Systems Security Analyst - California, 2018

Responsible for the analysis and development of the integration, testing, operations, and maintenance of systems security.

NICE Framework Category: Operate and Maintain

Specialty Area: Systems Analysis

Total Employer Survey Repsonses 112

Permanent jobs

11,082 Current jobs **+1,679** **15%** Increase in the next 12 months

Temporary jobs

4,141 Current jobs **+735** **18%** Increase in the next 12 months

77% of employers reported having the **System Security Analyst** work role

Employers said...

Education & Work Experience	Soft Skills	Certifications
58% Bachelor's degree and **45%** 3 to 5 years of experience	**46%** Problem Solving **38%** Teamwork/Collaboration **31%** Quality Assurance & Control	**43%** Certified Information Systems Secutiry Professional (CISSP) **42%** CISCO Certified Network Associate (CCNA) **42%** Microsoft Certified System Administrator (MCSA)

Cyber Defense Analyst - California, 2018

Uses data collected from a variety of cyber defense tools (e.g., IDS alerts, firewalls, network traffic logs) to analyze events that occur within their environments for the purposes of mitigating threats.

NICE Framework Category: Protect and Defend

Specialty Area: Cyber Defense Analysis

Total Employer Survey Repsonses
118

Permanent jobs

10,019 Current jobs **+921** ⬆ **9%** Increase in the next 12 months

Temporary jobs

6,145 Current jobs **+350** ⬆ **6%** Increase in the next 12 months

69% of employers reported having the **Cyber Defense Analyst** work role

Employers said...

👤 Education & Work Experience	🧍 Soft Skills	🎖 Certifications
47% Bachelor's degree and **44%** 3 to 5 years of experience	**47%** Problem Solving **44%** Troubleshooting	**47%** CISCO Certified Network Professional (CCNP) **41%** Microsoft Certified System Administrator (MCSA) **40%** CISCO Certified Network Associate (CCNA)

APPENDIX D: WORK ROLE PROFILES

Cyber Defense Infrastructure Support Specialist
- California, 2018

Tests, implements, deploys, maintains, and administers the infrastructure hardware and software.

NICE Framework Category: Protect and Defend

Specialty Area: Cyber Defense Infrastructure Support

Total Employer Survey Repsonses 112

Permanent jobs

6,578 Current jobs +1,403 **↑21%** Increase in the next 12 months

Temporary jobs

3,501 Current jobs +743 **↑21%** Increase in the next 12 months

72% of employers reported having the **Cyber Defense Infrastructure Support Specialist** work role

Employers said...

Education & Work Experience	Soft Skills	Certifications
51% Bachelor's degree and **39%** 3 to 5 years of experience	**53%** Problem Solving **45%** Troubleshooting **39%** Teamwork/Collaboration	**44%** Certified Information Systems Security Professional (CISSP) **42%** Microsoft Certified System Administrator (MCSA) **41%** CISCO Certified Network Professional (CCNP)

Vulnerability Assessment Analyst - California, 2018

Performs assessments of systems and networks within the network environmentor enclave and identifies where those systems/networks deviate from acceptable configurations, enclave policy, or local policy. Measures effectiveness of defense.

NICE Framework Category: Protect and Defend

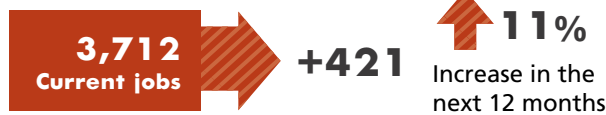**Specialty Area:** Vulnerability Assessment and Management

Total Employer Survey Repsonses 119

Permanent jobs

13,477 Current jobs **+824** ↑**6%** Increase in the next 12 months

Temporary jobs

3,712 Current jobs **+421** ↑**11%** Increase in the next 12 months

66% of employers reported having the **Cyber Defense Infrastructure Support Specialist** work role

Employers said...

Education & Work Experience

40% Bachelor's degree

and

42% 1 to 2 years of experience

Soft Skills

46% Problem Solving

33% Communication Skills

Certifications

41% CISCO Certified Network Associate (CCNA)

40% Microsoft Certified System Administrator (MCSA)

40% Certified Information Systems Security Professional (CISSP)

Cyber Defense Forensics Analyst - California, 2018

Analyzes digital evidence and investigates computer security incidents to derive information in support of system/network vulnerability mitigation.

