# **CTE Program Narrative**

NAME OF COLLEGE: Bakersfield College **CONTACT:** Bill Moseley **PHONE NUMBER:** 661-376-0010 EMAIL ADDRESS: bmoseley@bakersfieldcollege.edu **DATE:** 6/26/2016 **DIVISION:** Business Management and Information Technology **FACULTY:** Bill Moseley **PROGRAM NAME:** Certificate of Achievement in Web Development **REASON FOR APPROVAL REQUEST (Check One):** ☐ XX New Program Proposal ☐ Program Revision Proposal (Substantial or TOP Code Changes) ☐ Locally Approved **TYPE OF DEGREE:** ☐ XX Certificate of Achievement ☐ Associate of Arts ☐ Associate of Science ☐ Associate of Arts for Transfer ☐ Associate of Science for Transfer ☐ Other **TRANSFER APPLICABILITY:** Yes No  $\square$ ATTACHMENTS/INFORMATION REQUIRED: Labor/Job Market Data and Analysis **Advisory Committee Meeting Minutes** List of Advisory Committee Members

Employer Survey, if applicable

#### 1. Statement of Program Goals and Objectives

Identify the goals and objectives of the program. For CTE programs, the statement must include the main competencies students will have achieved that are required for a specific occupation. The statement must, at a minimum, clearly indicate the specific occupations or fields the program will prepare students to enter and the basic occupational competencies students will acquire.

If the program is selective, describe relevant entry criteria and the selection process for admission to the program. Specify all mandatory fees that students will incur for the program aside from the ordinary course enrollment fee.

This Certificate of Achievement will provide students with the opportunity to learn and establish competency in the foundational aspects of web development. Students who successfully complete this program will be immediately employable as web developers in a marketing or web development firm, an IT organization, or as a web developer within a non-IT organization. The abundance of positions in this field is also augmented by the large number of opportunities to practice web development, either part-time or full-time, in a freelance capacity.

In this certificate, students will master the use of software tools for the development of web sites, the ability to develop web sites using HTML and CSS, as well as the use of server-side (PHP/MySQL) and client-site (JavaScript) code to create powerful and interactive web sites. The elective courses in the program can be used by the student to dive deeper into programming, or to enhance their general understanding of topics including networking, server management, and principles of computing.

### 2. Catalog Description

Enter exactly as it will appear in the catalog, including program outcomes. The description must also

- Convey the certificate's goals(s) and objectives
- Provide an overview of the knowledge and skills that students who complete the requirements must demonstrate (student learning outcomes)
- List all prerequisite skills or enrollment limitations
- Mention any risks, such as occupations that are inherently competitive or low-salaried and/or occupational areas where inexperienced graduates are not generally hired.
- For CTE programs, the description must list the potential careers students may enter upon completion.
- Convey what the student may expect as an outcome

If applicable, reference accrediting and/or licensing standards. If there is a widely recognized certification provided by a professional association, specify whether the program will fully prepare completers for the recognized professional certification.

This Certificate of Achievement will provide students with the opportunity to learn and establish competency in the foundational aspects of web development. Students who successfully complete this program will be immediately employable as web developers in a marketing or web development firm, an IT organization, or as a web developer within a non-IT organization. The abundance of positions in this field is also augmented by the large number of opportunities to practice web development, either part-time or full-time, in a freelance capacity.

#### **Student Learning Outcomes:**

- 1. Students will use principles of design to develop high quality and usable web sites.
- 2. Students will effectively use commercial software to develop high quality web sites.
- 3. Students will develop client-side code that is cross-browser and platform compatible.
- 4. Students will apply coding standards and database design standards to the development of server-side applications.

Students may complete this certificate as a stand-alone program, or pair it with the completion of another program to enhance and diversify their skill sets. Since the development of web sites, and the use of the web and internet for communication is an almost universal need in business and industry, the addition of this certificate to any students' main degree program will augment their ability to find work in their chosen field.

#### 3. Program Requirements

The program requirements must be consistent with the catalog description. The number of units, specific course requirements and the sequence of the courses must be coherent, complete and appropriate. Display the program requirements in a table format that includes all courses required for completion of the program (core requirements and required or restricted electives), subtotal of core units, and total program units. For each course, indicate the course department number, course title, and unit value.

