

Video Game Designer Occupations

Labor Market Analysis: San Diego County

September 2020

Summary



The brief provides labor market information about *Video Game Designer Occupations* to assist the San Diego and Imperial Counties Community Colleges with program development and strategic planning. According to available labor market information, *Video Game Designer Occupations* in San Diego County have a labor market demand of 2,135 annual job openings (while average demand for an occupation in San Diego County is 277 annual job openings), and 18 educational institutions in San Diego County supply 780 awards for these occupations, suggesting that there is a supply gap in the labor market. *Video Game Designer Occupations* include “Software Developers, Applications,” “Computer Occupations, All Other,” “Multimedia Artists and Animators,” and “Film and Video Editors.” Entry-level wages for all occupations except “Multimedia Artists and Animators” and “Film and Video Editors” are above the living wage; however, both occupations have median earnings above the living wage. While a supply gap exists for these positions, this brief recommends proceeding with caution when developing a program because 1) employers require, at minimum, a bachelor’s degree for these occupations and 2) the percentage of students who obtained a job related to their field of study and earned a living wage after completing related programs is **below the state average** for students who complete Career Education programs in general.

Introduction

This report provides labor market information in San Diego County for the following occupational codes in the Standard Occupational Classification (SOC)¹ system:

- **Software Developers, Applications (SOC 15-1132):** Develop, create and modify general computer applications software or specialized utility programs. Analyze user needs and develop software solutions. Design software or customize software for client use with the aim of optimizing operational efficiency. May analyze and design databases within an application area, working individually or coordinating database development as part of a team. May supervise computer programmers.
- **Computer Occupations, All Other (SOC 15-1199):** All computer occupations not listed separately "All Other" titles represent occupations with a wide range of characteristics which do not fit into one of the detailed O*NET-SOC occupations. O*NET data is not available for this type of title. For more detailed occupations under this title, see below:
 - **Video Game Designers (15-1199.11):** Design core features of video games. Specify innovative game and role-play mechanics, story lines, and character biographies. Create and maintain design documentation. Guide and collaborate with production staff to produce games as designed.
- **Multimedia Artists and Animators (SOC 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.
- **Film and Video Editors (SOC 27-4032):** Edit moving images on film, video, or other media. May edit or synchronize soundtracks with images.

For the purpose of this report, these occupations are referred to as *Video Game Designer Occupations*.

¹ The Standard Occupational Classification (SOC) system is used by federal statistical agencies to classify workers into occupational categories for the purpose of collecting, calculating or disseminating data. [bls.gov/soc](https://www.bls.gov/soc).

Projected Occupational Demand

Between 2019 and 2024, *Video Game Designer Occupations* are projected to increase by 2,359 net jobs or 11 percent (Exhibit 1a). During this period, employers in San Diego County are projected to hire 2,135 workers annually to fill new jobs and backfill jobs due to attrition caused by turnover and retirement, for example.

