C·O·E CENTERS OF EXCELLENCE FOR LABOR MARKET RESEARCH

**Program Endorsement Brief: 0708.00/Computer Infrastructure and Support**
*Information Technology Fundamentals Certificate of Achievement*
Orange County Center of Excellence, August 2021

**Summary Analysis**

| Program Endorsement: | Endorsed: All Criteria Met | ☒ | Endorsed: Some Criteria Met | ☐ | Not Endorsed | ☐ |
|---|---|---|---|---|---|---|
| **Program Endorsement Criteria** | | | | | | |
| **Supply Gap:** | Yes ☑ | | | | No ☐ | |
| **Living Wage:** (Entry-Level, 25th) | Yes ☑ | | | | No ☐ | |
| **Education:** | Yes ☑ | | | | No ☐ | |
| **Emerging Occupation(s)** | | | | | | |
| Yes ☐ | | | | | No ☑ | |

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 **2,255 jobs available annually** in the region due to retirements and workers leaving the field, **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 job postings were for IT Support Specialist, Desktop Support Technician, and IT Technician.

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[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.

- *Living Wage Criteria –*Within Orange County, **all annual job openings** for these two occupations have **entry-level wages above the county's living wage** ($17.36/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 **39.2% 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 Counties[3]**

| Geography | 2019 Jobs | 2024 Jobs | 2019-2024 Change | 2019-2024 % Change | Annual Openings |
|---|---|---|---|---|---|
| Los Angeles | 21,976 | 21,273 | (703) | (3%) | 1,547 |
| Orange | 9,643 | 9,538 | (105) | (1%) | 707 |
| **Total** | **31,619** | **30,811** | **(808)** | **(3%)** | **2,255** |

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[2] Living wage data was pulled from California Family Needs Calculator on 8/20/2021. For more information, visit the California Family Needs Calculator website: https://insightcced.org/2018-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 openings for these computer infrastructure and support occupations have entry-level wages above the living wage for one adult ($17.36 in Orange County). Typical entry-level hourly wages are in a range between $21.39 and $26.58. Experienced workers can expect to earn wages between $35.62 and $39.83, which are higher than the living wage estimate. Orange County's average wages are below the average statewide wage of $32.26 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 ($15.04 in Los Angeles County). Typical entry-level hourly wages are in a range between $21.91 and $26.78. Experienced workers can expect to earn wages between $36.47 and $40.09, which are higher than the living wage estimate. Los Angeles County's average wages are above the average statewide wage of $32.26 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**
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 39.2% of workers in the field have completed some college or an associate degree. 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 |
| | | **OC Subtotal** | **85** | **143** | **208** | **145** |
| | **Supply Subtotal/Average** | | **231** | **364** | **153** | **316** |

| TOP Code | Program | College | 2017-2018 Awards | 2018-2019 Awards | 2019-2020 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| 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** |
| 11.0901 | | Brand College | 2 | 0 | 2 | 1 |

| CIP Code | Program | College | 2016-2017 Awards | 2017-2018 Awards | 2018-2019 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| | Computer Systems Networking and Telecommunications | 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 |
| | | University of Phoenix - California | 1 | 2 | 0 | 1 |

| CIP Code | Program | College | 2016-2017 Awards | 2017-2018 Awards | 2018-2019 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| | | 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) | 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) | 1,780 | 1,738 | (42) | (2%) | 126 | $26.58 | $32.07 | $39.83 |
| Computer User Support Specialists (15-1232) | 7,863 | 7,800 | (63) | (1%) | 581 | $21.39 | $27.35 | $35.62 |
| Total | 9,643 | 9,538 | (105) | (1%) | 707 | | | |

**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) | 4,300 | 4,126 | (174) | (4%) | 299 | $26.78 | $32.32 | $40.09 |
| Computer User Support Specialists (15-1232) | 17,677 | 17,147 | (530) | (3%) | 1,248 | $21.91 | $28.02 | $36.47 |
| Total | 21,976 | 21,273 | (703) | (3%) | 1,547 | | | |

**Exhibit 6. Los Angeles and Orange Counties**

| Occupation (SOC) | 2019 Jobs | 2024 Jobs | 5-Yr Change | 5-Yr % Change | Annual Openings | Typical Entry-Level Education |
|---|---|---|---|---|---|---|
| Computer Network Support Specialists (15-1231) | 6,080 | 5,864 | (216) | (4%) | 426 | Associate's degree |
| Computer User Support Specialists (15-1232) | 25,539 | 24,947 | (592) | (2%) | 1,829 | Some college, no degree |
| **Total** | **31,619** | **30,811** | **(808)** | **(3%)** | **2,255** | |

**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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