

Labor Market Analysis: 0614.20 – Electronic Game Design Game Design (AS degree & Certificate)

Los Angeles Center of Excellence, September 2022

Summary

Program Endorsement:	Endorsed: All Criteria Met <input type="checkbox"/>	Endorsed: Some Criteria Met <input checked="" type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>
Education:	Yes <input type="checkbox"/>		No <input checked="" type="checkbox"/>
Emerging Occupation(s)			
	Yes <input checked="" type="checkbox"/>		No <input checked="" type="checkbox"/>

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to three occupations and one emerging occupation.

- **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;¹
- **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;²
- **Special Effects Artists and Animators (27-1014)** Create special effects or animations using film, video, computers, or other electronic tools and media for use in products, such as computer games, movies, music videos, and commercials;³

¹ [Web Developers \(bls.gov\)](#)

² [Web and Digital Interface Designers \(bls.gov\)](#)

³ [Special Effects Artists and Animators \(bls.gov\)](#)

Emerging occupation:

- **Video Game Designers (15-1255.01)** 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.⁴

Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.⁵ Although the occupations in this report typically require a bachelor's degree, they are considered middle-skill because approximately one-third of workers in the field have completed some college or an associate degree. This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data, there appears to be a supply gap for these occupations related to game design in the region. While entry-level wages exceed the self-sufficiency standard wage in Los Angeles County, the Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level wages for each of the occupations in this report. **Therefore, due to some of the criteria being met, the LA COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, **1,736 jobs are projected to be available annually** in the region due to new job growth and replacements, **which is more than the three-year average of 919 awards conferred** by educational institutions in the region.
 - However, not all of the annual openings in this report are directly related to game design. The occupations in this report employ similar knowledge, skills and abilities to that can be applicable to *video game designers*.
- **Living Wage Criteria** – Within Los Angeles County, **all three occupations related to game design** have entry-level wages **above** the self-sufficiency standard hourly wage (\$18.10/hour).⁶
- **Educational Criteria** – The Bureau of Labor Statistics (BLS) lists a **bachelor's degree** as the typical entry-level education for all three game design-related occupations in this report.
 - National-level educational attainment data indicates between **25% and 27% of workers in the field have completed some college or an associate degree**, while 59% and 70% have completed a bachelor's degree or more education

⁴ [15-1255.01 - Video Game Designers \(onetonline.org\)](https://onetonline.org/15-1255.01)

⁵ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor's degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

⁶ Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

Supply:

- There are **2 community colleges** in the greater LA/OC region that issue awards related to digital media and/or game design, conferring an average of **271 awards annually** between 2018 and 2021.
- Between 2017 and 2020, there was an average of **648 awards conferred annually** in related training programs by non-community college institutions throughout the greater LA/OC region.
- Of the 919 awards conferred in the region, **not all awards are directly related to video game design**. However, the knowledge and skills acquired from these programs are applicable to the skills required for video game design.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these occupations related to game design. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 7% through 2026. There will be more than 1,700 job openings per year through 2026 due to job growth and replacements. It is important to note that all of the annual openings in Exhibit 1 are not directly related to game design. However, these occupations employ similar knowledge, skills and abilities to that can be applicable to *video game designers*.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties⁷

Geography	2021 Jobs	2026 Jobs	2021-2026 Change	2021-2026 % Change	Annual Openings
Los Angeles	13,930	14,986	1,055	8%	1,427
Orange	3,557	3,698	141	4%	309
Total	17,488	18,684	1,197	7%	1,736

Wages

The labor market endorsement in this report considers the hourly wages for the three occupations of interest in Los Angeles County as they relate to the county's self-sufficiency standard wage. Orange County wages are included below in order to provide a complete analysis of the greater LA/OC region. Detailed wage information, by county, is included in Appendix A.

Los Angeles County—All three occupations have entry-level wages **above** the self-sufficiency standard wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$23.70 and \$24.45. Experienced workers can expect to earn wages between \$48.10 and \$55.34, which are higher than the self-sufficiency standard.