Exhibit 1a: Number of Jobs for Video Game Designer Occupations (2009-2024)²

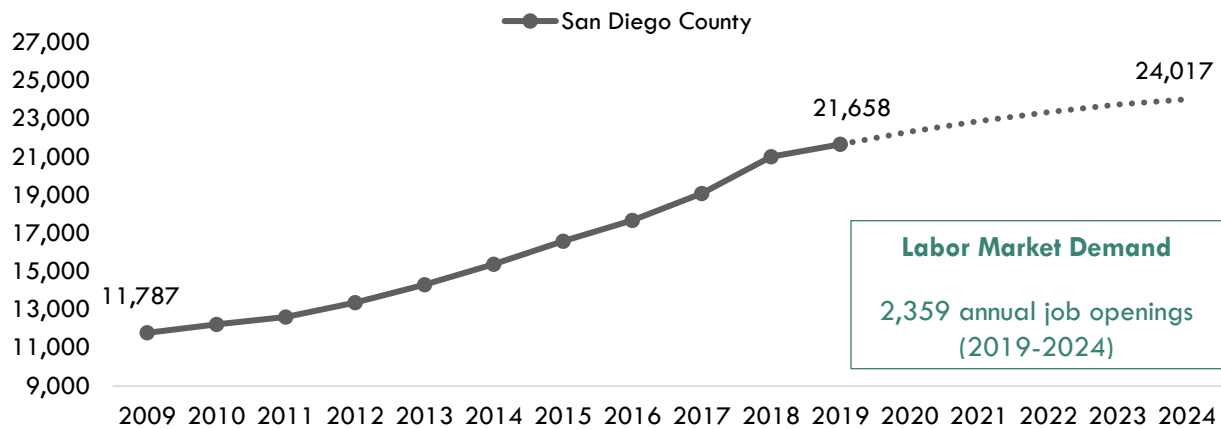


Exhibit 1b breaks down the projected number of jobs change by occupation more specifically. As Exhibit 1b shows, labor market demand for *Software Developers, Applications* is projected to increase the most by 1,832 total jobs between 2019 and 2024.

Exhibit 1b: Number of Jobs for Video Game Designer Occupations in San Diego County (2019-2024)

Occupational Title	2019 Jobs	2024 Jobs	2019 - 2024 Net Jobs Change	2019-2024 % Net Jobs Change	Annual Job Openings (Demand)
Software Developers, Applications	11,518	13,350	1,832	16%	1,233
Computer Occupations, All Other	9,181	9,699	518	6%	795
Film and Video Editors	235	251	16	7%	28
Multimedia Artists and Animators	724	717	(7)	(1%)	79
Total	21,658	24,017	2,359	11%	2,135

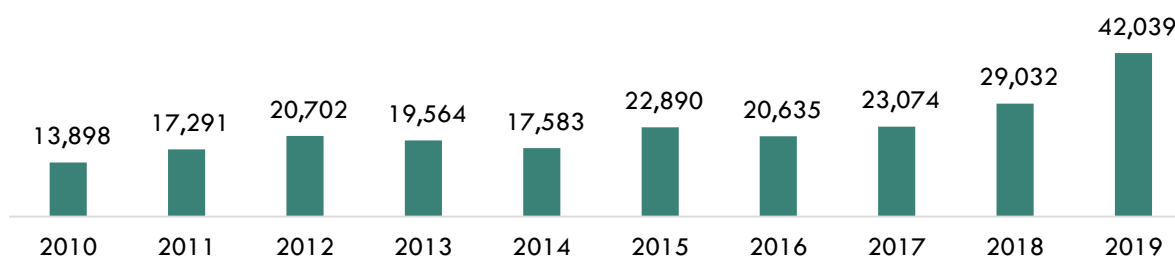
² EMSI 2020.02; QCEW, Non-QCEW, Self-Employed.

Online Job Postings

This report analyzes not only historical and projected data (traditional labor market information or LMI), but also recent data from online job postings (real-time LMI). Online job postings may provide additional insight about recent changes in the labor market demand that are not captured by historical data.

Between 2010 and 2019, there was an average of **22,671** online job postings per year in San Diego County for *Video Game Designer Occupations* (Exhibit 2).

Exhibit 2: Number of Online Job Postings for Video Game Designer Occupations in San Diego County (2010-2019)³



Earnings

The median hourly earnings of *Video Game Designer Occupations* range from **\$26.40** to **\$53.21** (Exhibit 3a). Two of the four *Video Game Designer Occupations* have entry-level earnings below the living wage for a single adult in San Diego County, which is **\$15.99** per hour (Exhibit 3b). However, they all have median hourly earnings that are higher than the living wage.⁴

Exhibit 3a: Hourly Earnings for Video Game Designer Occupations in San Diego County

