

## SENIOR SYSTEMS AND NETWORK ENGINEER

**Track 24: 87,333.22 - 106,142.29**

### **DEFINITION:**

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Under general direction of Director of Information Technology, serve as a project leader on systems, network, telecommunications, and security installations and upgrades. Apply advanced skill and knowledge of complex network, telecommunications protocols, systems security solutions, and multiple operating systems in gathering, analyzing, synthesizing, planning, and designing solutions for existing/new systems, network and telecommunications systems, and integrating new or updating existing security solutions. Provide lead direction to systems administrators and systems support specialists, support and training to end-users of stand-alone and network application programs and systems, and perform related duties as assigned.

### **DISTINGUISHING CHARACTERISTICS:**

This classification is distinguished from Senior Systems Administrator by the performance of more complex systems/network/telecommunications designs and information security. In addition to the types of duties performed by the Senior Systems Administrator, the Senior Systems and Network Engineer applies knowledge of complex network protocols and telecommunications; analyzes, plans, develops and designs unique and original solutions for integrating networks and telecommunications systems. The Senior Systems and Network Engineer assists in the design and installation of network and telecommunications devices and services; recommends solutions and specifications for acquisitions and evaluates and tests security solutions. The Senior Systems and Network Engineer resolves the most complex security problems and breaches; acts as technical liaison for security vendors; and installs, supports, maintains, and programs security solutions for the District. Researches and performs analysis to identify system expansions to meet anticipated future requirements. Evaluates complex security performance analysis and recommends appropriate action. Conducts and initiates security scans, audits and performs risk assessment. The Senior Systems and Network Engineer oversees installation projects and serves as project leader.

**ESSENTIAL DUTIES:** The following duties are typical of those performed by employees in this job title; however, employees may perform other related duties, and not all duties listed are necessarily performed by each employee in the job title.

- Assume project leadership roles and responsibilities in the installation of network and telecommunications systems, and the completion of network security, network and telecommunications related systems projects.
- Develop original solutions for inter/intra operability of security systems, network devices, and network maintenance and support results in the creation of policies and procedures to ensure ongoing continuity.
- Act as technical lead for network, security, and telecommunications vendors.
- Participates in the technology committee and other campus committees;
- Perform related duties as assigned.

### Network Duties

- Install, support, and maintain networks for the District as assigned; monitor equipment functions and usability, review network performance, maintain network systems to maximize availability and accessibility.
- Design, order, inventory, install, program, test and repair equipment hardware and systems associated with network and telecommunications services, including but not limited to routers, bridges, switches, firewalls, controllers, PBX and VoIP systems.
- Regularly evaluate new and emerging technology and apply to innovative network solutions in the context of institutional needs.
- Resolve the most complex network and telecommunications problems; maintain, troubleshoot and diagnose network and telecommunications configurations.
- Develop network configurations and run diagnostics to validate performance standards.
- Design, install and maintain both Internet and WAN services.
- Install, configure and maintain network monitoring and security hardware and software.
- Install, configure and maintain software for routers, bridges, switches and other network devices.
- Design network configurations that ensure network interoperability between multiple vendors' equipment. Support standard networking protocols and practices.
- Coordinate with outside service organizations regarding network and telecommunications maintenance, operational issues, updates and product capabilities.
- Compare multiple database systems and present recommendations to supervisor.
- Analyze complex network performance reports and recommend appropriate action to enhance service and reliability to the supervisor.
- Research and recommend new architecture of applications for maximum technical advantage.
- Research and recommend new network and telecommunication architecture for maximum technical effectiveness.
- Coordinate circuit testing with carriers; analyze and resolve trouble reports.
- Provide regular reports on the status and performance of PBX, VOIP, voice mail, E911, call routing and other related telecommunications systems.
- Prepare written documentation for network design and processes; maintain a database of services provided.

### Information Security Duties

- Install, configure, support, program and maintain network security systems and solutions for the District as assigned; monitor equipment functions and usability, review performance utilization, maintain systems to maximize availability and accessibility.
- Design, inventory, install, program, test and repair equipment hardware and systems associated with network and data security, including but not limited to firewalls, intrusion detection systems, and traffic analyzer.
- Develop, design, program and administer equipment infrastructure and Internet and Intranet security devices; coordinate the design of equipment components.
- Resolve the most complex security problems and network data breaches; maintain, troubleshoot and diagnose security equipment and software configurations.
- Evaluate the performance of complex security implementations and recommend appropriate action to improve speed and functionality to supervisor.
- Conduct security scans, audits and risk assessments. Conduct proactive security monitoring.

