

NARRATIVE TEMPLATE for Associate of Science in Advanced Information Systems

Item 1. Program Goals and Objectives

The Associate in Science in Advanced Information Systems prepares students transferring to a CSU in Information Technology-Information Systems (IT IS). The required classes represent the normal undergraduate core for transfer to the CSU. Graduates from a CSU have a wide range of career options including: business, industry, teaching, research, and agriculture. They work in multiple specialty areas including: business application developers, business analysts, database designers, web and E-Commerce developers and administrators, webmasters, wireless and mobile application developers, network and security specialists, network administrators, social media specialists, and information systems consultants. Career opportunities are expected to continue to be strong in these areas.

By the completion of the degree the student will be able to:

1. Demonstrate knowledge of a broad business and real world perspective of information technology.
2. Apply knowledge of data design and data management principles.
3. Demonstrate knowledge of basic programming principles.
4. Demonstrate the ability to select, implement and evaluate appropriate problem solving techniques and tools
5. Design effective and usable IT-based solutions and integrate those components into the user environment
6. Communicate effectively and efficiently with clients, users and peers both verbally and in writing, using appropriate terminology.
- 7.

Item 2. Catalog Description

The Associate in Science in Advanced Information Systems prepares students transferring to a CSU in Information Technology-Information Systems (IT IS). The required classes represent the normal undergraduate core for transfer to the CSU. Graduates from a CSU have a wide range of career options including: business, industry, teaching, research, and agriculture. They work in multiple specialty areas including: business application developers, business analysts, database designers, web and E-Commerce developers and administrators, webmasters, wireless and mobile application developers, network and security specialists, network administrators, social media specialists, and information systems consultants

Program Learning Outcomes:

By the completion of the degree the student will be able to:

1. Demonstrate knowledge of a broad business and real world perspective of information technology.
2. Apply knowledge of data design and data management principles.
3. Demonstrate knowledge of basic programming principles.
4. Demonstrate the ability to select, implement and evaluate appropriate problem solving techniques and tools
5. Design effective and usable IT-based solutions and integrate those components into the user environment
6. Communicate effectively and efficiently with clients, users and peers both verbally and in writing, using appropriate terminology.

Students must satisfy both of the following requirements in order to earn the Associate in **Science** in Advanced Information Systems:

1. Completion of 60 semester units that are eligible for transfer to the California State University, including both of the following:
 - a. 40 units from either the Intersegmental General Education Transfer Curriculum (IGETC) or the California State University General Education-Breadth Requirements.
 - b. A minimum of 20 semester units in the major as determined by the required courses described below.
2. Obtainment of a minimum grade point average of 2.0.

Students must earn a “C” or better in all courses required for the major.

Required Core Courses 13 Credits:

INFS P110 – Information & Communication Technology Essentials	4 Units
INFS P100 – Business Information Systems	3 Units
INFS P113 – Introduction to Programming Concepts and Methodologies	3 Units
INFS P220 – Data Communication and Networking	3 Units

List A: Select 6 units or 2 courses from the following courses:

INFS P210 – Systems Analysis and Design	3 Units
BSAD P132 – Business Communications	3 Units
INFS P164 – Introduction to Cybersecurity: Ethical Hacking	3 Units
INFS P180 – Introduction to Database Management Systems	3 Units

List B: Select 3 units or 1 course from the following courses:

BSAD P155 – Business Statistics	3 Units
MATH P122 – Introduction to Probability/Statistics	4 Units

General Education: In addition to completing the major requirements, students must also complete one general education pattern.

1. PC General Education Pattern
2. IGETC Pattern
3. CSU General Education Pattern.

Electives as needed to complete the 60 minimum unit to complete the degree.

