

**Program Endorsement Brief: 0708.00/Computer Infrastructure and Support
Certificate of Achievement in Cisco Networking (CCNA)
Certificate of Achievement in Information Technology
Associates Degree in Information Technology
Orange County Center of Excellence, August 2021**

Summary Analysis

Program Endorsement:	Endorsed: All Criteria Met <input checked="" type="checkbox"/>	Endorsed: Some Criteria Met <input type="checkbox"/>	Not Endorsed <input type="checkbox"/>
Program Endorsement Criteria			
Supply Gap:	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Living Wage: (Entry-Level, 25th)	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Education:	Yes <input checked="" type="checkbox"/>	No	<input type="checkbox"/>
Emerging Occupation(s)			
	Yes <input type="checkbox"/>	No	<input checked="" type="checkbox"/>

The Orange County Center of Excellence for Labor Market Research (COE) prepared this report to provide Los Angeles/Orange County regional labor market supply and demand data related to two middle-skill occupations: *Computer Network Support Specialists* (15-1231), and *Computer User Support Specialists* (15-1232). Middle-skill occupations typically require some postsecondary education, but less than a bachelor’s degree.¹ This report is intended to help determine whether there is demand in the local labor market that is not being met by the supply from community college programs that align with the relevant occupations.

Based on the available data there appears to be a supply gap for these occupations in the region. Furthermore, the majority of annual openings for the occupations in this report typically require some college but no degree and entry-level wages exceed the living wage in both Los Angeles and Orange counties. **Therefore, due to all the criteria being met, the COE endorses this proposed program.** Detailed reasons include:

Demand:

- **Supply Gap Criteria** – Over the next five years, there is projected to be **2,353 jobs available annually** in the region due to new job growth and replacements, **which is more than the 777 awards conferred annually** by educational institutions in the region.
 - Over the past 12 months, there were **12,303 online job postings related to these computer infrastructure and support occupations.** The highest number of

¹ The COE classifies middle-skill jobs as the following:

- All occupations that require an educational requirement of some college, associate degree or apprenticeship;
- All occupations that require a bachelor’s degree, but also have more than one-third of their existing labor force with an educational attainment of some college or associate degree; or
- All occupations that require a high school diploma or equivalent or no formal education, but also require short- to long-term on-the-job training where multiple community colleges have existing programs.

job postings were for IT Support Specialist, Desktop Support Technician, and IT Technician.

- **Living Wage Criteria** –Within Orange County, **all job openings** for these two occupations have **entry-level wages above the county’s living wage** (\$20.63/hour).²
- **Educational Criteria** –Within the LA/OC region, **81% of the annual job openings** for occupations related to computer infrastructure and support **typically require some college, no degree.**
 - Furthermore, the national-level educational attainment data indicates **40% of workers in the field have completed some college or an associate degree** as their highest level of education.

Supply:

- There are **18 community colleges** in the LA/OC region that issue awards related to computer infrastructure and support, conferring an average of **469 awards annually** between 2017 and 2020.
- Between 2016 and 2019, there was an average of **379 awards conferred annually** in related training programs by non-community college institutions, all of which were generated by **13 individual institutions** throughout the region.

Occupational Demand

Exhibit 1 shows the five-year occupational demand projections for these two computer infrastructure and support occupations. In Los Angeles/Orange County, the number of jobs related to these occupations is projected to decrease by 3% through 2024. However, there will be more than 2,250 job openings per year through 2024 due to retirements and workers leaving the field.

This report includes employment projection data by Emsi which uses EDD information. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy, during the projection period, will be at approximately full employment. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, it may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Therefore, the projections included in this report do not take the impacts of COVID-19 into account.

Exhibit 1: Occupational demand in Los Angeles and Orange Counties³

Geography	2020 Jobs	2025 Jobs	2019-2024 Change	2019-2024 % Change	Annual Openings
Los Angeles	20,689	21,219	112	3%	1,577
Orange	9,165	9,498	334	4%	739
Total	29,853	30,717	864	3%	2,353

² Living wage data was pulled from California Family Needs Calculator on 11/1/21. For more information, visit the California Family Needs Calculator website: <https://insightcced.org/family-needs-calculator/>.

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

Wages

The labor market endorsement in this report considers the entry-level hourly wages for computer infrastructure and support occupations in Orange County as they relate to the county's living wage. Los Angeles County wages are included below in order to provide a complete analysis of the LA/OC region. Detailed wage information, by county, is included in Appendix A.