#### Display of Program Requirements

Core Courses	Title	Units
COMP 41	Web Development: Web Design Tools	3
COMP 42	Web Development: HTML & CSS	
COMP 43	Web Development: JavaScript	
COMP 94	Web Development: PHP & MySQL	3
	Total Core Courses	4

In addition to the core courses, the student must take at least 6 units from the following courses:

<b>Elective Courses</b>	Title	Units
COMP B2	Introduction to Computer Information Systems	
COMP B10	Introduction to Programming Methodologies Using Python	
COMP B11	Programming Concepts and Methodology 1	
COMP B31	CompTIA Network Security – Security+	3
COMP B32	CompTIA Linux+	3
COMP B21	Database Systems – Design and Structured Query Language	3
	Total Elective Courses	6

Total Units Required	18	
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## Display of Proposed Sequence

First Semester	Units
COMP 41	3
Total	3

Third Semester	Units
COMP 43	3
Elective Course	3
Total	6

Second Semester	Units
COMP 42	3
Total	3

Fourth Semester	Units
COMP 94	3
Elective Course	3
Total	6

## **4. Master Planning** (Background and Rationale)

Given the stated goals and objectives, address the role the proposed program will fulfill in the college's

mission and curriculum offerings. This discussion may include some history of the program proposal origins, a description of the program purpose, and/or the program's relevancy for the region and college.

The proposal must demonstrate a need for the program that meets the stated goals and objectives in the region the college proposes to serve with the certificate. A proposed new certificate must not cause undue competition with an existing program at another college.

If any expenditures for facilities, equipment or library and learning resources are planned, please explain the specific needs in this section.

If the program is to be offered in close cooperation with one or more specific employers, a discussion of the relationship must be provided.

Bakersfield College has offered an AS in Web Development from 2000 to 2015. This program was deemed to be too high in units to serve students well, and it was also decided that as we move toward primarily offering AS-T degrees, our Computer Science students would be better served through the addition of several certificates that would be offered along the AS-T in Computer Science, which would function as areas of specialization. This certificate is one in that category. As all of the courses have been offered for well over a decade, there will be no new requirements or facilities needed. No new faculty will need to be hired, and there will be no undue competition with other colleges. All of the required courses are currently being offered at Bakersfield College, and the classes in this certificate align perfectly with our now discontinued AS in Web Development.

## 5. Need for Program

#### a. Enrollment and Completer Projections

Address and justify the number of projected students or "annual completers" to be awarded the certificate each year after the program is fully established.

The annual number of completers can be estimated by the number of students currently completing the required core courses for the certificate on a biannual basis. This for AY 2014-2015 and AY 2015-2016, this number was 47 students (completing COMP 41, COMP 42, COMP 43 and COMP 94). After its approval, this certificate will also be marketed to other majors as an addition to a degree. This will add value to virtually any degree, due to the ubiquitous nature of the web and the almost universal need for knowledge of how the web works.

#### b. Labor Market Information (LMI)

Summarize the Labor Market Information (LMI) and employment outlook (Including citation for the source of the data) for students exiting the program.

Enter table or chart as a separate attachment.

For students who complete this CoA, there are many opportunities for employment. They may secure a job at one of many local companies in their web services department. They also have an opportunity to work as a freelance consultant, in some combination of local and non-local projects.

The demand for web professionals continues to exceed the number of qualified workers. Many web professionals work from home and work with clients all over the world. EMSI predicts 27% job growth in California and median earnings for \$33.28/hour for web professionals. eCommerce Development offers growing job opportunities, high wages, and high job satisfaction.

The Bakersfield area, according to the Bureau of Labor Statistics, will employ 140 such developers this year, at an average salary of \$50,030, which is in the 75<sup>th</sup> percentile for this field.