Item 3. Program Requirements

Associate of Science in Advanced Information Systems

Required Core Courses 13 Credits:

Requirements	Dept. Name/#	Name	Units	Sequence
Required Core (13 units)	INFS P110	Information & Communication Technology Essentials	4	Fall Yr 1
	INFS P100	Introduction to Information Systems	3	Fall Yr 1
	INFS P113	Introduction to Programming Concepts and Methodologies	3	Sp Yr 1
	INFS P220	Data Communications and Networking	3	Sp Yr 1

List A: Select 6 units or 2 courses from the following courses:

Requirements	Dept. Name/#	Name	Units	Sequence
List A: (6 Units)	BSAD P132	Business Communications	3	Fall Yr 2
	INFS P164	Introduction to Cybersecurity: Ethical Hacking	3	Fall Yr 2
	INFS P180	Introduction to Database Systems	3	Sp Yr 2
	INFS P210	Systems Analysis and Design	3	Sp Yr 2

List B: Select 3 units or 1 course from the following courses:

Requirements	Dept. Name/#	Name	Units	Sequence
List 3: (3 Units)	BSAD P155	Business Statistics	3	Sp Yr 2
	Math P122	Introduction to Probability/Statistics	4	Sp Yr 2

Required Major Total	28 units
Local GE Requirement	33 units
TOTAL UNITS	61 units

General Education: In addition to completing the major requirements, students must also complete one general education pattern.

1. PC General Education Pattern
2. IGETC Pattern
3. CSU General Education Pattern.

The goal of this degree is designed to meet local community needs as addressed in attached advisory board minutes.

Proposed Sequence:

Year 1, Fall = 16 units

Year 1, Spring = 15 units

Year 2, Fall = 15 units

Year 2, Spring = 15 units

TOTAL UNITS: 61 units

Item 4. Master Planning

It is important to offer a model curriculum degree (Associate of Science in Advanced Information Systems) to Porterville College Information Systems students. The model curriculum degree will allow students to have their education streamlined through the Bachelors degree without duplication of courses at the upper-division level. The Information Systems program has become increasingly popular with students and there is a definite need for trained individuals in this field. Completing this degree will allow the student to be placed in high wage, high demand jobs in this field.

This program has shown steady growth during the past three years. Between 2011-12, 2013-14, and 2014-15 the Information Systems Program offered an average of 32 sections of classes annually with enrollments ranging from 989-1,192. A total of 19 Associate degrees have been awarded in the three year period 2012-13 through 2014-15. This is an increase over the three previous academic year's total of 13. (2009-10 thru 2011-12). Our Information Systems advisory committee has recommended that the program bolster it's transfer (model curriculum) in an attempt to better meet the needs of our transfer students.

The Discipline faculty, Division Chair, and the CTE Dean discussed the need for the Associate of Science in Advanced Information Systems.

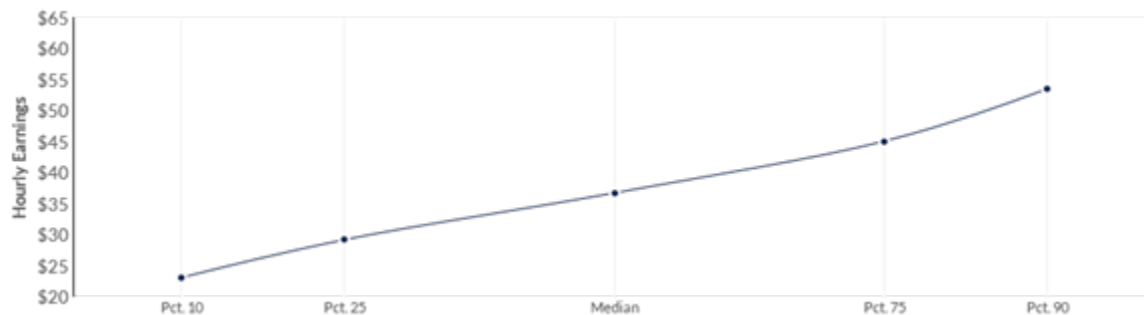
In collaboration with the local advisory board the degree was developed and on February 4, 2016 the Advisory Board approved the Associate of Science in Advanced Information Systems.