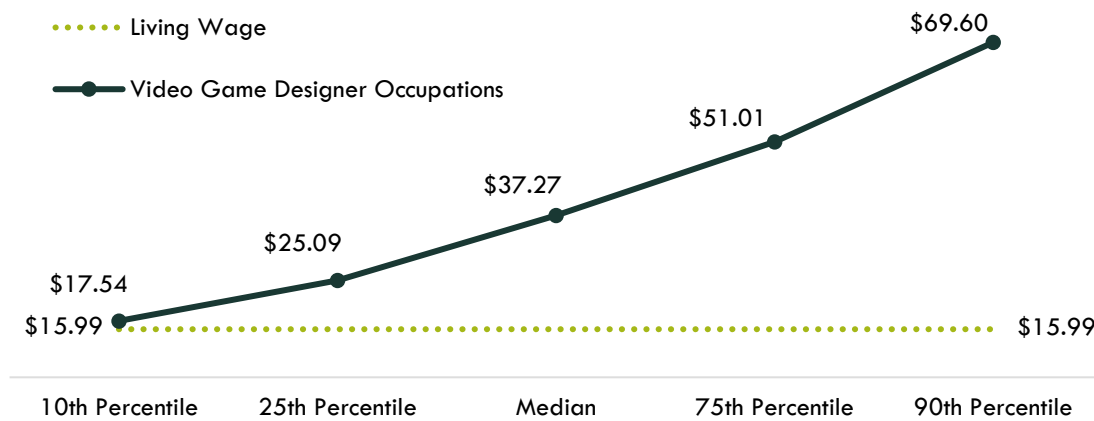
Occupational Title	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Software Developers, Applications	\$42.41	\$53.21	\$63.34
Computer Occupations, All Other	\$30.24	\$42.92	\$55.80
Multimedia Artists and Animators	\$15.21	\$26.40	\$42.29
Film and Video Editors	\$12.51	\$26.56	\$42.64

³ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2010-2019.

⁴ "California Family Needs Calculator (formerly the Self-Sufficiency Standard)," Insight: Center for Community Economic Development, last updated 2018. insightcced.org/2018-self-sufficiency-standard.

Viewed collectively, on average, the median hourly earnings for *Video Game Designer Occupations* is \$37.27 (Exhibit 3b).

Exhibit 3b: Average Hourly Earnings⁵ for Video Game Designer Occupations in San Diego County⁶



Educational Supply

Educational supply for an occupation can be estimated by analyzing the number of awards in related Taxonomy of Programs (TOP) or Classification of Instructional Programs (CIP) codes.⁷ There are 15 TOP codes and 26 CIP codes related to *Video Game Designer Occupations* (Exhibit 4).

Exhibit 4: Related TOP and CIP Codes for Video Game Designer Occupations

Video Game Designer Occupations
TOP 060400: Radio and Television
TOP 060420: Television (including combined TV/film/video)
TOP 061220: Film Production
TOP 061400: Digital Media
TOP 061410: Multimedia
TOP 061420: Electronic Game Design
TOP 061440: Animation

⁵ 10th and 25th percentiles could be considered entry-level wages, and 75th and 90th percentiles could be considered experienced wages for individuals who may have been in the occupation longer, received more training than others, etc.

⁶ EMSI 2020.02; QCEW, Non-QCEW, Self-Employed.

⁷ TOP data comes from the California Community Colleges Chancellor's Office MIS Data Mart (datamart.cccco.edu) and CIP data comes from the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data).

Video Game Designer Occupations

TOP 061460: Computer Graphics and Digital Imagery

TOP 070100: Information Technology, General

TOP 070200: Computer Information Systems

TOP 070700: Computer Software Development

TOP 070710: Computer Programming

TOP 079900: Other Information Technology

TOP 103000: Graphic Art and Design

TOP 220610: Geographic Information Systems

CIP 09.0701: Radio and Television

CIP 09.0702: Digital Communication and Media/Multimedia

CIP 10.0202: Radio and Television Broadcasting Technology/Technician

CIP 10.0301: Graphic Communications, General

CIP 10.0303: Prepress/Desktop Publishing and Digital Imaging Design

CIP 10.0304: Animation, Interactive Technology, Video Graphics and Special Effects

CIP 11.0101: Computer and Information Sciences, General

CIP 11.0103: Information Technology

CIP 11.0199: Computer and Information Sciences, Other

CIP 11.0201: Computer Programming/Programmer, General

CIP 11.0202: Computer Programming, Specific Applications

CIP 11.0203: Computer Programming, Vendor/Product Certification

CIP 11.0299: Computer Programming, Other

CIP 11.0803: Computer Graphics

CIP 11.0899: Computer Software and Media Applications, Other

CIP 11.1099: Computer/Information Technology Services Administration and Management, Other