From ELance.com Total Job Postings: 1,697,731 Current Posted: 15,759 Avg. Job Budget: 2,302 Avg. Hourly Rate: \$21 From www.glassdoor.com Avg Annual Salary: Web Developer \$73,076 From www.payscale.com Avg Annual Salary: Web Developer \$59,898

c. E	Employer	Survey (if	applicable)
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When strong LMI data is not available, an employer survey may be submitted. Provide a copy of the survey, including the number of those surveyed, number of responses, and a summary of the results. Survey must address the extent to which the proposed degree or certificate will be valued by employ	. The

## 6. Place of Program in Curriculum/Similar Programs

Review the college's existing program inventory, then address the following questions:

- Do any active inventory records need to be made inactive or changed in connection with the approval or the proposed program? If yes, please specify.
- Does the program replace any existing program(s) on the college's inventory? Provide relevant details if this program is related to the termination or scaling down of another program(s).
- What related programs are offered by the college?

As noted, this program will replace the AS in Web Development, which has been offered at BC for			
almost 15 years, and has recently been discontinued. The creation of this certificate was a planned			
part of that discontinuance, as we believe that a certificate will be more useful for a greater number			
of students, including those who would have normally completed the AS degree in Web			
Development.			

## 7. Similar Programs at Other Colleges in Service Area

List similar programs offered at other colleges within the Central/Mother Lode Region that may be adversely impacted. Enter 'none' if there are no similar programs.

College	Program
None.	

<sup>\*\*</sup> NOTE: As this is a replacement of our own AS program, it can be concluded that there will be no shift in the balance of the offerings within this region.

## **Supporting documentation required**

**Labor Market Information** 

In a separate attachment, provide current Labor Market Information showing that jobs are available for program completers within the local service area. Statewide or national LMI may be included as supplementary support but evidence of need in the specific college service area or region is also necessary.

### **List of Members of Advisory Committee**

This list must include advisory committee member names, job titles, and affiliations.

Name	Title	Affiliation
Bill Moseley	Professor	Bakersfield College
Malcolm Murdock	Project Manager	Disney Interactive
John Genter	VP, Operations	Lightspeed Systems
Derek Baird	Consultant	N/A
Debby Kurti	Faculty	Victor Valley College

### **Recommendation of Advisory Committee (Meeting Minutes)**

In a separate attachment, provide minutes of the advisory committee meetings at which the program was discussed and approved, with relevant areas highlighted, as well as a summary of the advisory committee recommendations.

Search BLS.gov

Home Subjects **Data Tools** 

**Publications** 

**Economic Releases** 

Occupational Employment and Wages, May 2015

Students

## Occupational Employment Statistics



### **BROWSE OES** OES HOME OES OVERVIEW OES NEWS RELEASES

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## 15-1134 Web Developers

Design, create, and modify Web sites. Analyze user needs to implement Web site content, graphics, performance, and capacity. May integrate Web sites with other computer applications. May convert written, graphic, audio, and video components to compatible Web formats by using software designed to facilitate the creation of Web and multimedia content. Excludes "Multimedia Artists and Animators" (27-1014).

OES MAPS OES PUBLICATIONS OES DATABASES OES FAQS CONTACT OES

National estimates for this occupation Industry profile for this occupation Geographic profile for this occupation

#### National estimates for this occupation: Top

Employment estimate and mean wage estimates for this occupation:

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SPECIAL NOTICES	

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Employment (1)	Employment RSE (3)	Mean hourly wage	Mean annual wage (2)	Wage RSE (3)
127,070	1.5 %	\$33.97	\$70,660	0.7 %

Percentile wage estimates for this occupation:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$16.71	\$22.40	\$31.23	\$43.00	\$56.07
Annual Wage (2)	\$34,770	\$46,600	\$64,970	\$89,430	\$116,620

#### Industry profile for this occupation: Top

Industries with the highest published employment and wages for this occupation are provided. For a list of all industries with employment in this occupation, see the **Create Customized Tables** function.