- Research and perform analysis to identify security systems expansions to meet anticipated future requirements.
- Assist in the development of disaster prevention and recovery plans.
- Assist with the development of bid specifications for acquisitions of network and data security and network and telecommunications equipment and services.
- Assist in the development of policies and procedures to ensure ongoing continuity. Develop and document security standards.
- Prepare written documentation for network security design and processes; maintain a database of services provided.
- Provide security awareness trainings and documentation for end-users.

**MINIMUM QUALIFICATIONS:**Knowledge of:

- Advanced knowledge of computer hardware systems, software applications and languages utilized by the District.
- Advanced knowledge of the principles, practices and techniques of data base structures and computer programming.
- Advanced knowledge of building communication distribution systems, including conduits, cable trays, and raceways; electrical grounding principles and low voltage communications systems.
- Telecommunications infrastructure and network installation practices, configuration and installation of network and telecommunication devices.
- Advanced knowledge and use of complex network and telecommunication principles, hardware, protocols and configurations, TCP/IP, LAN, WAN, Wireless, firewall, and operating systems as they relate to switched and non-switched telecommunications networks.
- Advanced knowledge of computer and networking principles, switch and router hardware, switch operating systems and network monitoring applications.
- Advanced knowledge of security for networks and systems.
- Working knowledge of firewalls, intrusion detection and prevention systems, auditing and scanning systems, VPN, and remote access systems.
- Working knowledge of operating systems including but not limited to Microsoft Windows server and client, and one of the following: UNIX, Linux or Solaris.
- Working knowledge of email and calendaring systems, Microsoft Office software applications as related to security concerns.
- Familiarity with information security regulations such as AB 2828, FERPA, HIPPA, SOX, and CALEA.
- Familiarity with credit card PCI compliance requirements.
- Familiarity with security practices including but not limited to physical security, network infrastructure, and servers.
- Command of the technical aspects of a networking field of specialty and working knowledge of related specialties.
- Record-keeping techniques.
- Oral and written communication skills.
- Interpersonal skills using tact, patience and courtesy.

Ability to:

- Working independently with little direction in an environment with multiple demands and frequent interruptions, while meeting schedules and timelines; working sensitively with diverse academic, socio-economic, cultural, disability and ethnic backgrounds.
- Analyze situations accurately, adopt an effective course of action, and apply independent technical judgment to complex technical situations.
- Coordinate schedules and resources with information technology staff, end-users, risk management and administrators.
- Design, develop and implement security solutions for large networks.
- Apply extensive application of knowledge in integrating security protocols to complex solutions and understanding relationships between applications.
- Demonstrate working knowledge of the principles, practices and techniques of database structures and computer programming.
- Diagnose and quickly respond to and resolve security breaches and understand reasons for systems failures.
- Perform duties to assure proper operations of the computer systems for the District to provide resources for the staff, faculty and students.
- Operate computers and peripheral equipment properly and efficiently.
- Diagnose and understand reasons for system failures.
- Maintain current knowledge of technological advances in the field.
- Communicate effectively both orally and in writing.
- Maintain records and prepare reports.
- Prioritize and schedule work.
- Establish and maintain cooperative and effective working relationships with others. Effectively use interpersonal skills with tact, patience, and courtesy.
- Place and secure network and telecommunications devices into racks and cabinets.
- Providing effective end-user technical support and training.

Other Requirements:

Must possess a valid California driver's license and have a satisfactory driving record; must be willing to work days, evenings, and weekends at on and off campus locations.

**ILLUSTRATIVE EDUCATION AND EXPERIENCE:** A typical way to obtain the above knowledge and skill is a combination of education and experience equivalent to:

Bachelor's degree in computer science, electronics or a related field, and five (5) years of increasingly responsible experience security, network design development and support, computer systems, telecommunications equipment, computer programming responsibilities, and providing technical user support services.

**PHYSICAL CHARACTERISTICS:** The physical abilities involved in the performance of essential duties are:

Vision to read printed material and computer screens; color vision to differentiate wiring and electronic components; speech and hearing to communicate in person and by telephone; smell to detect wiring shorts and failures; manual dexterity to operate a computer keyboard, use small tools and move computer equipment; mobility, flexibility and strength to lift up to 50 pounds to move, install and operate computer equipment. Environmental conditions include working under typical office conditions with exposure to dust and allergens; working at heights; and responding

to emergency system and equipment failure. This work is performed indoors at campus computer center, in classrooms and various satellite campus locations.