

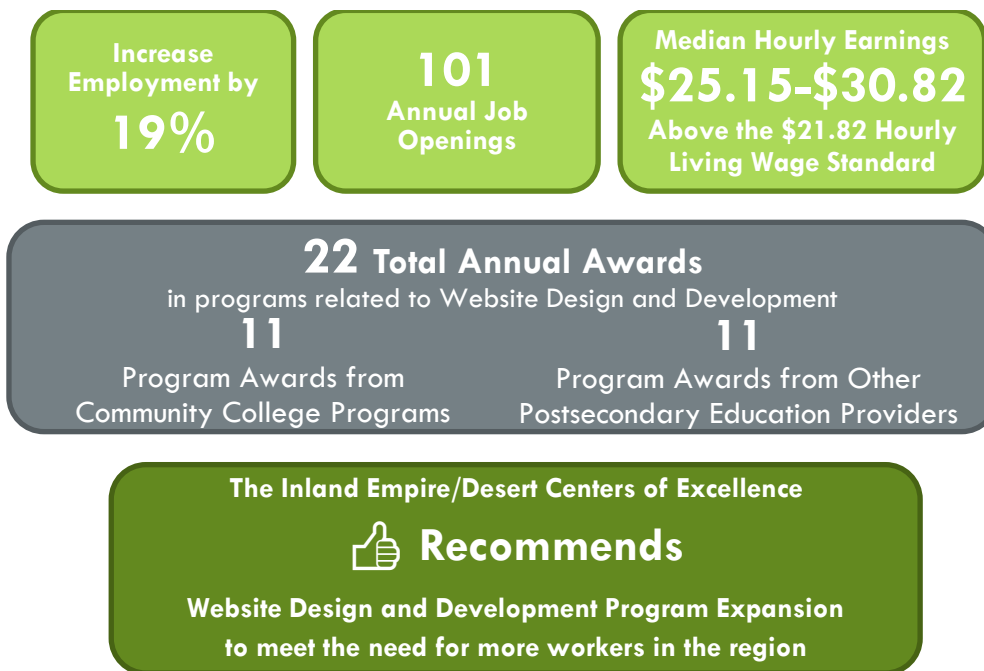
# Website Design and Development

*Inland Empire/Desert Region (Riverside and San Bernardino counties)*

## Summary



Over the next five years (2021-2026), employment for the website design and development occupational group is projected to



## Introduction

California Community College website design and development programs (TOP 0614.30) prepare students for employment through the instruction of the principles of design, user interface/navigation, graphics applications and other authoring tools to design, edit and publish web pages, documents, images, graphics, sound, and multimedia products for the Internet (Taxonomy of Programs, 2012). The knowledge, skills, and abilities trained by website design and development programs lead to employment in the following occupations, further referred to as the website design and development occupational group:

- Web Developers (SOC 15-1254)
- Web and Digital Interface Designers (15-1255)

## Job Counts and Projections

In 2021, there were 820 website design and development jobs in the Inland Empire/Desert Region.

Employment for this occupational group is projected to increase by 19% through 2026, with 101 job openings expected annually. Exhibit 1 displays the job counts, projected job growth, job openings, and the share of incumbent workers aged 55 years and older in the region.

*Exhibit 1: Five-year projections, Inland Empire/Desert Region, 2021-2026*

Occupation	2021 Jobs	2026 Jobs	5-Yr % Change	5-Yr Openings (New + Replacement Jobs)	Annual Openings (New + Replacement Jobs)	% of workers age 55+
Web Developers	476	568	19%	283	57	9%
Web and Digital Interface Designers	344	412	20%	223	45	8%
<b>Total</b>	<b>820</b>	<b>980</b>	<b>19%</b>	<b>506</b>	<b>101</b>	<b>8%</b>

Source: Lightcast 2023.1

An online job advertisement (ad) search for the website design and development occupational group was conducted to reveal the employers seeking these workers, including the median posting duration, earnings information, education and experience requirements, and in-demand skills. Over the previous 12 months, there were 358 job ads posted for the website design and development occupational group in the region.

Exhibit 2 shows the number of job ads posted during the last 12 months and the regional median posting duration. On average, employers in the region had job ads for the website design and development occupational group open for 22 days. The average regional online job is open for 28 days, indicating that it may be easier for employers to fill website design and development jobs than other jobs. The majority of job ads were for web developers.

