

Labor Market Analysis: 0614.40 - Animation Entertainment Technology and VFX

Certificate requiring 16 to fewer than 30 semester units

Los Angeles Center of Excellence, September 2024

Program Endorsement:	Endorsed: All Criteria Met <input checked="" type="checkbox"/>	Endorsed: Some Criteria Met <input 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 checked="" type="checkbox"/>		No <input type="checkbox"/>
Emerging Occupation(s)			
	Yes <input checked="" type="checkbox"/>		No <input type="checkbox"/>

SUMMARY

This report analyzes whether local labor market demand is being met by community college programs aligned with the identified middle-skill occupations¹ or whether a shortage of workers exists. Labor market demand is measured by annual job openings while education supply is measured by the number of awards (degrees and certificates) conferred on average each year.

Based on the available data, there appears to be a supply gap for the four identified middle-skill occupations in the region. Furthermore, entry-level wages exceed the self-sufficiency standard wage in both Los Angeles and Orange counties, and more than one-third of current workers in the field have completed an associate degree or less educational attainment.

Recommendation: Due to all three program endorsement criteria being met, the Los Angeles Center of Excellence for Labor Market Research (LA COE) endorses this proposed program.

Key Findings

Supply Gap

- 3,650 annual job openings are projected in the region through 2028. This number is greater than the three-year average of 2,861 awards conferred by educational institutions in the region.
- 708 job postings in the last 12 months listed “virtual production” or “virtual reality” as a specialized skill. Top job titles included technical artists, simulation specialists, marketing product managers, UI/UX designers, and VDC specialists.

¹ Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree. 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.

Living Wage

- All of the target occupations in this report have entry-level wages **above** Los Angeles County's self-sufficiency standard hourly wage (\$18.10/hour).²

Educational Attainment

- A bachelor's degree is the typical entry-level education for the occupations in this report, according to the Bureau of Labor Statistics (BLS).
- 32%-43% of workers in the field have completed an associate degree or less educational attainment, according to national educational attainment data.

Community college supply

- 26 community colleges issued awards related to entertainment technology in the greater LA/OC region.
- 911 awards (degrees and certificates) were conferred on average each year between 2021 and 2023.

Other postsecondary supply

- 27 educational institutions in the LA/OC region have conferred awards in programs related to entertainment technology over the past three years.
- 1,950 awards were conferred on average each year by other postsecondary institutions throughout the greater LA/OC region between 2020 and 2022.

TARGET OCCUPATIONS

LA COE prepared this report to provide regional labor market and postsecondary supply data related to four middle-skill occupations. Although these occupations typically require a bachelor's degree, they are considered middle-skill because approximately one-third of workers in the field have completed an associate degree or less educational attainment. [For full occupation descriptions, please see Appendix.](#)

- **Video Game Designers (15-1255.01)**³
- **Special Effects Artists and Animators (27-1014)**⁴
- **Graphic Designers (27-1024)**⁵
- **Film and Video Editors (27-4032)**⁶

OCCUPATIONAL DEMAND

Exhibit 1 shows the five-year occupational demand projections for these middle-skill entertainment technology occupations. In the greater Los Angeles/Orange County region, the number of jobs related to these occupations is projected to increase by 1% through 2028. There will be nearly 3,700 job openings per year through 2028 due to job growth and replacements.

² Self-Sufficiency Standard wage data was pulled from The Self-Sufficiency Standard Tool for California. For more information, visit: <http://selfsufficiencystandard.org/california>.

³ [Video Game Designers \(onetonline.org\)](http://onetonline.org)

⁴ [Special Effects Artists and Animators \(bls.gov\)](https://bls.gov)

⁵ [Graphic Designers \(bls.gov\)](https://bls.gov)

⁶ [Film and Video Editors and Camera Operators \(bls.gov\)](https://bls.gov)

The majority of jobs in 2023 for these middle-skill entertainment technology occupations (85%) were located in Los Angeles County.