Item 5. Enrollment and Completer Projections

The Information Systems (INFS) Program at Porterville College is committed to providing students, both transfer and non-transfer level, with a solid understanding of information systems and technologies and the critical roles they play in our society. We strive to teach our students to think critically, to learn continuously, to grow professionally, and to conduct themselves ethically and responsibly.

This program has shown steady growth during the past three years. Between 2011-12, 2013-14, and 2014-15 the Information Systems Program offered an average of 32 sections of classes annually with enrollments ranging from 989-1,192. A total of 19 Associate degrees have been awarded in the three year period 2012-13 through 2014-15. This is an increase over the three previous academic year's total of 13. (2009-10 thru 2011-12).

EMSI data indicates that top executive occupations are projected to grow within the four-county region by 6.5% 2015-2018. Computer and Information Systems Manager occupations specifically expect a projected five-year growth of 8% regionally,. Average hourly earnings for 2016, top executives are \$36.67 regionally.



It is important to offer students the opportunity to have a specific industry focus while meeting the growing industry need. Additionally, it is important to create a degree program that allows students to be counted as completers in the California Community College System.

Item 6. Place of Program in Curriculum/Similar Programs

The Associate of Science in Advanced Information Systems will be offered through the Career and Technical Education Division. Currently the program is not directly related to any other programs within the college.

Item 7. Similar Programs at Other Colleges in Service Area

There are Associate of Science in Advanced Information Systems or similar programs at College of the Sequoias (33 miles away) and Bakersfield College (50 miles away). Porterville College is the middle point between Bakersfield College and College of The Sequoias.

Information Technology Advisory Committee Meeting

Porterville College Information Systems

Monache High School MTA

Meeting Date February 4, 2016

Attendees:

- | | | |
|---|----------------|-------------------------|
| • | James Carson | Porterville College |
| • | Martha Flores | Community |
| • | Mark Johnson | OACYS Technology |
| • | Patty Aquino | MTA Counselor |
| • | Sam Aunai | Porterville College |
| • | Robert Ramirez | New Life Church |
| • | Scott Cheney | Sierra View Hospital IT |
| • | Nate Wallis | MTA English Teacher |
| • | Eric Barba | Monache HS Principal |
| • | Gregg Snyder | MTA Coordinator |

Discussion item: Community Needs/Student Skills

A lengthy discussion of the needs of the community involved employers from various sectors including churches, IT providers, hospitals, and community volunteer programs.

Robert Ramirez discussed the technology needs of local churches. More and more of these organizations are employing technology as a delivery medium for much of the content that they deliver. These technologies/skills needed included video production, streaming, networking, and equipment maintenance (such as projectors, cameras, microphones, etc). He stressed the need for our programs and the high school and college to cover a wide breadth of technology. He felt that students with exposure to many areas would be beneficial.

Martha Flores explained how technology and local students could make a big difference in organizations that serve underprivileged. These organizations typically do not have large budgets, but can provide valuable internships for area students.

Mark Johnson works for OACYS Technology. OACYS is a local company that offers a wide range of technology services ranging from being an internet service provider, to networking, repair, and even web design. He spoke of the need for generalist skills. Students that are well versed in a variety of technologies are much more valuable to them. He also discussed the need for customer service skills. Many applicants for their positions have high skill levels but limited customer services skills (which are a must for his company).

Scott Cheney works in the IT department at Sierra View District Hospital. They are an organization that encourages internships. They have hired many of their entry level employees through this process. He also stressed the need for customer service skills. Answering phones and staffing the Help Desk are typical entry level duties. He discussed the need for programming experience. An interesting part of his

discussion included the fact that out of every 100 applicants that they receive for advertised positions, only 4 typically get interviews. This underscored the need for job finding skills on our campus.”

Discussion Item: Porterville College Curriculum Changes

Jim Carson from Porterville College shared the new Model Curriculum from the state. An interesting discussion ensued regarding the content of the new major. It was unanimous among advisory committee members that the college should pursue the new Model Curriculum degree. While the college should start with the courses that closely align with some of their current classes, others should be added. The classes that the committee felt were important to include were Cybersecurity and Ethical Hacking.

