

# UAS (Drone) Technology Occupations

# Labor Market Information Report

# West Valley College

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

**March 2021**

## Recommendation

This report provides labor market data for five middle-skill occupations ***that employ the use of drones***. While an AS Degree in UAS (Drone) Technology will add to a student’s skill set, the Degree alone may not satisfy the entry-level educational requirement for these five occupations. It is important to note that these occupations may not require the use of drone technology, but increasingly this skill set is an asset in these occupations. It is difficult to determine how many of the annual openings in Tables 1 and 2 would require and/or prefer that job candidates possess UAS (Drone) technology skills.

Based on the data included in this report there appears to be more demand for these five occupations that employ the use of drones than the supply of graduates from the Aeronautical and Aviation Technology programs in the Bay region and Silicon Valley sub-region (Santa Clara county).

## Introduction

This report provides student outcomes data on employment and earnings for TOP 0950.00 - Aeronautical and Aviation Technology 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 West Valley College and in the region.

This report profiles UAS (Drone) Technology Occupations in the 12 county Bay region and in the Silicon Valley sub-region (Santa Clara county) for a proposed new AS Degree program at West Valley College.

Labor market information (LMI) is not available at the eight-digit SOC Code level for Geographic Information Systems Technologists and Technicians (15-1299.02) or Remote Sensing Technicians (19-4099.03) therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other and Life, Physical, and Social Science Technicians, All Other(at the six digit SOC level) and likely overstates demand for Geographic Information Systems Technologists and Technicians and Remote Sensing Technicians respectively. Tables 3, 4, 8 and 9 use job postings data from Burning Glass at the eight-digit SOC Code level for Geographic Information Systems Technologists and Technicians (15-1299.02) and Remote Sensing Technicians (19-4099.03).

* **Computer Occupations, All Other (15-1299):** All computer occupations not listed separately. Excludes “Computer and Information Systems Managers” (11-3021), “Computer Hardware Engineers” (17-2061), “Electrical and Electronics Engineers” (17-2070), “Computer Science Teachers, Postsecondary” (25-1021), “Multimedia Artists and Animators” (27-1014), “Graphic Designers” (27-1024), “Computer Operators” (43-9011), and “Computer, Automated Teller, and Office Machine Repairs” (49-2011).  
    Entry-Level Educational Requirement: Bachelor’s degree  
    Training Requirement: Moderate-term on-the-job training  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 26%
* **Electro-Mechanical and Mechatronics Technologists and Technicians (17-3024):** Operate, test, maintain, or calibrate unmanned, automated, servo-mechanical, or electromechanical equipment. May operate unmanned submarines, aircraft, or other equipment at worksites, such as oil rigs, deep ocean exploration, or hazardous waste removal. May assist engineers in testing and designing robotics equipment.  
    Entry-Level Educational Requirement: Associate’s degree  
    Training Requirement: None  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 51%
* **Life, Physical, and Social Science Technicians, All Other (19-4099):** All life, physical, and social science technicians not listed separately.  
    Entry-Level Educational Requirement: Associate’s degree  
    Training Requirement: None  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 37%
* **Camera Operators, Television, Video, and Film (27-4031):** Operate television, video, or motion picture camera to record images or scenes for various purposes, such as TV broadcasts, advertising, video production, or motion pictures.  
    Entry-Level Educational Requirement: Bachelor’s degree  
    Training Requirement: None  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 24%
* **Forest and Conservation Workers (45-4011):** Under supervision, perform manual labor necessary to develop, maintain, or protect areas such as forests, forested areas, woodlands, wetlands, and rangelands through such activities as raising and transporting seedlings; combating insects, pests, and diseases harmful to plant life; and building structures to control water, erosion, and leaching of soil. Includes forester aides, seedling pullers, and tree planters.  
    Entry-Level Educational Requirement: High school diploma or equivalent  
    Training Requirement: Moderate-term on-the-job training  
    Percentage of Community College Award Holders or Some Postsecondary Coursework: 23%

## Occupational Demand

**Table 1. Employment Outlook for UAS (Drone) Technology Occupations in Bay Region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Computer Occupations, All Other | 38,984 | 41,907 | 2,923 | 7% | 18,757 | 3,751 | $ 41.02 | $ 56.52 |
| Electro-Mechanical and Mechatronics Technologists and Technicians | 781 | 784 | 3 | 0% | 408 | 82 | $ 20.38 | $ 26.68 |
| Life, Physical, and Social Science Technicians, All Other | 2,779 | 2,978 | 199 | 7% | 1,905 | 381 | $ 21.85 | $ 28.16 |
| Camera Operators, Television, Video, and Film | 651 | 686 | 35 | 5% | 373 | 75 | $ 17.22 | $ 24.98 |
| Forest and Conservation Workers | 446 | 470 | 24 | 5% | 432 | 86 | $ 12.25 | $ 13.38 |
| **Total** | **43,641** | **46,825** | **3,184** | **7%** | **21,875** | **4,375** | **$38.78** | **$53.27** |
| Source: EMSI 2020.4 | | | | | | | | |