Exhibit 1: Current employment and occupational demand, Los Angeles and Orange counties⁷

Geography	2023 Jobs	2028 Jobs	2023-2028 Change	2023-2028 % Change	Annual Openings
Los Angeles	34,372	35,003	631	2%	3,124
Orange	6,217	6,125	(91)	(1%)	526
Total	40,589	41,129	540	1%	3,650

Detailed Occupation Data

Exhibit 2 displays the current employment and projected occupational demand for each of the target occupations in Los Angeles County. Positive scores for automation resilience⁸ reflect a lower-than-average threat of the occupation(s) being replaced by automation, while negative scores reflect a greater-than-average risk of automation. The average percentage of workers aged 55+ across all occupations in the Los Angeles/Orange County region is 27%; occupations with a larger share of workers aged 55 and older typically have greater replacement needs to offset the amount of impending retirements. On average, 81% of workers across all occupations in California are employed full-time. Occupations with a lower-than-average percentage of full-time workers may have less employment security but may see increased activity in the gig economy.

Exhibit 2: Current employment, projected occupational demand, percentage of workers aged 55+, Los Angeles County⁹

Occupation	2023 Jobs	2028 Jobs	5-Yr % Change	Annual Openings	Auto- mation Resilience	% Aged 55 and older	% Full Time Workers*
Special Effects Artists and Animators	10,182	10,639	4%	1,057	27.8	26%	Data Unavail.
Graphic Designers	14,459	14,254	(1%)	1,150	19.2	21%	73%
Film and Video Editors	9,732	10,110	4%	917	5.9	21%	82%
Total	34,372	35,003	2%	3,124	-	-	-

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.

⁸ Automation resilience is calculated based on the percentage of time spent on high-risk compared to low-risk work, the number of high-risk jobs in compatible occupations, and the overall industry automation risk.

⁹ Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

WAGES

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill entertainment technology occupations 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 Los Angeles/Orange County region.

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 \$22.63 and \$38.22. (Exhibit 3). Experienced workers can expect to earn wages between \$45.77 and \$78.10.

Exhibit 3: Earnings for occupations in Los Angeles County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Special Effects Artists and Animators	\$38.22	\$58.62	\$78.10	\$121,900
Graphic Designers	\$22.63	\$33.79	\$45.77	\$70,300
Film and Video Editors	\$26.86	\$38.00	\$60.92	\$79,000

*Rounded to the nearest \$100

Orange County

All three occupations 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 \$22.05 and \$32.49 (Exhibit 4). Experienced workers can expect to earn wages between \$43.99 and \$70.82.

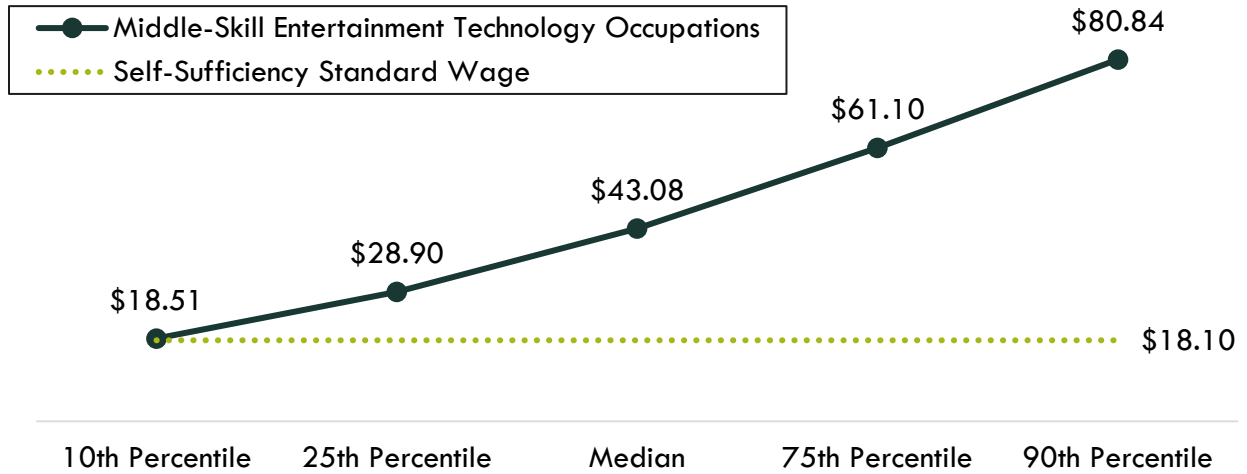
Exhibit 4: Earnings for occupations in Orange County

