

**Program Endorsement Brief: 0614.20/Electronic Game Design**  
**Game Analysis and Design Skills Certificate**  
Orange County Center of Excellence, September 2021

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**Summary Analysis**

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

The Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: Web Developers and Digital Interface Designers (15-1257), and Special Effects Artists and Animators (27-1014). Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.<sup>1</sup> Although Special Effects Artists and Animators typically requires a bachelor’s degree, the COE currently considers it middle-skill because a significant number 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 game design occupations in the region. Furthermore, the majority of annual job openings have entry-level wages that exceed the living wage in both Los Angeles and Orange counties. However, the majority of annual openings for the occupations in this report typically require a bachelor’s degree. **Therefore, due to some of the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

**Demand:**

- **Supply Gap Criteria** – Over the next five years, there is projected to be **1,536** in the region due to new job growth and replacements, **which is more than the 684 awards conferred annually** by educational institutions in the region.
  - However, the Web Developers and Digital Interface Designers (15-1257), SOC code includes a variety of emerging occupations, including Video Game

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<sup>1</sup> 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.

Designers (15-1255.01). Since the SOC code does not solely represent electronic game design, **the number of annual job openings is overstated.**

- There were 9,935 online job postings related to electronic game design listed in the past 12 months. The highest number of job postings were for web developers and digital interface designers.
- **Living Wage Criteria** –Within Orange County, **the majority (72%) of annual job openings for these two occupations have entry-level wages above the county’s living wage (\$20.63/hour).**<sup>2</sup>
- **Educational Criteria** –Within the LA/OC region, **the majority (52%) of annual job openings for occupations related to game design typically require a bachelor’s degree.**
  - Furthermore, the national-level educational attainment data indicates **between 24.6% and 27.1% of workers in the field have completed some college or an associate degree.**

#### **Supply:**

- There are **19 community colleges** in the LA/OC region that issue awards related to Electronic Game Design, conferring an average of **204 awards annually** between 2017 and 2020.
- Between 2016 and 2019, there was an average of **480 awards conferred annually** in related training programs by non-community college institutions, all of which were generated by **19 non-community college institutions throughout** the region.

#### **Occupational Demand**

Exhibit 1 shows the five-year occupational demand projections for these two occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 3% through 2025. There will be more than 1,536 job openings per year through 2025 due to job growth and replacements. It is important to note that the Web Developers and Digital Interface Designers (15-1257) SOC code includes a variety of emerging occupations and not solely electronic game design occupations. Therefore, the data in Exhibit 1 is overstated for electronic game design occupations.

*This report includes employment projection data by Emsi which uses EDD information. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.*

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<sup>2</sup> Living wage data was pulled from California Family Needs Calculator on 9/20/2021. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/2018-family-needs-calculator/>.

**Exhibit 1: Occupational demand in Los Angeles and Orange Counties<sup>3</sup>**

Geography	2020 Jobs	2025 Jobs	2020-2025 Change	2020-2025 % Change	Annual Openings
Orange	3,524	3,639	115	3%	284
Los Angeles	14,203	14,657	454	3%	1,253
<b>Total</b>	<b>17,727</b>	<b>18,296</b>	<b>569</b>	<b>3%</b>	<b>1,536</b>

### **Wages**

The labor market endorsement in this report considers the entry-level hourly wages for these electronic game design occupations in Orange County as they relate to the county's living wage. Los Angeles County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

**Orange County:** The majority (72%) of annual openings for these electronic game design occupations have entry-level wages above the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$15.49 and \$22.01. Experienced workers can expect to earn wages between \$46.89 and \$52.00, which are higher than the living wage estimate. Orange County's average wages are below the average statewide wage of \$43.03 for these occupations.

**Los Angeles County:** All annual openings for these electronic game design occupations have entry-level wages above the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$22.53 and \$23.53. Experienced workers can expect to earn wages between \$49.81 and \$61.61, which are higher than the living wage estimate. Los Angeles County's average wages are above the average statewide wage of \$43.03 for these occupations.

### **Job Postings**

There were 9,935 online job postings related to electronic game design listed in the past 12 months. The highest number of job postings were for web developers and digital interface designers. The top skills were: JavaScript, web development, and Adobe Photoshop. The top three employers, by number of job postings, in the region were: Amazon, Disney, and Blizzard Entertainment.