**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 UAS (Drone) Technology Occupations in Silicon Valley Sub-region**

| **Occupation** | **2019 Jobs** | **2024 Jobs** | **5-yr Change** | **5-yr % Change** | **5-yr Total Openings** | **Annual Openings** | **25% Hourly Earning** | **Median Hourly Wage** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Computer Occupations, All Other | 14,091 | 15,207 | 1,116 | 8% | 6,826 | 1,365 | $47.30 | $64.70 |
| Electro-Mechanical and Mechatronics Technologists and Technicians | 497 | 474 | -23 | -5% | 239 | 48 | $20.38 | $26.23 |
| Life, Physical, and Social Science Technicians, All Other | 640 | 668 | 28 | 4% | 417 | 83 | $23.71 | $31.19 |
| Camera Operators, Television, Video, and Film | 71 | 87 | 16 | 23% | 54 | 11 | $12.85 | $20.15 |
| Forest and Conservation Workers | 66 | 74 | 8 | 12% | 70 | 14 | $12.00 | $12.00 |
| **Total** | **15,365** | **16,510** | **1,145** | **7%** | **7,606** | **1,521** | **$45.14** | **$61.63** |
| Source: EMSI 2020.4 | | | | | | | | |

**Silicon Valley Sub-Region includes:** Santa Clara Counties

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

**Table 3. Number of Job Postings by Occupation for latest 12 months (Mar 2020 - Feb 2021)**

| **Occupation** | **Bay Region** | **Silicon Valley** |
| --- | --- | --- |
| Geographic Information Scientists and Technologists | 611 | 174 |
| Electro-Mechanical Technicians | 604 | 176 |
| Camera Operators, Television, Video, and Motion Picture | 190 | 50 |
| Geographic Information Systems Technicians | 70 | 26 |
| Life, Physical, and Social Science Technicians | 50 | 17 |
| Remote Sensing Technicians | 31 | 16 |
| Forest and Conservation Workers | 11 | 1 |
| Source: Burning Glass | | |

**Table 4. Top Job Titles for UAS (Drone) Technology Occupations for latest 12 months (Mar 2020 - Feb 2021)**

**Bay Region**

| **Title** | **Bay** | **Title** | **Bay** |
| --- | --- | --- | --- |
| Calibration Technician | 50 | Specialist, Metalworking | 10 |
| Freelance Videographer | 43 | GIS Consultant | 8 |
| Instrumentation Technician | 36 | Pilot Electronics Technician | 7 |
| Electro Mechanical Assembler | 22 | Calibration Technician II - Fcx/Pci | 7 |
| Remote | 20 | Calibration Technician II | 7 |
| Videographer | 19 | Wedding Videographer | 6 |
| Electro Mechanical Technician | 19 | Videographer And Editor | 6 |
| Instrument Technician | 18 | Senior Calibration Technician | 6 |
| GIS Technician | 17 | Rework Technician | 6 |
| Source: Burning Glass  **Additional Labor Market Information for UAS (Drone) Technology Occupations from West Valley College**  West Valley College already has a certificate program in place for UAS (Drone) Technology and is now proposing to add an Associate degree, to be accomplished in two years, that will have an interdisciplinary approach as another option for students. West Valley College submitted the following additional labor market information to document the growing demand for UAS (Drone) Technology skills:  <https://www.auvsi.org/new-report-demonstrates-exponential-growth-global-uas-industry>        <https://unmanned-aerial.com/faa-predicts-future-uas-growth>        <https://www.prnewswire.com/news-releases/global-unmanned-aircraft-systems-uas-market-size-is-expected-to-exceed-5-billion-by-2025-301073407.html>        <https://utm.arc.nasa.gov/docs/Wargo_DASC_1570263430.pdf>        <http://www.uasmagazine.com/articles/2006/report-uas-industry-shows-exponential-growth-since-2016>        <https://www.businessinsider.com/drone-industry-analysis-market-trends-growth-forecasts> | | | |
| Industry Concentration | | | | |