The college also outlined a proposal to reconstruct it’s current local degree into a set of core classes and 3 options to the major. These include Web Developer option, Computer Office Applications option, and Computer Information Systems option (generalist degree that was discussed earlier).

The group was concerned with the Web Developer option for a number of reasons including lack of community job demand, low cost alternatives to creating your own websites, history of low enrollment in web design courses, and self-taught people currently flooding the market. After a lengthy discussion, it was decided that the college should move forward with the other two options at this point and keep monitoring the current community climate before moving forward with the Web Developer option.

Copies of the degree proposals were distributed to all committee members (attached).

Next meeting: To be determined.

The group would like to expand it’s membership to include other major employers that were not present at this meeting. April or May seemed like possible meeting times for the next meeting.

Porterville College/Monache High School
Technology Advisory Board

James Carson	Porterville College	jcarson@portervillecollege.edu	559-287-2703
Martha Flores	Community	frugalfashion@hotmail.com	559-788-8106
Mark Johnson	OACYS Technology	mark@oacys.com	559-781-4123
Patty Aquino	MTA Counselor	pquino@portervilleschools.org	559-782-7150
Sam Aunai	Porterville College	Sam-aunai@portervillecollege.edu	559-791-2308
Robert Ramirez	New Life Church	robt5188@gmail.com	559-350-5188
Scott Cheney	Sierra View Hospital IT	scheney@sierra-view.com	559-788-6005
Nate Wallis	MTA English Teacher	nwallis@portervilleschools.org	559-786-9224
Eric Barba	Monache HS Principal	ebarba@portervilleschools.org	559-782-7150
Gregg Snyder	MTA Coordinator	gcsnyder@portervilleschools.org	559-359-9111

Model Curriculum Worksheet – Accepted by ICFW 3-31-15

CCC Major or Area of Emphasis: Information Technology

CSU Major or Majors: Information and Communication Technologies,
Information Systems, Information Technology

Total units 22-23 (all units are semester units)

Degree Type (indicate one): AA-T _____ OR AS-T _____ OR MC X

Required Core Courses:

13 units

Title (units)	C-ID Designation	Rationale
Information & Communication Technology Essentials (4)	ITIS 110	Essential Preparation
Business Information Systems, Computer Information Systems (3)	ITIS 120	Essential Preparation
Introduction to Programming Concepts and Methodologies (3)	ITIS 130 or COMP 112	Essential Preparation
Computer Network Fundamentals (3)	ITIS 150	Essential Preparation

Select 6 units or 2 courses from the following:

Introduction to Systems Analysis and Design (3)	ITIS 140	Important Preparation
Routing and Switching Essentials (3)	ITIS 151	Important Preparation
Systems and Network Administration (3)	ITIS 155	Important Preparation
Introduction to Information Systems Security (3)	ITIS 160	Important Preparation
Introduction to Cybersecurity: Ethical Hacking (3)	ITIS 164	Important Preparation
Digital Forensics Fundamentals (3)	ITIS 165	Important Preparation
Introduction to Database Management Systems (3)	ITIS 180	Important Preparation
Business Communication (3)	BUS 115	Important Preparation

Select 3 - 4 units or 1 course from the following:

Introduction to Statistics (3)	MATH 110	Also fulfills CSU <u>GE Area B4</u>
Finite Mathematics (3)	MATH 130	Also fulfills CSU <u>GE Area B4</u>
Business Calculus (3)	MATH 140	Also fulfills CSU <u>GE Area B4</u>
Single Variable Calculus I Early Transcendentals (4)	MATH 210	Also fulfills CSU <u>GE Area B4</u>

Computer Information Systems Degree

Porterville College CTE Division

WEB DEVELOPER option

Course Courses – Level I			
Course		Description	Units
ITIS	120	Business Information Systems	3
ITIS	140	Introduction to Systems Analysis and Design	3
ITIS	130	Introduction to Programming Concepts and Methodologies	3
ITIS	150	Computer Network Fundamentals	3

