MiraCosta College
Region 10 Career Education Deans' Endorsement Requests
October 2017
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MiraCosta College

<u>**Systems Administration**</u>

AS Degree and Certificate of Achievement
Systems Administration
(Notes: Formerly Network and Desktop Systems Administration AA Degree and Certificate of Achievement. Name change, unit change from 20 to 17, course list change, and AA to AS Degree change.)
This certificate will prepare individuals for careers and employment in computer networking, network administration, enterprise networking, and Internet or intranet administration. Individuals will be prepared for successful employment in networking related occupations such as network technician, systems administrator, field support technician, customer technical support representative, and technical support specialist roles. Certificate completion may help prepare individuals for the CompTIA A+, Network+, and Security+, Windows, and Linux professional certification exams.

1. Labor Market Information and Analysis

In 2015, there were 2,353 computer science and information systems: networking related jobs in San Diego County that typically require a community college degree or less (Table 1). Looking forward to 2020, the labor market demand for computer science and information systems: networking occupations in the county is projected to grow by 7 percent (growth of 168 jobs). There will be 326 open positions due to retirements or other replacement factors in the next five years. The median hourly wages for this occupation is $34.16.

Table 1. Employment Outlook for Computer Science and Information Systems: Networking Occupations Requiring Associate Degree or Less in San Diego county[1]

SOC	Occupation	2015 Jobs	2020 Jobs	5-Yr Change	5-Yr % Change	5-year Openings	Annual Openings	Median Hourly Earnings
15-1152	Computer Network Support Specialists	2,353	2,521	168	7%	326	65	$34.16

As mentioned earlier, the occupation listed in Table 1 typically require some kind of community college education or less, whereas the occupations below in Table 2 requires a bachelor's degree. Since the numbers below are in addition to the numbers shown in Table 1, there are actually a total of 13,151 computer science and information systems: networking related jobs in the county. Approximately 80 percent of all networking jobs require a Bachelor's degree.

Table 2. Employment Outlook for Computer Science and Information Systems: Networking Occupations requiring Bachelor's Degree in San Diego county

SOC	Occupation	2015 Jobs	2020 Jobs	2015 - 2020 Change	2015 - 2020 % Change	5-year Openings	Annual Openings	Median Hourly Earnings
15-1121	Computer Systems Analysts	5,882	6,687	805	14%	1,219	244	$43.40
15-1142	Network and Computer Systems Administrators	3,728	4,023	295	8%	561	112	$38.76
15-1143	Computer Network Architects	1,188	1,304	116	10%	221	44	$47.73
	Total	10,798	12,014	1,216	11%	2,000	400	$42.27

The onsite Point Loma University Computer Information Technology (CIT) BA degree provides for a 2+2 pathway allowing MiraCosta Systems Administration students to complete their AS degree and then earn a bachelor's degree. This addresses Table 2 employment outlook for Networking Occupations requiring Bachelor's Degree in San Diego County.

Management Information Systems

AS Degree and Certificate of Achievement
Management Information Systems
Notes: (New AS Degree and Certificate of Achievement.)
Completion of this certificate will prepare individuals for careers in the management of information systems. Individuals will master how to plan, coordinate, and direct computer-related activities to determine and implement the information technology goals of an organization. Completing additional coursework (consult a Counselor) may result in a transfer pathway to a 4-year degree in Management Information Systems or variety of related majors. Depending on which electives are chosen, certificate completion may help individuals prepare for the CompTIA A+ and Network+ professional certification exams.

1. Labor Market Information and Analysis

Based on San Diego Regional Labor Market information from Launchboard, Computer Systems Analysts, an occupation that can be obtained via a Management Information Systems four-year degree, has enjoyed a 13% increase from 2010 to 2015. The projected job openings from 2015 to 2020 is estimated to be 1,225. Entry level salaries start at $55,619 with a median salary of $90,001. A review of labor market data shows lower level openings that are consistent with this degree / certificate's preparation.

According to the data provided by the Centers of Excellence for Labor Market Research, San Diego County is projected to add over 820 new positions for Computer and Information Systems Managers and Computer Systems Analysts in the next three years (2015-2018). There will be about 410 total openings in these two occupations on annual basis, which includes both new jobs and positions created due to replacement needs.