Orange County—All annual job openings for these computer infrastructure and support occupations have entry-level wages above the living wage for one adult (\$20.63 in Orange County). Typical entry-level hourly wages are in a range between \$21.38 and \$26.56. Experienced workers can expect to earn wages between \$35.60 and \$39.81, which are higher than the living wage estimate. Orange County's average wages are below the average statewide wage of \$34.65 for these occupations.

Los Angeles County—All annual openings for these computer infrastructure and support occupations have entry-level wages above the living wage for one adult (\$18.10 in Los Angeles County). Typical entry-level hourly wages are in a range between \$21.91 and \$26.79. Experienced workers can expect to earn wages between \$36.48 and \$40.10, which are higher than the living wage estimate. Los Angeles County's average wages are above the average statewide wage of \$34.65 for these occupations.

Job Postings

There were 12,303 online job postings related to computer infrastructure and support listed in the past 12 months. The highest number of job postings were for IT Support Specialist, Desktop Support Technician, and IT Technician. The top skills were technical support, customer service, and help desk support. The top three employers, by number of job postings, in the region were Best Buy, Anthem Blue Cross, and Accel Therapies.

It is important to note that the job postings data included in this section reflects online job postings listed in the past 12 months and does not yet demonstrate the impact of COVID-19. While employers have generally posted fewer online job postings since the beginning of the pandemic, the long-term effects are currently unknown.

Educational Attainment

The Bureau of Labor Statistics (BLS) lists some college, no degree as the typical entry-level education for Computer Support Specialists and an associate degree for Computer Network Support Specialists. In the LA/OC region, the majority of annual job openings (81%) typically require some college, no degree. Additionally, the national-level educational attainment data indicates 40% of workers in the field have completed some college or an associate degree as their highest level of education. Of the 35% of computer infrastructure and support job postings listing a minimum education requirement in Los Angeles/Orange County, 51% (3,140) requested a Bachelor's degree and 12% (847) requested an associate degree.

Educational Supply

Community College Supply—Exhibit 2 shows the three-year average number of awards conferred by community colleges in the related TOP codes: Computer Infrastructure and Support (0708.00), Computer Networking (0708.10), and Computer Support (0708.20) The colleges with

the most completions in the region are: Coastline and Long Beach. Over the past 12 months, there were 20 other related program recommendation requests from regional community colleges.

Exhibit 2: Regional community college awards (certificates and degrees), 2017-2020

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
0708.00	Computer Infrastructure and Support	Cerritos	0	0	4	1
		Glendale	0	0	3	1
		LA City	0	0	3	1
		La Harbor	1	1	1	1
		LA Mission	0	2	12	5
		LA Valley	8	5	2	5
		Long Beach	1	3	8	4
		Mt. San Antonio	20	24	24	23
		Pasadena	0	1	1	1
		Rio Hondo	0	0	9	3
		West LA	0	4	15	6
		LA Subtotal	30	40	82	51
		Coastline	65	49	46	53
		Cypress	1	2	3	2
		Orange Coast	0	0	7	2
		OC Subtotal	66	51	56	57
Supply Subtotal/Average			96	91	138	108
0708.10	Computer Networking	Cerritos	8	11	9	9
		Glendale	6	3	3	4
		LA City	37	23	0	20
		LA Pierce	23	39	20	27
		Long Beach	27	55	47	43
		Mt. San Antonio	2	8	11	7
		Rio Hondo	0	5	7	4
		West LA	43	77	48	56
		LA Subtotal	146	221	145	171
		Coastline	12	38	59	36
		Cypress	37	70	95	67
		Irvine	12	11	21	15
		Saddleback	17	10	21	16
		Santa Ana	7	14	12	11

TOP Code	Program	College	2017-2018 Awards	2018-2019 Awards	2019-2020 Awards	3-Year Award Average
		OC Subtotal	85	143	208	145
Supply Subtotal/Average			231	364	153	316
0708.20	Computer Support	Citrus	0	0	1	0
		Glendale	3	10	7	7
		LA Pierce	7	9	8	8
		Long Beach	1	8	14	8
		Pasadena	3	7	30	13
		LA Subtotal	14	34	60	36
		Cypress	1	3	5	3
		Santa Ana	10	9	0	6
		OC Subtotal	11	12	5	9
Supply Subtotal/Average			25	46	65	45
Supply Total/Average			352	501	356	469

Non-Community College Supply— For a comprehensive regional supply analysis, it is important to consider the supply from other institutions in the region that provide training programs for these computer infrastructure and support occupations. Exhibit 3 shows the annual and three-year average number of awards conferred by these institutions in the related Classification of Instructional Programs (CIP) Codes: Computer Systems Networking and Telecommunications (11.0901), Network and System Administration/Administrator (11.1001), Computer and Information Systems Security/Auditing/Information Assurance (11.1003), and Computer Support Specialists (11.1006). Due to different data collection periods, the most recent three-year period of available data is from 2016 to 2019. Between 2016 and 2019, non-community college institutions in the region conferred an average of 308 awards annually in related training programs.