*It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.*

### **Educational Attainment**

The Bureau of Labor Statistics (BLS) lists an associate degree as the typical entry-level education for Web Developers and Digital Interface Developers and a bachelor's degree for Special Effects Artists and Animators. In the LA/OC region, 52% of job openings typically require a bachelor's degree. Furthermore, the national-level educational attainment data indicates between

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<sup>3</sup> Five-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

24.6% and 27.1% of workers in the field have completed some college or an associate degree as their highest level of education. Of the 51% of electronic game design job postings listing a minimum education requirement in Los Angeles/Orange County, 90.4% (4,618) requested a Bachelor's degree and 5.5% (85) requested an associate degree.

### Educational Supply

**Community College Supply**—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Digital Media (0614.00), Multimedia (0614.10), Electronic Game Design (0614.20), and Animation (0614.40). The colleges with the most completions in the region were: Mt. San Antonio (0612.40) and LA Mission (0612.10). Over the past 12 months, there were nine other related program recommendation requests from regional community colleges.

**Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020**

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
0614.00	Digital Media	Coastline	-	3	-	1
		Golden West	9	10	10	10
		Irvine	15	9	1	8
		Santa Ana	-	-	1	0
		<b>OC Subtotal</b>	<b>24</b>	<b>22</b>	<b>12</b>	<b>19</b>
		Glendale	-	-	1	0
		LA Mission	-	1	4	2
		LA Trade	7	19	11	12
		Long Beach	1	-	-	0
		Rio Hondo	-	-	2	1
		<b>LA Subtotal</b>	<b>8</b>	<b>20</b>	<b>18</b>	<b>15</b>
<b>Supply Subtotal/Average</b>			<b>32</b>	<b>42</b>	<b>30</b>	<b>35</b>
0614.10	Multimedia	Cypress	1	-	1	1
		Orange Coast	-	1	2	1
		Santiago Canyon	10	9	3	7
		<b>OC Subtotal</b>	<b>11</b>	<b>10</b>	<b>6</b>	<b>9</b>
		East LA	-	-	2	1
		LA Mission	12	21	18	17
		Long Beach	1	-	-	0
		Pasadena	5	6	1	4
		Santa Monica	5	5	5	5
		<b>LA Subtotal</b>	<b>23</b>	<b>32</b>	<b>26</b>	<b>27</b>
<b>Supply Subtotal/Average</b>			<b>34</b>	<b>42</b>	<b>32</b>	<b>36</b>

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
0614.20	Electronic Game Design	Golden West	1	3	2	2
		<b>OC Subtotal</b>	<b>1</b>	<b>3</b>	<b>2</b>	<b>2</b>
		Pasadena	-	-	1	0
		<b>LA Subtotal</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>0</b>
<b>Supply Subtotal/Average</b>			<b>1</b>	<b>3</b>	<b>3</b>	<b>2</b>
0614.40	Animation	Cypress	3	7	1	4
		Fullerton	1	-	1	1
		Irvine	1	1	1	1
		Orange Coast	-	-	1	0
		Santa Ana	2	15	-	6
		<b>OC Subtotal</b>	<b>7</b>	<b>23</b>	<b>4</b>	<b>11</b>
		Cerritos	3	7	13	8
		East LA	6	14	12	11
		El Camino	1	5	5	4
		Glendale	6	2	6	5
		La Mission	4	8	11	8
		Mt. San Antonio	53	67	58	59
		Pasadena	-	2	1	1
		Rio Hondo	11	11	9	10
		Santa Monica	17	19	19	15
		<b>LA Subtotal</b>	<b>101</b>	<b>125</b>	<b>134</b>	<b>120</b>
		<b>Supply Subtotal/Average</b>			<b>108</b>	<b>148</b>
<b>Supply Total/Average</b>			<b>175</b>	<b>235</b>	<b>203</b>	<b>204</b>

**Non-Community College Supply**—For a comprehensive regional supply analysis, it is also important to consider the supply from other institutions in the region that provide training programs for electronic game design. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Digital Communication and Media/Multimedia (09.0702), Animation, Interactive Technology, Video Graphics and Special Effects (10.0304), Digital Arts (50.0102), and Game and Interactive Media Design (50.0411). Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions in the region conferred an average of 480 awards annually in related training programs.