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Industries with the highest levels of employment in this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Computer Systems Design and Related Services	30,310	1.61	\$35.31	\$73,450
Other Information Services	7,980	3.44	\$36.33	\$75,560
Advertising, Public Relations, and Related Services	6,540	1.36	\$34.86	\$72,510
Management of Companies and Enterprises	6,420	0.28	\$37.48	\$77,960
Management, Scientific, and Technical Consulting Services	6,370	0.51	\$33.17	\$69,000

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Industries with the highest concentration of employment in this occupation:



Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Other Information Services	7,980	3.44	\$36.33	\$75,560
Data Processing, Hosting, and Related Services	5,090	1.75	\$35.87	\$74,620
Computer Systems Design and Related Services	30,310	1.61	\$35.31	\$73,450
Advertising, Public Relations, and Related Services	6,540	1.36	\$34.86	\$72,510
Sound Recording Industries	190	1.19	\$32.16	\$66,890

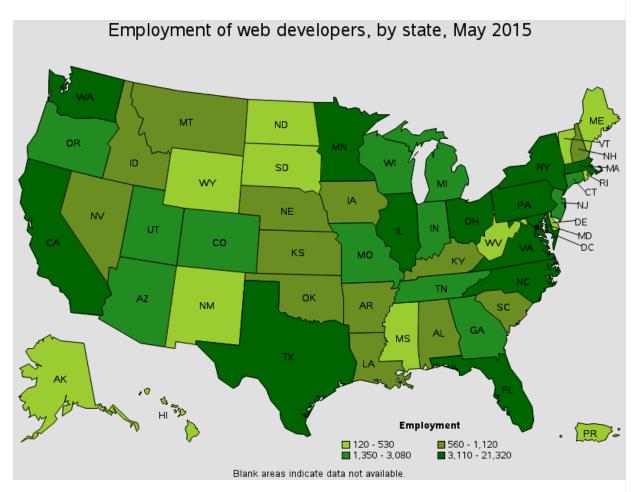
Top paying industries for this occupation:

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Semiconductor and Other Electronic Component  Manufacturing	240	0.07	\$44.70	\$92,970
Audio and Video Equipment Manufacturing	70	0.36	\$44.39	\$92,320

<u>Software Publishers</u>	3,190	0.98	\$42.52	\$88,440
Securities and Commodity Contracts Intermediation and Brokerage	390	0.09	\$41.99	\$87,350
Medical and Diagnostic Laboratories	90	0.04	\$41.90	\$87,160

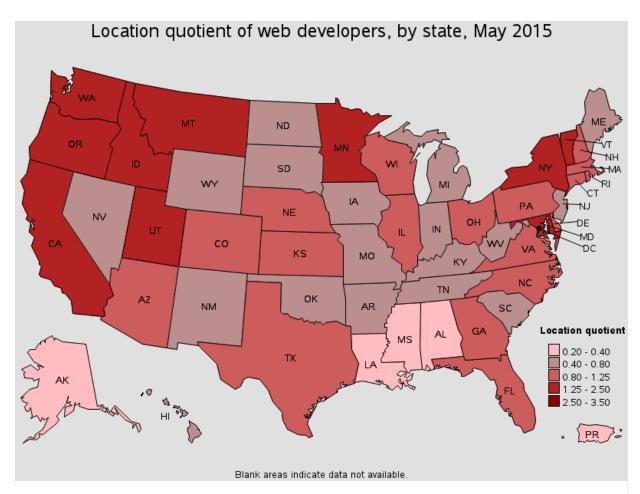
### Geographic profile for this occupation: <u>Top</u>

States and areas with the highest published employment, location quotients, and wages for this occupation are provided. For a list of all areas with employment in this occupation, see the <u>Create Customized Tables</u> function.



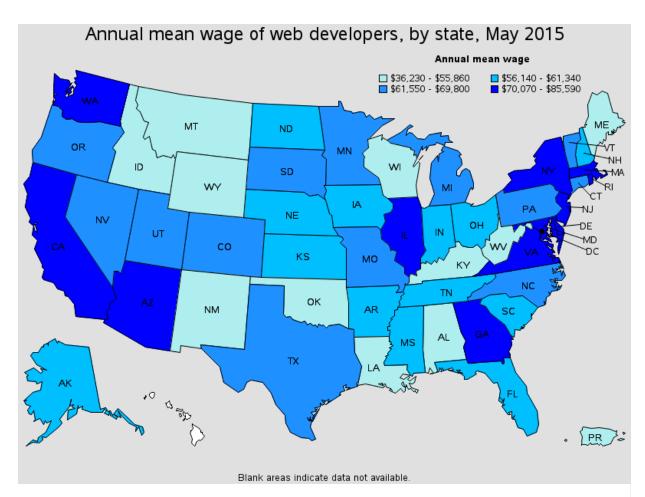
States with the highest employment level in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
<u>California</u>	21,320	1.38	1.49	\$39.23	\$81,610
New York	10,330	1.15	1.25	\$37.65	\$78,310
<u>Texas</u>	9,240	0.80	0.87	\$33.08	\$68,800
<u>Florida</u>	7,620	0.96	1.04	\$29.27	\$60,890
<u>Illinois</u>	4,860	0.83	0.90	\$35.50	\$73,830



