

Advanced Network Administrator - Responsible for the support of Local Area Network computer systems including servers on the WAN used for enterprise applications. Responsibility may include installation of hardware and software components comprising the network. Must be able to work with vendors and State support staff to quickly diagnose LAN problems and restore service to users in the event of service disruptions. Must be able to diagnose problems and incompatibilities that may occur with integrated software products and with hardware dependencies. Requires a minimum of 2 years of current experience in this job class.

Advanced Programmer Analyst (Mainframe) - Analyzes functional business applications and creates design specifications for developing programs. Develops block diagrams and logic flow charts. Translates detailed design into computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required documentation, including both program-level and userlevel documentation. Enhances software to reduce operating time or improve efficiency. Primary skill set comprises COBOL, IMS DB/DC, CICS, and DB2. Secondary skill set includes all other mainframe software standards. Requires a minimum of 2 years of current experience in this job class.

Advanced UNIX System Programmer - Responsible for installation, maintenance, and support of operating systems, communications software, database packages, compilers, utility programs and related systems software. Modify existing software as well as create special-purpose software to ensure efficiency and integrity between systems and applications. Must be able to work with vendors and State support staff to quickly diagnose operating systems, communications software, database software, or utility problems and restore service to users in the event of service disruptions. Must be able to diagnose problems and incompatibilities that may occur with integrated software products and with hardware dependencies. Must be able to perform capacity planning, do performance tuning, and evaluate software products. Requires a minimum of 2 years of current experience in this job class.

Business Analyst I - Analyze and document business requirements and processes related to public sector service delivery for a single or multiple related State agencies. Formulate alternative solutions to satisfy these requirements, which may involve business process reengineering, and/or the deployment of information technology. Plan and/or conduct end user training for new applications. Prepare cost benefit analyses according to State CBA methodology. Develop and/or oversee plans for the execution of a solution from project inception to conclusion. Construct data models and activity/process models as may be required to define system functions. Provide support for the installation, testing, data conversion, implementation, and ongoing maintenance of information systems. Conduct and document the results of special studies dealing with systems and/or business process issues. Facilitate sessions to gather and document requirements and explore solutions. Superior negotiating, analytical, group facilitation, and relationship management skills. Work effectively with all levels of State staff from clerical through agency

executive management. This includes skillful interviewing capability. Possess superior organizational and written/verbal communication skills. Hands-on Data Modeling and Process Modeling experience may be required for some assignments. An understanding of current information technology with an ability to conceptualize solutions to business problems in the most effective and cost-efficient manner. (Note: *Current information technology in the State's environment includes: 1) multi-tier (mainframe, departmental/midlevel, and desktop) computing; 2) the use of internet and intranet to facilitate service delivery; 3) electronic data interchange; 4) imaging; 5) data warehousing; and, 6) geographic information*

systems. The deployment of information technology must be consistent with the State's architectural framework which is based upon the philosophy that information sharing, data integration and network interoperability is the basis for effective and efficient service delivery to the citizens of Tennessee.) An ability to integrate solutions across multiple functional and technical environments is required. Requires a

minimum of two years of experience in the last two years. Must hold a BA/BS degree.

Business Analyst II – Same qualifications as Business Analyst I with the exception of the following: Requires a minimum of five years of increasingly complex and responsible experience in the last five years. Must hold a BA/BS degree (advanced degree a plus).

Business Analyst III - Same qualifications as Business Analyst I with the exception of the following: Requires a minimum of ten years of increasingly complex and responsible experience in the last twelve years. Must hold a BA/BS degree (advanced degree a plus).

Data Administrator/Database Administrator - Designs and reviews database systems; evaluates and recommends changes to database systems; and implements new or revised systems to ensure accuracy, efficiency, and adherence to technical standards. Responsible for providing technical assistance to other personnel involved in computer applications development by answering questions, describing techniques,

and writing procedures. Monitors database systems performance, evaluates information gathered from users and other staff and review of historical data, and recommends changes to database systems to ensure optimal performance and productivity. May act as project leader in monitoring performance of database systems, and identifies, evaluates, and makes recommendations to management concerning problems or issues in the database environment to ensure optimal performance and productivity of database systems. Responsible for the daily maintenance, tracking and documentation of production database systems including creating and scheduling database specific jobs and determining necessary actions to recover from problems or failures. Develop and enforce the Standards, Procedures, and Guidelines to establish the operational framework in which database management systems are consistently and effectively utilized. Research, identify, evaluate and select database software. Instruct users in the use of database software to enhance database system usage, facilitate problem resolution, and maximize customer service. Requires a minimum of 2 years of current experience in this job class.