Occupation	Entry-Level Hourly Earnings (25 th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75 th Percentile)	Median Annual Earnings*
Special Effects Artists and Animators	\$32.49	\$51.75	\$70.82	\$107,600
Graphic Designers	\$22.05	\$32.69	\$43.99	\$68,000
Film and Video Editors	\$22.54	\$33.87	\$55.35	\$70,500

*Rounded to the nearest \$100

Across the greater Los Angeles and Orange County region, the average entry-level hourly earnings for the occupations in this report are \$28.90; this is above the living wage for one single adult in Los Angeles County (\$18.10). Exhibit 5 shows the average hourly wage for the occupations in this report, for entry-level to experienced workers.

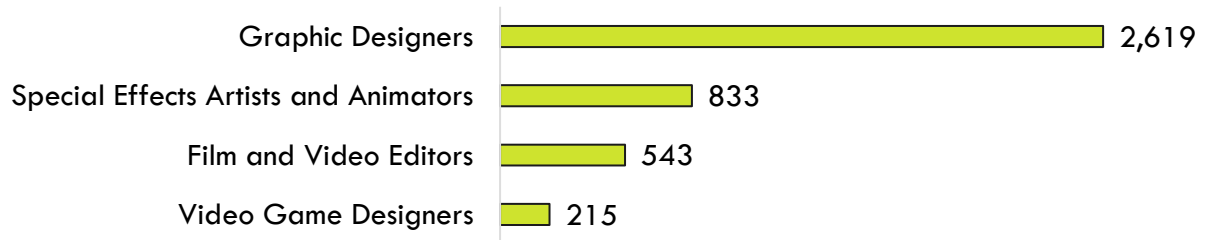
Exhibit 5: Average hourly earnings for entertainment technology occupations, Los Angeles and Orange counties



JOB POSTINGS

There were 4,210 online job postings related to entertainment technology listed in the past 12 months in Los Angeles and Orange counties. Exhibit 6 displays the number of job postings by occupation. The majority of job postings (62%) were for *graphic designers*, followed by *special effects artists and animators* (20%) and *film and video editors* (13%).

Exhibit 6: Job postings by occupation (last 12 months), Los Angeles and Orange counties



Job postings were analyzed for the most common job titles, skills, and employers associated with the target occupations in this report (Exhibit 7).

Exhibit 7: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> • Graphic designers • Video editors • Graphic artists • Gameplay engineers • Digital designers • Motion graphic designers 	<ul style="list-style-type: none"> • Adobe Photoshop • Graphic design • Adobe Illustrator • Marketing • Adobe Creative Suite • Adobe InDesign 	<ul style="list-style-type: none"> • Disney • Canteen Vending • Amazon • Rio Games • 24 Seven* • Netflix

*Staffing company

In the greater Los Angeles/Orange County region, 41% of the entertainment technology job postings listed a minimum educational requirement. The number and percentage of job postings by educational level appear in exhibit 8.

Exhibit 8: Education levels requested in job postings for occupations related to entertainment technology, Los Angeles and Orange counties

Education Level	Job Postings	% of Job Postings
Bachelor's degree	1,447	83%
Associate degree	121	7%
High school diploma or vocational training	172	10%

Virtual Production & Virtual Reality Job Postings

There were 708 job postings in the past 12 months that specifically listed “virtual production” or “virtual reality” as a specialized skill in the Los Angeles/Orange County region. Exhibit 9 shows the most common job titles, skills, and employers associated with the specialized skills “virtual production” or “virtual reality”.

