



San Joaquin Delta College
Stockton CA 95207

June 2, 2015

To: Karri Hammerstrom, Chair, Central/Mother Lode Regional Consortium
From: Sharon Daegling, Curriculum Support Coordinator, San Joaquin Delta College
Subject: New CTE Program

San Joaquin Delta College is requesting approval by the Central/Mother Lode Regional Consortium for a new CTE program.

Included in this document please find the Narrative, Labor Market Information and Advisory Committee recommendations regarding the program listed below. Please email me at sdaegling@deltacollege.edu with any questions regarding the submission.

Thank you for your consideration.

Program Title:	Computer Network Security Technician
Program Proposal Type:	Career Technical Education (CTE)
Program Award Type:	Certificate of Achievement
Discipline:	Electronics
Instructor:	Sergio Calderon
BOT Approval Date:	May 5, 2015

cc: Salvador Vargas, Dean, CTE and Workforce Development
Sergio Calderon, Professor, Electronics

NARRATIVE

Program Title:

Computer Network Security Technician, Certificate of Achievement

Item 1. Program Goals and Objectives

The objective of this new program is to offer students additional opportunities to gain skills and knowledge in Computer Networking Security. San Joaquin Delta College in partnership with the Cisco Academy has developed an academic program that prepares the students for and academic certificate in Computer Network Security (CCNA Security) Technician to align with industry Certifications. Industry recognized certifications provide a measurable benefits to Networking Academy alumni and their employers.

Item 2. Catalog Description

The Computer Network Security Technician program prepares students for a variety of career opportunities including the networking field. The program prepare students for Cisco Certified Network Associate (CCNA) and CCNA Security certification tests and CompTIA A+ tests. Constantly evolving and modernizing classes include targeted skills training in emerging technologies like Wireless, Voice over INternet Protocol (VoIP), Virtual Private Networks (VPN), Network Security, and Operating System Hardening. Many of these subjects have become basic required knowledge in other career fields. Students in Business, the Sciences, Arts, and Administration of Justice will all need skills in network technologies to excel in their fields. This course path gives training in today's important tech knowledge areas. This certificate includes courses that apply towards an AS degree in Network Technician and Network Technician with emphasis in Security. This degree incorporates the latest in emerging technologies and skills employers are seeking.

Item 3. Program Requirements

Requirements	Course Dept./Number	Course Title	Units	Sequence
Required Core (21.5 Units)	ELECT 014C	Troubleshooting Computers	2.5	Yr. 1/ Fall
	ELECT 030A	Basic Electronic Computer Networks	4.0	Yr. 1/ Fall
	ELECT 030B	Advanced Electronic Computer Networks	4.0	Yr. 1/ Fall
	ELECT 030C	Basic Electronics Networks Systems	4.0	Yr. 1/ Spring
	ELECT 030D	Advanced Electronic Network Systems	4.0	Yr. 1/ Spring
	ELECT 034	Network Systems Security	3.0	Yr. 1/ Spring
	Total Units		21.5	

Proposed Sequence:

Year 1, Fall	10.5 units
Year 1, Spring	11 units
TOTAL UNITS:	21.5 units

Item 4. Master Planning

The Cisco Academy centers on teaching students to design, build and maintain computer networks and securing them. The courses provide the students with skills for entry level positions as computer network technicians, administrators, or penetration experts. Curriculum content is based on industry standards and skills that can be applied to any data or telecommunications platform. Students attain skills using state of the art equipment while working in real world case scenarios. San Joaquin Delta College offers various courses, which prepare the students for multiple industry certifications. The core program prepares the students for the Cisco Certified Network Associate and the Cisco Certified Network Associate in Security.

Item 5. Enrollment and Completer Projections

		Year 1		Year 2		Year 3 (Projected)	
CB01: Course Department Number	CB02: Course Title	Annual Sections	Annual Enrollment Total	Annual Sections	Annual Enrollment Total	Annual Sections	Annual Enrollment Total
ELECT 014C	Troubleshooting Computers	2	50	2	55	2	60
ELECT 030A	Basic Electronic Computer Networks	2	45	2	60	2	60
ELECT 030B	Advanced Electronic Computer Networks	2	40	2	50	2	50
ELECT 030C	Basic Electronic Network Systems	2	35	2	40	2	45
ELECT 030D	Advanced Electronic Network Systems	2	30	2	40	2	45
ELECT 034	Network Systems Security	1	20	1	25	1	30

Annual Completer Projection: 5

Item 6. Place of Program in Curriculum/Similar Programs

The proposed new program enhances existing Computer Network Technician with advanced courses. Currently there are no existing programs that address the specific needs of the Computer Network Security Technician Certificate. This program will focus on those needs. Currently Industry and our advisory board is requesting us to develop Security Technicians

thus the need for this program. This is due to the fact of so many companies getting hacked and thus qualified security technicians are needed. A large percentage of workers and students are returning for this type of course and industry certification due to these issues in industry and to advance in their current jobs. This new program will allow students to focus on a specific set of skills and attain those skills in a shorter period of time. The fact that these courses will primarily be offered in nine week periods will assist the students to finish quicker and place with high paying jobs. The students will complete there certificate within three semesters. The new program will utilize existing resources.

Item 7. Similar Programs at Other Colleges in Service Area

The Computer Network Security Certificate of Achievement will not impact any other colleges in the area as none offer this certificate.