CIP 11.9999: Computer and Information Sciences and Support Services, Other

CIP 15.1202: Computer Technology/Computer Systems Technology

CIP 15.1204: Computer Software Technology/Technician

CIP 45.0702: Geographic Information Science and Cartography

Video Game Designer Occupations

CIP 50.0102: Digital Arts

CIP 50.0401: Design and Visual Communications, General

CIP 50.0409: Graphic Design

CIP 50.0411: Game and Interactive Media Design

CIP 50.0602: Cinematography and Film/Video Production

CIP 50.0699: Film/Video and Photographic Arts, Other

According to TOP data, nine community colleges supply the region with awards for this occupation: Cuyamaca College, Grossmont College, Palomar College, MiraCosta College, San Diego City College, San Diego Continuing Education, San Diego Mesa College, San Diego Miramar College, and Southwestern College. According to CIP data, nine non-community college supplies the region with awards: Advanced Training Associates, Argosy University-The Art Institute of California-San Diego, Associated Technical College-San Diego, Brightwood College-San Diego, California College San Diego, California Institute of Arts & Technology, Coleman University, National University, and Platt College-San Diego (Exhibit 5).

Exhibit 5: Number of Awards (Certificates and Degrees) Conferred by Postsecondary Institutions (Program Year 2014-15 through PY2018-19 Average)

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
060400	Radio and Television	30	0	30
	• Palomar	12	0	
	• San Diego City	8	0	
	• Southwestern	10	0	
060420	Television (including combined TV/Film/Video)	23	0	23
	• Grossmont	11	0	
	• MiraCosta	0	0	
	• Palomar	0	0	
	• San Diego City	8	0	
	• Southwestern	4	0	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
061220	Film Production	21	0	21
	• San Diego City	19	0	
	• Southwestern	2	0	
061400	Digital Media	33	0	33
	• MiraCosta	12	0	
	• Palomar	16	0	
	• San Diego City	5	0	
061410	Multimedia	47	0	47
	• Grossmont	1	0	
	• MiraCosta	24	0	
	• Palomar	3	0	
	• San Diego City	0	0	
	• San Diego Mesa	19	0	
061420	Electronic Game Design	5	0	5
	• Palomar	1	0	
	• San Diego Mesa	0	0	
	• Southwestern	4	0	
061440	Animation	14	0	14
	• Palomar	12	0	
	• San Diego Mesa	1	0	
	• Southwestern	1	0	
061460	Computer Graphics and Digital Imagery	5	0	5
	• Palomar	3	0	
	• San Diego Mesa	1	0	
	• San Diego Miramar	1	0	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
070100	Information Technology, General	8	0	8
	• Southwestern	8	0	
070200	Computer Information Systems	78	0	78
	• MiraCosta	2	0	
	• Palomar	15	0	
	• San Diego City	2	0	
	• San Diego Cont. Ed.	25	0	
	• San Diego Mesa	24	0	
	• San Diego Miramar	7	0	
	• Southwestern	3	0	
070700	Computer Software Development	32	0	32
	• Palomar	32	0	
070710	Computer Programming	49	0	49
	• Grossmont	13	0	
	• MiraCosta	8	0	
	• Palomar	4	0	
	• San Diego City	21	0	
	• San Diego Mesa	1	0	
	• Southwestern	2	0	
079900	Other Information Technology	167	0	167
	• San Diego Cont. Ed	167	0	
103000	Graphic Art and Design	66	0	66
	• Cuyamaca	12	0	
	• Palomar	9	0	
	• San Diego City	36	0	
	• Southwestern	9	0	
220610	Geographic Information Systems	36	0	36
	• Palomar	20	0	
	• San Diego Mesa	13	0	
	• Southwestern	3	0	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
09.0702	Digital Communication and Media/Multimedia	0	6	6
	• National University	0	1	
	• Platt College-San Diego	0	5	
10.0304	Animation, Interactive Technology, Video Graphics and Special Effects	0	1	1
	• Platt College-San Diego	0	1	
11.0101	Computer and Information Sciences, General	0	34	34
	• Advanced Training Associates	0	27	
	• Associated Technical College-San Diego	0	7	
11.0103	Information Technology	0	5	5
	• Brightwood College-San Diego	0	5	
11.0201	Computer Programming/Programmer, General	0	24	24
	• California College San Diego	0	15	
	• Coleman University	0	9	
11.0803	Computer Graphics	0	1	1
	• Coleman University	0	1	
11.0899	Computer Software and Media Applications, Other	0	10	10
	• Coleman University	0	10	
	• Platt College-San Diego	0	0	
11.0999	Computer and Information Sciences and Support Services, Other	0	14	14
	• Associated Technical College-San Diego	0	14	
15.1202	Computer Technology/Computer Systems Technology	0	1	1
	• California Institute of Arts & Technology	0	1	

