



CLASS SPECIFICATION

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FLSA: non-exempt
Probation: 12 months

TECHNOLOGY NETWORK ENGINEER II

DEFINITION

Under general supervision, implements, maintains, programs, monitors and troubleshoots wired and wireless network, telecommunications, public safety radio, cybersecurity and electronic security systems for the County; and performs related work as required.

EXPERIENCE AND TRAINING REQUIREMENTS

An associate's degree from an accredited college or university in electrical engineering, computer systems, networking, computer science, cybersecurity, or closely related field AND one year of full-time experience in providing support for a complex multi-site network system, large multi-campus phone systems or public safety radio systems; OR a minimum of three years of full-time experience.

LICENSE OR CERTIFICATE

A valid driver's license is required at the time of appointment.

Some positions within this classification may require employee to obtain a Tower Climbing Safety certification.

DISTINGUISHING CHARACTERISTICS

This is the journey level in the Technology Network Engineer class series. Incumbents at the II level perform the full range of Network Engineer duties, including systems analysis and design, and work with greater independence than the Technology Network Engineer I classification. It is distinguished from the Senior Technology Network Engineer class by the latter having responsibility for long-term network planning and design, project management.

SUPERVISION EXERCISED

Exercises no supervision; may serve as a project team leader.

EXAMPLES OF DUTIES *(The following is used as a partial description and is not restrictive as to duties required.)*

Perform end user support and administration of systems, which includes setting up access control; specifying, installing, programming, managing, troubleshooting and performance tuning of switches and routers for wired and wireless data network systems to ensure reliable data communications for internal departments and through the network to other agencies and partners, and to maintain reliable offsite access by County staff and other authorized users.

Install new and troubleshoot and repair existing networking infrastructure, phone, security and radio equipment, wiring for data networks, phones and network attached equipment, fiber optic cables and wireless communication hardware; monitor Countywide devices for abnormal performance or failures to provide reliable communications system performance and minimize downtimes.

Analyze County needs and plan network designs and specify equipment needed in order to correct problems or support new initiatives, and ensure user needs are met.

Analyze, design and program network routing protocols, policies and management servers and their peripherals to ensure efficient network throughput and proper network security.

Assist client support technicians and receive referrals from the helpdesk and provide assistance on complex network problems to resolve and correct service, connectivity and throughput issues.

Write network documentation and submit reports to management as required in order to help maintain accurate records of equipment and to enforce standard and procedures for County infrastructure.

Install, troubleshoot and manage wireless microwave equipment to provide data connectivity to County facilities that do not have access to broadband network services, or to provide emergency communications for sites which do have broadband connections.

Install, troubleshoot, and manage access points, authentication services, and site management services for WiFi systems within County facilities to provide access to staff and public mobile devices.

Analyze phone needs for new County facilities and review evolving needs at existing facilities; recommend and implement campus phone systems using TDM PBX, Key system, or Voice Over IP based systems as required to meet customer communications and service feature needs; program, maintain, manage and troubleshoot campus phone system equipment and application features to supply necessary services to the end users; install, program, maintain and troubleshoot phone hand sets and accessories to supply working phone instruments within County facilities.

Monitor network security and cybersecurity threats by identifying, analyzing and mitigating any issues; recommend and implement security measures and solutions; implement, program and monitor County cybersecurity systems such as firewalls, intrusion detection systems, event logging systems and VPN gateways to ensure protection for County equipment and data assets.

Write specifications for new technology, evaluate options and meet with vendors to review technology solutions and make recommendations to meet current and future County needs.

Assist with scheduling and organizing infrastructure projects as required; work as team lead as needed on assigned projects to ensure project tasks are completed as specified.

Utilize network management software, sniffers and taps to analyze and troubleshoot network packets and throughput to help to diagnose and solve application performance issues and connectivity failures.

Specify and plan new wiring drops and changes to wiring drops for data and phone connections; install wiring, certify wiring using network line testing equipment and troubleshoot connectivity failures to supply reliable connectivity to all connected devices.

Complete administrative functions and assigned tasks including reports, time keeping and documentation to maintain accurate records of completed tasks.