⁷ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

Exhibit 2: Hourly Earnings for Occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Web Developers (15-1254)	\$24.13	\$36.25	\$48.10
Web and Digital Interface Designers (15-1255)	\$24.45	\$37.43	\$55.34
Special Effects Artists and Animators (27-1014)	\$23.70	\$36.39	\$48.76

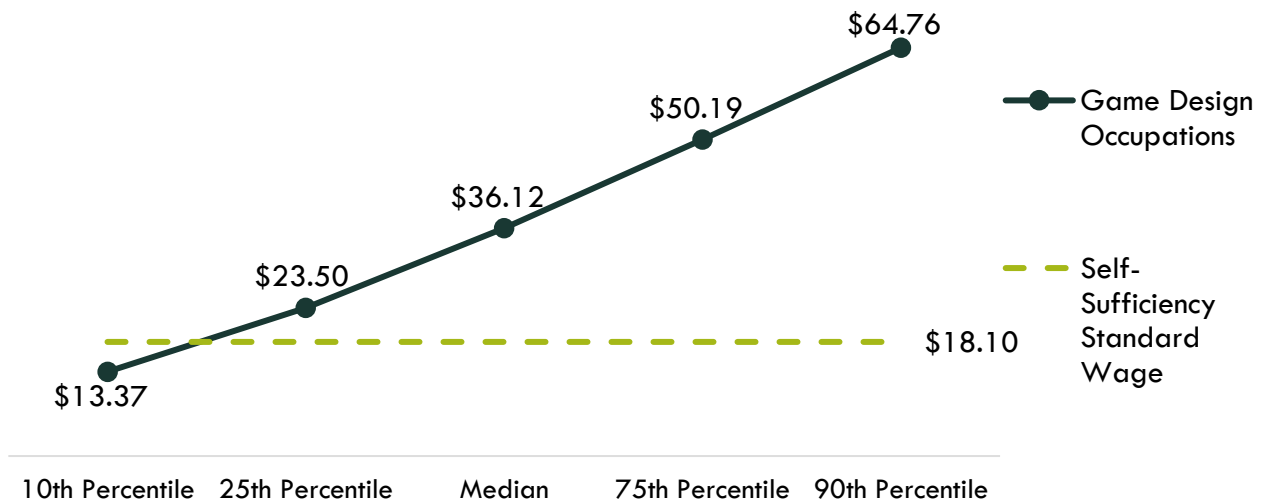
Orange County—The majority (79%) of annual openings for these occupations related to game design have entry-level wages **above** the self-sufficiency standard wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$15.46 and \$22.67. Experienced workers can expect to earn wages between \$42.37 and \$52.34, which are higher than the self-sufficiency standard.

Exhibit 3: Hourly Earnings for Occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Web Developers (15-1254)	\$22.46	\$34.54	\$46.13
Web and Digital Interface Designers (15-1255)	\$22.67	\$35.09	\$52.34
Special Effects Artists and Animators (27-1014)	\$15.46	\$29.52	\$42.37

On average, the entry-level earnings for the occupations in this report are \$23.50; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 4 shows the average wage for the occupations in this report, from entry-level to experienced workers.

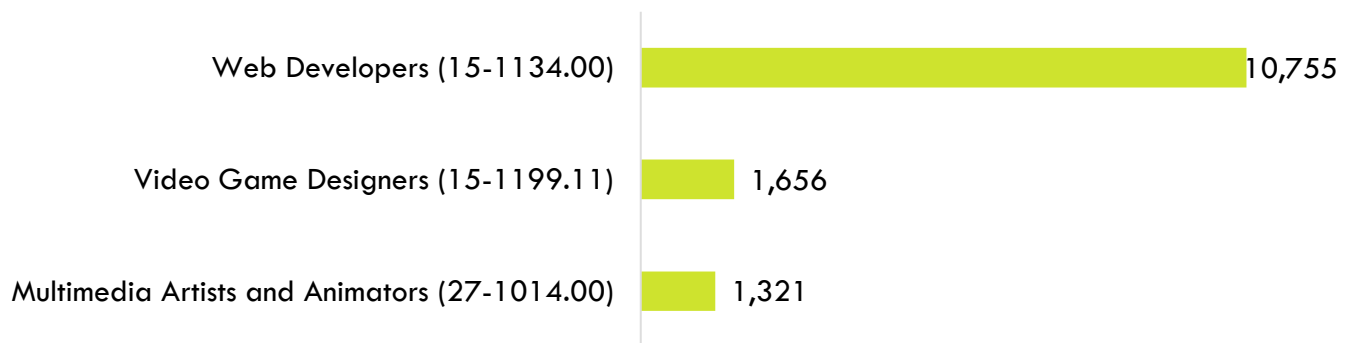
Exhibit 4: Average Hourly Earnings for Game Design Occupations in LA/OC



Job Postings

There were 13,732 online job postings related to digital media and/or game design listed in the past 12 months. Exhibit 5 displays the number of job postings by occupation. The majority of job postings (78%) were for *web developers*, followed by *video game designers* (12%) and *multimedia artists and animators* (10%). The highest number of job postings were for front end developers, web developers, UX designers, UI/UX designers, and front end engineers. The top skills were JavaScript, Adobe Photoshop, web development, software development, and software engineering. The top three employers, by number of job postings, in the region were Amazon, Blizzard Entertainment, and Disney.