*Exhibit 2: Job ads and median posting duration, Inland Empire/Desert Region, April 2022 – March 2023*

Occupation	Job Ads	Median Posting Duration (Days)
Web Developers	349	22
Web and Digital Interface Designers	9	24
<b>Total</b>	<b>358</b>	<b>22</b>

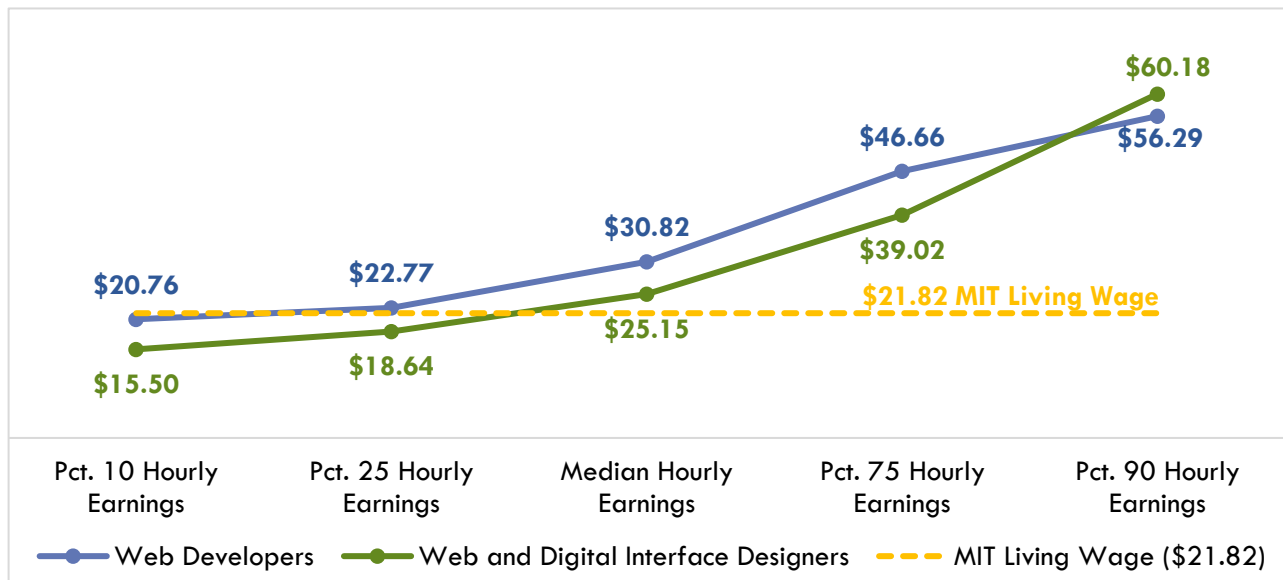
Source: Lightcast 2023.1

## Earnings

Community colleges should ensure their training programs lead to employment opportunities that provide a living wage. The MIT living wage calculator estimates that an individual must earn \$21.82 per hour or \$45,386 annually in California to be self-sufficient (Glasmeier, 2023).

Exhibit 3 displays the hourly earnings for the website design and development occupational group. The median hourly earnings for the website design and development occupational group are between \$25.15 and \$30.82, above the region's hourly living wage standard (\$21.82 per hour).