Desktop Support - Performs desktop computer support assignments, with an emphasis on desktop computer problem resolution. Installs a variety of desktop computer hardware and software and provides

technical and customer support for these products. Provides customer support to both on-site and remote users. Analyzes users' system problems and provides solutions. Works with teams of analysts, programmers, and users in application development environments. Tests and may write the technical documentation prepared for software or hardware installation. Primary skill set comprises Microsoft

Office Suite and Microsoft, Novell and Unix operating systems. Secondary skill set comprises other office automation tools and the ability to identify and correct hardware malfunctions. Requires a minimum of 1 year of current experience in this job class with excellent interpersonal and communication skills, both written and oral.

Enterprise Architecture Research and Development Analyst/Architect - Responsible for performing technology research and development, enterprise software evaluations, documenting current state, future

state, performing gap analysis, and creation of reference models. Must understand the Zachman framework, The Open Group Architecture Framework (TOGAF Certification a plus), and The NASCIO framework. Must be able to work with various State Agency personnel and Vendors. Must be able to think conceptually and tactically. Requires a minimum of 2 years of experience in this job class.

Enterprise Content Management (ECM) Architect – Formulates technological solutions that correctly utilize the FileNet products used by the ECM environment and provides a highly proficient working knowledge of the FileNet P8 product suite including Content Manager, Business Process Manager, Business Process Framework, eForms, Records Manager, and Email Manager. Advanced experience in business analysis, process improvement, workflow analysis and the implementation and leveraging of large workflow and document management systems. Conducts and documents the results of special studies dealing with systems and/or business process issues. Facilitates sessions to gather and document requirements and explore solutions. Translates requirements into systems specifications and all aspects of technical systems design. Provides a product evaluation from a functional, technical and business perspective. Consults with other technical areas regarding appropriate use of the document management system and integration with other line of business applications.

Superior negotiating, analytical, group facilitation, and relationship management skills. Work effectively with all levels of State staff from clerical through agency executive management. This includes skillful interviewing capability. Possess superior organizational and written/verbal communication skills. An understanding of current information technology with an ability to conceptualize solutions to business problems in the most effective and cost-efficient manner. Requires a minimum of five years of increasingly complex and responsible experience in the last five years. Must hold a BA/BS degree.

Enterprise Content Management (ECM) Programmer Analyst – Development expertise in FileNet API sets, including P8, Capture Desktop, Web Services, Java and .NET. Analyzes functional business requirements and design specifications for developing programs, and uses knowledge of software methodologies, distributed networking, databases, communications, and multiprocessing applications. Develops workflow applications using Business Process Manager to include the use of eForms. Tests, debugs, and refines the application to produce the required product. Prepares required documentation, including both program-level and user-level documentation. Enhances software to reduce operating time

or improve efficiency. Requires a minimum of 2 year of current experience in this job class.

Enterprise Content Management (ECM) Project Manager – Provides competent leadership and responsible direction through successful performance of a variety of detailed, diverse elements of project

management with the FileNet P8 suite of products. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to project team, comprising State technical and program staff as well as suppliers from one or more firms. Enforces work standards and

reviews/resolves work discrepancies to ensure compliance with project requirements. Reports in writing and orally to State management as necessary. Requires an extensive background in managing large, complex projects with outstanding interpersonal and communication skills.

Enterprise Content Management (ECM) Business Analyst – Analyze and document business requirements and processes related to the implementation of the FileNet P8 suite of products.