Course Courses – Level II			
Course		Description	Units
INFS	P030 (MODIFY)	Management Database Technology	3
INFS	P??? (NEW)	JAVA Programming	3
INFS	P??? (NEW)	Internet Protocols and Principles	3
INFS	P052 (MODIFY)	Intro to Web Design (HTML/CSS & DREAMWEAVER)	3
ART	P107	3-D Design	3
Total			27 Units

Computer Information Systems Degree

Porterville College CTE Division

Computer Office Applications option

Course Courses – Level I			
Course		Description	Units
ITIS	120	Business Information Systems	3
ITIS	140	Introduction to Systems Analysis and Design	3
ITIS	130	Introduction to Programming Concepts and Methodologies	3
ITIS	150	Computer Network Fundamentals	3

Course Courses – Level II			
Course		Description	Units
INFS	P030 (MODIFY)	Management Database Technology	3
INFS	P010	Introduction to Word Processing/Word	2
INFS	P020	Introduction to Spreadsheets/Excel	2
ACCTG	P110	Financial Accounting	3
BSAD	P132	Business Communication	3
BSAD	P101	Introduction to Business	3
Total			28 Units

Computer Information Systems Degree

Porterville College CTE Division

Course Courses – Level I			
Course		Description	Units
ITIS	120	Business Information Systems	3
ITIS	140	Introduction to Systems Analysis and Design	3
ITIS	130	Introduction to Programming Concepts and Methodologies	3
ITIS	150	Computer Network Fundamentals	3

Course Courses – Level II			
Course		Description	Units
INFS	P030 (MODIFY)	Management Database Technology	3
ITIS	110	Information & Communication Technology Essentials	3
INFS	P052 (MODIFY)	Intro to Web Design (HTML/CSS & DREAMWEAVER)	3
INFS	P??? (NEW)	Internet Protocols and Principles	3
BSAD	P132	Business Communication	3
Total			27 Units

Occupation Overview

EMSI Q2 2016 Data Set

May 2016

Porterville College

100 E. College Avenue
Porterville, California 93257
559.791.2459

Parameters

Occupations

Code	Description
11-3021	Computer and Information Systems Managers
15-1121	Computer Systems Analysts
15-1122	Information Security Analysts
15-1131	Computer Programmers
15-1142	Network and Computer Systems Administrators
15-1143	Computer Network Architects
15-1151	Computer User Support Specialists
15-1152	Computer Network Support Specialists
15-1199	Computer Occupations, All Other
43-9011	Computer Operators