Exhibit 3: Hourly earnings by percentile, Inland Empire/Desert Region, 2021

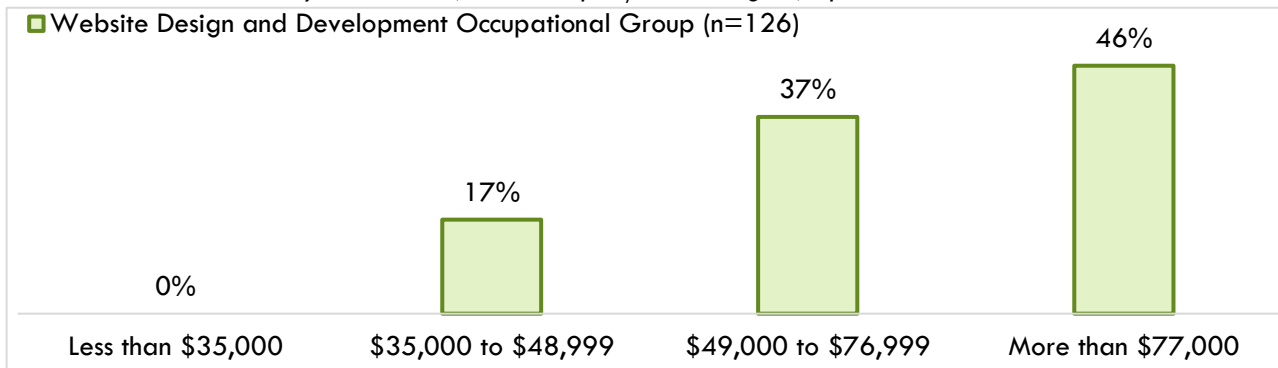


Source: Lightcast 2023.1

## Advertised Salary from Online Job Ads

Exhibit 4 displays online job ad salary data for the website design and development occupational group over the last 12 months. Online job ad salary information reveals employers willing to pay the website design and development occupational group an average annual salary of \$72,446 or \$34.83 hourly, above the region's \$45,386 annual (\$21.82 hourly) MIT living wage standard. Consider the salary information with caution since only 35% (126 out of 358) of online job ads for these occupations provided salary information.

Exhibit 4: Advertised salary information, Inland Empire/Desert Region, April 2022 – March 2023



Source: Lightcast 2023.1

## Job Titles, Employers, Skills, Education, and Work Experience

Exhibit 5 displays the job titles most frequently requested by employers seeking website design and development workers in the region over the last 12 months. The most commonly requested job title for this occupational group was web developer.

Exhibit 5: Most frequently used job titles in employer job ads, Inland Empire/Desert Region, April 2022 – March 2023

Job Titles	Job Ads
Web Developers	61
Back End Engineers	31
Front End Engineers	29
Front End Developers	16
Web Application Developers	14
UI/UX Designers	14
All other job titles	193
<b>Total</b>	<b>358</b>

Source: Lightcast 2023.1

Exhibit 6 displays the employers that posted the most job ads for the website design and development occupational group in the region over the last 12 months. Showing employer names provides insight into where students may find employment after completing a program. Esri, a geographic information systems company in Redlands, posted the most job ads for the website design and development occupational group over the previous 12 months.

*Exhibit 6: Employers posting the most job ads for the website design and development occupational group over the last 12 months, Inland Empire/Desert Region, April 2022 – March 2023*

Top Employers	Job Ads
Esri	41
ProSites	13
General Dynamics	6
University of California, Riverside	6
The Outdoor Plus	5
Garbage Dream Agency	5
All other employers	282
<b>Total</b>	<b>358</b>

Source: Lightcast 2023.1

Exhibit 7 lists a sample of specialized, employability, and software and programming skills employers seek when looking for workers to fill website design and development positions. Specialized skills are occupation-specific skills that employers request for industry or job competency. Employability skills are foundational skills that transcend industries and occupations; this category is often referred to as "soft skills." The skills requested in job ads may be utilized to guide curriculum development.

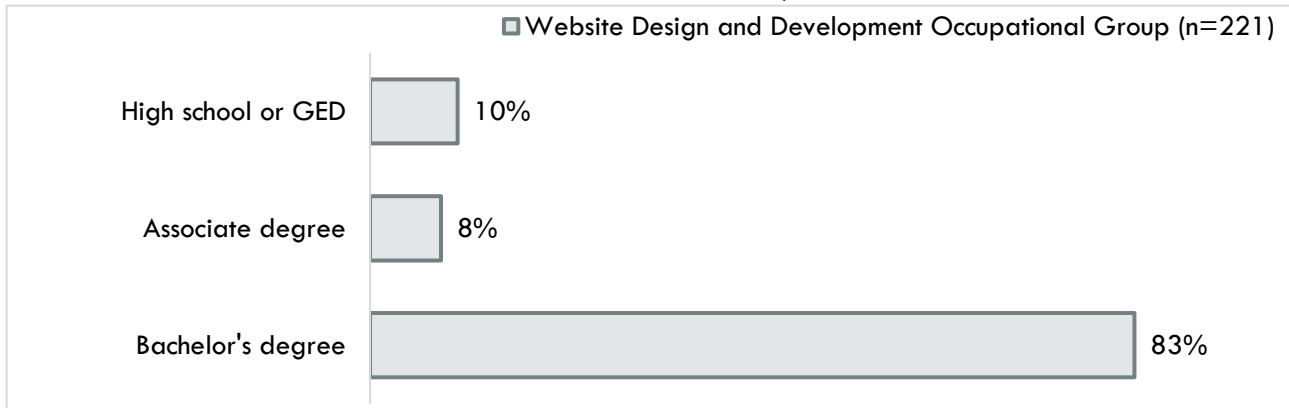
*Exhibit 7: Sample of in-demand skills from employer job ads, Inland Empire/Desert Region, April 2022 – March 2023*

