community College | 3 |
| Adobe Systems | 25 | Multicolor Corporation | 3 |
| Planet Forward, Llc | 24 | Multi Color Corporation | 3 |
| Williams-Sonoma | 23 | Jelly Belly Candy Company | 3 |
| Russell Tobin & Associates | 22 | Every Man Jack | 3 |
| Source: Burning Glass | | | |

## Educational Supply

There are seven (7) community colleges in the Bay Region issuing 46 awards on average annually (last 3 years ending 2018-19) on TOP 0614.60 Computer Graphics and Digital Imagery. In the North Bay Sub-Region, there is one (1) community college (SRJC) that issued 31 awards on average annually (last 3 years) on this TOP code.

**Table 7. Community College Awards on TOP 0614.60 Computer Graphics and Digital Imagery in Bay Region**

| **College** | **Subregion** | **Associate** | **Certificate Low** | **Total** |
| --- | --- | --- | --- | --- |
| Berkeley City | East Bay | 0 | 1 | 1 |
| Canada | Mid-Peninsula | 0 | 3 | 3 |
| Gavilan | Silicon Valley | 2 | 2 | 4 |
| Mission | Silicon Valley | 0 | 3 | 3 |
| Ohlone | East Bay | 0 | 3 | 3 |
| San Francisco | Mid-Peninsula | 0 | 1 | 1 |
| Santa Rosa | North Bay | 0 | 31 | 31 |
| **Total** |  | **2** | **44** | **46** |
| Source: Data Mart | | | | |

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

## Gap Analysis

Based on the data included in this report, there is a large labor market gap in the Bay region with 1,565 annual openings for the Drone Operations occupational cluster and 46 annual (3-year average) awards for an annual undersupply of 1,519 students. In the North Bay Sub-Region, there is also a gap with 137 annual openings and 31 annual (3-year average) awards for an annual undersupply of 106 students.

## Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0614.60 Computer Graphics and Digital Imagery**

| **Metric Outcomes** | **Bay All CTE Programs** | **Santa Rosa All CTE Programs** | **State 0614.60** | **Bay 0614.60** | **North Bay 0614.60** | **Santa Rosa 0614.60** |
| --- | --- | --- | --- | --- | --- | --- |
| Students with a Job Closely Related to Their Field of Study | 74% | 74% | 57% | 58% | 62% | 62% |
| Median Annual Earnings for SWP Exiting Students | $47,419 | $42,405 | $26,988 | $32,690 | $33,562 | $33,156 |
| Median Change in Earnings for SWP Exiting Students | 23% | 29% | 21% | 20% | 19% | 18% |
| Exiting Students Who Attained the Living Wage | 52% | 58% | 37% | 39% | 44% | 44% |
| Source: Launchboard Strong Workforce Program Median of 2017 to 2020. | | | | | | |

## Skills, Certifications and Education

**Table 9. Top Skills for Drone Operations Occupations in Bay Region**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Adobe Photoshop | 2,480 | Prototyping | 467 |
| Graphic Design | 2,316 | Digital Design | 462 |
| Adobe Indesign | 2,056 | Interaction Design | 442 |
| Adobe Illustrator | 1,870 | Packaging | 430 |
| Adobe Acrobat | 1,670 | Product Design | 354 |
| Adobe Creative Suite | 1,632 | Scheduling | 352 |
| Visual Design | 1,249 | Process Design | 349 |
| Typesetting | 1,149 | Art Direction | 346 |
| Social Media | 724 | Infographics | 306 |
| Web Site Design | 692 | Budgeting | 305 |
| Animation | 668 | Marketing Materials | 301 |
| Project Management | 619 | UX Wireframes | 293 |
| Adobe Aftereffects | 579 | Motion Graphics | 288 |
| Illustration | 484 | User Interface (UI) Design | 283 |
| Source: Burning Glass | | | |

**Table 10. Certifications for Drone Operations Occupations in Bay Region**

| **Certification** | **Posting** | **Certification** | **Posting** |
| --- | --- | --- | --- |
| Driver's License | 50 | Leadership In Energy and Environmental Design (LEED) Certified | 2 |
| Security Clearance | 8 | Interior Design Certification | 2 |
| Project Management Certification | 8 | Home Energy Raters (HERS) Certification | 2 |
| Project Management Professional (PMP) | 7 | Contractors License | 2 |
| Mbe Certified | 6 | Certified in Adobe Photoshop | 2 |
| Graphic Design Certification | 4 | Certified ScrumMaster (CSM) | 2 |
| Certified Graphic Designer | 4 | Advertising Design Certification | 2 |
| LEED AP | 3 | Adobe Captivate Certification | 2 |
| Adobe Illustrator Certification | 3 | Welding Certification | 1 |
| Series 7 | 2 | Vocational Rehabilitation License | 1 |
| Source: Burning Glass | | | |

*Note: 98% of records have been excluded because they do not include a certification. As a result, the chart above may not be representative of the full sample.*

**Table 11. Education Requirements for Drone Operations Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 150 | 6% |
| Associate's degree | 110 | 5% |
| Bachelor's degree | 2,138 | 89% |
| Source: Burning Glass | | |

*Note: 42% 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 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/  
Statewide CTE Outcomes Survey  
Employment Development Department Unemployment Insurance Dataset  
Living Insight Center for Community Economic Development  
Chancellor’s Office MIS system

## Contacts

For more information, please contact:

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