Exhibit 3: Regional non-community college awards, 2016-2019

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
11.0501	Computer Systems Analysis/Analyst	Brand College	4	2	0	2
		DeVry University – California	94	55	49	66
		LA Subtotal	98	57	49	68
		University of Phoenix - California	4	4	0	3
		OC Subtotal	4	4	0	3
Supply Subtotal/Average			102	61	49	71

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
11.0901	Computer Systems Networking and Telecommunications	Brand College	2	0	2	1
		DeVry University – California	150	112	88	117
		Mt Sierra College	5	4	0	3
		University of Southern California	1	1	0	1
		LA Subtotal	158	117	90	122
		University of California – Irvine	17	23	14	18
		University of Phoenix - California	27	18	3	16
		OC Subtotal	44	41	17	34
Supply Subtotal/Average			202	158	107	156
11.1001	Network and System Administration/Administrator	ABCO Technology	0	13	5	6
		Brand College	2	6	23	10
		LA Subtotal	2	19	28	16
		California Intercontinental University	0	1	3	1
		University of Phoenix - California	1	12	13	9
		OC Subtotal	1	13	16	10
Supply Subtotal/Average			3	32	44	26
11.1003	Computer and Information Systems Security/Information Assurance	Azusa Pacific University	3	0	0	1
		Learnet Academy Inc	48	17	0	22
		Mt. Sierra College	8	13	0	7
		University of Southern California	35	20	20	25
		LA Subtotal	94	50	20	55
		University of Phoenix - California	71	42	32	48
		OC Subtotal	71	42	32	48
Supply Subtotal/Average			165	92	52	103
11.1006	Computer Support Specialist	Abraham Lincoln University	0	0	0	0
		LA Subtotal	0	0	0	0
		Southern California Institute of Technology	16	26	25	22

CIP Code	Program	College	2016-2017 Awards	2017-2018 Awards	2018-2019 Awards	3-Year Award Average
		University of Phoenix - California	1	2	0	1
		OC Subtotal	17	28	25	23
Supply Subtotal/Average			17	28	25	23
Supply Total/Average			489	371	277	379

Appendix A: Occupational demand and wage data by county

Exhibit 4. Orange County

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer Network Support Specialists (15-1231)	1,686	1,732	47	3%	132	\$26.56	\$32.06	\$39.81
Computer User Support Specialists (15-1232)	7,497	7,766	287	4%	607	\$21.38	\$27.34	\$35.60
Total	9,165	9,498	334	4%	739			

Exhibit 5. Los Angeles County

Occupation (SOC)	2019 Jobs	2024 Jobs	5-Yr Change	5-Yr % Change	Annual Openings	Entry-Level Hourly Earnings (25th Percentile)	Median Hourly Earnings	Experienced Hourly Earnings (75th Percentile)
Computer Network Support Specialists (15-1231)	4,081	4,130	112	3%	315	\$26.79	\$32.33	\$40.10
Computer User Support Specialists (15-1232)	16,671	17,089	418	3%	1,298	\$21.91	\$28.02	\$36.48
Total	20,689	21,219	112	3%	1,577			

Exhibit 6. Los Angeles and Orange Counties

Occupation (SOC)	2020 Jobs	2025 Jobs	5-Yr Change	5-Yr % Change	Annual Openings
Computer Network Support Specialists (15-1231)	5,703	5,862	159	3%	448
Computer User Support Specialists (15-1232)	24,150	24,855	705	3	1,906
Total	29,853	30,717	864	3%	2,353

Appendix B: Sources

- O*NET Online
- Labor Insight/Jobs (Burning Glass)
- Economic Modeling Specialists, International (Emsi)
- Bureau of Labor Statistics (BLS)
- Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor’s Office Management Information Systems (MIS)
- California Family Needs Calculator, Insight Center for Community Economic Development
- Chancellor’s Office Curriculum Inventory (COCI 2.0)

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