Regions

Code	Description
6029	Kern County, CA
6107	Tulare County, CA

Timeframe

2015 - 2020

Datarun

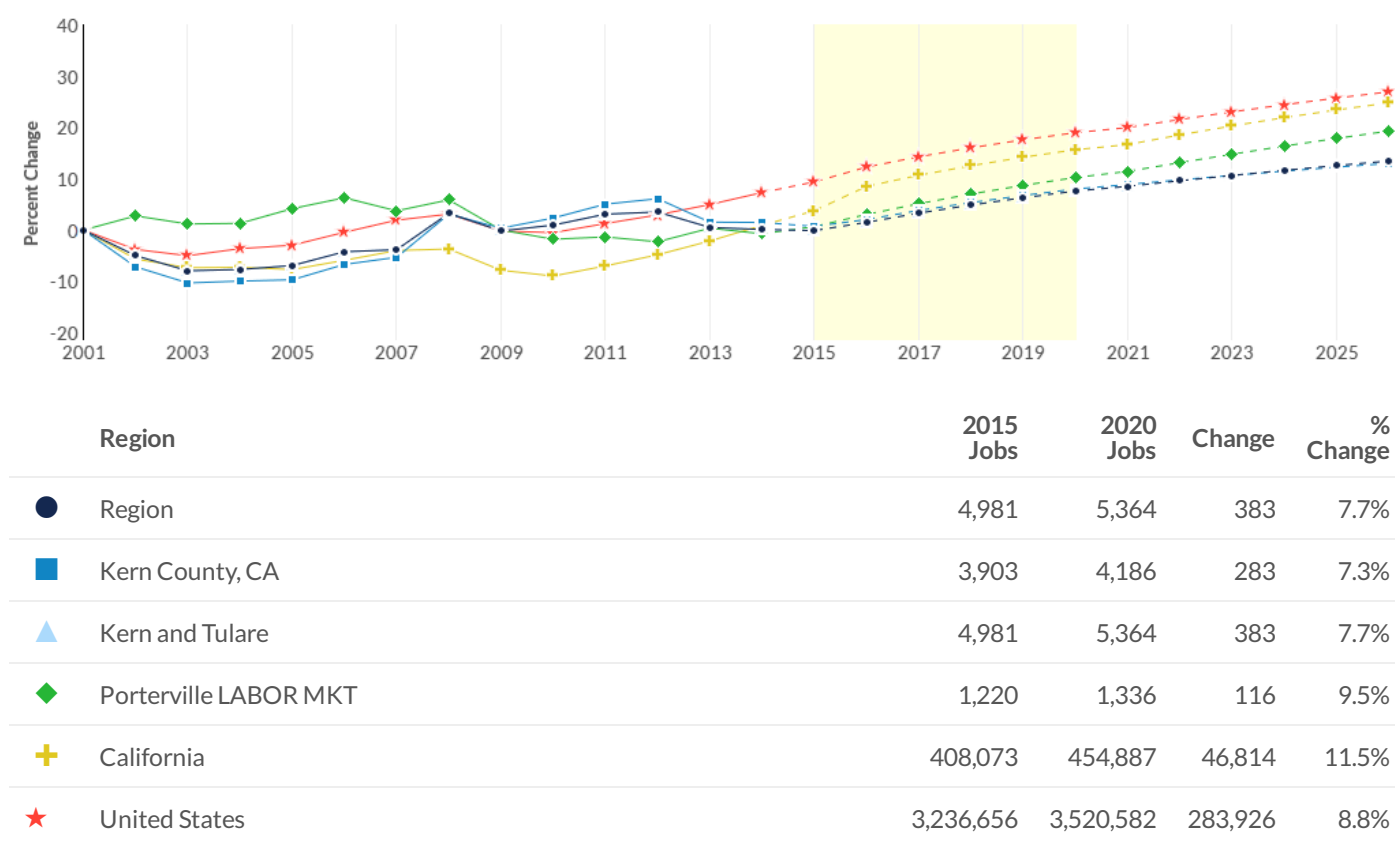
2016.2 – QCEW Employees, Non-QCEW Employees, Self-Employed, and Extended Proprietors

10 Occupations in 2 Counties

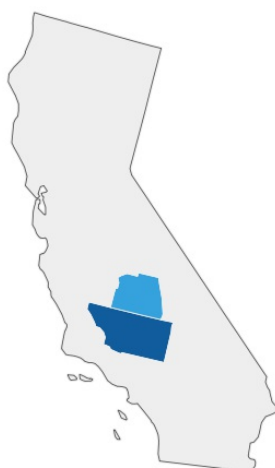
Occupation Summary for 10 Occupations

<p>5,061</p> <p>Jobs (2016)</p> <p>53% below National average</p>	<p>+7.7%</p> <p>% Change (2015-2020)</p> <p>Nation: +8.8%</p>	<p>\$34.59/hr</p> <p>Median Hourly Earnings</p> <p>Nation: \$36.80/hr</p>
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Regional Trends




Regional Breakdown



County	2020 Jobs
Kern County, CA	4,186
Tulare County, CA	1,179

Job Postings Summary

<div>420</div> <div>Unique Postings (Mar 2016) 1,818 Total Postings</div>	<div>4 : 1</div> <div>Posting Intensity (Mar 2016)</div> <div> Regional Average: 6 : 1</div>
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There were 1,818 total job postings for 10 Occupations in March 2016, of which 420 were unique. These numbers give us a Posting Intensity of 4-to-1, meaning that for every 4 postings there is 1 unique job posting.