San Diego County Regional Occupational Projections (Demand Data)

SOC Code	Occupational Title	2015 Jobs	2018 Jobs	2015-18 Change	% Change 2015-18	Openings (New + Replace-ments)	Annual Openings
11-3021	Computer and Information Systems Managers	4,333	4,616	283	6.5%	444	148
15-1121	Computer Systems Analysts	5,882	6,424	542	9.2%	784	261
	Grand Total	127,957	10,215	11,040	825	8.1%	409

Source: Centers of Excellence for Labor Market Research, April 2017. Data provided by EMSI. Inc.

Both occupations provide high-wage opportunities. Entry-level hourly wages for Computer and Information Systems Managers range from $44 to $76 per hour, while Computer Systems Analysts entering the field make between $27 and $47 per hour.

SOC Code	Occupational Title	10% Hourly Earnings	Median Hourly Earnings
11-3021	Computer and Information Systems Managers	$46.67	$79.21
15-1121	Computer Systems Analysts	$27.91	$50.74
	Grand Total	**$35.44**	**$62.17**

Source: Centers of Excellence for Labor Market Research, April 2017. Data provided by EMSI. Inc.

On average, programs in the region that prepare for Computer Systems Analysts and Computer and Information Systems Managers award 69 associate degrees and certificates annually. With over 400 annual job openings projected, there is a clear need for more completers in this labor market.

San Diego-Imperial Region Completers (Supply Data)

TOP Code Program/College	2012-13	2013-14	2014-15	2015-16	Latest 3-Year Avg
070200 - Computer Information Systems					
Imperial		11	17	7	12
Mira Costa		1	-	-	0
Palomar		26	12	19	19
San Diego City		4	6	8	6
San Diego Mesa		17	11	22	17
San Diego Miramar		11	19	10	13
Southwestern		2	2	2	2
Computer Information Systems Sub-Total		**72**	**67**	**68**	**69**
070730 - Computer Systems Analysis	-	-	1		0
Grand Total	-	72	68	68	69

Source: CCCCO MIS Data. Retrieved from Centers of Excellence Supply Table.

Tech Support

AS Degree and Certificate of Achievement
Tech Support
Notes: (Formerly Certified Computer Desktop Support Specialist Certificate of Achievement. Name change, description change, course list change, and becoming a AS Degree.)
Completing this certificate will prepare individuals for employment and careers as computer desktop support specialists in a business environment. Individuals will master skills in software and applications support, operating systems, local area networks, desktop support, and customer service while also being able to answer, or escalate, calls and inquiries from end users. Related jobs include help desk technician, customer support representative, computer support specialist, and technical support representative. Certificate completion may help prepare individuals for the Microsoft Certified Desktop Support Technician (MCDST) and CompTIA A+, Network+, and Security+ professional certification exams.

1. Labor Market Information and Analysis

Occupational Demand

In 2016, there were 5,735 computer systems analyst jobs in San Diego & Imperial counties that typically require a Bachelor's degree (Table 1). Looking forward to 2021, the labor market demand for computer systems analysts in the region is projected to grow by 11% (growth of 610 jobs). There will be 2.483 open positions due to retirements or other replacement factors in the next five years.

Table 1. Employment Outlook for Computer Systems Analysts (San Diego & Imperial counties)

Occupation	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-year Openings	Annual Openings
Computer Systems Analysts	5,735	6,345	610	11%	2,483	497

The median hourly wages for computer systems analysts is $43.43 in San Diego and Imperial counties. A more in-depth wage breakdown can be found in Table 2.

Table 2. Wages for Computer Systems Analysts (San Diego & Imperial counties)

Occupation	10th percentile	25th percentile	Median Wage	75th percentile	90th percentile
Computer Systems Analysts	$27.51	$34.15	$43.43	$55.33	$67.54

Job Postings in San Diego & Imperial counties
To identify job postings related to computer systems analysts, the SOC code listed in above was used. In the past 12 months (Sep 2016-Aug 2017) there were 2,216 job postings related to computer system analysts, indicating high demand for this single occupation.

The most common job title in the employer job postings was systems analyst (392 job postings). See Table 3.

Common Title	Sep 2016-Aug 2017 Job Postings
Systems Analyst	392
Business Systems Analyst	357
Computer Systems Analyst	55

Industry Concentration

Table 4 below shows the distribution of computer systems analyst jobs among industries. The industry with the highest number of computer system analyst jobs is Custom Computer Programming Services (958 jobs in 2016).