Exhibit 9: Most commonly requested job titles, skills and employers in job postings, Los Angeles and Orange counties

Top Job Titles	Top Skills	Top Employers
<ul style="list-style-type: none"> • Technical artists • Simulation specialists • Marketing product managers • UI/UX designers • VDC specialists • Producers • Sound designers • Virtual reality developers 	<ul style="list-style-type: none"> • Virtual reality • Augmented reality • Marketing • Virtual production • Computer science • Project management • Workflow management • Animations • C++ programming language 	<ul style="list-style-type: none"> • Meta • Northrop Grumman • Disney • Deloitte • Sony Pictures Entertainment • Insight Global* • BDS Marketing • MKS Instruments

*Staffing company

EDUCATIONAL ATTAINMENT

The Bureau of Labor Statistics (BLS) lists a bachelor’s degree as the typical entry-level education for the occupations in this report (Exhibit 9). However, the national-level data indicates between 32% and 43% of workers in the field have completed an associate degree or less educational attainment. The Bureau of Labor Statistics (BLS) lists the following typical entry-level education levels for the occupations in this report:

Exhibit 9: Entry-level education preferred by employers nationally, Bureau of Labor Statistics

Occupation	Education Level
Special Effects Artists and Animators	Bachelor’s degree
Graphic Designers	Bachelor’s degree
Film and Video Editors	Bachelor’s degree

EDUCATIONAL SUPPLY

Community College Supply

Exhibit 10 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 Santa Monica, LA City, and Orange Coast.

Exhibit 10: Regional community college awards (certificates and degrees), 2021-2023

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
0612.20	Film Production	Cerritos	11	22	16	16
		LA City	45	116	107	89
		LA Valley	35	54	44	44
		Long Beach	-	-	3	1
		Santa Monica	41	45	55	47
		West LA	28	10	36	25
		LA Subtotal	160	247	261	223
		Orange Coast	26	32	29	29
		Saddleback	-	-	1	0
		OC Subtotal	26	32	30	29
Supply Subtotal/Average			186	279	291	252
0614.00	Digital Media	LA Mission	5	5	1	4
		LA Trade-Tech	18	12	14	15
		Mt San Antonio	-	-	2	1
		Pasadena	3	15	9	9
		Rio Hondo	1	1	-	1
		Santa Monica	-	19	6	8
		LA Subtotal	27	52	32	37
		Coastline	3	3	28	11
		Cypress	2	7	4	4
		Golden West	7	-	-	2
		Irvine	6	3	1	3
		Saddleback	1	1	2	1
		Santa Ana	6	34	71	37
OC Subtotal	25	48	106	60		
Supply Subtotal/Average			52	100	138	97
0614.10	Multimedia	Glendale	-	4	-	1
		LA Mission	23	28	16	22
		Long Beach	-	-	1	0
		Santa Monica	9	-	-	3
		LA Subtotal	32	32	17	27
		Cypress	1	3	2	2
		Orange Coast	4	8	7	6
Santiago Canyon	4	-	1	2		

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
		OC Subtotal	9	11	10	10
		Supply Subtotal/Average	41	43	27	37
0614.20	Electronic Game Design	Long Beach	-	-	2	1
		Pasadena	1	5	4	3
		LA Subtotal	1	5	6	4
		Irvine	-	-	24	8
		OC Subtotal	-	-	24	8
		Supply Subtotal/Average	1	5	30	12
0614.40	Animation	Cerritos	4	7	13	8
		East LA	12	17	6	12
		El Camino	4	4	2	3
		Glendale	2	6	5	4
		LA City	1	2	2	2
		LA Mission	5	11	12	9
		Long Beach	-	-	1	0
		Mt San Antonio	43	26	40	36
		Pasadena	6	12	21	13
		Rio Hondo	9	10	17	12
		Santa Monica	69	103	37	70
		LA Subtotal	155	198	156	170
		Coastline	1	1	2	1
		Irvine	3	2	3	3
		Orange Coast	-	-	8	3
OC Subtotal	4	3	13	7		
		Supply Subtotal/Average	159	201	169	176
0614.60	Computer Graphics and Digital Imagery	Citrus	26	7	11	15
		East LA	2	2	4	3
		Mt San Antonio	1	-	-	0
		LA Subtotal	29	9	15	18
		Cypress	-	-	1	0
		Fullerton	3	-	-	1
		Irvine	-	4	1	2
		Orange Coast	31	28	18	26
		Saddleback	2	3	7	4
Santa Ana	3	2	4	3		