Labor Market Information and Analysis

Program Title:

Computer Network Security Technician, Certificate of Achievement

Based on data gathered from California Department of Education Labor Market Info web site (<https://www.labormarketinfo.edd.ca.gov/>) and MPICT labor reports there is a projected growth of Network and Computer Administrators +4.3% for San Joaquin County by 2018. According to the same resource, specialized certifications will increase by 7.5 percent which include Network Security Technician or CCNA Security Certified. The message I receive from this data is that the employment of new Network Administrators and Security Technicians will increase with the IoE (Internet of Everything) and the growing market of Networked devices automated/computerized. Therefore, a new program that addresses the needs of Network Security is needed.



California Occupational Guides

Detailed Guide for

Network and Computer Systems Administrators in San Joaquin County

May also be called: Information Technology (IT) Directors; IT Managers; IT Specialists; Local Area Network (LAN) Administrators; Network Administrators; Network Engineers; Network Managers; Network Specialists; Systems Administrators; and Systems Engineers

What Would I Do?

Network and Computer Systems Administrators are responsible for the day-to-day operation of computer networks, which is a vital part of most organizations. They install, configure, and support an organization's local area network (LAN), wide area network (WAN), Internet and intranet systems, a segment of a network system, or other data communication systems.

Systems Administrators identify computer and network needs, install network hardware and software, and make needed upgrades and repairs. They maintain network and computer system security, evaluate network or system performance, and help increase system efficiency. They provide training on hardware and software use as well as solve computer issues promptly upon notification by a user or an automated monitoring system.

They ensure e-mail and data storage networks function properly and that employee workstations run efficiently and stay connected to the network. Some Administrators manage telecommunication networks at their organization.

Network and Computer Systems Administrators may assist computer network architects in designing and analyzing network models. They are involved in making decisions regarding hardware and software purchases. Some provide technical support to computer users and may supervise computer user support specialists, computer network support specialists, or computer programmers.

Tools and Technology

Systems Administrators work with a wide range of tools and technology. In addition to computers, they may use computer tool kits, cable accessories, digital testers, hard disk arrays, interferometers, network switches and analyzers, power meters, protocol analyzers, reflectometers, and server load balancers. They use a variety of software such as administration, backup or archival, configuration management, Internet directory services, network monitoring, network security or virtual private network (VPN) management, and transaction security and virus protection.

Important Tasks and Related Skills

Each task below is matched to a sample skill required to carry out the task.

Task	Skill Used in this Task
Maintain and administer computer networks and related computing environments including computer hardware, systems software, applications software, and all configurations.	Computers and Electronics
Diagnose, troubleshoot, and resolve hardware, software, or other network and system problems, and replace defective components when necessary.	Complex Problem Solving
Plan, coordinate, and implement network security measures to protect data, software, and hardware.	Critical Thinking
Operate master consoles to monitor the performance of computer systems and networks, and to coordinate computer network access and use.	Problem Sensitivity
Load computer tapes and disks, and install software and printer paper or forms.	Near Vision
Design, configure, and test computer hardware, networking software and operating system software.	Systems Analysis
Perform data backups and disaster recovery operations.	Information Ordering
Configure, monitor, and maintain email applications or virus protection software.	Inductive Reasoning
Monitor network performance to determine whether adjustments need to be made, and to determine where changes will need to be made in the future.	Systems Evaluation
Confer with network users about how to solve existing system problems.	Oral Expression

Research new technologies by attending seminars, reading trade articles, or taking classes, and implement or recommend the implementation of new technologies.

Reading
Comprehension

Source: U.S. Department of Labor Occupational Information Network (O*NET) at online.onetcenter.org

Working Conditions

Most Systems Administrators spend their working hours indoors in environmentally controlled buildings. Voice and data equipment are kept in communications rooms, which can be cold. Systems Administrators usually work 40 hours a week, but may work overtime or on call to ensure proper functioning of networks and systems. Some may travel to the customer's work site.

Systems Administrators interact regularly with network architects and information technology (IT) management as well as with the organization's non-IT staff. A considerable amount of time is spent typing on computer keyboards, which can lead to hand and wrist problems for those who do not take precautions such as ensuring they have an ergonomic workstation. Some lifting and moving of hardware is required.

Most workers in this occupation are not represented by unions. However, those who work in government or hospital settings have the option to join unions, such as the Service Employees International Union.

Will This Job Fit Me?

The job of Systems Administrator may appeal to those who enjoy activities that involve working with ideas and that require an extensive amount of thinking. This occupation involves searching for facts and figuring out problems. Those who value job security and good working conditions should enjoy this type of job.

Employers seek candidates with excellent interpersonal, verbal, and written communications skills. Systems Administrators need to be able to work well both independently and as part of a team. They must take initiative, troubleshoot, and resolve issues in a timely manner. In addition, they should be patient, detail-oriented, and willing to continually learn new technologies.

What Wages and Benefits Can I Expect?

Wages

The median wage in 2014 for Network and Computer Systems Administrators in California was \$83,396 annually, or \$40.09 hourly. The median wage for Network and Computer Systems Administrators in San Joaquin County was \$62,939 annually, or \$30.26 hourly. The median is the point at which half of the workers earn more and half earn less.

Annual Wages for 2014	Low (25th percentile)	Median (50th percentile)	High (75th percentile)
California	\$65,246	\$83,396	\$105,724
San Joaquin County	\$50,383	\$62,939	\$78,661

Source: EDD/LMID Occupational Employment Statistics Survey, 2014 at www.labormarketinfo.edd.ca.gov/?PageID=1009 Wages do not reflect self-employment.