Specialized skills (n=358)	Employability skills	Software and Programming skills
<ul style="list-style-type: none"> <li>• Cascading Style Sheets (CSS)</li> <li>• Computer Science</li> <li>• User Experience (UX)</li> <li>• Front End Engineering</li> <li>• Search Engine Optimization</li> <li>• Marketing</li> </ul>	<ul style="list-style-type: none"> <li>• Communication Skills</li> <li>• Writing</li> <li>• Problem-Solving</li> <li>• Management Skills</li> <li>• Detail-Oriented</li> <li>• Customer Service</li> </ul>	<ul style="list-style-type: none"> <li>• Cascading Style Sheets (CSS)</li> <li>• JavaScript</li> <li>• HTML</li> <li>• React</li> <li>• API</li> <li>• SQL</li> </ul>

Source: Lightcast 2023.1

Exhibit 8 displays the minimum advertised education requirements for the website design and development occupational group. Most employer job ads (83%) for the website design and development occupational group sought candidates with a bachelor's degree.

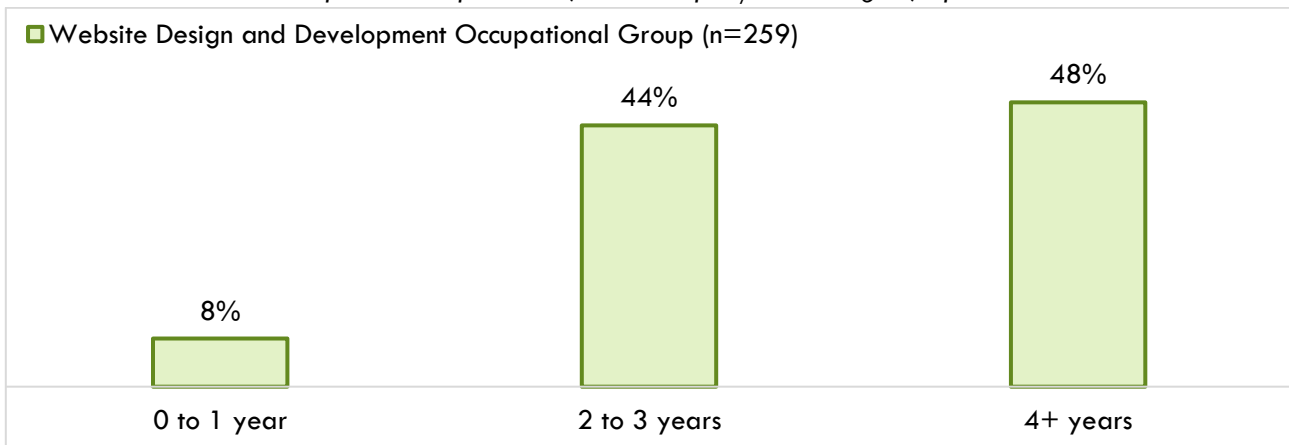
*Exhibit 8: Minimum advertised education requirements, Inland Empire/Desert Region, April 2022 – March 2023*



Source: Lightcast 2023.1

Exhibit 9 displays the real-time work experience requirements from employer job ads for the website design and development occupational group. Experience requirements found within job ads for website design and development workers indicate that employers value previous work experience, with approximately 92% of employers seeking candidates with more than one year of work experience.

