![COE — Centers of Excellence for Labor Market Research logo]

Program Endorsement Brief: 0702.10/Software Applications
Web Design
Orange County Center of Excellence, August 2020

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met	☒	Endorsed: Some Criteria Met	☐	Not Endorsed	☐

Program Endorsement Criteria				
Supply Gap:	Yes	☑	No	☐
Meets Living Wage: (Entry-Level, 25th)	Yes	☑	No	☑

Typical Entry-Level Education:	HS Diploma or Less	Some College/ Cert./AA	Bachelor's Degree	Graduate Degree
	☐	☑	☐	☐

Emerging Occupation(s)	
Yes ☐	No ☑

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 (15-1134), and Computer User Support Specialists (15-1151). Middle-skill occupations typically require some postsecondary education, but less than a bachelor's degree.[1] 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 middle-skill web design occupations in the region. **Therefore, due to all of the criteria being met, the COE endorses this proposed program.** Reasons include:

Demand:
- Over the next five years, there is projected to be **3,601 jobs available annually** in the region due to new job growth and replacements, **which is more than the 914 awards conferred annually** by educational institutions in the region.
  - However, the Computer User Support Specialist (15-1151) SOC code includes a variety of IT diagnostic occupations. Since the SOC code does not solely represent web-related support specialists, *the number of annual job openings is likely overstated.*

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[1] 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.

- Over the past 12 months, there were **4,477 online job postings related to web design and development occupations.** The highest number of job postings were for web developers, front end developers, user experience (UX) designers, web designers, and user interface (UI)/user experience (UX) designers.
- The Bureau of Labor Statistics (BLS) lists an **associate degree as the typical entry-level education for web developers, and some college/no degree as the typical entry-level education for computer user support specialists.**
    - Furthermore, the national-level educational attainment data indicates **between 25.3% and 41.1% of workers in the field have completed some college or an associate degree.**
- In Orange County, **typical regional entry-level hourly wages** for middle-skill web design occupations are between **$19.73 and $20.69, which are higher than the California Family Needs Calculator** hourly wage (living wage) for one adult ($17.36).[2]

Supply:
- There **22 community colleges** in the region that issue awards related to web design, conferring an average of **437 awards annually** between 2016 and 2019.
- Between 2014 and 2017, there was an average of **477 awards conferred annually** in related training programs by non-community college institutions throughout the region.

Occupational Demand

Exhibit 1, on the following page, shows the five-year occupational demand projections for these middle-skill web design occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to increase by 7% through 2024. There will be more than 3,600 job openings per year through 2024 due to job growth and replacements. It is important to note that the Computer User Support Specialists (15-1151) SOC code includes a variety of IT hardware and software diagnostic occupations, not solely web-related support specialists. Therefore, the data in Exhibit 1 is overstated for web 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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[2] Living wage data was pulled from California Family Needs Calculator on 7/6/20. 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[3]

Geography	2019 Jobs	2024 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Los Angeles	26,331	28,113	1,782	7%	2,542
Orange	10,851	11,619	768	7%	1,058
Total	**37,182**	**39,733**	**2,551**	**7%**	**3,601**

Wages

The labor market endorsement in this report considers the entry-level hourly wages for these middle-skill web 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—All of the annual openings for these middle-skill web design occupations have entry-level wages above the California Family Needs Calculator hourly wage (living wage) for one adult ($17.36 in Orange County). [4] Typical entry-level hourly wages are in a range between $19.73 and $20.69. Experienced workers can expect to earn wages between $34.10 and $43.75, which are higher than the living wage estimate. Orange County's average wages are below the average statewide wage of $33.83 for these occupations.

Los Angeles County—All of the annual openings for these middle-skill electrical occupations have entry-level wages above the living wage for one adult ($15.04 in Los Angeles County). Typical entry-level hourly wages are in a range between $21.06 and $21.25. Experienced workers can expect to earn wages between $34.98 and $46.07, which are higher than the living wage estimate. Los Angeles County's average wages are below the average statewide wage of $33.83 for these occupations.

