** Game Design Occupations**

**Labor Market Information Report**

**Diablo Valley College**

Prepared by the San Francisco Bay Center of Excellence

for Labor Market Research

January 2020

# Recommendation

Based on all available data, there appears to be an undersupply of Game Design workers compared to the demand for this cluster of occupations in the Bay region and in the East Bay sub-region (Alameda and Contra Costa Counties.) There is a projected annual gap of about 3,423 students in the Bay region and 554 students in the East Bay Sub-Region.

This report also provides student outcomes data on employment and earnings for programs on TOP 0614.20 - Game Design 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 Diablo Valley College and in the region.

# Introduction

This report profiles Game Design Occupations in the 12 county Bay region and in the East Bay sub-region for a proposed new program at Diablo Valley College. Labor market information (LMI) is not available at the eight-digit SOC Code level for Video Game Designers (15-1199.11), therefore, the data shown in Tables 1 and 2 is for Computer Occupations, All Other (at the six digit SOC level) and likely overstates demand for Video Game Designers. Tables 3, 4, 6, 9, 10 and 11 use job postings data from Burning Glass at the eight-digit SOC Code level for Video Game Designers (15-1199.11).

|  |
| --- |
| * **Computer Occupations, All Other (SOC 15-1199):** All computer occupationsnot 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: None |
| Percentage of Community College Award Holders or Some Postsecondary Coursework: 35% |
| * **Multimedia Artists and Animators (SOC 27-1014):** Create special effects, Game Design, 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: 27*%* |

# Occupational Demand

**Table 1. Employment Outlook for Game Design 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 |
| Computer Occupations, All Other | 34,144 | 37,249 | 3,105 | 9% | 14,791 | 2,958 | $40.95 | $55.84 |
| Multimedia Artists and Animators | 4,976 | 5,284 | 309 | 6% | 2,328 | 466 | $29.22 | $40.35 |
| **Total** | **39,120** | **42,533** | **3,413** | **9%** | **17,119** | **3,424** | **$39.46** | **$53.87** |

*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 Game Design Occupations in East Bay 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 |
| Computer Occupations, All Other | 6,594 | 6,705 | 111 | 2% | 2,304 | 461 | $35.23 | $46.49 |
| Multimedia Artists and Animators | 1,078 | 1,115 | 36 | 3% | 468 | 94 | $25.14 | $36.46 |
| **TOTAL** | **7,672** | **7,819** | **147** | **2%** | **2,772** | **554** | **$33.81** | **$45.08** |

*Source: EMSI 2019.3*

**East Bay Sub-Region** includes Alameda and Contra Costa Counties

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

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

| Occupation | Bay Region | East Bay |
| --- | --- | --- |
| Video Game Designers | 1,295 | 136 |
| Multimedia Artists and Animators | 954 | 83 |
| **Total** | **2,249** | **219** |

*Source: Burning Glass*

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

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | Bay | Common Title | Bay |
| Interaction Designer | 360 | Summer Instructor, Video Game Design | 19 |
| Animator | 168 | Gameplay Engineer | 19 |
| Graphic Designer | 109 | Content Creator | 18 |
| Game Designer | 92 | Technology | 17 |
| Creator, Food Service Industry | 90 | Technical Pm | 17 |
| Interactive Designer | 52 | Senior Designer | 17 |
| Visual Effects Artist | 46 | Lead Engineer | 17 |
| Senior Engineer | 45 | Sap Pm | 15 |
| Content Producer | 37 | Sap Apo | 14 |
| Head, Infrastructure | 33 | 3D Designer | 14 |
| Environment Artist | 28 | Senior Environment Artist | 13 |
| Engineer | 23 | Lead Environment Artist | 12 |
| Developer | 21 | Concept Artist | 12 |
| Interactive Art Director | 20 | Technology Evangelist | 11 |