*Exhibit 9: Real-time work experience requirements, Inland Empire/Desert Region, April 2022 – March 2023*



Source: Lightcast 2023.1

## Student Completions and Programs Outcomes

Seven community colleges in the region currently offer programs related to website design and development using five program codes. Combined, regional community college programs related to website design and development have issued 11 awards annually over the last three academic years, 2019-2022. Exhibit 10 displays each regional program related to website design and development and award types students earn upon program completion.

*Exhibit 10: Website design and development-related programs, Inland Empire/Desert Region, 2022-23 academic year*

College	TOP Program (TOP Code)	Local Program Title	Award
Chaffey	Website Design and Development (0614.30)	Website Design*	Associate degree Certificate
		World Wide Web Administration (0709.00)	Web Page Developer Certificate
Crafton Hills	Website Design and Development (0614.30)	Multimedia: Web Development and Interface Design	Associate degree
		User Interface Design	Certificate
		Web Development	Certificate
College of the Desert	Digital Media (0614.00)	Web Design	Certificate
Moreno Valley	World Wide Web Administration (0709.00)	Web Master: Website Designer	Certificate
		Web Master: Web Developer	Certificate
Riverside City	World Wide Web Administration (0709.00)	Web Master: Website Designer	Certificate
		Web Master: Web Developer	Certificate
San Bernardino Valley	Graphic Art and Design (1030.00)	Web and Multimedia Design	Certificate
Victor Valley	Computer Information Systems (0702.00)	Web Authoring	Certificate

Source: COCI, 2022-23 Community College Catalogs

\*Chaffey College has not offered its website design and development program since the 2020-21 academic year but has conferred awards as recently as the 2021-22 academic year.

Exhibit 11 displays student completions for website design and development (TOP 0614.30) programs over the last three academic years, 2019-2022. Regional community colleges have issued three awards annually in website design and development programs over the previous three academic years. According to the Chancellor's Office Curriculum Inventory (COCI), Chaffey College's program is no longer active (COCI, 2022). Program completion and student outcome methodologies can be found in the appendix.

*Exhibit 11: Annual average community college awards for website design and development programs, Inland Empire/Desert Region, Academic Years 2019-2022*

TOP 0614.30 – Website Design and Development (Local Program Title)	Academic Year 2019-20	Academic Year 2020-21	Academic Year 2021-22	Total CC Annual Average Awards, Academic Years 2019-22
<b>Chaffey</b> (Website Design and Development)				<b>3</b>
Associate Degree	1	1	2	1
Certificate 30 < 60 semester units	0	2	4	2
<b>Crafton Hills</b> (Multimedia: Web Development and Interface Design/User Interface Design/Web Development)				<b>0</b>

<b>TOP 0614.30 – Website Design and Development</b> (Local Program Title)	<b>Academic Year 2019-20</b>	<b>Academic Year 2020-21</b>	<b>Academic Year 2021-22</b>	<b>Total CC Annual Average Awards, Academic Years 2019-22</b>
Associate Degree	0	0	0	0
Certificate 30 < 60 semester units	0	0	0	0
<b>Total</b>	<b>1</b>	<b>3</b>	<b>6</b>	<b>3</b>

Source: MIS Data Mart, COCI

Exhibit 12 displays student completions for world wide web administration (TOP 0709.00) programs related to website design and development over the last three academic years, 2019-2022. Regional community colleges have issued seven awards annually for world wide web administration programs related to website design and development over the previous three academic years.

*Exhibit 12: Annual average community college awards for world wide web administration programs related to website design and development, Inland Empire/Desert Region, Academic Years 2019-2022*

<b>TOP 0709.00 – World Wide Web Administration</b> (Local Program Title)	<b>Academic Year 2019-20</b>	<b>Academic Year 2020-21</b>	<b>Academic Year 2021-22</b>	<b>Total CC Annual Average Awards, Academic Years 2019-22</b>
<b>Chaffey</b> (Web Page Developer)				<b>0</b>
Certificate 6 < 18 semester units	0	0	1	0
<b>Moreno Valley</b> (Web Master: Website Designer/Web Developer)				<b>1</b>
Certificate 16 < 30 semester units	0	1	1	1
Certificate 6 < 18 semester units	0	1	0	0
<b>Riverside City</b> (Web Master: Website Designer/Web Developer)				<b>6</b>
Certificate 16 < 30 semester units	0	6	11	6
<b>Grand Total</b>	<b>1</b>	<b>8</b>	<b>13</b>	<b>7</b>

Source: MIS Data Mart, COCI

California program outcome data may provide useful insight into the likelihood of success for the proposed program. Community college student outcome information based on the selected TOP code and region is provided in Exhibits 13 and 14.