NICE Framework Category: Investigate

Specialty Area: Digital Forensics

Total Employer Survey Repsonses
109

Permanent jobs

15,784 Current jobs **+1,704** ↑**11%** Increase in the next 12 months

59% of employers reported having the **Cyber Defense Forensics Analyst** work role

Temporary jobs

5,509 Current jobs **+632** ↑**12%** Increase in the next 12 months

Employers said...

Education & Work Experience	Soft Skills	Certifications
48% Bachelor's degree and **40%** 1 to 2 years of experience	**38%** Problem Solving **30%** Comminication Skills	**48%** Microsoft Certified System Administrator (MCSA **40%** Certified Information Systems Security Professional (CISSP)) **37%** CISCO Certified Network Professional (CCNP)

APPENDIX E: INVENTORY OF CYBERSECURITY PROGRAMS

Inventory of Cybersecurity (and Closely Related) Programs at Postsecondary Institutions in California, by Region (2016)

Educational Institution	Region	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate degree	Award of 2 but less than 4 academic years	Bachelor's degree	Post-master's certificate	Master's degree	Post-baccalaureate certificate	Doctor's degree -- research/ scholarship	Grand Total
Cybersecurity Focused		**27**	**5**	**16**	**0**	**4**	**0**	**7**	**2**	**0**	**61**
City College of San Francisco	Bay Area	1	0	1	0	0	0	0	0	0	2
College of San Mateo	Bay Area	1	1	1	0	0	0	0	0	0	3
Contra Costa College	Bay Area	1	0	0	0	0	0	0	0	0	1
Foothill College	Bay Area	1	0	0	0	0	0	0	0	0	1
Fresno City College	Bay Area	1	0	0	0	0	0	0	0	0	1
Gavilan College	Bay Area	1	0	1	0	0	0	0	0	0	2
Los Medanos College	Bay Area	1	1	1	0	0	0	0	0	0	3
Naval Postgraduate School	Bay Area	0	0	0	0	0	0	2	2	0	4
Ohlone College	Bay Area	1	0	0	0	0	0	0	0	0	1
University of San Francisco	Bay Area	0	0	0	0	0	0	1	0	0	1
Mt San Jacinto Community College District	Inland Empire/ Desert Region	1	0	0	0	0	0	0	0	0	1
Azusa Pacific University	Los Angeles/Orange County	0	0	0	0	1	0	0	0	0	1
Charter College-Canyon Country	Los Angeles/Orange County	0	1	0	0	0	0	0	0	0	1
Citrus College	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
Coastline Community College	Los Angeles/Orange County	1	0	1	0	0	0	0	0	0	2
Cypress College	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
Learnet Academy Inc	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
Long Beach City College	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
Mt San Antonio College	Los Angeles/Orange County	0	0	1	0	0	0	0	0	0	1
Mt Sierra College	Los Angeles/Orange County	0	0	0	0	1	0	0	0	0	1
Santa Ana College	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
University of Southern California	Los Angeles/Orange County	0	0	0	0	0	0	1	0	0	1
West Los Angeles College	Los Angeles/Orange County	1	0	0	0	0	0	0	0	0	1
California Miramar University	San Diego/Imperial	1	0	0	0	0	0	0	0	0	1
Coleman University	San Diego/Imperial	0	0	1	0	1	0	0	0	0	2
Imperial Valley College	San Diego/Imperial	1	0	1	0	0	0	0	0	0	2
National University	San Diego/Imperial	0	0	0	0	0	0	1	0	0	1
San Diego City College	San Diego/Imperial	1	0	1	0	0	0	0	0	0	2
Southwestern College	San Diego/Imperial	1	1	1	0	0	0	0	0	0	3
University of San Diego	San Diego/Imperial	0	0	0	0	0	0	2	0	0	2
Cuesta College	South Central Coast	0	1	1	0	0	0	0	0	0	2
Santa Barbara City College	South Central Coast	0	0	1	0	0	0	0	0	0	1
Columbia College	Central California	1	0	0	0	0	0	0	0	0	1
American River College	Far North	1	0	1	0	0	0	0	0	0	2
Asher College	Far North	1	0	0	0	0	0	0	0	0	1
Cosumnes River College	Far North	1	0	1	0	0	0	0	0	0	2

Inventory of Cybersecurity (and Closely Related) Programs at Postsecondary Institutions in California, by Region (2016) (continued)