Formulate

alternative solutions to satisfy these requirements, which may involve business process reengineering, and/or the deployment of information technology. Plan and/or conduct end user training for new applications. Prepare cost benefit analyses according to State CBA methodology. Develop and/or oversee plans for the execution of a solution from project inception to conclusion. Construct data models

and activity/process models as may be required to define system functions. Provide support for the installation, testing, data conversion, implementation, and ongoing maintenance of ECM systems. Conduct and document the results of special studies dealing with systems and/or business process issues. Facilitate sessions to gather and document requirements and explore solutions. Superior negotiating, analytical, group facilitation, and relationship management skills. Work effectively with all levels of State staff from clerical through agency executive management. This includes skillful interviewing capability. Possess superior organizational and written/verbal communication skills.

Hands-on Data Modeling and Process Modeling experience may be required for some assignments. An understanding of current information technology with an ability to conceptualize solutions to business problems in the most effective and cost-efficient manner. An ability to integrate solutions across multiple

functional and technical environments is required. Requires a minimum of two years of experience in the

last two years. Must hold a BA/BS degree.

Enterprise Content Management (ECM) System Administrator – Provides installation, maintenance, technical and customer support for desktop/workstation products including Capture Professional and configuration of the scanners included in the State Contract. Provide assistance in maintaining the P8 infrastructure including Content Manager, Business Process Manager, Business Process Framework, eForms, Records Manager, and Email Manager. Schedules and performs system maintenance activities such as performance monitoring, system tuning, data storage configuration and reorganization, and system backups. Executes application and maintenance batch jobs. Defines, establishes, and enforces security access to desktop/workstation and mid-level systems and applications. In most cases, serves as primary contact with software vendors' technical support areas. Analyzes system problems, selects appropriate solutions, and implements corrective actions. Provides basic user training on user application

software. As necessary, documents system support and maintenance processes and procedures.

Primary skill set comprises basic familiarity with computer hardware and software installation and troubleshooting, with specific experience installing and supporting the following products: Microsoft Office

Suite (Standard), Microsoft Windows, Microsoft Windows 2003 Server, Oracle Application Server, Websphere Application Server, Microsoft SQL 2003 and 2005, Microsoft Internet Explorer, NetWare, Netscape, Oracle, 3270, IBM Personal Communications/3270 Procomm Plus, Ethernet Adapter, and Token Ring Adapter. Secondary skill set comprises GroupWise, TCP/IP, and knowledge of all other

Departmental/Desktop hardware and software standards. Requires a minimum of 2 years of current experience in this job class.

Enterprise Content Management (ECM) Capture Administrator – Provides installation, maintenance, technical and customer support for Capture Professional and configuration of the scanners included in the

State Contract. Defines, establishes, and enforces security access to desktop/workstation and mid-level systems and applications. In most cases, serves as primary contact with Agencies technical support areas. Analyzes system problems, selects appropriate solutions, and implements corrective actions. Provides basic user training on Capture Professional software. As necessary, documents system support and maintenance processes and procedures. Primary skill set comprises basic familiarity with computer hardware and software installation and troubleshooting, with specific experience installing and supporting

the following products: Microsoft Office Suite (Standard), Microsoft Windows, Microsoft Windows 2003 Server, Database Connectivity, and Microsoft Internet Explorer, Secondary skill set comprises TCP/IP and knowledge of all other Departmental/Desktop hardware and software standards. Requires a minimum of 1 year of current experience in this job class.

Help Desk Representative - Provides support to a variety of information technology users on hardware, software, telecommunications, and application issues and problems. Function as first/second level support by receiving, recording, responding to, and following up on trouble calls. When appropriate, conduct problem determination to attempt to resolve issues and problems with the customer on the line.

Must possess excellent telephone skills, good verbal and written skills, an extensive knowledge of information technology (with an emphasis on desktop devices and local and wide area networks), good analytical skills, good technical skills, good keying capability, and familiarity with common business practices and terminology. An individual working in this classification must be able to effectively deal with

stress and anxiety. Requires a minimum of 3 years of current experience in this job class.