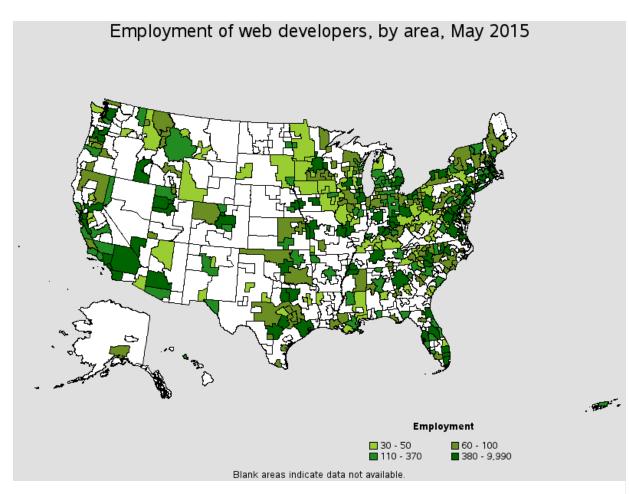
States with the highest concentration of jobs and location quotients in this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
District of Columbia	1,350	2.00	2.17	\$39.74	\$82,670
<u>Vermont</u>	530	1.75	1.90	\$31.34	\$65,190
<u>Oregon</u>	2,970	1.71	1.86	\$30.73	\$63,920
<u>Maryland</u>	4,340	1.67	1.81	\$36.62	\$76,160
<u>Washington</u>	4,450	1.49	1.62	\$41.15	\$85,590



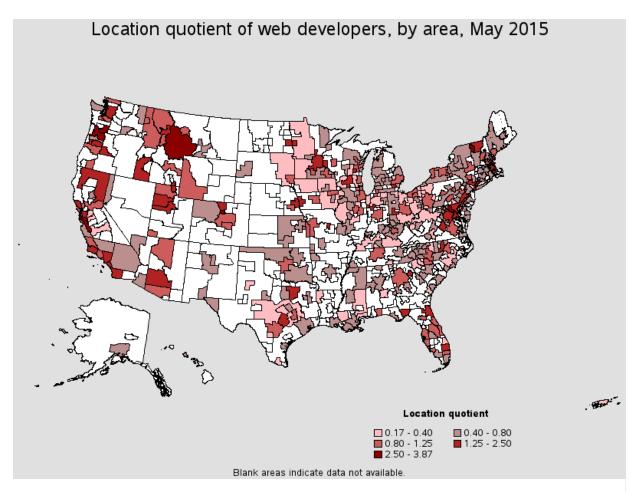
Top paying States for this occupation:

State	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
<u>Washington</u>	4,450	1.49	1.62	\$41.15	\$85,590
District of Columbia	1,350	2.00	2.17	\$39.74	\$82,670
<u>California</u>	21,320	1.38	1.49	\$39.23	\$81,610
<u>Virginia</u>	4,210	1.14	1.24	\$38.67	\$80,440
Rhode Island	360	0.75	0.82	\$38.57	\$80,230