*Exhibit 13: 0614.30 – Website design and development strong workforce program outcomes, Inland Empire/Desert Region, Academic Year 2019-2020 (Unless Noted)*

<b>Strong Workforce Program Metrics:</b> <b>0614.30 – Website Design and Development</b> <b>Academic Year 2019-20, unless noted otherwise</b>	<b>Inland Empire/Desert Region</b>	<b>California</b>
Unduplicated count of enrolled students (2020-21)	174	3,890



<b>Strong Workforce Program Metrics: 0614.30 – Website Design and Development Academic Year 2019-20, unless noted otherwise</b>	<b>Inland Empire/Desert Region</b>	<b>California</b>
Completed 9+ career education units in one year (2020-21)	57%	37%
Perkins Economically disadvantaged students	80%	71%
Students who attained a noncredit workforce milestone in a year (2020-21)	-	91%
Students who earned a degree, certificate, or attained apprenticeship (2020-21)	-	364
Transferred to a four-year institution (transfers)	-	215
Job closely related to the field of study (2018-19)	-	66%
Median annual earnings (all exiters)	\$30,136	\$38,980
Median change in earnings (all exiters)	1%	11%
Attained a living wage (completers and skills-builders)	55%	52%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

*Exhibit 14: 0709.00 – World wide web administration strong workforce program outcomes, Inland Empire/Desert Region, Academic Year 2019-2020 (Unless Noted)*

<b>Strong Workforce Program Metrics: 0709.00 – World Wide Web Administration Academic Year 2019-20, unless noted otherwise</b>	<b>Inland Empire/Desert Region</b>	<b>California</b>
Unduplicated count of enrolled students (2020-21)	381	1,823
Completed 9+ career education units in one year (2020-21)	43%	41%
Perkins Economically disadvantaged students	89%	78%
Students who earned a degree, certificate, or attained apprenticeship (2020-21)	-	43
Transferred to a four-year institution (transfers)	12	96
Job closely related to the field of study (2018-19)	-	64%
Median annual earnings (all exiters)	\$32,322	\$43,116
Median change in earnings (all exiters)	0%	15%
Attained a living wage (completers and skills-builders)	56%	57%

Sources: LaunchBoard Community College Pipeline and Strong Workforce Program Metrics

Exhibit 15 displays awards for other postsecondary education providers reported in web page, digital/multimedia and information resources design programs (CIP 11.0801). Completion data is compiled from the Integrated Postsecondary Education Data System (IPEDS) for the most recent three years. Two other regional postsecondary education providers issued 11 awards annually over the last three academic years.

Exhibit 15. Other educational providers web page, digital/multimedia and information resources design programs, three-year annual average credentials, Inland Empire/Desert Region, Academic Years 2017-2020

11.0801 – Web Page, Digital/Multimedia and Information Resources Design	Academic Year 2017-18	Academic Year 2018-19	Academic Year 2019-20	Other Educational Providers Annual Average Credentials, 2017-2020
<b>DeVry University-California</b>				<b>10</b>
Associate degree	2	0	0	1
Bachelor's degree	16	7	5	9
<b>University of Phoenix-California</b>				<b>1</b>
Bachelor's degree	1	2	0	1
<b>Total</b>	<b>19</b>	<b>9</b>	<b>5</b>	<b>11</b>

Source: IPEDS

## Summary of Findings

Employment for the website design and development occupational group is expected to increase by 19% through 2026, with 101 job openings projected annually. The median hourly earnings for the website design and development occupational group are between \$25.15 and \$30.82, above the region's hourly living wage standard (\$21.82 per hour). Over the previous 12 months, there were 358 job ads posted for the website design and development occupational group in the region. Most employers (83%) sought workers with a bachelor's degree.