Network Security Specialist I - Consults with customers to define user and system security requirements; designs solutions based on customer requirements; coordinates work required to complete

network security installations. Installs and monitors network security software and hardware to provide network security services, including network security monitoring, firewall and intrusion detection probe management, and related activities. Performs tasks to analyze anomalies reported by security hardware/software systems, confers with senior staff on corrective measures, completes corrective actions, and monitors changes to ensure network security problems are corrected. Provides first-level support for security hardware/software fault management and problem resolution. Makes appropriate changes to network security configurations and/or works directly with the service providers to correct network security problems. Monitors the network for security breaches, implements changes to stop breaches that are in progress, documents findings, and works with the security incident response teams to investigate breaches on the wide area network. Requires a minimum of two (2) years experience in network security administration, including firewall and intrusion detection support.

Network Security Specialist II - Installs and monitors the most complex installations of network security software and hardware to provide LAN, MAN, WAN, and Data Center security services, including network

security monitoring, security hardware/software management, firewall rule management, and related activities. Provides senior level security support in diagnosis and identifying corrective actions to address network security hardware/software problems, monitors staff activities to correct problems, and monitors

changes to ensure network security problems are corrected. Provides senior-level support for Data Center systems deployment, security fault management and problem resolution. Makes appropriate changes to network security hardware/software configurations and/or works directly with the service providers to correct network security problems. Requires a minimum of five (5) years senior level experience in network security administration, including firewall, VPN, and intrusion detection support. Experience must include firewall support for Cisco PIX and Checkpoint.

Network Specialist I - Installs and monitors network software and hardware to provide LAN, MAN, WAN or Data Center network services, including network monitoring, network tuning, router management, switch management, and related activities. Performs tasks to analyze anomalies reported by hardware/software systems, confers with senior staff on corrective measures, completes corrective actions, and monitors changes to ensure network problems are corrected. Provides reactive and proactive changes to network hardware and software components to ensure that user requirements are met and that the network is performing at optimum levels (changes include router/switch configurations,

access lists, routing tables, etc.) Provides second-level support for fault management and problem resolution. Makes appropriate changes to network configurations and/or works directly with the service providers to correct network problems. Requires a minimum of two (2) years experience in WAN, LAN, or

Data Center network administration.

Network Specialist II - Installs and monitors the most complex installations of network software and hardware to provide LAN, MAN, WAN, and Data Center network services, including network monitoring, network tuning, router management, switch management, load balancer management, SSL management,

IP address management, and related activities. Provides reactive and proactive changes to network hardware and software components to ensure that user requirements are met and that the network is performing at optimum levels (changes include router, switch, load balancer or SSL configurations, access lists, routing tables, etc.). Provides senior-level support for Data Center systems deployment, fault

management and problem resolution in the most complex Data Center network environments supporting

multiple VLANs and multiple servers. Makes appropriate changes to network configurations and/or works

directly with the service providers to correct network problems. Provides senior level support for LAN, MAN, WAN, and Data Center design, management and monitoring. Requires a minimum of five (5) years senior level experience in LAN, MAN, WAN, and Data Center administration that includes a broad range of experience in networking support and a detailed understanding of network hardware and routing protocols.

Programmer Analyst I (Desktop & Distributed Technologies) - Analyzes functional business requirements and design specifications for developing programs for desktop and distributed environments

which includes personal computers, client server environments, and browser-based or n-tier environments. Translates detailed design into computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required documentation, including both program-level and user-level documentation. Enhances software to reduce operating time or improve efficiency. Primary skill sets include knowledge of SOLARIS and Windows operating systems; Oracle and Microsoft SQL Server databases; Microsoft Visual Studio .NET and Oracle Internet Development tools; Visual Basic, Java, and .NET programming languages; Visual Basic Script, JavaScript, JSPs, EJBs, XML, and HTML. Secondary skill sets include knowledge of Microsoft's Internet Information Server (IIS), Secure Socket Layers (SSL) to provide the functionality of encryption and decryption of data; Object Oriented and UML methodologies; knowledge of other State software standards for desktop and distributed systems. Requires a minimum of 1 year of current experience in this job class.