Educational Institution	Region	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate degree	Award of 2 but less than 4 academic years	Bachelor's degree	Post-master's certificate	Master's degree	Post-baccalaureate certificate	Doctor's degree -- research/ scholarship	Grand Total
Cybersecurity Focused (continued)											
Sacramento City College	Far North	1	0	1	0	0	0	0	0	0	2
Shasta College	Far North	1	0	0	0	0	0	0	0	0	1
Sierra College	Far North	1	0	1	0	0	0	0	0	0	2
University of Phoenix - California	N/A	0	0	0	0	1	0	0	0	0	1
Includes Aspects of Cybersecurity		**105**	**41**	**66**	**0**	**20**	**0**	**19**	**5**	**2**	**258**
Berkeley City College	Bay Area	1	0	0	0	0	0	0	0	0	1
California State University-East Bay	Bay Area	0	0	0	0	0	0	1	0	0	1
City College of San Francisco	Bay Area	2	0	0	0	0	0	0	0	0	2
Cogswell College	Bay Area	0	0	0	0	1	0	0	0	0	1
College of Marin	Bay Area	0	0	1	0	0	0	0	0	0	1
College of San Mateo	Bay Area	0	0	1	0	0	0	0	0	0	1
Contra Costa College	Bay Area	2	0	1	0	0	0	0	0	0	3
De Anza College	Bay Area	2	2	2	0	0	0	0	0	0	6
Diablo Valley College	Bay Area	1	1	1	0	0	0	0	0	0	3
Foothill College	Bay Area	1	0	3	0	0	0	0	0	0	4
Fresno City College	Bay Area	2	1	2	0	0	0	0	0	0	5
Gavilan College	Bay Area	1	0	1	0	0	0	0	0	0	2
Golden Gate University-San Francisco	Bay Area	1	0	0	0	1	0	1	0	0	3
Las Positas College	Bay Area	1	0	1	0	0	0	0	0	0	2
Los Medanos College	Bay Area	1	1	1	0	0	0	0	0	0	3
Merritt College	Bay Area	1	0	0	0	0	0	0	0	0	1
Mission College	Bay Area	2	1	1	0	0	0	0	0	0	4
Naval Postgraduate School	Bay Area	0	0	0	0	0	0	2	2	0	4
Ohlone College	Bay Area	2	1	1	0	0	0	0	0	0	4
San Jose City College	Bay Area	2	1	2	0	0	0	0	0	0	5
Santa Clara University	Bay Area	0	0	0	0	1	0	0	0	0	1
Santa Rosa Junior College	Bay Area	2	1	0	0	0	0	0	0	0	3
Skyline College	Bay Area	0	1	1	0	0	0	0	0	0	2
Solano Community College	Bay Area	0	1	1	0	0	0	0	0	0	2
University of San Francisco	Bay Area	0	0	0	0	1	0	1	0	0	2
Chaffey College	Inland Empire/ Desert Region	2	1	0	0	0	0	0	0	0	3
Moreno Valley College	Inland Empire/ Desert Region	1	0	0	0	0	0	0	0	0	1
Mt San Jacinto Community College District	Inland Empire/ Desert Region	2	2	0	0	0	0	0	0	0	4
Norco College	Inland Empire/ Desert Region	1	0	0	0	0	0	0	0	0	1

APPENDIX E: INVENTORY OF CYBERSECURITY PROGRAMS

Inventory of Cybersecurity (and Closely Related) Programs at Postsecondary Institutions in California, by Region (2016) (continued)