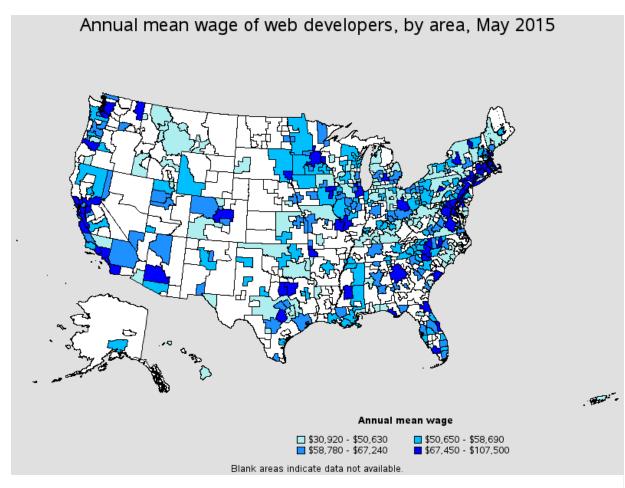
Metropolitan areas with the highest employment level in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
New York-Jersey City-White Plains, NY-NJ Metropolitan Division	8,600	1.33	1.44	\$39.77	\$82,710
Los Angeles-Long Beach-Glendale, CA Metropolitan Division	5,370	1.31	1.42	\$33.85	\$70,410
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan <u>Division</u>	4,310	1.78	1.93	\$41.75	\$86,840
San Francisco-Redwood City-South San Francisco, CA Metropolitan Division	3,640	3.57	3.87	\$46.83	\$97,400
Chicago-Naperville-Arlington Heights, IL Metropolitan Division	3,630	1.02	1.10	\$38.01	\$79,070
Seattle-Bellevue-Everett, WA Metropolitan Division	3,480	2.26	2.46	\$44.11	\$91,740
<u>Dallas-Plano-Irving, TX</u> <u>Metropolitan Division</u>	2,950	1.27	1.37	\$35.06	\$72,920
San Jose-Sunnyvale-Santa Clara, CA	2,930	2.89	3.14	\$51.68	\$107,500
Minneapolis-St. Paul-Bloomington, MN-WI	2,900	1.54	1.67	\$33.44	\$69,560
Boston-Cambridge-Newton, MA NECTA Division	2,590	1.47	1.60	\$38.83	\$80,760



Metropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
San Francisco-Redwood City-South San Francisco, CA Metropolitan Division	3,640	3.57	3.87	\$46.83	\$97,400
Boulder, CO	550	3.24	3.51	\$30.64	\$63,720
Burlington-South Burlington, VT	360	3.01	3.27	\$34.23	\$71,200
San Jose-Sunnyvale-Santa Clara, CA	2,930	2.89	3.14	\$51.68	\$107,500
Silver Spring-Frederick-Rockville, MD Metropolitan Division	1,360	2.37	2.57	\$38.75	\$80,610
Portland-Vancouver-Hillsboro, OR- WA	2,530	2.32	2.52	\$31.23	\$64,950
Seattle-Bellevue-Everett, WA Metropolitan Division	3,480	2.26	2.46	\$44.11	\$91,740
Provo-Orem, UT	460	2.22	2.40	\$31.02	\$64,530
Columbia, MO	190	2.10	2.27	\$30.34	\$63,110
Austin-Round Rock, TX	1,890	2.04	2.21	\$36.82	\$76,580



Top paying metropolitan areas for this occupation:

Metropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
San Jose-Sunnyvale-Santa Clara, CA	2,930	2.89	3.14	\$51.68	\$107,500
San Rafael, CA Metropolitan <u>Division</u>	100	0.88	0.95	\$50.28	\$104,580
San Francisco-Redwood City-South San Francisco, CA Metropolitan <u>Division</u>	3,640	3.57	3.87	\$46.83	\$97,400
Framingham, MA NECTA Division	240	1.38	1.50	\$45.84	\$95,350
<u>Seattle-Bellevue-Everett, WA</u> <u>Metropolitan Division</u>	3,480	2.26	2.46	\$44.11	\$91,740
Washington-Arlington-Alexandria, DC-VA-MD-WV Metropolitan Division	4,310	1.78	1.93	\$41.75	\$86,840
California-Lexington Park, MD	50	1.23	1.34	\$41.39	\$86,090
Lowell-Billerica-Chelmsford, MA- NH NECTA Division	140	0.93	1.01	\$40.42	\$84,080
Napa, CA	60	0.84	0.91	\$39.91	\$83,010
New York-Jersey City-White Plains, NY-NJ Metropolitan Division	8,600	1.33	1.44	\$39.77	\$82,710