Install, program, repair and manage electronic security systems such as network connected cameras, door controllers, intercoms and intrusion alarms; work with County departments to review new and remodeled facilities and help to plan for and implement necessary new security equipment to help protect County employees and assets, as well as to maintain security within County run detention facilities.

Implement, monitor, program and repair communications systems, radios and electronic Support systems for the public safety radio communications to ensure reliable and consistent functionality.

Install, troubleshoot, repair, program and maintain communications equipment, including 800MHz trunked and conventional repeaters (including P25 technology), site routers, site switches, site controllers, GPS references, trunked and conventional comparators, RF antenna systems, and alarm and control systems to maintain regional communications capabilities.

Install, troubleshoot, repair, program and maintain Public Safety Dispatch Center communications equipment including dispatch consoles, servers, routers, switches, recording equipment and telecom circuits to provide 24/7 emergency call services to Washoe County jurisdictions.

Install, troubleshoot, repair and maintain the power systems (AC and DC) that provide primary and backup power to County networks, radio communications, phones, data centers and dispatch centers to ensure fault tolerance against power outages.

Install, troubleshoot, repair and maintain lightning protection and grounding systems to protect radio sites from damage by storms.

JOB RELATED AND ESSENTIAL QUALIFICATIONS

Full Performance *(These may be acquired on the job and are needed to perform the work assigned.)*

Knowledge of:

Departmental and countywide policies, procedures and technology standards.

Specific network structure and server systems within the County.

Trunked and conventional radio communications systems, including P25 and their derivatives.

Radio communications coverage and modes of propagation.

AC power systems both single and three phase operations.

Additional knowledge necessary for positions within the Regional Communications Systems include: electrical and electronics theory principles (including but not limited to Ohms and Kirtchoff's laws, AC circuit impedance, inductance, capacitance and reactance).

Ability to:

Use and maintain County's mix of system monitoring, logging and alerting systems.

Use network line testers, performance monitoring tools and/or land mobile radio test equipment (including but not limited to signal generators, modulation analyzers, antenna system analyzers, wattmeter, oscilloscope, voltmeter, T-BERD and TIMS line analysis equipment) to certify infrastructure meets industry and vendor specific communications specifications.

Work as team lead on assigned projects.

Entry Level *(Applicants will be screened for possession of these through written, oral, performance, or other evaluation methods.)*

Knowledge of:

PC, Server, networking, phone or radio hardware.

Practices and procedures of administration of communications infrastructure for networks, phones or radio systems.

Equipment used in the installation, maintenance and repair of data, voice, 800MHz, cybersecurity, security electronics and/or wireless communications structures as applicable to the specific work division and team assignment associated with the job position.

Principles and practices of information technology utilization and systems management.

Current industry standards and product availability in hardware and software.

Data networking, telecommunications or radio system operations.

Ability to:

Organize work, meet schedules and timelines and assist with projects when required.

Evaluate options, develop alternatives and justify recommendations.

Analyze and solve problems independently and take appropriate action within assigned areas of technology.

Work with clients and co-workers of a team environment in a professional manner in stressful situations.

Communicate effectively to both technical and non-technical individuals, both orally and in writing, including developing and making effective presentations using visual aids and other communications tools.

Read, interpret and apply user and technical manuals.

Follow oral and written instructions.

Maintain awareness of current technology, trends and practices of the trade.

SPECIAL REQUIREMENTS *(Essential duties require the following physical skills and work environment.)*

Washoe County Technology Services employees may be called to work during a disaster or emergency situation.

May be required to travel to countywide facility locations to install or repair equipment and to resolve issues: may be required to be part of a weekly rotation of on-call support hours that includes evenings, weekends, and holidays.

Ability to work in a standard office environment, as well as outdoor settings. Ability to use dexterity, fine motor skills and general strength to lift and move objects up to 50 pounds. Ability to sit for extended periods. Ability to frequently stand, walk, bend, stoop, kneel, reach and stretch. Ability to use data processing and associated equipment. Ability to work in an environment with controlled temperatures.

Some positions may require ability to work at high altitudes (above 10,000 ASL) for work at radio tower sites; some positions may require the ability to climb a 60-foot tower.

This class specification is used for classification, recruitment and examination purposes. It is not considered a substitute for work performance standards.