TOP6 or CIP	TOP6 or CIP Title	3-Yr Annual Average CC Awards (PY16-17 to PY18-19)	Other Educational Institutions 3-Yr Annual Average Awards (PY14-15 to PY16-17)	3-Yr Total Average Supply (PY14-15 to PY18-19)
50.0409	Graphic Design	0	70	70
	<ul style="list-style-type: none"> Argosy University-The Art Institute of California-San Diego 	0	7	
	<ul style="list-style-type: none"> California Institute of Arts & Technology 	0	0	
	<ul style="list-style-type: none"> Platt College-San Diego 	0	63	
			Total	780

Demand vs. Supply

Comparing labor demand (annual openings) with labor supply⁸ suggests that there is a **supply gap** for these occupations in San Diego County, with **2,135** annual openings and **780** awards. Comparatively, there are **25,595** annual openings in California and **12,178** awards, demonstrating that there is a supply gap across the state⁹ (Exhibit 6).

Exhibit 6: Labor Demand (Annual Openings) Compared with Labor Supply (Average Annual Awards)

Community Colleges and Other Postsecondary Educational Institutions	Demand (Annual Openings)	Supply (Total Annual Average Supply)	Supply Gap or OverSupply
San Diego	2,135	780	1,355
California	29,595	12,178	17,417

Please note: This is a basic analysis of supply and demand of labor. The data does not include workers currently in the labor force who could fill these positions or workers who are not captured by publicly available data. This data should be used to discuss the potential gaps or oversupply of workers; however, it should not be the only basis for determining whether or not a program should be developed.

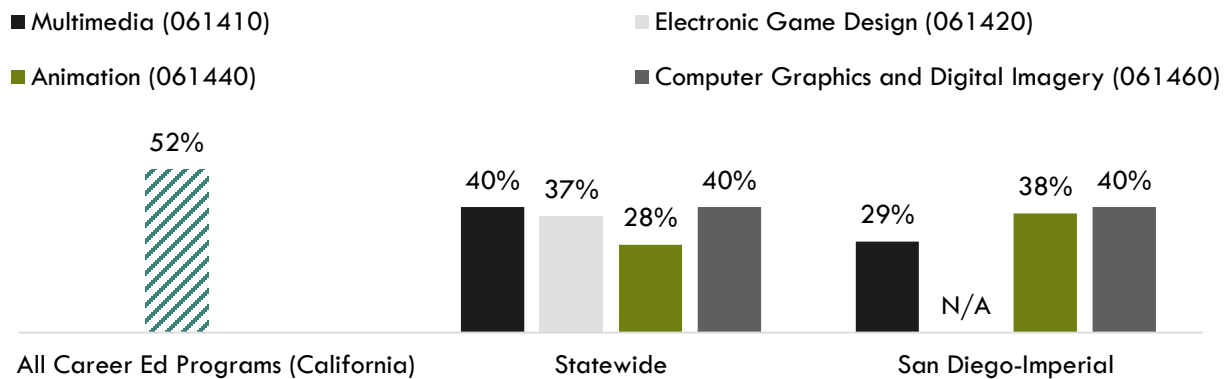
⁸ Labor supply can be found from two different sources: EMSI or the California Community Colleges Chancellor's Office MIS Data Mart. EMSI uses CIP codes while MIS uses TOP codes. Different coding systems result in differences in the supply numbers.

⁹ "Supply and Demand," Centers of Excellence Student Outcomes, coecc.net/Supply-and-Demand.aspx.