Hourly Wages for 2014	Low (25th percentile)	Median (50th percentile)	High (75th percentile)
California	\$31.36	\$40.09	\$50.83
San Joaquin County	\$24.22	\$30.26	\$37.82

Source: EDD/LMID Occupational Employment Statistics Survey, 2014 at www.labormarketinfo.edd.ca.gov/?PageID=1009. Wages do not reflect self-employment.

Benefits

Systems Administrators generally receive medical and dental insurance, vacation, sick leave, and retirement plans from their employers. Some employers may also offer stock options and bonuses.

What is the Job Outlook?

As businesses and government agencies continue to invest in newer, faster technology and mobile networks, demand for Systems Administrators should remain high. Systems Administrators with an information security background will be needed to keep networks and systems safe.

Projections of Employment

In California, the number of Network and Computer Systems Administrators is expected to grow faster than average growth rate for all occupations. Jobs for Network and Computer Systems Administrators are expected to increase by 17.0 percent, or 6,900 jobs between 2012 and 2022.

In San Joaquin County, the number of Network and Computer Systems Administrators is expected to grow faster than average growth rate for all occupations. Jobs for Network and Computer Systems Administrators are expected to increase by 25.0 percent, or 50 jobs between 2010 and 2020.

Estimated Employment and Projected Growth Network and Computer Systems Administrators

Geographic Area (Estimated Year-Projected Year)	Estimated Employment	Projected Employment	Numeric Change	Percent Change	Additional Openings Due to Net Replacements
California (2012-2022)	40,700	47,600	6,900	17.0	6,400
San Joaquin County (2010-2020)	200	250	50	25.0	30

Source: EDD/LMID Projections of Employment by Occupation at
www.labormarketinfo.edd.ca.gov/?PageID=1011

Annual Job Openings

In California, an average of 690 new job openings per year is expected for Network and Computer Systems Administrators, plus an additional 640 job openings due to net replacement needs, resulting in a total of 1,330 job openings.

In San Joaquin County, an average of 5 new job openings per year is expected for Network and Computer Systems Administrators, plus an additional 3 job openings due to net replacement needs, resulting in a total of 8 job openings.

Estimated Average Annual Job Openings Network and Computer Systems Administrators

Geographic Area (Estimated Year- Projected Year)	Jobs From Growth	Jobs Due to Net Replacements	Total Annual Job Openings
California (2012-2022)	690	640	1,330
San Joaquin County (2010-2020)	5	3	8

Source: EDD/LMID Projections of Employment by Occupation at
www.labormarketinfo.edd.ca.gov/?PageID=1011

How Do I Qualify?

Education, Training, and Other Requirements

The level of education and type of training required varies by employer. A bachelor's degree in computer or information science, or even computer or electrical engineering

with coursework in computer programming, networking, or systems design, is often required for entry into this field. Some employers will accept an associate degree in a computer-related field, along with certificates and related work experience. Some positions may require a master's degree.

Early Career Planning

High school students interested in this kind of work should take classes in mathematics, computer science, information technology, engineering technology, business, and language arts. Training programs are also available through Regional Occupational Programs (ROP) in areas such as computer administrator, computer network management, computer systems management, information systems management, network administration, network administrator, and network security. To find an ROP program near you, go to the California Association of Regional Occupational Centers and Programs Web site at www.carocp.org/carocps.html.

Continuing Education

A constantly changing technology makes it necessary for Systems Administrators to keep their skills current and acquire new ones. Many continuing education programs exist through employers, hardware and software vendors, colleges and universities, and private training institutions. Professional development seminars and conferences offered by computing services firms, as well as courses available online or through independent study, also enhance skills and advancement opportunities.

Certification

Professional certification is becoming the industry standard and can demonstrate competence in a particular field. There are hundreds of different certification programs available. Many are offered by product vendors or software firms. Product vendors may require Systems Administrators to be certified in the products that they use. For more information, go to the U.S. Department of Labor's Career InfoNet Web site at www.acinet.org and scroll down to "Career Tools." Click on "Certification Finder" at www.acinet.org/certifications_new/default.aspx and follow the instructions to locate certification programs.

Where Can I Find Training?

There are two ways to search for training information at www.labormarketinfo.edd.ca.gov/?Pageid=1013

- Search by Field of Study to find what programs are available and what schools offer those programs. You may use keywords such as: Computer Science, Information Systems Security, LAN/WAN Management, Network, and System Administration.
- Search by Training Provider to find schools by name, type of school, or location.

Contact the schools you are interested in to learn about the classes available, tuition

and fees, and any prerequisite course work.

Where Would I Work?

The largest industries employing Network and Computer Systems Administrators are as follows:

Industry Title	Percent of Total Employment for Occupation in California
Computer Systems Design and Rel Services	15.5%
Management of Companies and Enterprises	7.4%
Local Government	4.6%
Colleges and Universities	3.6%
Management & Technical Consulting Svc	3.4%

Source: EDD/LMID Staffing Patterns at
www.labormarketinfo.edd.ca.gov/?Pageid=1012

Finding a Job

Networking is important in this occupation, since many Network and Computer Systems Administrators find work through referrals. Jobs can also be found through direct application to employers, newspaper classified advertisements, online job boards, and professional organizations. **Online job opening systems** include JobCentral at www.jobcentral.com and CalJOBSSM at www.caljobs.ca.gov.