TOP Code	Program	College	2020-21 Awards	2021-22 Awards	2022-23 Awards	3-Year Average
		OC Subtotal	39	37	31	36
		Supply Subtotal/Average	68	46	46	53
1030.00	Graphic Art and Design	Cerritos	14	13	18	15
		East LA	8	6	9	8
		El Camino	-	-	1	0
		Glendale	9	10	8	9
		LA City	8	19	14	14
		LA Harbor	-	-	1	0
		LA Pierce	13	22	12	16
		LA Valley	1	5	1	2
		Long Beach	8	7	5	7
		Mt San Antonio	20	21	25	22
		Pasadena	15	12	11	13
		Rio Hondo	28	23	54	35
		Santa Monica	43	51	68	54
		LA Subtotal	167	189	227	194
		Cypress	4	6	18	9
		Fullerton	14	15	18	16
		Golden West	20	16	13	16
		Irvine	21	27	17	22
		Saddleback	19	22	22	21
		Santa Ana	3	-	-	1
		Santiago Canyon	4	5	5	5
OC Subtotal	85	91	93	90		
		Supply Subtotal/Average	252	280	320	284
		Supply Total/Average	759	954	1,021	911

Other Postsecondary 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 entertainment technology occupations. Exhibit 11 shows the number of awards conferred by these institutions in relevant programs. Due to different data collection periods, the most recent data is from 2020 to 2022. Between 2020 and 2022, other postsecondary college institutions in the region conferred an average of 1,950 bachelor's and sub-baccalaureate awards. Sub-baccalaureate awards include associate degrees, postsecondary awards, and other academic awards that typically take fewer than four years to complete. The majority of awards in exhibit 11 are bachelor's degrees (86%), while 14% are associate degrees or certificates.

Exhibit 11: Other regional postsecondary awards, 2020-2022

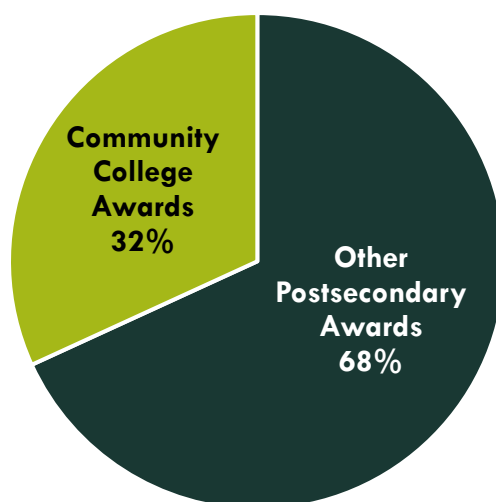
CIP Code	Program	Postsecondary Institution	2019-20 Awards	2020-21 Awards	2021-22 Awards	3-Year Average
09.0702	Digital Communication and Media/Multimedia	Azusa Pacific Univ.	-	-	3	1
		CSU-Dominguez Hills	41	57	33	44
		Columbia College Hollywood	-	28	5	11
		Fremont University	1	-	-	0
		Marymount CA Univ.	10	9	9	9
		Vanguard Univ. of Southern CA	2	1	-	1
10.0301	Graphic Communications, General	CSU-Los Angeles	9	10	9	9
10.0304	Animation, Interactive Technology, Video Graphics, and Special Effects	ABC Adult School	-	1	1	1
		Art Center College of Design	36	41	62	46
		Azusa Pacific Univ.	-	-	14	5
		CA Institute of the Arts	39	37	54	43
		Chapman Univ.	20	22	23	22
		Columbia College Hollywood	-	11	2	4
		Gnomon	66	-	-	22
		Laguna College of Art and Design	33	25	29	29
		LA Film School	47	35	67	50
		Loyola Marymount University	21	26	13	20
		NY Film Academy	24	10	15	16
11.0803	Computer Graphics	ABC Adult School	4	3	6	4
		LA Pacific College	12	5	6	8
11.0899	Computer Software and Media Applications, Other	Art Center College of Design	20	14	21	18
		California Institute of the Arts	7	1	6	5
		Learnet Academy	10	9	2	7
50.0102	Digital Arts	Columbia College Hollywood	-	15	15	10
		Gnomon	-	31	29	20
		LA Academy of Figurative Art	4	-	5	3