Nonmetropolitan areas with the highest employment in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Southwest Montana nonmetropolitan area	350	2.69	2.92	\$23.74	\$49,370
West Northwestern Ohio nonmetropolitan area	140	0.56	0.60	\$19.51	\$40,580
Balance of Lower Peninsula of Michigan nonmetropolitan area	120	0.44	0.48	\$19.70	\$40,980
Northern Vermont					

nonmetropolitan area	110	1.59	1.72	\$25.71	\$53,470	
Piedmont North Carolina nonmetropolitan area	90	0.38	0.41	\$24.94	\$51,880	

Nonmetropolitan areas with the highest concentration of jobs and location quotients in this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Southwest Montana nonmetropolitan area	350	2.69	2.92	\$23.74	\$49,370
Northern Vermont nonmetropolitan area	110	1.59	1.72	\$25.71	\$53,470
Northern Mountains Region of California nonmetropolitan area	80	1.32	1.44	\$26.70	\$55,530
West Montana nonmetropolitan area	80	1.13	1.23	\$20.65	\$42,940
West Central New Hampshire nonmetropolitan area	60	0.99	1.08	\$25.13	\$52,270

Top paying nonmetropolitan areas for this occupation:

Nonmetropolitan area	Employment (1)	Employment per thousand jobs	Location quotient (9)	Hourly mean wage	Annual mean wage (2)
Northwest Colorado nonmetropolitan area	80	0.67	0.73	\$32.33	\$67,240
Central New Hampshire nonmetropolitan area	60	0.60	0.65	\$31.45	\$65,410
Southern Ohio non-metropolitan area	50	0.33	0.36	\$28.50	\$59,280
Northwest Iowa nonmetropolitan area	50	0.32	0.35	\$27.95	\$58,130
Southwest Wyoming nonmetropolitan area	50	0.84	0.91	\$27.41	\$57,010

#### About May 2015 National, State, Metropolitan, and Nonmetropolitan Area Occupational Employment and Wage Estimates

These estimates are calculated with data collected from employers in all industry sectors, all metropolitan and nonmetropolitan areas, and all states and the District of Columbia. The top employment and wage figures are provided above. The complete list is available in the downloadable XLS files.

The percentile wage estimate is the value of a wage below which a certain percent of workers fall. The median wage is the 50th percentile wage estimate--50 percent of workers earn less than the median and 50 percent of workers earn more than the median. More about percentile wages.

- (1) Estimates for detailed occupations do not sum to the totals because the totals include occupations not shown separately. Estimates do not include self-employed workers.
- (2) Annual wages have been calculated by multiplying the hourly mean wage by a "year-round, full-time" hours figure of 2,080 hours; for those occupations where there is not an hourly wage published, the annual wage has been directly calculated from the reported survey data.
- (3) The relative standard error (RSE) is a measure of the reliability of a survey statistic. The smaller the relative standard error, the more precise the estimate.
- (9) The location quotient is the ratio of the area concentration of occupational employment to the national average concentration. A location quotient greater than one indicates the occupation has a higher share of employment than average, and a location quotient less than one indicates the occupation is less prevalent in the area than average.

Other OES estimates and related information:

May 2015 National Occupational Employment and Wage Estimates

May 2015 State Occupational Employment and Wage Estimates

May 2015 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates

May 2015 National Industry-Specific Occupational Employment and Wage Estimates

May 2015 Occupation Profiles

**Technical Notes** 

#### Last Modified Date: March 30, 2016

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## **Certificate of Achievement in Web Design**

Meeting Minutes

#### Committee:

Bill Moseley (Faculty)
Malcolm Murdock (Disney Interactive)
John Genter (Lightspeed Systems)
Derek Baird (Consultant)
Debby Kurti (CS Faculty, Victor Valley College)

The committee met asynchronously during the spring of 2016. Discussion took place between 4/17/2016 and 6/3/2016.

The committee voted in favor of the Web Design Certificate as depicted in the curriculum proposal. Student will be well-equipped to begin freelance work, or to work in a web design position in a larger organization upon completion.

The committee affirmed the idea that statewide labor market statistics should be used to validate the need for this specific kind of training in addition to local statistics, due to the highly competitive remote work labor market for this type of position.

The committee also affirmed the replacement of the Bakersfield College AS in Web Development with this Certificate of Achievement, which is more widely useful in a variety of different contexts and majors.