To find your nearest One-Stop Career Center, go to [Service Locator](#). View the [helpful job search tips](#) for more resources. (requires [Adobe Reader](#)).

Yellow Page Headings

You can focus your local job search by checking employers listed online or in your local telephone directory. Below are some suggested headings where you might find employers of Network and Computer Systems Administrators.

- Computer Network Design & Systems
- Computers-System Designers & Consultants
- Consumer Electronics
- Government Offices
- Hospitals
- Management Consultants

- Private Schools (K-12)
- Public Schools
- Schools

Find Possible Employers

To locate a list of employers in your area, use "Find Employers" on the LaborMarketInfo Web site at <http://www.labormarketinfo.edd.ca.gov/aspdotnet/databrowsing/empMain.aspx?menuChoice=emp>

- Select the search for employers by occupation.
- Select a geographic area.
- Search for an occupation by keyword, occupation, or category.
- Select one of the top industries that employ the occupation.
- This will give you a list of employers in that industry in your area.
- Click on "View Filter Selections" to limit your list to specific cities or employer size.
- Click on an employer for the street address, telephone number, size of business, Web site, etc.
- Contact the employer for possible employment.

Where Could This Job Lead?

Systems Administrators who gain extensive work experience and regularly update their skills with training can promote to senior positions such as information technology manager.

Related Occupations

Below is a list of occupations related to Network and Computer Systems Administrators.

- Computer Hardware Engineers (SOC 17-2061)
- Computer Network Architects (SOC 15-1143)
- Computer Network Support Specialists (SOC 15-1152)
- Computer Programmers (SOC 15-1131)
- Software Developers, Applications (SOC 15-1132)
- Software Developers, Systems Software (SOC 15-1133)
- Computer Systems Analysts (SOC 15-1121)
- Computer User Support Specialists (SOC 15-1151)
- Database Administrators (SOC 15-1141)

Other Sources

- Advanced Computing Systems Association
www.usenix.org

- Association for Computing Machinery (ACM)
www.acm.org
- Computing Technology Industry Association
www.comptia.org
- Institute for the Certification of Computing Professionals (ICCP)
www.iccp.org
- Institute of Electrical and Electronics Engineers (IEEE) Computer Society
www.ieee.org
- League of Professional System Administrators
www.lopsa.org
- National Workflow Center for Emerging Technologies
www.nwcet.org
- Network Professional Association
www.npa.org

These links are provided for your convenience and do not constitute an endorsement by EDD.

For the Career Professional

The following codes are provided to assist counselors, job placement workers, or other career professionals.

System	Code
SOC - Standard Occupational Classification at www.bls.gov/soc/	15-1142
O*NET - Occupational Information Network at online.onetcenter.org/	
Network and Computer Systems Administrators	15-1142.00
Interest Codes (RIASEC) at online.onetcenter.org/find/descriptor/browse/Interests/#cur	IRC
CIP - Classification of Instructional Programs at nces.ed.gov/pubs2002/cip2000/	
Computer and Information Sciences, General	110101
Computer Systems Analysis/Analyst	110501
Computer Systems Networking and Telecommunications	110901
Network and System Administration/Administrator	111001
Computer and Information Systems Security/Information Assurance	111003
Computer and Information Sciences & Support Services, Other	119999
TOP - Taxonomy of Programs at www.ccccurriculum.info/ (California Community Colleges)	
Information Technology, General	070100
Computer Systems Analysis	070730

Computer Infrastructure and Support	070800
Computer Networking	070810
Computer Support	070820
Other Information Technology	079900

The California Occupational Guides are a product of:
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Network and Computer Systems Administrators Estimated Employment and Projected Growth

Geographic Area (Estimated Year-Projected Year)	Estimated Employment	Projected Employment	Numeric Change	Percent Change	Additional Openings Due to Net Replacements
California (2012-2022)	40,700	47,600	6,900	17.0	6,400
Butte County (2012-2022)	120	160	40	33.3	20
East Bay Area (2012-2022)	3,400	3,880	480	14.1	530
Fresno County (2010-2020)	310	420	110	35.5	50
Imperial County (2012-2022)	60	70	10	16.7	10
Inland Empire Area (2012-2022)	1,790	2,080	290	16.2	280
Kern County (2010-2020)	450	600	150	33.3	80
Kings County (2012-2022)	30	30		.0	
Los Angeles County (2012-2022)	9,880	10,770	890	9.0	1,550
Merced County (2010-2020)	120	160	40	33.3	20
Monterey County (2010-2020)	190	230	40	21.1	30
Mother Lode					

Region (2012-2022)	40	40		.0	10
Napa County (2012-2022)	70	90	20	28.6	10
North Coast Region (2010-2020)	120	150	30	25.0	20
Northern Counties Region (2010-2020)	100	120	20	20.0	20
Orange County (2012-2022)	4,340	5,270	930	21.4	680
Sacramento Metro Area (2012-2022)	1,750	2,140	390	22.3	280
San Benito and Santa Clara Counties (2012-2022)	4,570	5,540	970	21.2	720
San Diego County (2012-2022)	4,240	5,290	1,050	24.8	670
San Francisco Bay Area (2012-2022)	4,880	5,880	1,000	20.5	770
San Joaquin County (2010-2020)	200	250	50	25.0	30
San Luis Obispo County (2010-2020)	180	240	60	33.3	30
Santa Barbara County (2012-2022)	440	490	50	11.4	70
Santa Cruz					