Student Outcomes and Regional Comparisons

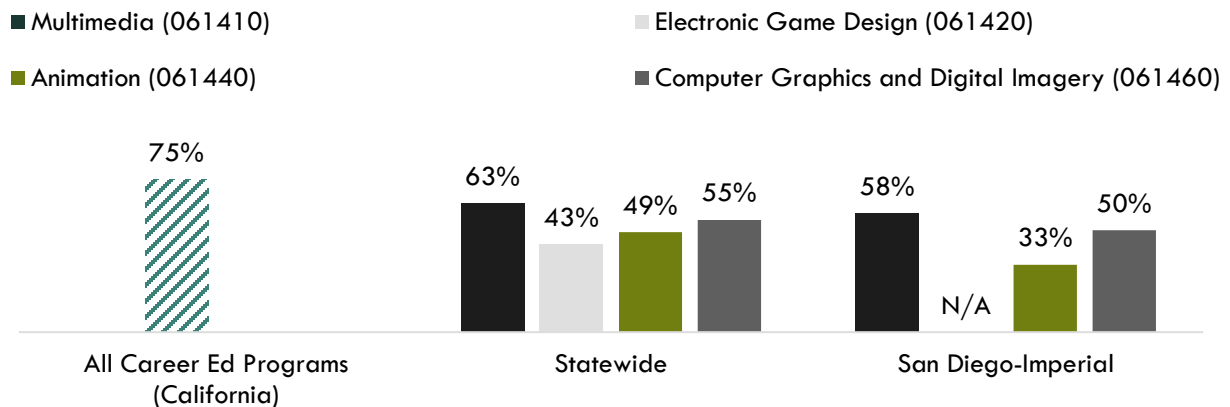
According to the California Community Colleges LaunchBoard, 29 to 40 percent of students in the San Diego-Imperial region earned a living wage after completing a program related to *Video Game Designer Occupations*, compared to 28 to 40 percent statewide and 52 percent of students in Career Education programs in general across the state (Exhibit 7a).¹⁰

Exhibit 7a: Proportion of Students Who Earned a Living Wage, PY2017-18¹¹



According to the California Community Colleges LaunchBoard, 33 to 58 percent of students in the San Diego-Imperial region obtained a job closely related to their field of study after completing a related program, compared to 43 to 63 percent statewide and 75 percent of students in Career Education programs in general across the state (Exhibit 7b).¹²

Exhibit 7b: Percentage of Students in a Job Closely Related to Field of Study, PY2016-17¹³



¹⁰ California Community Colleges Strong Workforce Program,TM California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹¹ Among completers and skills builders who exited, the proportion of students who attained a living wage.

¹² California Community Colleges Strong Workforce Program,TM California Community Colleges, calpassplus.org/LaunchBoard/SWP.aspx.

¹³ Most recent year with available data is Program Year 2014-15. Percentage of Students in a Job Closely Related to Field of Study: Among students who responded to the CTEOS, the percentage reporting employment in the same or similar field as their program of study.

Top Employers and Work Locations

Between January 1, 2017 and December 31, 2019, the top five employers in San Diego County for these occupations were [Qualcomm](#), [Northrop Grumman](#), [CACI](#), [General Atomics](#), and [Booz Allen Hamilton](#) (Exhibit 8a).

Exhibit 8a: Top Employers in San Diego County for Video Game Designer Occupations¹⁴

Top Employers	
<ul style="list-style-type: none">• Qualcomm• Northrop Grumman• CACI• General Atomics• Booz Allen Hamilton Inc.	<ul style="list-style-type: none">• Teradata Operations, Inc.• Accenture• Viasat• Anthem Blue Cross• Intuit

More specifically, Exhibit 8b provides a list of the top employers in San Diego County that posted online job postings with the key words, “video game design.”

Exhibit 8a: Top Employers in San Diego County with Key Term “Video Game Design”¹⁵

Top Employers	
<ul style="list-style-type: none">• Sony Electronics Inc.• Activision• The Art Institutes• Viasat• Psyonix	<ul style="list-style-type: none">• Smashtech• Rockstar Games Inc.• Education Management Corporation• GamesProScouts• empower

Skills, Education, and Certifications

Video Game Designer Occupations have a national educational requirement of a [bachelor's degree](#) (Exhibit 9a).

¹⁴ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2017-2019.

¹⁵ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2017-2019.