Educational Institution	Region	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate degree	Award of 2 but less than 4 academic years	Bachelor's degree	Post-master's certificate	Master's degree	Post-baccalaureate certificate	Doctor's degree -- research/ scholarship	Grand Total
Includes Aspects of Cybersecurity (continued)											
Riverside City College	Inland Empire/ Desert Region	3	0	0	0	0	0	0	0	0	3
University of Redlands	Inland Empire/ Desert Region	0	1	0	0	0	0	0	0	0	1
ABCO Technology	Los Angeles/ Orange County	3	0	0	0	0	0	0	0	0	3
Advanced Computing Institute	Los Angeles/ Orange County	0	0	1	0	0	0	0	0	0	1
Brand College	Los Angeles/ Orange County	2	0	0	0	0	0	0	0	0	2
California Career School	Los Angeles/ Orange County	1	0	0	0	0	0	0	0	0	1
California Intercontinental University	Los Angeles/ Orange County	0	0	0	0	1	0	0	0	1	2
Cerritos College	Los Angeles/ Orange County	1	0	1	0	0	0	0	0	0	2
Citrus College	Los Angeles/ Orange County	1	0	1	0	0	0	0	0	0	2
Coastline Community College	Los Angeles/ Orange County	2	0	2	0	0	0	0	0	0	4
Cypress College	Los Angeles/ Orange County	2	0	0	0	0	0	0	0	0	2
East Los Angeles College	Los Angeles/ Orange County	1	0	0	0	0	0	0	0	0	1
Fullerton College	Los Angeles/ Orange County	1	0	0	0	0	0	0	0	0	1
Glendale Community College	Los Angeles/ Orange County	2	0	1	0	0	0	0	0	0	3
Irvine Valley College	Los Angeles/ Orange County	1	0	1	0	0	0	0	0	0	2
Long Beach City College	Los Angeles/ Orange County	3	1	2	0	0	0	0	0	0	6
Los Angeles City College	Los Angeles/ Orange County	3	0	0	0	0	0	0	0	0	3
Los Angeles Pierce College	Los Angeles/ Orange County	2	0	1	0	0	0	0	0	0	3
Loyola Marymount University	Los Angeles/ Orange County	0	0	0	0	1	0	0	0	0	1
Mt San Antonio College	Los Angeles/ Orange County	1	0	2	0	0	0	0	0	0	3
Mt Sierra College	Los Angeles/ Orange County	0	0	0	0	1	0	0	0	0	1
PCI College	Los Angeles/ Orange County	1	0	0	0	0	0	0	0	0	1
Pepperdine University	Los Angeles/ Orange County	0	0	0	0	1	0	0	0	0	1
Saddleback College	Los Angeles/ Orange County	2	0	1	0	0	0	0	0	0	3

Inventory of Cybersecurity (and Closely Related) Programs at Postsecondary Institutions in California, by Region (2016) (continued)

Educational Institution	Region	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate degree	Award of 2 but less than 4 academic years	Bachelor's degree	Post-master's certificate	Master's degree	Post-baccalaureate certificate	Doctor's degree -- research/ scholarship	Grand Total
Includes Aspects of Cybersecurity (continued)											
Santa Ana College	Los Angeles/ Orange County	2	0	0	0	0	0	0	0	0	2
Santa Monica College	Los Angeles/ Orange County	0	1	1	0	0	0	0	0	0	2
Trident University International	Los Angeles/ Orange County	0	0	0	0	0	0	1	1	0	2
University of California-Irvine	Los Angeles/ Orange County	0	0	0	0	1	0	1	0	1	3
University of Southern California	Los Angeles/ Orange County	0	0	0	0	0	0	2	0	0	2
Vanguard University of Southern California	Los Angeles/ Orange County	0	0	0	0	1	0	0	0	0	1
West Los Angeles College	Los Angeles/ Orange County	2	2	2	0	0	0	0	0	0	6
Ashford University	San Diego/Imperial	0	0	0	0	1	0	0	0	0	1
California Miramar University	San Diego/Imperial	1	0	0	0	0	0	0	0	0	1
Coleman University	San Diego/Imperial	0	0	1	0	1	0	1	0	0	3
Cuyamaca College	San Diego/Imperial	0	1	1	0	0	0	0	0	0	2
Grossmont College	San Diego/Imperial	3	3	3	0	0	0	0	0	0	9
MiraCosta College	San Diego/Imperial	1	1	2	0	0	0	0	0	0	4
National University	San Diego/Imperial	1	0	0	0	2	0	4	0	0	7
Palomar College	San Diego/Imperial	2	1	2	0	0	0	0	0	0	5
Point Loma Nazarene University	San Diego/Imperial	0	0	0	0	1	0	0	0	0	1
San Diego City College	San Diego/Imperial	1	0	0	0	0	0	0	0	0	1
Southwestern College	San Diego/Imperial	1	1	1	0	0	0	0	0	0	3
Allan Hancock College	South Central Coast	1	0	1	0	0	0	0	0	0	2
Antelope Valley College	South Central Coast	1	1	1	0	0	0	0	0	0	3
California Lutheran University	South Central Coast	0	0	0	0	0	0	2	0	0	2
College of the Canyons	South Central Coast	1	1	1	0	0	0	0	0	0	3
Cuesta College	South Central Coast	1	0	0	0	0	0	0	0	0	1
Laurus College	South Central Coast	1	0	0	0	0	0	0	0	0	1
Moorpark College	South Central Coast	1	1	1	0	0	0	0	0	0	3
Oxnard College	South Central Coast	1	1	1	0	0	0	0	0	0	3
Santa Barbara City College	South Central Coast	0	1	1	0	0	0	0	0	0	2
Ventura Adult and Continuing Education	South Central Coast	0	2	0	0	0	0	0	0	0	2
Modesto Junior College	Central California	1	0	0	0	0	0	0	0	0	1
Reedley College	Central California	1	0	1	0	0	0	0	0	0	2
San Joaquin Delta College	Central California	1	0	1	0	0	0	0	0	0	2
West Hills College-Lemoore	Central California	1	0	0	0	0	0	0	0	0	1