County (2010-2020)	210	270	60	28.6	40
Shasta County (2012-2022)	70	80	10	14.3	10
Solano County (2010-2020)	280	270	-10	-3.6	50
Sonoma County (2010-2020)	320	430	110	34.4	50
Stanislaus County (2010-2020)	190	240	50	26.3	30
Sutter and Yuba Counties (2010-2020)	80	100	20	25.0	10
Tulare County (2010-2020)	140	190	50	35.7	20
Ventura County (2010-2020)	650	810	160	24.6	110

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**Network and Computer Systems Administrators
Estimated Average Annual Job Openings**

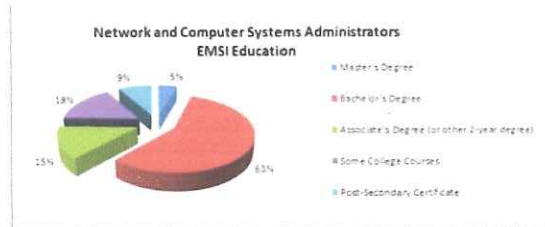
Geographic Area (Estimated Year- Projected Year)	Jobs From Growth	Jobs Due to Net Replacements	Total Annual Job Openings
California (2012-2022)	690	640	1,330
Butte County (2012-2022)	4	2	6
East Bay Area (2012-2022)	48	53	101
Fresno County (2010-2020)	11	5	16
Imperial County (2012-2022)	1	1	2
Inland Empire Area (2012-2022)	29	28	57
Kern County (2010-2020)	16	8	24
Kings County (2012-2022)	1		1
Los Angeles County (2012-2022)	90	155	245
Merced County (2010-2020)	4	2	6
Monterey County (2010-2020)	4	3	7
Mother Lode Region (2012-2022)		1	1
Napa County (2012-2022)	2	1	3
North Coast Region (2010-2020)	2	2	4

Northern Counties Region (2010-2020)	2	2	4
Orange County (2012-2022)	93	68	161
Sacramento Metro Area (2012-2022)	39	28	67
San Benito and Santa Clara Counties (2012-2022)	97	72	169
San Diego County (2012-2022)	105	67	172
San Francisco Bay Area (2012-2022)	99	77	176
San Joaquin County (2010-2020)	5	3	8
San Luis Obispo County (2010-2020)	6	3	9
Santa Barbara County (2012-2022)	5	7	12
Santa Cruz County (2010-2020)	6	4	10
Shasta County (2012-2022)	1	1	2
Solano County (2010-2020)		5	5
Sonoma County (2010-2020)	11	5	16
Stanislaus County (2010-2020)	4	3	7
Sutter and Yuba Counties (2010-2020)	2	1	3
Tulare County			

(2010-2020)	5	2	7
Ventura County (2010-2020)	17	11	28

Network and Computer Systems Administrators (O*NET Occupation 15-1071.00)

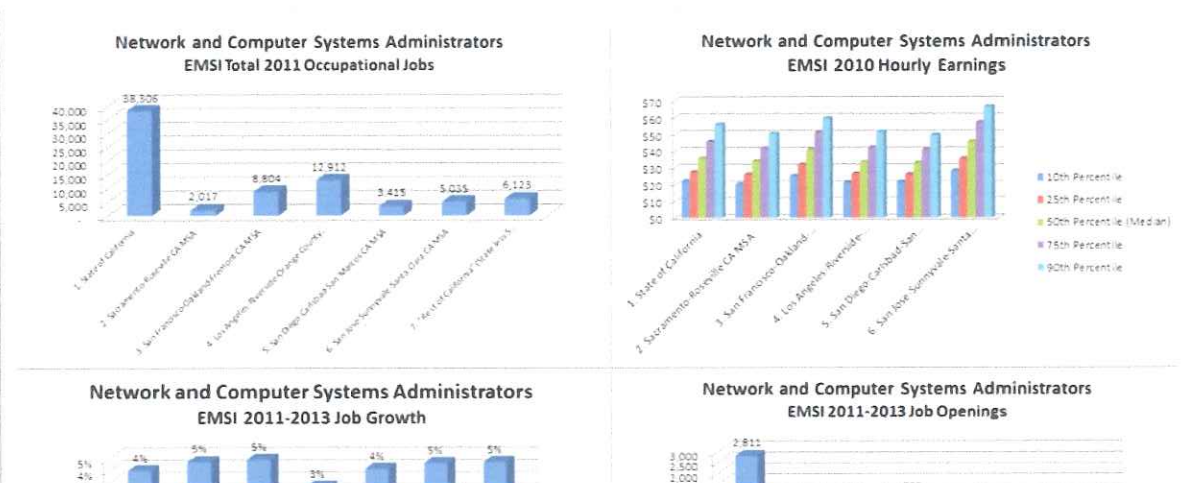
Network and Computer Systems Administrators “install, configure, and support an organization’s local area network (LAN), wide area network (WAN), and Internet system or a segment of a network system. Maintain network hardware and software. Monitor network to ensure network availability to all system users and perform necessary maintenance to support network availability. May supervise other network support and client server specialists and plan, coordinate, and implement network security measures.” Most have at least a bachelor’s degree and are paid well. There are about 38,306 people in these jobs today in California, and these jobs are expected to grow about 4% over the next 2 years. There is roughly one person in this job for every 20 in all Primary ICT occupations. When these jobs are posted online, about 1 in 3 have unique job titles, and even jobs with the same titles have different descriptions. Generally, look for the words systems administrator in combination with some ICT related technical or operational term. Wanted reported more than 25,000 online postings for these jobs in California in Q1 2011.