Exhibit 9a: National Educational Attainment for Video Game Designer Occupations ¹⁶

Occupational Title	Typical Entry-Level Education
Software Developers, Applications	Bachelor's degree
Computer Occupations, All Other	Bachelor's degree
Film and Video Editors	Bachelor's degree
Multimedia Artists and Animators	Bachelor's degree

Based on online job postings between January 1, 2017 and December 31, 2019 in San Diego County, the top listed educational requirement for *Video Game Designer Occupations* is a **bachelor's degree** (Exhibit 9b).¹⁷

Exhibit 9b: Educational Requirements for Video Game Designer Occupations in San Diego County¹⁸

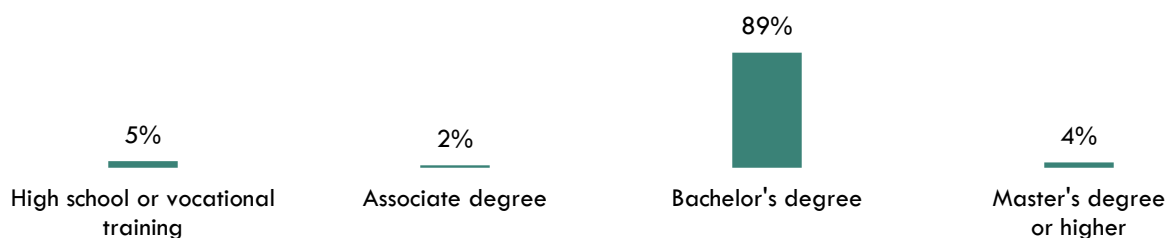


Exhibit 10a lists the top specialized, soft and software skills that appeared in online job postings between January 1, 2017 and December 31, 2019.

Exhibit 10a: Top Skills for Video Game Designer Occupations in San Diego County¹⁹

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Software Development • Software Engineering • Project Management • Quality Assurance and Control • Object-Oriented Analysis and Design 	<ul style="list-style-type: none"> • Communication Skills • Teamwork / Collaboration • Problem Solving • Troubleshooting • Planning 	<ul style="list-style-type: none"> • Software Development • Software Engineering • Java • SQL • Linux

¹⁶ EMSI 2020.02; QCEW, Non-QCEW, Self-Employed.

¹⁷ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

¹⁸ "Educational Attainment for Workers 25 Years and Older by Detailed Occupation," Bureau of Labor Statistics, last modified September 4, 2019. bls.gov/emp/tables/educational-attainment.htm.

¹⁹ Burning Glass Technologies, "Labor Insight Real-Time Labor Market Information Tool." 2017-2019.

More specifically, Exhibit 10b provides a list of the top specialized, soft and software skills in San Diego County that posted online job postings with the key words, “video game design.”

Exhibit 10b: Top Skills for in San Diego County with Key Term “Video Game Design”²⁰

Specialized Skills	Soft Skills	Software Skills
<ul style="list-style-type: none"> • Game Development • Software Engineering • Scheduling • Level design • Software Development 	<ul style="list-style-type: none"> • Communication Skills • Creativity • Teamwork / Collaboration • Problem Solving • Detail-Oriented 	<ul style="list-style-type: none"> • C++ • Adobe Photoshop • Microsoft C# • Python • Object-Oriented Analysis and Design (OOAD)

Prepared by:

Tina Ngo Bartel, Director

John Edwards, Research Analyst

San Diego-Imperial Center of Excellence for Labor Market Research

tngobartel@miracosta.edu

jedwards@miracosta.edu



Important Disclaimers

All representations included in this report have been produced from primary research and/or secondary review of publicly and/or privately available data and/or research reports. This study examines the most recent data available at the time of the analysis; however, data sets are updated regularly and may not be consistent with previous reports. Efforts have been made to qualify and validate the accuracy of the data and the report findings; however, neither the Centers of Excellence for Labor Market Research (COE), COE host district, nor California Community Colleges Chancellor’s Office are responsible for the applications or decisions made by individuals and/or organizations based on this study or its recommendations.

This workforce demand report uses state and federal job projection data that was developed before the economic impact of COVID-19. The COE is monitoring the situation and will provide more information as it becomes available. Please consult with local employers to understand their current employment needs.

²⁰ Burning Glass Technologies, “Labor Insight Real-Time Labor Market Information Tool.” 2017-2019.