**Exhibit 3: Regional non-community college awards, 2016-2019**

<b>CIP Code</b>	<b>Program</b>	<b>College</b>	<b>2016-2017 Awards</b>	<b>2017-2018 Awards</b>	<b>2018-2019 Awards</b>	<b>3-Year Award Average</b>
09.0702	Digital Communication and Media/Multimedia	California Institute of the Arts	-	-	8	3
		California State University- Dominguez Hills	50	41	58	50
		Fremont College	1	1	1	1
		Los Angeles ORT College- Los Angeles	15	10	8	11
		Marymount California University	-	-	3	1
		University of Southern California	11	18	1	10
		Vanguard University of Southern California	12	7	8	9
<b>Supply Subtotal/Average</b>			<b>89</b>	<b>77</b>	<b>87</b>	<b>84</b>
10.0304	Animation, Interactive Technology, Video Graphics, and Special Effects	Art Center College of Design	28	9	18	18
		Gnomon University	36	36	40	37
		Laguna College of Art and Design	22	11	37	23
		Los Angeles Film School	11	44	51	35
		Loyola Marymount University	12	20	15	16
		Mt. Sierra College	3	6	-	3
		New York Film Academy	28	14	19	20
<b>Supply Subtotal/Average</b>			<b>140</b>	<b>140</b>	<b>180</b>	<b>153</b>
50.0102	Digital Arts	Los Angeles Academy of Figurative Arts	3	-	3	2
		Marymount California University	12	17	15	15
		Otis College of Art and Design	63	92	69	75
		University of Southern California	34	31	33	33
		Woodbury University	3	4	1	3
<b>Supply Subtotal/Average</b>			<b>115</b>	<b>144</b>	<b>121</b>	<b>127</b>
50.0411		Chapman University	1	-	1	1

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
	Game and Interactive Media Design	Laguna College of Art and Design	28	35	28	30
		Los Angeles Film School	12	27	9	16
		Mt. Sierra College	13	8	-	7
		New York Film Academy	21	11	8	13
		University of California- Irvine	3	-	-	1
		University of Southern California	52	37	47	45
		Woodbury University	2	1	3	2
<b>Supply Subtotal/Average</b>			<b>132</b>	<b>120</b>	<b>96</b>	<b>116</b>
<b>Supply Total/Average</b>			<b>476</b>	<b>481</b>	<b>484</b>	<b>480</b>

**Appendix A: Occupational demand and wage data by county**

**Exhibit 4. Orange County**

<b>Occupation (SOC)</b>	<b>2020 Jobs</b>	<b>2025 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings (25<sup>th</sup> Percentile)</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings (75<sup>th</sup> Percentile)</b>
Web Developers and Digital Interface Designers (15-1257)	2,706	2,817	110	4%	204	\$22.01	\$33.48	\$46.89
Special Effects Artists and Animators (27-1014)	818	822	5	1%	79	\$15.49	\$30.51	\$52.00
<b>Total</b>	<b>3,524</b>	<b>3,639</b>	<b>115</b>	<b>3%</b>	<b>284</b>			

**Exhibit 5. Los Angeles County**

<b>Occupation (SOC)</b>	<b>2020 Jobs</b>	<b>2025 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>	<b>Entry-Level Hourly Earnings (25<sup>th</sup> Percentile)</b>	<b>Median Hourly Earnings</b>	<b>Experienced Hourly Earnings (75<sup>th</sup> Percentile)</b>
Web Developers and Digital Interface Designers (15-1257)	7,049	7,343	295	4%	533	\$23.53	\$35.67	\$49.81
Special Effects Artists and Animators (27-1014)	7,155	7,314	159	2%	720	\$22.53	\$40.04	\$61.61
<b>Total</b>	<b>14,203</b>	<b>14,657</b>	<b>454</b>	<b>3%</b>	<b>1,253</b>			



**Exhibit 6. Los Angeles and Orange Counties**

<b>Occupation (SOC)</b>	<b>2020 Jobs</b>	<b>2025 Jobs</b>	<b>5-Yr Change</b>	<b>5-Yr % Change</b>	<b>Annual Openings</b>
Web Developers and Digital Interface Designers (15-1257)	9,755	10,160	405	4%	737
Special Effects Artists and Animators (27-1014)	7,972	8,136	164	2%	799
<b>Total</b>	<b>17,727</b>	<b>18,269</b>	<b>569</b>	<b>3%</b>	<b>1,536</b>

**Appendix B: Sources**

- O\*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

For more information, please contact:

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September 2021