Inventory of Cybersecurity (and Closely Related) Programs at Postsecondary Institutions in California, by Region (2016) (continued)

Educational Institution	Region	Award of less than 1 academic year	Award of at least 1 but less than 2 academic years	Associate degree	Award of 2 but less than 4 academic years	Bachelor's degree	Post-master's certificate	Master's degree	Post-baccalaureate certificate	Doctor's degree -- research/ scholarship	Grand Total
Includes Aspects of Cybersecurity (continued)											
American River College	Far North	3	0	2	0	0	0	0	0	0	5
Asher College	Far North	1	2	2	0	0	0	0	0	0	5
College of the Redwoods	Far North	0	1	1	0	0	0	0	0	0	2
Cosumnes River College	Far North	2	0	1	0	0	0	0	0	0	3
Folsom Lake College	Far North	2	0	0	0	0	0	0	0	0	2
MTI College	Far North	1	0	1	0	0	0	0	0	0	2
Sacramento City College	Far North	2	3	1	0	0	0	0	0	0	6
Shasta College	Far North	2	1	1	0	0	0	0	0	0	4
Sierra College	Far North	1	0	1	0	0	0	0	0	0	2
Yuba College	Far North	1	0	0	0	0	0	0	0	0	1
Computer Training Academy	N/A	1	0	0	0	0	0	0	0	0	1
DeVry University-California	N/A	0	0	1	0	1	0	2	2	0	6
Institute of Technology	N/A	0	1	0	0	0	0	0	0	0	1
University of Phoenix-California	N/A	2	0	1	0	4	0	1	0	0	8
Likely Includes Cybersecurity		**229**	**126**	**272**	**2**	**137**	**1**	**65**	**8**	**18**	**858**
Academy of Art University	Bay Area	0	0	1	1	2	0	1	1	0	6
Argosy University-San Francisco Bay Area	Bay Area	0	0	1	0	1	0	0	0	0	2
Argosy University-The Art Institute of California-San Francisco	Bay Area	0	1	1	0	1	0	0	0	0	3
Argosy University-The Art Institute of California-Silicon Valley	Bay Area	0	1	1	0	1	0	0	0	0	3
Berkeley City College	Bay Area	2	1	3	0	0	0	0	0	0	6
Cabrillo College	Bay Area	3	3	4	0	0	0	0	0	0	10
California State University-East Bay	Bay Area	0	0	0	0	1	0	1	0	0	2
California State University-Monterey Bay	Bay Area	0	0	0	0	2	0	0	0	0	2
Canada College	Bay Area	1	0	1	0	0	0	0	0	0	2
Chabot College	Bay Area	1	0	4	0	0	0	0	0	0	5
City College of San Francisco	Bay Area	4	0	2	0	0	0	0	0	0	6
Cogswell College	Bay Area	0	0	0	0	1	0	0	0	0	1
College of Alameda	Bay Area	1	0	1	0	0	0	0	0	0	2
College of Marin	Bay Area	2	0	2	0	0	0	0	0	0	4
College of San Mateo	Bay Area	1	1	3	0	0	0	0	0	0	5
Contra Costa College	Bay Area	2	0	2	0	0	0	0	0	0	4
De Anza College	Bay Area	3	3	4	0	0	0	0	0	0	10
Diablo Valley College	Bay Area	3	1	3	0	0	0	0	0	0	7