Job Postings—There were 4,477 online job postings related to middle-skill web design and development occupations listed in the past 12 months. The highest number of job postings were for web developers, front end developers, user experience (UX) designers, web designers, and user interface (UI)/user experience (UX) designers. The top skills were: JavaScript, web development, web application development, HTML5, and web site design. The top three employers, by number of job postings, in the region were: Genuent, IBM, and Jefferson Frank.

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 some college/no degree as the typical entry-level education for computer user support specialists. The national-level educational

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

[4] Living wage data was pulled from California Family Needs Calculator on 7/6/2020. For more information, visit the California Family Needs Calculator website: https://insightcced.org/2018-family-needs-calculator/.

attainment data indicates between 25.3% and 41.1% of workers in the field have completed some college or an associate degree. Of the 6% of web design and development job postings listing a minimum education requirement in Los Angeles/Orange County, 68% (193) requested a high school diploma and 32% (89) 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: Website Design and Development (0614.30), Software Applications (0702.10), Computer Software Development (0707.00), Computer Programming (0707.10), World Wide Web Administration (0709.00), and El-Commerce-Technology Emphasis (0709.10). The colleges with the most completions in the region are: Mt. San Antonio, Santa Monica, and Irvine. Over the past 12 months, there were two other related program recommendation requests from regional community colleges.

Exhibit 2: Regional community college awards (certificates and degrees), 2016-2019

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
0614.30	Website Design and Development	LA Pierce	2	-	3	2
		Mt San Antonio	-	9	9	6
		LA Subtotal	**2**	**9**	**12**	**8**
		Coastline	1	-	1	1
		Fullerton	-	-	3	1
		Irvine	8	2	3	4
		Saddleback	5	4	7	5
		Santa Ana	1	1	-	1
		Santiago Canyon	12	9	24	15
		OC Subtotal	**27**	**16**	**38**	**27**
		Supply Subtotal/Average	**29**	**25**	**50**	**35**
0702.10	Software Applications	Cerritos	4	3	9	5
		LA City	2	-	-	1
		LA Mission	2	7	2	4
		LA Southwest	2	2	1	2
		Mt San Antonio	2	3	1	2
		Pasadena	2	-	-	1
		Santa Monica	17	10	18	15
		LA Subtotal	**31**	**25**	**31**	**29**
		Coastline	9	4	9	7
		Fullerton	1	-	-	0
		Irvine	28	22	39	30
		Saddleback	9	3	2	5

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
		OC Subtotal	**47**	**29**	**50**	**42**
		Supply Subtotal/Average	**78**	**54**	**81**	**71**
0707.00	Computer Software Development	LA City	-	-	1	0
		Pasadena	4	-	-	1
		LA Subtotal	**4**	**-**	**1**	**2**
		Cypress	1	1	1	1
		Golden West	7	3	4	5
		Orange Coast	5	7	7	6
		Saddleback	3	3	13	6
		OC Subtotal	**16**	**14**	**25**	**18**
		Supply Subtotal/Average	**20**	**14**	**26**	**20**
0707.10	Computer Programming	Cerritos	1	4	-	2
		East LA	5	6	8	6
		Glendale	1	2	2	2
		LA City	43	-	-	14
		LA Mission	2	5	6	4
		LA Pierce	6	9	18	11
		LA Southwest	2	1	-	1
		LA Valley	26	10	7	14
		Long Beach	-	2	4	2
		Mt San Antonio	68	62	119	83
		Pasadena	1	8	11	7
		Santa Monica	25	42	44	37
		West LA	-	-	1	0
		LA Subtotal	**180**	**151**	**220**	**184**
		Cypress	27	18	22	22
		Fullerton	-	-	16	5
		Irvine	16	10	8	11
		Orange Coast	29	29	31	30
		Santa Ana	-	1	13	5
		Santiago Canyon	-	30	9	13
		OC Subtotal	**72**	**88**	**99**	**86**
		Supply Subtotal/Average	**252**	**239**	**319**	**270**
0709.00		Glendale	3	9	6	6
		LA Pierce	5	5	9	6