**Table 4b. Top Job Titles for Game Design Occupations for latest 12 months (December 2018 - November 2019) East Bay Sub-Region**

|  |  |  |  |
| --- | --- | --- | --- |
| Common Title | East Bay | Common Title | East Bay |
| Interaction Designer | 25 | Gaming Developer | 3 |
| Creator, Food Service Industry | 25 | Content Creator | 3 |
| Animator | 15 | Vfx Producer | 2 |
| Graphic Designer | 7 | Technical Project Mgmt Professional | 2 |
| Summer Instructor, Video Game Design | 6 | Spend The Winter In | 2 |
| Environment Artist | 6 | Specialist | 2 |
| Game Designer | 5 | Senior It Leader | 2 |
| Freelance Graphic Designer | 5 | Senior Engineer | 2 |
| Technology | 4 | Sap Fresher/Entry Level Project | 2 |
| Interactive Designer | 4 | Sap Apo With Abap | 2 |
| Engineer | 4 | Praktika Im Fruhbereich | 2 |
| Visual Effects Artist | 3 | Pixar Game Design Studios | 2 |
| Sap Apo Abap | 3 | Multi-Family Wrap/Podium Projects- Pm/Spm | 2 |
| Junior Engineer | 3 | Multi - Family Wrap/Podium Projects- Pm/Spm | 2 |

*Source: Burning Glass*

# Industry Concentration

**Table 5. Industries hiring Game Design 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) |
| Custom Computer Programming Services (541511) | 7,486 | 8,382 | 12% | 19% |
| Computer Systems Design Services (541512) | 4,455 | 4,767 | 7% | 11% |
| Software Publishers (511210) | 3,220 | 3,830 | 19% | 9% |
| Internet Publishing and Broadcasting and Web Search Portals (519130) | 2,858 | 3,530 | 24% | 7% |
| Federal Government, Civilian, Excluding Postal Service (901199) | 2,091 | 2,036 | -3% | 5% |
| Data Processing, Hosting, and Related Services (518210) | 1,593 | 1,960 | 23% | 4% |
| Corporate, Subsidiary, and Regional Managing Offices (551114) | 1,360 | 1,429 | 5% | 3% |
| Other Computer Related Services (541519) | 1,081 | 1,257 | 16% | 3% |
| Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology) (541715) | 589 | 623 | 6% | 2% |
| Motion Picture and Video Production (512110) | 579 | 591 | 2% | 1% |
| Temporary Help Services (561320) | 534 | 557 | 4% | 1% |
| Administrative Management and General Management Consulting Services (541611) | 483 | 575 | 19% | 1% |
| Electronic Computer Manufacturing (334111) | 483 | 497 | 3% | 1% |
| Local Government, Excluding Education and Hospitals (903999) | 402 | 419 | 4% | 1% |

*Source: EMSI 2019.3*

**Table 6. Top Employers Posting Game Design Occupations in Bay Region and East Bay Sub-Region (December 2018 - November 2019)**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Employer | Bay | Employer | Bay | Employer | East Bay |
| Specialtys Cafe Bakery | 90 | Amazon | 10 | Specialtys Cafe Bakery | 24 |
| Google Inc. | 42 | Accenture | 10 | Mediazoo | 5 |
| Apple Inc. | 25 | IBM | 9 | Big Fish Games, Inc | 5 |
| Facebook | 22 | Bank of America | 9 | Magic Fuel Games | 4 |
| Activision | 22 | Workday, Inc | 8 | Igg Corporation | 4 |
| Take-Two Interactive | 20 | Splunk, Inc | 8 | General Electric Company | 4 |
| Sledgehammer Games Inc | 20 | Jobot | 8 | Workday, Inc | 3 |
| Machine Zone | 19 | Ford Motor Company | 8 | University Of California Office Of The President | 3 |
| Disney | 17 | Ea | 8 | Aristocrat Leisure Limited | 3 |
| Roblox Corporation | 16 | Zynga | 7 | Weltverband Deutscher Auslandsschulen E V | 2 |
| Cryptic Studios Incorporated | 16 | Wells Fargo | 7 | Tippett Studio | 2 |
| Exploratorium | 15 | Machinezone | 7 | Ross Stores | 2 |
| Electronic Arts Incorporated | 13 | Intuit | 7 | Neato Robotics | 2 |
| Pocket Gems | 12 | Glu Mobile Inc | 7 | Lvl Medical | 2 |
| Time Warner | 11 | 2K Games | 7 | Lucid Motors Inc | 2 |
| Mediazoo | 11 | Ubisoft | 6 | Lucid Motors | 2 |
| Crystal Dynamics Incorporated | 11 | Sony Electronics Incorporated | 6 | Gorilla Creative | 2 |

*Source: Burning Glass*

# Educational Supply

There is one community college (SRJC) in the Bay Region issuing one award on average annually (last 3 years) on TOP 0614.20 – Electronic Game Design. There are no colleges in the East Bay Sub-Region issuing awards on this TOP code.