Community colleges develop credentials to prepare students for this job. Also, many students with bachelor’s or master’s degrees take ICT related courses at community colleges to develop technical knowledge and skills and keep up with rapidly changing technologies, so they can be successful in these roles. All community college ICT students can expect to work with and for people in these roles and should understand them.

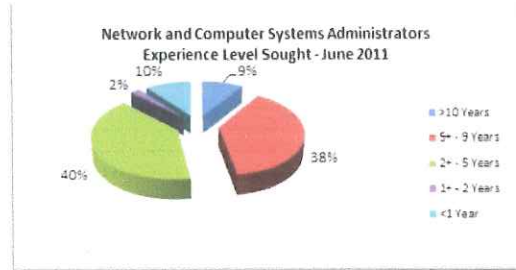
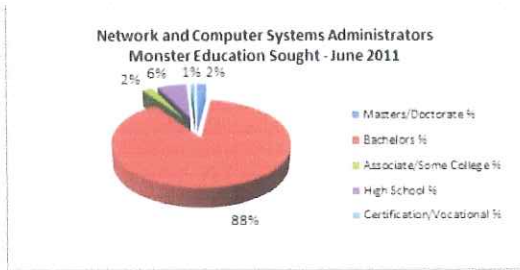
EMSI Data

EMSI Primary ICT Occupation Data								
Network and Computer Systems Administrators (SOC 15-1071.00)	Data	1. State of California	2. Sacramento-Roseville CA MSA	3. San Francisco-Oakland-Fremont CA MSA	4. Los Angeles-Riverside-Orange County, CA MSA	5. San Diego-Carlsbad-San Marcos CA MSA	6. San Jose-Sunnyvale-Santa Clara CA MSA	7. "Rest of California" (State less 5 named MSAs)
EMSI:								
Total 2011 Occupational Jobs	Number	38,306	2,017	8,804	12,912	3,415	5,035	6,123
2011-2013 Job Growth	Number	1,533	93	432	345	142	232	287
	Percent	4%	5%	5%	3%	4%	5%	5%
2011-2013 Job Openings	Number	2,811	162	725	775	256	400	493
2010 Hourly Earnings:	10th Percentile	\$22.01	\$20.25	\$25.14	\$21.16	\$21.52	\$28.23	
	25th Percentile	\$27.51	\$26.03	\$31.94	\$26.22	\$25.91	\$35.31	
	50th Percentile (Median)	\$35.59	\$33.85	\$40.60	\$33.27	\$32.88	\$45.48	
	75th Percentile	\$45.53	\$41.59	\$50.88	\$42.12	\$40.90	\$56.96	
	90th Percentile	\$55.93	\$50.17	\$59.51	\$51.15	\$49.57	\$66.39	



Online Education and Experience Levels in Q1 2011 via Monster.com

Following are the education and experience levels sought for these positions across all Monster.com online job postings in the first quarter of 2011 for California.



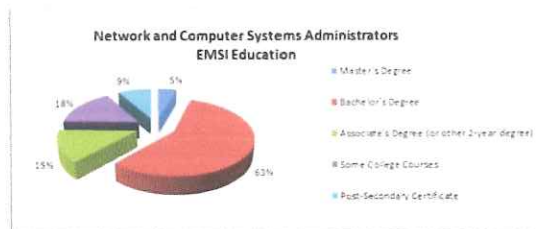
Online Job Postings via Wanted.com

Following are the total number of job postings, the different number of job titles and top 10 job titles within this occupation for all online job postings at all online job posting boards, recruiter websites and corporate websites accessible to Wanted.com in the first quarter of 2011 for California.