TOP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
	World Wide Web Administration	Long Beach	5	4	22	10
		West LA	8	24	13	15
		LA Subtotal	**21**	**42**	**50**	**38**
		Saddleback	5	-	-	2
		OC Subtotal	**5**	**0**	**0**	**2**
	Supply Subtotal/Average		**26**	**42**	**50**	**39**
0709.10	E-Commerce (Technology Emphasis)	East LA	-	-	1	0
		LA Subtotal	**0**	**0**	**1**	**0**
		Saddleback	-	-	6	2
		OC Subtotal	**0**	**0**	**6**	**2**
	Supply Subtotal/Average		**0**	**0**	**7**	**2**
	Supply Total/Average		**405**	**374**	**533**	**437**

Non-Community College Supply—It is important to consider the supply from four-year institutions in the region that provide training programs for middle-skill web design occupations. 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: Computer Programming/Programmer, General (11.0201), Computer Programming, Other (11.0299), Web Page, Digital/Multimedia and Information Resources Design (11.0801), Computer and Information Systems Security/Information Assurance (11.1003), Web/Multimedia Management and Webmaster (11.1004), and E-Commerce/Electronic Commerce (52.0208). Due to different data collection periods, the most recent three-year period of available data is from 2014 to 2017. Between 2014 and 2017, four-year colleges in the region conferred an average of 477 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2014-2017

CIP Code	Program	College	2014-2015 Awards	2015-2016 Awards	2016-2017 Awards	3-Year Award Average
11.0201	Computer Programming/ Programmer, General	ABCO Technology	6	12	18	12
		ITT Technical Institute-San Dimas	5	-	-	2
		University of Phoenix-California	68	62	43	58
11.0299	Computer Programming, Other	Advanced Computing Institute	52	48	1	34

CIP Code	Program	College	2014-2015 Awards	2015-2016 Awards	2016-2017 Awards	3-Year Award Average
11.0801	Web Page, Digital/ Multimedia and Information Resources Design	Advanced Computing Institute	73	46	57	59
		Argosy University-The Art Institute of California-Hollywood	22	20	24	22
		Argosy University-The Art Institute of California-Los Angeles	15	23	24	21
		Argosy University-The Art Institute of California-Orange County	19	15	33	22
		DeVry University-California	91	69	36	65
		Fremont College	8	1	-	3
		University of Phoenix-California	5	6	1	4
11.1003	Computer and Information Systems Security/ Information Assurance	Azusa Pacific University	8	4	3	5
		ITT Technical Institute-Orange	37	-	-	12
		ITT Technical Institute-San Dimas	23	-	-	8
		ITT Technical Institute-Sylmar	19	-	-	6
		ITT Technical Institute-Torrance	6	-	-	2
		Learnet Academy Inc	-	39	48	29
		Mt Sierra College	14	9	8	10
		University of Phoenix-California	111	74	71	85
11.1004	Web/Multimedia Management and Webmaster	ABCO Technology	7	9	12	9
		Pepperdine University	-	1	-	0
		University of Phoenix-California	7	5	4	5
52.0208	E-Commerce/ Electronic Commerce	University of La Verne	5	3	-	3
		University of Phoenix-California	1	1	-	1
		Supply Total/Average	**602**	**447**	**383**	**477**

Appendix A: Occupational demand and wage data by county

Exhibit 4. Orange County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Web Developers (15-1134)	2,593	2,787	194	7%	243	$19.73	$29.64	$43.75
Computer User Support Specialists (15-1151)	8,258	8,832	574	7%	815	$20.69	$26.49	$34.10
Total	**10,851**	**11,619**	**768**	**7%**	**1,058**			

Exhibit 5. Los Angeles County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Web Developers (15-1134)	7,068	7,582	514	7%	659	$21.06	$31.35	$46.07
Computer User Support Specialists (15-1151)	19,263	20,531	1,268	7%	1,884	$21.25	$27.19	$34.98
Total	**26,331**	**28,113**	**1,782**	**7%**	**2,542**			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Web Developers (15-1134)	9,661	10,370	709	7%	902
Computer User Support Specialists (15-1151)	27,521	29,363	1,842	7%	2,699
Total	**37,182**	**39,733**	**2,551**	**7%**	**3,601**

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)

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