Seven community colleges in the region currently offer programs related to website design and development using five program codes. Combined, regional community colleges have issued 11 awards annually over the last three academic years in programs related to website design and development. Other postsecondary educational institutions in the region have issued 11 awards annually in web page, digital/multimedia and information resources design programs (CIP 11.0801).

The Centers of Excellence recommends expanding occupational training for website design and development occupations. Colleges considering this program should partner with applicable employers to document their demand for website design and development workers exiting a community college website design and development program.

### Contact

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 April 2023

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## Appendix: Occupation definitions, sample job titles, five-year projections, and earnings for website design and development occupations

### **Occupation Definitions (SOC code), Education and Training Requirements, Community College Education Attainment**

#### **Web Developers (SOC 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.

**Sample job titles:** Technology Applications Engineer, Web Architect, Website design and development Specialist, Website Designer, Web Developer, Webmaster

*Entry-Level Educational Requirement: Bachelor's degree*

*Work Experience Required: None*

*Training Requirement: None*

*Incumbent workers with a Community College Award or Some Postsecondary Coursework: 25%*

#### **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 website design and development 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.

**Sample job titles:** Technology Applications Engineer, Web Architect, Website design and development Specialist, Website Designer, Web Developer, Webmaster

*Entry-Level Educational Requirement: Bachelor's degree*

*Work Experience Required: None*

*Training Requirement: None*

*Incumbent workers with a Community College Award or Some Postsecondary Coursework: 24%*

## Appendix: Methodology

Exhibits 11 and 12 display the average annual California Community College (CCC) awards conferred during the three academic years between 2019 and 2022 from the California Community Colleges Chancellor's Office Management Information Systems (MIS) Data Mart. Awards are the combined total of associate degrees and certificates issued during the timeframe, divided by three in this case to calculate an annual average. This is done to minimize the effect of atypical variations that might be present in a single year.

Community college student outcome information is from LaunchBoard and based on the selected TOP code and region. These metrics are based on records submitted to the California Community Colleges Chancellor's Office Management Information Systems (MIS) by community colleges, which come from self-reported student information from CCC Apply and the National Student Clearinghouse. Employment and earnings metrics are sourced from California's Employment Development Department's Unemployment Insurance database records. When available, outcomes for completers are reported to demonstrate the impact that earning a degree or certificate can have on employment and earnings. For more information on the types of students included for each metric, please see the web link for LaunchBoard's Strong Workforce Program Metrics Data Element Dictionary in the References section (LaunchBoard, 2023a). Finally, employment in a job closely related to the field of study comes from self-reported student responses on the CTE Employment Outcomes Survey (CTEOS), administered by Santa Rosa Junior College (LaunchBoard, 2023a).

Job ad data is limited to the information provided by employers and the ability of artificial intelligence search engines to identify this information. Additionally, preliminary calculations by Georgetown Center on Education and the Workforce found that "just 30 to 40 percent of openings for candidates with some college or an associate degree, and only 40 to 60 percent of openings for high school diploma holders appear online" (Carnevale et al., 2014). Online job ads often do not reveal employers' hiring intentions; it is unknown if employers plan to hire one or multiple workers from a single online job ad or collecting resumes for future hiring needs. A closed job ad may not be the result of a hired worker.

Table 1. 2021 to 2026 job growth, wages, entry-level education, training, and work experience required for the website design and development occupational group in the Inland Empire/Desert Region (Riverside and San Bernardino counties combined)

Occupation (SOC)	2021 Jobs	5-Year Change	5-Year % Change	Annual Openings (New + Replacement Jobs)	Entry-Experienced Hourly Wage (10 <sup>th</sup> to 90 <sup>th</sup> percentile)	Median Hourly Wage (50 <sup>th</sup> percentile)	Average Annual Earnings	Entry-Level Education & On-The-Job-Training	Work Experience Required
Web Developers (15-1254)	476	91	19%	57	\$20.76 to \$56.29	\$30.82	\$73,500	Bachelor's degree & None	None
Web and Digital Interface Designers (15-1255)	344	68	20%	45	\$15.50 to \$60.18	\$25.15	\$67,300	Bachelor's degree & None	None
<b>Total</b>	<b>820</b>	<b>159</b>	<b>19%</b>	<b>101</b>	-	-	-	-	-

Source: Lightcast 2023.1