CIP Code	Program	Postsecondary Institution	2019-20 Awards	2020-21 Awards	2021-22 Awards	3-Year Average
		LA Pacific College	4	2	-	2
		Marymount CA Univ.	3	2	2	2
		Otis College of Art and Design	48	52	90	63
		USC	15	35	33	28
		Woodbury Univ.	2	-	-	1
50.0409	Graphic Design	Art Center College of Design	67	75	70	71
		CA Institute of the Arts	12	12	15	13
		CA St. Polytechnic University-Pomona	89	113	105	102
		Chapman Univ.	27	24	29	27
		Columbia College Hollywood	-	9	4	4
		Concordia Univ.-Irvine	10	7	9	9
		Fashion Institute of Design & Merch.	38	25	12	25
		Laguna College of Art and Design	25	26	24	25
		LA Film School	28	47	52	42
		LA Pacific College	8	2	7	6
50.0411	Game and Interactive Media Design	Biola University	-	-	4	1
		Chapman Univ.	-	-	3	1
		Laguna College of Art and Design	34	44	26	35
		NY Film Academy	7	6	2	5
		USC	27	24	26	26
		Woodbury Univ.	6	7	10	8
50.0602	Cinematography and Film/Video Production	Art Center College of Design	18	24	28	23
		Azusa Pacific Univ.	-	-	4	1
		Biola University	56	54	75	62
		CA Institute of the Arts	14	11	8	11
		CSU-Dominguez Hills	-	-	12	4
		Chapman Univ.	146	100	201	149

CIP Code	Program	Postsecondary Institution	2019-20 Awards	2020-21 Awards	2021-22 Awards	3-Year Average
		Columbia College Hollywood	-	105	89	65
		Fashion Institute of Design & Merch.	12	10	13	12
		LA Film School	245	255	177	226
		Loyola Marymount University	77	64	56	66
		Mount Saint Mary's University	13	14	13	13
		NY Film Academy	215	181	179	192
		USC	113	93	95	100
		Woodbury Univ.	15	17	24	19
50.0699	Film/Video and Photographic Arts, Other	California Institute of the Arts	-	2	-	1
		LA Film School	49	97	111	86
		Woodbury Univ.	10	25	19	18
Supply Total/Average			1,839	1,955	2,056	1,950

Exhibit 12 shows the proportion of community college awards conferred in the greater Los Angeles/Orange County region compared to the number of other postsecondary awards for the programs in this report. The majority of awards conferred in these programs are awarded by other institutions in the greater Los Angeles/Orange County region.

Exhibit 12: Percentage of community college awards compared to other postsecondary institution awards in the Los Angeles/Orange County region



APPENDIX: OCCUPATION DESCRIPTIONS

LA COE prepared this report to provide regional labor market supply and demand data related to these target occupations:

- **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.¹⁰
- **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.¹¹
- **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.¹²
- **Film and Video Editors (27-4032)** Edit moving images on film, video, or other media. May work with a producer or director to organize images for final production. May edit or synchronize soundtracks with images.¹³

Contact information:

Luke Meyer, Director

Los Angeles Center of Excellence

Lmeyer7@mtsac.edu

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DATA SOURCES

- O*NET Online
- 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)

¹⁰ [Video Game Designers \(onetonline.org\)](http://onetonline.org)

¹¹ [Special Effects Artists and Animators \(bls.gov\)](http://bls.gov)

¹² [Graphic Designers \(bls.gov\)](http://bls.gov)

¹³ [Film and Video Editors and Camera Operators \(bls.gov\)](http://bls.gov)

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