**Table 5. Industries hiring UAS (Drone) Technology 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)** |
| --- | --- | --- | --- | --- |
| Custom Computer Programming Services | 8,140 | 9,191 | 13% | 19% |
| Computer Systems Design Services | 4,656 | 4,975 | 7% | 11% |
| Software Publishers | 2,654 | 3,216 | 21% | 6% |
| Federal Government, Civilian, Excluding Postal Service | 2,558 | 2,523 | -1% | 6% |
| Internet Publishing and Broadcasting and Web Search Portals | 2,412 | 2,837 | 18% | 6% |
| Data Processing, Hosting, and Related Services | 1,884 | 2,256 | 20% | 4% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) | 1,331 | 1,459 | 10% | 3% |
| Corporate, Subsidiary, and Regional Managing Offices | 1,429 | 1,308 | -8% | 3% |
| Other Computer Related Services | 1,171 | 1,417 | 21% | 3% |
| Research and Development in Biotechnology (except Nanobiotechnology) | 831 | 1,027 | 23% | 2% |
| Source: EMSI 2020.4 | | | | |

## Educational Supply

There are three (3) community colleges in the Bay Region issuing 18 awards on average annually (last 3 years ending 2018-19) on TOP 0950.00 - Aeronautical and Aviation Technology. In the Silicon Valley Sub-Region, there are two (2) community colleges that issued 14 awards on average annually (last 3 years) on this TOP code.

**Table 6. Community College Awards on TOP 0950.00 - Aeronautical and Aviation Technology in Bay Region**

| **College** | **Subregion** | **Associate** | **Certificate Low** | **Total** |
| --- | --- | --- | --- | --- |
| Gavilan | Silicon Valley | 2 | 11 | 13 |
| Solano | North Bay | 0 | 4 | 4 |
| West Valley | Silicon Valley | 0 | 1 | 1 |
| **Total** |  | **2** | **16** | **18** |
| 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 appears to be more demand for these five occupations that employ the use of drones than the supply of graduates from the Aeronautical and Aviation Technology programs in the Bay region and Silicon Valley sub-region (Santa Clara county).

This report provides labor market data for five middle-skill occupations ***that employ the use of drones***. While an AS Degree in UAS (Drone) Technology will add to a student’s skillset, the Degree alone may not satisfy the entry-level educational requirement for these five occupations. It is important to note that these occupations may not require the use of drone technology, but increasingly this skill set is an asset in these occupations. It is difficult to determine how many of the annual openings in Tables 1 and 2 would require and/or prefer that job candidates possess UAS (Drone) technology skills.

## Student Outcomes

**Table 7. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0950.00 - Aeronautical and Aviation Technology**

| **Metric Outcomes** | **Bay**  **All CTE Program** | **West Valley**  **All CTE Program** | **State 0950.00** | **Bay 0950.00** | **Silicon Valley 0950.00** | **West Valley College 0950.00** |
| --- | --- | --- | --- | --- | --- | --- |
| % Employed Four Quarters After Exit | 66% | 64% | 56% | 47% | 60% | 71% |
| Median Annual Earnings After Exit | $45,864 | $40,500 | $40,528 | $33,136 | $35,392 | $33,812 |
| Median % Change in Earnings | 31% | 35% | 42% | 29% | 30% | N/A |
| % of Students who Attained a Living Wage | 53% | 41% | 64% | 42% | 50% | N/A |
| Source: Launchboard Strong Workforce Program from version 2018-19).\* Data from version 2017-18 | | | | | | |

## Skills, Certifications and Education

**Table 8. Top Skills for UAS (Drone) Technology Occupations in Bay Region (Mar 2020 - Feb 2021)**

| **Skill** | **Posting** | **Skill** | **Posting** |
| --- | --- | --- | --- |
| Repair | 321 | Power Tools | 61 |
| Calibration | 247 | Quality Management | 59 |
| Schematic Diagrams | 137 | Personal Protective Equipment (PPE) | 58 |
| Videography | 135 | Adobe Premiere | 55 |
| Test Equipment | 131 | Process Control | 55 |
| Soldering | 119 | Adobe Aftereffects | 54 |
| Hand Tools | 85 | Geographic Information System (GIS) | 54 |
| Customer Contact | 74 | Predictive / Preventative Maintenance | 54 |
| Customer Service | 74 | Spreadsheets | 51 |
| Scheduling | 70 | Technical Support | 51 |
| Wiring | 70 | Detection and Measurement Equipment | 49 |
| Budgeting | 66 | Microscope | 48 |
| Electronics Industry Knowledge | 65 | Oscilloscopes | 46 |
| Quality Assurance and Control | 63 | Cleaning | 45 |
| Source: Burning Glass | | | |

**Table 9. Education Requirements for UAS (Drone) Technology Occupations in Bay Region**

| **Education (minimum advertised)** | **Latest 12 Mos. Postings** | **Percent 12 Mos. Postings** |
| --- | --- | --- |
| High school or vocational training | 250 | 52% |
| Associate's degree | 92 | 19% |
| Bachelor's degree and above | 141 | 29% |
| Source: Burning Glass | | |

*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.*

## 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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