

**CITY OF RICHMOND  
CLASS DESCRIPTION  
2005**

**CLASS TITLE: NETWORK ENGINEER**

Under general direction, performs work of considerable difficulty in analyzing, planning, installing, testing, implementing, and documenting network infrastructure hardware, network diagnostic tools, and network monitoring and management systems; tunes network software; assists clients in use of network operating software; and performs related work as required.

**Qualifications:**

The qualifications for the Network Engineer in Zone II and Zone III include:

- Completion of the core curriculum for a Baccalaureate level in Information Systems or related degree; or
- Four years experience with computer network operations and management; or
- Experience in solving complex technical problems providing a combination of training and experience equivalent to the above.

**Core Job Functions:**

**Zone I**

- Plans and designs conceptual and practical network architecture, using current industry best practices for wired and wireless networks.
- Analyzes, installs, tests, and implements network hardware and software.
- Writes operational documentation for networks.
- Monitors network operation and manages the configuration of network devices; prepares reports on network performance and utilization.
- Identifies and resolves network problems and optimizes network performance, including the use of bandwidth shaping and other quality of service tools.
- Provides 24 X 7 on-call support to resolve network-related problems.
- Researches and resolves technical questions by reading and comprehending technical manuals.
- Assists clients in use of networks.
- Documents work products via Time Accounting, Support Magic and other performance measures
- Minimizes computer down time.

**Zone III**

- All job functions of Zone II
- Prepare technical reports and manuals;
- Keeps abreast of emerging developments in networking technologies;
- Conducts need assessment and comparative analyses;
- Supervises and monitors quality of work;
- Ensures appropriate developmental opportunities for team members;
- Exercises sound judgment, makes decisions and problem solves;
- Researches and resolves technical questions by reading and comprehending technical manuals.
- Conducts presentations as required;
- Analyzes network software and hardware performance data;
- Assists City agencies in reviewing specifications for procurement of technical equipment;
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**Skills:**

- Microsoft Office XP: Word, Excel, Powerpoint

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- Microsoft Outlook
- DIT Project Time Accounting
- Network Associates - Support Magic
- Ability to multitask;
- Configuration of routers, switches, firewalls, VPN devices, and hubs:
  - Cisco IOS and Catalyst OS
  - Cisco hardware
  - Layer 2 and 3 protocols
- Cabling
  - Selection of correct copper and fiber cable
  - Verification of proper installation
- Management of Leased Data Transport Services
  - ATM
  - Transparent LAN Service (TLS)
  - Frame Relay
  - ISDN
  - Leased Lines
  - Broadband
  - 1XRTT/EVDO
  - Satellite links
- Wireless
  - 802.11
  - WEP, WPA, EAP, 802.1x, other authentication and security services
  - Point-to-point wireless bridging
  - Mesh networking
- Network Services
  - Active Directory
  - Dynamic Host Configuration Protocol (DHCP)
  - Domain Naming System (DNS)
  - Multicast/Video
  - IP telephony
  - Internet
- Security
  - Firewall
  - VPN
  - Biometrics
  - PKI systems
- Network Management
  - Ciscoworks
  - Sniffer protocol analyses
  - Inventory management

**Competencies**

**Zone II**

- Contributes to departmental goal achievement;
- Demonstrates knowledge of City audit requirements and adheres to departmental standards;
- Demonstrates knowledge of data networking technology;
- Applies and demonstrates verbal and written communication skills;
- Supports groups decisions, works with group to achieve goals, and handles conflict constructively;
- Acquires and continuously develops professional/technical skills and knowledge;

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- Applies and demonstrates knowledge of the following:
  - Core network infrastructure operating systems and hardware
  - Network monitoring, reporting and test tools
  - Network diagramming products and tools
- Applies and demonstrates knowledge of laws, ordinances and regulations on data access, use and confidentiality;
- Demonstrates administrative and technical skills in problem resolution;
- Demonstrates proficiency in operating and maintaining network hardware and related software for capacity planning, and software version control;
- Applies and demonstrates knowledge of City systems and processes which emphasize the interrelationships in networked City operations;
- Plans, organizes and executes assignments effectively and efficiently including time management and productivity reporting;
- Contributes to and enhances customer satisfaction by effectively planning and delivering project work;
- Performs data analyses, reasons logically, interprets requirements, and develops effective solutions to complex problems;
- Makes use of resources and plans and organizes time effectively
- Applies knowledge of problem solving;
- Applies knowledge of time management and organizational skills;
- Applies knowledge of business English and general mathematics;

**Zone III:**

- All competencies of Zone II
- Applies and demonstrates knowledge of current industry standards as it relates to data and networks;
- Seeks methods and opportunities for cost savings and revenue generation;
- Demonstrates effective team leadership;
- Applies and demonstrates skill in supervisory, principles, practice and techniques.
- Possesses the ability to plan, develop, and prepare technical reports and manuals.
- Acquires and continuously develops professional/technical skills and knowledge.
- Applies and demonstrates knowledge of the following:
  - Programming
  - Testing
  - Operations
  - Problem solving
  - Structure charting
  - Flow charting
  - Forms design

**ADA COMPLIANCE**

The City of Richmond is an Equal Opportunity Employer. ADA requires the City to provide reasonable accommodations to qualified individuals with disabilities. Prospective and current employees are invited to discuss accommodations.

**The City of Richmond is committed to Quality Customer Service.**