WANTED.COM AGGREGATION OF ONLINE JOB LISTINGS - 1st QUARTER 2011								
Q1 2011/SOC Title	Data	1. State of California	2. Sacramento-Arden-Arcade-Roseville CA MSA	3. San Francisco-Oakland-Fremont CA MSA	4. Los Angeles-Long Beach-Santa Ana, CA MSA	5. San Diego-Carlsbad-San Marcos CA MSA	6. San Jose-Sunnyvale-Santa Clara CA MSA	7. "Rest of California" (State minus the 5 named MSAs)
15-3071 Network and Computer Systems Administrators	Total Job Postings	25,008	955	7,276	6,992	2,945	3,502	9,318
	# of Different Job Titles	7,405	372	2,464	2,347	855	1,420	1,203
	Top Job Title #1 Name	Systems Administrator	Systems Administrator	Network Engineer	Systems Administrator	Network Engineer	Systems Administrator	INFORMATION TECHNOLOGY SPECIALIST (INFORMATION SECURITY)
	Top Job Title #1 Count	703	43	168	250	88	100	136
	Top Job Title #2 Name	Network Engineer	Network Engineer	Systems Administrator	System Administrator	Systems Administrator	Network Engineer	Systems Administrator
	Top Job Title #2 Count	519	27	142	145	82	60	88
	Top Job Title #3 Name	System Administrator	Systems Admin	System Administrator	Network Engineer	Systems Engineer	Technical Support Engineer	Network Administrator
	Top Job Title #3 Count	387	23	133	124	35	51	66
	Top Job Title #4 Name	Network Administrator	Technician-Systems Engineer	Network Security Engineer	Network Administrator	Network Administrator	Senior Network Engineer	System Administrator
	Top Job Title #4 Count	289	22	79	120	33	41	60
	Top Job Title #5 Name	Systems Engineer	WebSphere Administrator	Technical Support Engineer	Systems Engineer	Sr. Network Engineer	Senior Unix Systems Engineer	Network Engineer
	Top Job Title #5 Count	217	18	70	100	29	40	51
	Top Job Title #6 Name	Sr. Network Engineer	Network Administrator-916-JM	Unix Systems Administrator	LINUX ADMINISTRATOR	Sr. Lead Systems Engineer	Sr. Network Engineer	VMware iJob Training By Senior VMware Architect
	Top Job Title #6 Count	191	16	67	53	26	37	35
	Top Job Title #7 Name	Senior Network Engineer	WebLogic Administrator	Sr. Network Engineer	Network Security Engineer	Systems Administrator with OODRS Experience	Linux Systems Administrator	Sr CRM Solutions Specialist
	Top Job Title #7 Count	178	15	60	51	24	32	34
	Top Job Title #8 Name	Network Security Engineer	Security Project Manager	Senior Network Engineer	Senior Network Engineer	Senior Systems Administrator	Senior Systems Administrator	Unix Systems Administrator
	Top Job Title #8 Count	159	14	58	50	23	30	29
	Top Job Title #9 Name	Senior Systems Administrator	Network Administrator	Senior Systems Administrator	Sr. Network Engineer	IT Manager	Systems Engineer	Telecommunication Engineer-Commercial
	Top Job Title #9 Count	156	14	55	48	19	27	28
	Top Job Title #10 Name	Unix Systems Administrator	Support Engineer	Linux Systems Administrator	Senior Systems Engineer	Sr. Systems Administrator	Sr. Systems Administrator	Information Assurance Engineer
	Top Job Title #10 Count	155	14	53	29	19	27	27

Network and Computer Systems Administrators (O*NET Occupation 15-1071.00)

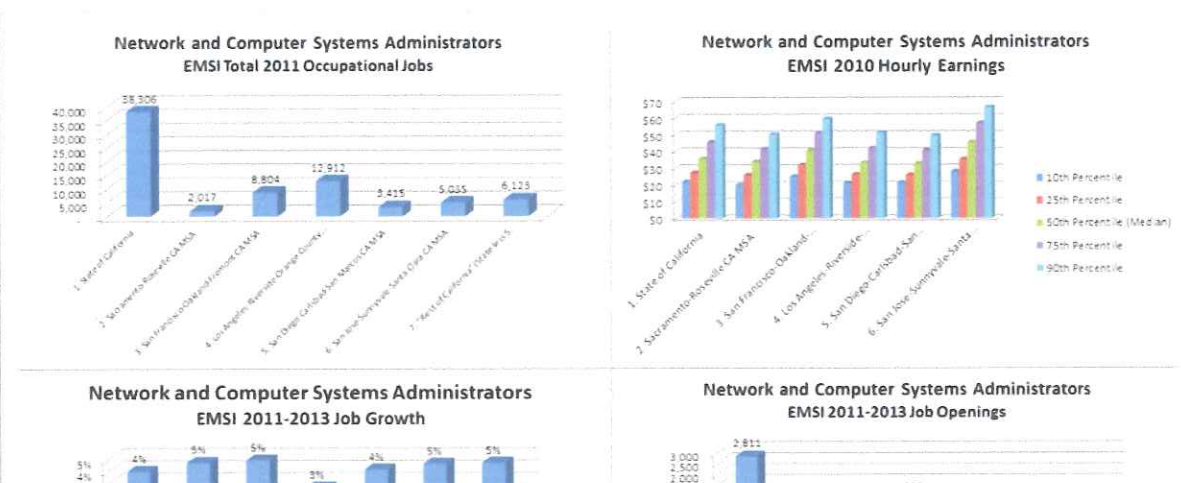
Network and Computer Systems Administrators “install, configure, and support an organization's local area network (LAN), wide area network (WAN), and Internet system or a segment of a network system. Maintain network hardware and software. Monitor network to ensure network availability to all system users and perform necessary maintenance to support network availability. May supervise other network support and client server specialists and plan, coordinate, and implement network security measures.” Most have at least a bachelor's degree and are paid well. There are about 38,306 people in these jobs today in California, and these jobs are expected to grow about 4% over the next 2 years. There is roughly one person in this job for every 20 in all Primary ICT occupations. When these jobs are posted online, about 1 in 3 have unique job titles, and even jobs with the same titles have different descriptions. Generally, look for the words systems administrator in combination with some ICT related technical or operational term. Wanted reported more than 25,000 online postings for these jobs in California in Q1 2011.



Community colleges develop credentials to prepare students for this job. Also, many students with bachelor's or master's degrees take ICT related courses at community colleges to develop technical knowledge and skills and keep up with rapidly changing technologies, so they can be successful in these roles. All community college ICT students can expect to work with and for people in these roles and should understand them.