This is lower than the Posting Intensity for all other occupations and companies in the region (6-to-1), indicating that companies may not be trying as hard to hire this position.

Occupation Gender Breakdown



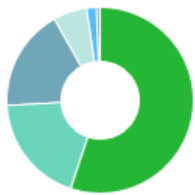
Gender	2016 Jobs	2016 Percent	
Males	3,572	70.6%	<div></div>
Females	1,489	29.4%	<div></div>

Occupation Age Breakdown



Age	2016 Jobs	2016 Percent	
14-18	15	0.3%	<div></div>
19-24	352	7.0%	<div></div>
25-34	1,355	26.8%	<div></div>
35-44	1,347	26.6%	<div></div>
45-54	1,178	23.3%	<div></div>
55-64	689	13.6%	<div></div>
65+	125	2.5%	<div></div>

Occupation Race/Ethnicity Breakdown



Race/Ethnicity	2016 Jobs	2016 Percent	
White	2,789	55.1%	
Hispanic or Latino	961	19.0%	
Asian	897	17.7%	
Black or African American	294	5.8%	
Two or More Races	86	1.7%	
American Indian or Alaska Native	25	0.5%	
Native Hawaiian or Other Pacific Islander	8	0.2%	

Occupational Programs

15

Programs (2014)

108

Completions (2014)

140

Openings (2014)

CIP Code	Program	Completions (2014)
11.0701	Computer Science	29
11.0103	Information Technology	28
11.1006	Computer Support Specialist	24
11.0101	Computer and Information Sciences, General	15
11.0801	Web Page, Digital/Multimedia and Information Resources Design	8

Industries Employing 10 Occupations

Industry	Occupation Group Jobs in Industry (2016)	% of Occupation Group in Industry (2016)	% of Total Jobs in Industry (2016)
Federal Government, Civilian, Excluding Postal Service	397	7.8%	4.1%
Corporate, Subsidiary, and Regional Managing Offices	302	6.0%	7.0%
Computer Systems Design Services	297	5.9%	36.4%
Elementary and Secondary Schools (Local Government)	294	5.8%	0.8%
Local Government, Excluding Education and Hospitals	239	4.7%	1.1%

Appendix A - Data Sources and Calculations

Location Quotient

Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique in comparison to the national average.

Occupation Data

EMSI occupation employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry.

Completers Data

The completers data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Institution Data

The institution data in this report is taken directly from the national IPEDS database published by the U.S. Department of Education's National Center for Education Statistics.

Industry Data

EMSI industry data have various sources depending on the class of worker. (1) For QCEW Employees, EMSI primarily uses the QCEW (Quarterly Census of Employment and Wages), with supplemental estimates from County Business Patterns and Current Employment Statistics. (2) Non-QCEW employees data are based on a number of sources including QCEW, Current Employment Statistics, County Business Patterns, BEA State and Local Personal Income reports, the National Industry-Occupation Employment Matrix (NIOEM), the American Community Survey, and Railroad Retirement Board statistics. (3) Self-Employed and Extended Proprietor classes of worker data are primarily based on the American Community Survey, Nonemployer Statistics, and BEA State and Local Personal Income Reports. Projections for QCEW and Non-QCEW Employees are informed by NIOEM and long-term industry projections published by individual states.

Staffing Patterns Data

The staffing pattern data in this report are compiled from several sources using a specialized process. For QCEW and Non-QCEW Employees classes of worker, sources include Occupational Employment Statistics, the National Industry-Occupation Employment Matrix, and the American Community Survey. For the Self-Employed and Extended Proprietors classes of worker, the primary source is the American Community Survey, with a small amount of information from Occupational Employment Statistics.

State Data Sources

This report uses state data from the following agencies: California Labor Market Information Department