Table 4. Industries employing Computer Systems Analysts (San Diego & Imperial counties)

Industry	Jobs in Industry (2016)	% in Industry (2016)
Custom Computer Programming Services	958	8%
Computer Systems Design Services	593	8%
Corporate, Subsidiary, and Regional Managing Offices	454	2%
Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	222	1%

Top employers posting the most number of job advertisements for computer systems analyst positions are Booz Allen Hamilton, Inc., Qualcomm, and Northrop Grumman. See Table 5 for details.

Table 5. Top Employers Posting Jobs (San Diego & Imperial counties)

Employer	Sep 2016-Aug 2017 Job Postings
Booz Allen Hamilton, Inc.	54
Qualcomm	47
Northrop Grumman	37
General Atomics	35
Accenture	33
Illumina Incorporated	33

Business Information Worker

AS Degree and Certificate of Achievement
Business Information Worker (BIW)
Notes: (Formerly Microsoft Certified Application Specialist for Business Certificate of Achievement. Name change, description change, unit change from 12-17, course list change, becoming a AS Degree.)
This certificate is designed to prepare individuals for entry-level office and administrative support positions in a variety of business office environments. Depending on which elective is chosen, certificate completion may help prepare individuals for the Microsoft Office Specialist (MOS) Word, Excel, Access, PowerPoint, QuickBooks Certified User (QBCU), and Certified Associate in Project Management (CAPM), professional certification exams, as well as the Business Information Worker (BIW) Pathway I, II, and Specialist Levels.

1. Labor Market Information and Analysis

Occupational Demand

In 2016, there were 88,618 BIW related jobs in San Diego & Imperial counties that typically require a high school diploma or equivalent (Table 1). Looking forward to 2021, the labor market demand for BIW occupations in the region is projected to grow by 6% (growth of 5,629 jobs). There will be 58,535 open positions due to retirements or other replacement factors in the next five years.

Table 1. Employment Outlook for BIW Occupations (San Diego & Imperial counties)

Occupation	2016 Jobs	2021 Jobs	5-Yr Change	5-Yr % Change	5-year Openings	Annual Openings
Office Clerks, General	31,153	32,629	1,476	5%	19,353	3,871
Customer Service Representatives	20,929	22,203	1,274	6%	14,520	2,904
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	23,275	24,461	1,186	5%	13,369	2,674
Receptionists and Information Clerks	10,356	11,710	1,354	13%	8,413	1,683
Hotel, Motel, and Resort Desk Clerks	2,905	3,244	339	12%	2,879	576
Total	**88,618**	**94,247**	**5,629**	**6%**	**58,535**	**11,707**

Table 3. Number of Job Postings by Occupation during the past 12 months (San Diego & Imperial counties)

Occupation	Job Postings
Customer Service Representatives	6,452
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	4,395
Receptionists and Information Clerks	1,617
Office Clerks, General	1,383
Hotel, Motel, and Resort Desk Clerks	1,361

The most common job title in the employer job postings was administrative assistant (2,384 job postings). See Table 4.

Table 4. Top Job Titles (San Diego & Imperial counties)

Common Title	Sep 2016-Aug 2017 Job Postings
Administrative Assistant	2,384
Customer Service Representative	2,021
Receptionist	1,517
Office Assistant	473

Table 2. Wages for BIW Occupations (San Diego & Imperial counties)

Occupation	10th percentile	25th percentile	Median Wage	75th percentile	90th percentile
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	$12.24	$15.05	$18.50	$23.42	$28.82
Customer Service Representatives	$11.91	$13.87	$17.44	$22.21	$26.92
Receptionists and Information Clerks	$10.85	$12.56	$15.14	$17.78	$19.89
Office Clerks, General	$10.43	$12.35	$15.94	$19.64	$23.80
Hotel, Motel, and Resort Desk Clerks	$10.23	$11.17	$12.61	$14.30	$16.09

Job Postings in San Diego & Imperial counties

To identify job postings related to BIW occupations, the SOC codes listed in above were used. In the past 12 months (Sep 2016-Aug 2017) there were 15,208 job postings related to BIW occupations, indicating high demand for this group of occupations. Table 3 shows the number of job postings associated with each SOC code.