Exhibit 5: Job postings by occupation (last 12 months)



Video Game Designers- Of the 1,656 *video game designer* job postings over the last 12 months, the top job titles were content creator, game designer, concept artist, environment artist, and gameplay engineer. Top skills requested of *video game designers* were game development, Adobe Photoshop, social media, project management, and working experience of level design, environment design, or game mapping. The top three employers who posted job postings in the last 12 months were Blizzard Entertainment, Electronic Arts Incorporated, and Riot Games.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists a bachelor’s degree as the typical entry-level education for all three game design occupations in this report. National-level educational attainment data indicates between 25% and 27% of workers in the field have completed some college or an associate degree, while 59% and 70% have completed a bachelor’s degree or more education.

Educational Supply

Community College Supply—Exhibit 6 shows the annual and three-year average number of awards conferred by community colleges in programs that have historically trained for the occupations of interest. The colleges with the most completions in the region are Mt. San Antonio, Santa Monica, and LA Mission.

Exhibit 6: Regional community college awards (certificates and degrees), 2018-2021

TOP	Program	College	2018-19 Awards	2019-20 Awards	2020-21 Awards	3-Year Average
0614.00	Digital Media	Glendale	-	1	-	0
		LA Mission	1	4	5	3
		LA Trade-Tech	19	11	18	16
		Pasadena	-	-	3	1
		Rio Hondo	-	2	1	1
		LA Subtotal	20	18	27	22
		Coastline	3	-	3	2
		Cypress	-	-	2	1
		Golden West	10	10	7	9
		Irvine	9	1	6	5
		Saddleback	-	-	1	0
		Santa Ana	-	1	6	2
OC Subtotal	22	12	25	20		
Supply Subtotal/Average			42	30	52	41
0614.10	Multimedia	East LA	-	2	-	1
		LA Mission	21	18	23	21
		Pasadena	6	1	-	2
		Santa Monica	5	5	9	6
		LA Subtotal	32	26	32	30
		Cypress	-	1	1	1
		Orange Coast	1	2	4	2
		Santiago Canyon	9	3	4	5
		OC Subtotal	10	6	9	8
Supply Subtotal/Average			42	32	41	38
0614.20	Electronic Game Design	Pasadena	-	1	1	1
		LA Subtotal	-	1	1	1
		Golden West	3	2	-	2
OC Subtotal	3	2	-	2		
Supply Subtotal/Average			3	3	1	2
0614.30	Website Design and Development	LA Pierce	3	2	4	3
		Mt San Antonio	9	7	6	7
		Pasadena	-	1	1	1
		Santa Monica	-	2	3	2
		LA Subtotal	12	12	14	13

TOP	Program	College	2018-19 Awards	2019-20 Awards	2020-21 Awards	3-Year Average
		Coastline	1	1	1	1
		Fullerton	3	-	1	1
		Irvine	3	-	5	3
		Orange Coast	-	9	7	5
		Saddleback	7	2	7	5
		Santa Ana	-	2	1	1
		Santiago Canyon	24	3	6	11
		OC Subtotal	38	17	28	28
		Supply Subtotal/Average	50	29	42	40
0614.40	Animation	Cerritos	7	13	4	8
		East LA	14	12	12	13
		El Camino	5	5	4	5
		Glendale	2	6	2	3
		LA City	-	-	1	0
		LA Mission	8	11	5	8
		Mt San Antonio	67	58	43	56
		Pasadena	2	1	6	3
		Rio Hondo	11	9	9	10
		Santa Monica	9	19	69	32
		LA Subtotal	125	134	155	138
		Coastline	-	-	1	0
		Cypress	7	1	-	3
		Fullerton	-	1	-	0
		Irvine	1	1	3	2
		Orange Coast	-	1	-	0
		Santa Ana	15	-	-	5
		OC Subtotal	23	4	4	10
		Supply Subtotal/Average	148	138	159	148
		Supply Total/Average	285	232	295	271

Non-Community College Supply—For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for the occupations of interest. Exhibit 7 shows the annual and three-year average number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent three-year period of available data is from 2017 to 2020. Between 2017 and 2020, non-community college institutions in the region conferred an average of 648 awards.