**Table 7. Awards on TOP 0614.20 - Game Design in Bay Region**

|  |  |  |  |
| --- | --- | --- | --- |
| College | Sub-Region | Associates | Total |
| Santa Rosa Junior College | North Bay | 1 | 1 |
| **Total Bay Region** | | **1** | **1** |
| **Total East Bay Sub-Region** | | **0** | **0** |

# *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 3,424 annual openings for the Game Design occupational cluster and one annual (3-year average) award for an annual undersupply of 3,423 students. In the East Bay Sub-Region, there is also a gap with 554 annual openings and no annual (3-year average) awards for an annual undersupply of 554 students.

# Student Outcomes

**Table 8. Four Employment Outcomes Metrics for Students Who Took Courses on TOP 0614.20 – Electronic Game Design**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 2015-16 | Bay  (All CTE Programs) | Diablo Valley College (All CTE Programs) | State (0614.20) | Bay (0614.20) | East Bay (0614.20) | Diablo Valley College (0614.20) |
| % Employed Four Quarters After Exit | 74% | 68% | 56% | 53% | 56% | n/a |
| Median Quarterly Earnings Two Quarters After Exit | $10,550 | $9,308 | $4,765 | $5,485 | $4,627 | n/a |
| Median % Change in Earnings | 46% | 55% | 57% | 123% | 72% | n/a |
| % of Students Earning a Living Wage | 63% | 55% | 27% | 29% | n/a | n/a |

*Source: Launchboard Pipeline (version available on 12/13/19)*

# Skills, Certifications and Education

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

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Skill | Postings | Skill | Postings | Skill | Postings |
| Adobe Photoshop | 506 | Level design | 175 | Human Computer Interaction | 104 |
| Game Design | 303 | C++ | 151 | Customer Contact | 100 |
| Project Management | 269 | User Interface (UI) Design | 151 | Java | 99 |
| Maya | 246 | JavaScript | 147 | User Research | 99 |
| Game Development | 234 | Motion Graphics | 143 | Quality Assurance and Control | 95 |
| Graphic Design | 225 | Budgeting | 141 | Software Engineering | 93 |
| Adobe Indesign | 217 | SAP | 140 | Social Media | 91 |
| Prototyping | 211 | Cleaning | 133 | Microsoft C# | 89 |
| Adobe Acrobat | 206 | Product Management | 132 | 3D Studio Max | 87 |
| Adobe Aftereffects | 204 | Scheduling | 115 | Typesetting | 86 |
| Adobe Illustrator | 204 | Software Development | 115 | Product Development | 85 |
| Interaction Design | 204 | Python | 114 | EPIC Unreal Engine | 83 |
| Adobe Creative Suite | 203 | Art Direction | 110 | Process Design | 78 |
| Visual Design | 197 | 3D Modeling / Design | 108 | Physics | 75 |
| UX Wireframes | 187 | Customer Service | 107 | Scrum | 75 |

*Source: Burning Glass*

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

Note: 92% 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 |
| Project Management Certification | 27 | Securities License | 2 |
| Project Management Professional (PMP) | 14 | SAP Certification | 2 |
| Security Clearance | 11 | Mortgage License | 2 |
| IT Infrastructure Library (ITIL) Certification | 8 | Licensed Vocational Nurse (LVN) | 2 |
| Driver's License | 8 | Certified ScrumMaster (CSM) | 2 |
| PMI Agile Certified Practitioner (PMI-ACP) | 5 | Certified Information Systems Security Professional (CISSP) | 2 |
| Ca License | 5 | Certified Information Systems Auditor (CISA) | 2 |
| Board Certified/Board Eligible | 5 | Basic Life Saving (BLS) | 2 |
| Leadership In Energy And Environmental Design (LEED) Certified | 4 | Basic Cardiac Life Support Certification | 2 |
| Series 7 | 2 | Automation Certification | 2 |

*Source: Burning Glass*

**Table 11. Education Requirements for Game Design Occupations in Bay Region**

Note: 55% 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 | 33 | 4% |
| Associate Degree | 13 | 1% |
| Bachelor’s Degree or Higher | 891 | 95% |

*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

For more information, please contact:

* Doreen O’Donovan, Research Analyst, for Bay Area Community College Consortium (BACCC) and Centers of Excellence (CoE), [doreen@baccc.net](mailto:doreen@baccc.net) or (831) 479-6481
* John Carrese, Director, San Francisco Bay Center of Excellence for Labor Market Research, [jcarrese@ccsf.edu](mailto:jcarrese@ccsf.edu) or (415) 267-6544