Table 3. Number of Job Postings by Occupation during the past 12 months (San Diego & Imperial counties)

Occupation	Job Postings
Customer Service Representatives	6,452
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	4,395
Receptionists and Information Clerks	1,617
Office Clerks, General	1,383
Hotel, Motel, and Resort Desk Clerks	1,361

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Administrative Assistant	2,384
Customer Service Representative	2,021
Receptionist	1,517
Office Assistant	473

Industry Concentration

Table 5 below shows the distribution of BIW jobs among industries. The industry with the highest number of BIW jobs is College, Universities, and Professional Schools (State Government) (4,536 jobs in 2016).

Table 5. Industries hiring BIW related occupations (San Diego & Imperial counties)

Industry	Jobs in Industry (2016)	% in Industry (2016)
Colleges, Universities, and Professional Schools (State Government)	4,536	15%
Local Government, Excluding Education and Hospitals	3,731	6%
Offices of Physicians (except Mental Health Specialists)	3,688	12%
Hotels (except Casino Hotels) and Motels	3,203	10%

Top employers posting the most number of job advertisements for BIW occupations are Scripps Health, Marriott International Incorporated, and University of California.

Table 6. Top Employers Posting Jobs (San Diego & Imperial counties)

Employer	Sep 2016-Aug 2017 Job Postings
Scripps Health	404
Marriott International Incorporated	237
University of California	162
Sharp Healthcare	125
Ultimate	105

BIW Occupations in San Diego & Imperial Counties, 2017

Internet and E-Commerce

AS Degree and Certificate of Achievement
Internet and E-Commerce
Notes: (Formerly E-Commerce Certificate of Achievement. Name change, description change, unit change from 21-23 to 22-23, course list change, and becoming a AS Degree.)
Individuals completing this certificate will enhance their ability to explore, start, or advance their careers conducting business on the Internet. In addition to mastering the technical aspects of e-commerce, emphasis will be placed on setup and design considerations. Individuals are advised to complete CSIT 146 prior to selecting electives. Depending on which electives are chosen, certificate completion may help individuals prepare for the CompTIA A+ and Certified Associate in Project Management (CAPM) professional certification exams.

1. Labor Market Information and Analysis

Occupational Demand

Traditional labor market is not currently available for online merchants because it is an emerging occupation. Traditional labor market information is only available at the broader 6-digit level under business operations specialists, all other. Reporting data for this occupation would be misleading, and overestimate demand for online merchant jobs because it includes other specialized business operations occupations such as energy auditors, security management specialists, customs brokers, business continuity planners, and sustainability specialists. In order to gauge demand for online merchants, a real-time search of job postings must be used.

Online Merchants in Job Postings in San Diego & Imperial counties
To identify job postings for online merchants, the 8-digit O*NET code was utilized. During the past 12-month period (September 2016 to August 2017) there were 115 job postings for online merchants.

The most common job titles in the employer job postings were E-Commerce Developer and Merchandiser (8 job postings each). See Table 1.

Table 1. Top Job Titles (San Diego & Imperial counties)

Common Title	Sep 2016-Aug 2017 Job Postings
E-Commerce Developer	8
Merchandiser	8
E-Commerce Manager	7
E-Commerce Specialist	6
Marketing Manager	6

Internet and E-Commerce Occupations in San Diego & Imperial Counties, September 2017

Industry Concentration

Table 2 below shows the distribution of online merchant job postings among industries. The industry with the highest number of online merchant job postings is Other Miscellaneous Store Retailers (7 postings).

Table 2. Industries postings ads for Online Merchants (San Diego & Imperial counties)

Industry	Sep 2016-Aug 2017 Job Postings
Other Miscellaneous Store Retailers	7
Sporting Goods, Hobby, and Musical Instrument Stores	6
Advertising, Public Relations, and Related Services	5
Other Financial Investment Activities	3

The top employer posting the highest number of job advertisements for online merchants is Petco (7 postings). See Table 3.

Table 3. Top Employers Posting Jobs (San Diego & Imperial counties)

Employer	Sep 2016-Aug 2017 Job Postings
Petco	7
Road Runner Sports	6
Deloitte	3
Sei	3
DSW	2
Djo Global	2
HD Supply	2
Nityo Infotech	2

Internet and E-Commerce Occupations in San Diego & Imperial Counties, September 2017