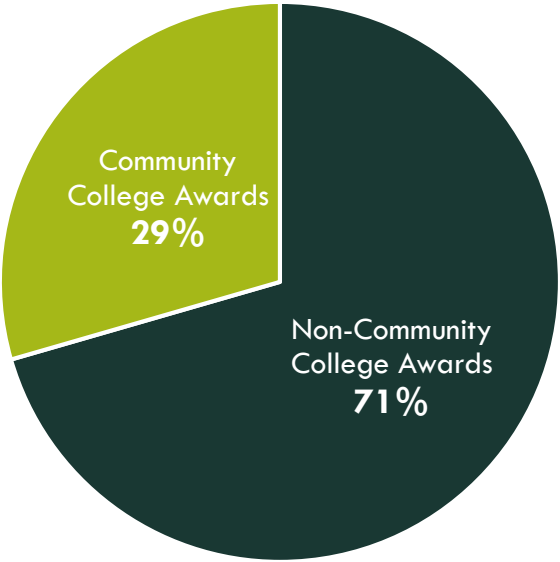
Exhibit 7: Regional non-community college awards, 2017-2020

CIP	Program	Institution	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
09.0702	Digital Communication and Media/Multimedia	CSU-Dominguez Hills	41	58	41	47
		Fremont College	1	1	1	1
		Marymount California University	-	3	10	4
		Vanguard University of Southern California	7	8	2	6
10.0304	Animation, Interactive Technology, Video Graphics, and Special Effects	Art Center College of Design	9	18	36	21
		California Institute of the Arts	-	-	39	13
		Chapman University	-	-	20	7
		Gnomon	36	40	66	47
		Laguna College of Art and Design	11	37	33	27
		Los Angeles Film School	44	51	47	47
		Loyola Marymount University	20	15	21	19
		New York Film Academy	14	19	24	19
50.0102	Digital Arts	Los Angeles Academy of Figurative Art	-	3	4	2
		Los Angeles Pacific College	-	-	4	1
		Marymount California University	17	15	3	12
		Otis College of Art and Design	92	69	48	70
		University of Southern California	16	14	15	15
		Woodbury University	4	1	2	2

CIP	Program	Institution	2017-18 Awards	2018-19 Awards	2019-20 Awards	3-Year Average
50.0401	Design and Visual Communications, General	Biola University	2	5	3	3
		Fashion Institute of Design & Merch.-LA	155	142	90	129
		Gnomon	37	48	19	35
		Los Angeles Pacific College	-	-	13	4
		Otis College of Art and Design	43	34	36	38
		Platt College-LA	5	-	-	2
		University of Southern California	-	-	5	2
50.0411	Game and Interactive Media Design	Chapman University	-	1	-	0
		Laguna College of Art and Design	29	20	34	28
		Los Angeles Film School	27	9	-	12
		New York Film Academy	4	4	7	5
		University of Southern California	23	30	28	27
		Woodbury University	1	3	6	3
Supply Total/Average			638	648	657	648

Exhibit 8 shows the portion of community college awards conferred in LA/OC versus the number of non-community college awards for the programs in this report. More than two-thirds of awards conferred in these digital media programs are awarded by non-community colleges in the LA/OC region.

Exhibit 8: Community College Awards Compared to Non-Community College Awards in LA/OC Region, 3-Year Average



Appendix A: Occupational demand and wage data by county

Exhibit 9. Los Angeles County

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Web Developers (15-1254)	4,317	4,527	210	5%	360	\$24.13	\$36.25	\$48.10
Web and Digital Interface Designers (15-1255)	3,620	3,876	255	7%	320	\$24.45	\$37.43	\$55.34
Special Effects Artists and Animators (27-1014)	5,993	6,583	590	10%	748	\$23.70	\$36.39	\$48.76
Total	13,930	14,986	1,055	8%	1,427	-	-	-

Exhibit 10. Orange County

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)
Web Developers (15-1254)	1,619	1,686	67	4%	132	\$22.46	\$34.54	\$46.13
Web and Digital Interface Designers (15-1255)	1,299	1,373	74	6%	111	\$22.67	\$35.09	\$52.34
Special Effects Artists and Animators (27-1014)	639	640	1	0%	66	\$15.46	\$29.52	\$42.37
Total	3,557	3,698	141	4%	309	-	-	-

Exhibit 11. Los Angeles and Orange Counties

Occupation (SOC)	2021 Jobs	2026 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Typical Entry-Level Education
Web Developers (15-1254)	5,936	6,213	277	5%	492	Bachelor's degree
Web and Digital Interface Designers (15-1255)	4,919	5,248	329	7%	431	Bachelor's degree
Special Effects Artists and Animators (27-1014)	6,632	7,223	591	9%	814	Bachelor's degree
Total	17,488	18,684	1,197	7%	1,736	-

Appendix B: Sources

- O*NET Online
- Labor Insight (Burning Glass Technologies)
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women’s Welfare, University of Washington
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

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