EMSI Data

EMSI Primary ICT Occupation Data								
Network and Computer Systems Administrators (SOC 15-1071.00)	Data	1. State of California	2. Sacramento-Roseville CA MSA	3. San Francisco-Oakland-Fremont CA MSA	4. Los Angeles-Riverside-Orange County, CA MSA	5. San Diego-Carlsbad-San Marcos CA MSA	6. San Jose-Sunnyvale-Santa Clara CA MSA	7. "Rest of California" (State less 5 named MSAs)
EMSI: Total 2011 Occupational Jobs	Number	38,306	2,017	8,804	12,912	3,415	5,035	6,123
2011-2013 Job Growth	Number	1,533	95	432	345	142	232	287
	Percent	4%	5%	5%	3%	4%	5%	5%
2011-2013 Job Openings	Number	2,811	162	725	775	256	400	493
2010 Hourly Earnings:	10th Percentile	\$22.01	\$20.25	\$25.14	\$21.16	\$21.52	\$28.23	
	25th Percentile	\$27.51	\$26.03	\$31.94	\$26.22	\$25.91	\$35.31	
	50th Percentile (Median)	\$35.59	\$33.85	\$40.60	\$33.27	\$32.88	\$45.48	
	75th Percentile	\$45.53	\$41.59	\$50.88	\$42.12	\$40.90	\$56.96	
	90th Percentile	\$55.93	\$50.17	\$59.51	\$51.15	\$49.57	\$66.39	



Online Education and Experience Levels in Q1 2011 via Monster.com

Following are the education and experience levels sought for these positions across all Monster.com online job postings in the first quarter of 2011 for California.



Online Job Postings via Wanted.com

Following are the total number of job postings, the different number of job titles and top 10 job titles within this occupation for all online job postings at all online job posting boards, recruiter websites and corporate websites accessible to Wanted.com in the first quarter of 2011 for California.

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	Top Job Title #3 Count	387	23	133	124	35	51	68
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	Top Job Title #10 Count	155	14	55	39	19	27	27

Advisory Committee Recommendations

Program Title:

Computer Network Security Technician, Certificate of Achievement

List of Members of Advisory Committee

Sergio F. Calderon	Professor, Delta College
Gerardo Calderon	VP, Operations, Delta College
James Donkin III	Network Administration, Verve Networks
Ahnie Garcia	Security Administration, 5 –9 Cloud Solution
Rudy Guererro	Network Administration, Food 4 Less
Brad Martin	Lawrence Livermore National Laboratory
Sandy Milan	Security Admin, AT&T
Gillian Murphy	Dean, Applied Science, Delta College
Sandra Nishimura	Instructor, Lincoln Tech Academy
Mark North	Network Admin, HP
Erick Schmig	Lawrence Livermore National Laboratory
Kamran Sedighi	Professor, Delta College
Tyler Sinclair	System Admin, OG Packing
Evan Stone	Network Administration, Verve Networks
David Tayco	Instructor, Weber Institute
Salvador Vargas	Dean, CTE and Workforce Development, Delta College
Jim Ward	Network Admin, Heath Care Provider Services

Recommendation of Advisory Committee

In advisory committee meetings, the Computer Network Security Technician certificate was discussed and was met with a positive response. The employers welcomed the idea because they will be able to hire our students, with the skills they are looking for.

Advisory Minutes

Cisco Academy / Electronics Technology			
3.5.2015		4pm	BUDD221G Delta Main Campus
Meeting called by	Sergio Calderon		
Type of meeting	Advisory Board Meeting		
Facilitator	Sergio Calderon/Kamran Sedighi		
Note taker	Sandra Nishimura		
Attendees	Yamen Chekosja, Erick Schmig, Brad Martin, James Donkin, Evan Stone, Mark North, David Tayco, Tyler Sinclair, Jose Cazares, Gerardo Calderon, Nesie Nishimura, Salvador Vargas, Kamran Sedighi		
Approve Min.			
10min	Sergio F. Calderon		
Discussion			
Board was asked to review and approve Minutes.			
Conclusions	Board approved Minutes as such.		
Action Items	Person		
Minutes approved	Salvador Vargas		
	Mark North		
New Certificates and Degree1			
15 minutes	Sergio Calderon/Kamran Sedighi		
Discussion	Computer Network AS Degree / Computer Network Security Certificate of Achievement		
Gave Board a summary of new Certificate that were updated and a new AS degree which was approved by Curriculum committee. This new Certificate programs will be in our Fall Catalogue.			
Conclusions	Board approved Both Security Certificate and the Revised AS Degree by all members, Board indicated that new courses in should be developed in Servers, and virtualization to enhance students skills		
Mark North indicated the need for Load Balance, VPN, and CCNP as advanced courses; I indicated to him that CCNP Route will be offered this Fall Semester. Brad Martin indicated Citrix and a Microsoft Program that is viable.			
Action Items			
Sergio acknowledged the need for these courses and will work with staff to develop			
As needed, also work with CS to restructure CIS courses			

Advisory Minutes

Programs		
15 Min.	Tyler Sinclair	
Discussion	Both programs help student's success in the industrial maintenance industry as both Electronics and Networking work side by side.	
Evan Stone indicated that the students with both skill sets are more valuable as both areas can be addresses rather than having two employees be dispatched to do the work. Jose Cazares indicated that additional equipment will benefit students and give them a more enhanced experience to integrate the work force.		
Conclusions	Both programs will be looked at and be modernized to keep up with industry request. Brad indicated that A well rounded ET can make a difference at Lawrence Livermore labs, yet they could not give us feedback on what are the exact needs	
Action Items	Person	Deadline
Items will be worked on in the coming days and fall semester	Sergio Calderon	
	Kamran Sedighi	