Programmer Analyst II (Desktop & Distributed Technologies) – Defines and analyzes functional business requirements for designing and developing programs for desktop and distributed environments which includes personal computers, client server environments, and browser-based or n-tier environments. Develops design specifications and/or translates detailed design specs into computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required documentation, including both program-level and user-level documentation. Troubleshoots and enhances software to reduce operating time or improve efficiency. Primary skill sets include knowledge of SOLARIS and Windows operating systems; Oracle and Microsoft SQL Server databases; Microsoft Visual Studio .NET and Oracle Internet Development tools and Oracle Application Server; J2EE and .NET architectural frameworks; Visual Basic, Java, and .NET programming languages; Visual Basic Script, JavaScript, JSPs, EJBs, XML, and HTML. Secondary skill sets include knowledge of Microsoft's Internet Information Server (IIS), Secure Socket Layers (SSL) to provide the functionality of encryption and decryption of data; Object Oriented and UML methodologies; knowledge of other State software standards for desktop and distributed systems. Requires a minimum of 2 years of current experience in this job class.

Programmer Analyst III (Distributed Technologies) – Provides senior technical leadership, guidance, and support in the design, development, and deployment of complex applications in distributed computing environments. Architects applications considering the business and technical requirements necessary to satisfy the project/program objectives. Coordinates with other architectural and technical infrastructure staffs for providing input into technical decisions affecting specific projects as well as the State's enterprise distributive computing environment. Uses current application architecture design and development concepts, methodologies, and tools resulting in quality, stable, and maintainable computer software. Tests, debugs, and refines the computer software to produce the required product. Prepares required documentation, including both programlevel and user-level documentation. Troubleshoots and enhances software to reduce operating time or improve efficiency. Primary skill sets include knowledge of SOLARIS and Windows operating systems;

Oracle and Microsoft SQL Server databases; Microsoft Visual Studio .NET and Oracle Internet Development tools and Oracle Application Server; J2EE and .NET architectural frameworks; Visual Basic, Java, and .NET programming languages; Visual Basic Script, JavaScript, JSPs, EJBs, XML, and HTML. Secondary skill sets include knowledge of Microsoft's Internet Information Server (IIS), Secure Socket Layers (SSL) to provide the functionality of encryption and decryption of data; Object Oriented and UML methodologies; knowledge of other State software standards for desktop and distributed systems. Requires a minimum of 3 years of current experience in this job class.

Project Manager - Provides competent leadership and responsible direction through successful performance of a variety of detailed, diverse elements of project management. Directs completion of tasks within estimated time frames and budget constraints. Schedules and assigns duties to project team, comprising State technical and program staff as well as suppliers from one or more firms.

Enforces

work standards and reviews/resolves work discrepancies to ensure compliance with project requirements.

Reports in writing and orally to State management as necessary. Requires an extensive background in managing large, complex projects with outstanding interpersonal and communication skills.

Senior Enterprise Systems Designer - Designs the data center infrastructure relating to enterprise service delivery. This could include networks (routers, switches, connectivity, and wiring), IP address configuration and management, firewalls, servers (e.g. Unix, Sun Solaris, Microsoft Windows, and NetWare), SAN, tape backup systems, disk to disk archival systems, and data bases such as SQL and Oracle. The person would need to gather requirements, design and create an implementation plan around the requested technology or solution. This senior level person must have excellent written and verbal communication skills, have IT project management experience and be able to work directly with multiple levels of staff and management. Taking initiative, having an enterprise view and being results focus are expected. Experience of 5 to 10 years in network or data center design would be preferred.

Solutions Architect - Leadership role that will be accountable for architecting and designing comprehensive solutions that meet the State of Tennessee's business requirements on high-impact projects. Partners with key roles (e.g. project managers, business analysts, etc.) to create well-defined solutions that are aligned to the State's IT Strategy and leverages common solutions and services, to meet key project goals. Within the solution development lifecycle, this role will be responsible for solution

evaluation and selection, buy vs. build decisions, early-phase project estimates which contribute to the business case, and high level design. This role will provide guidance and architectural oversight during the detailed design, build, test and deploy phases. Requires a minimum of 5 years of current experience in this job class with excellent interpersonal and communication skills.

System Administrator - Provides installation, maintenance, technical and customer support for desktop/workstation and mid-level (including LAN and WAN network application and client server) systems and related software. Installs, configures, and supports system and user application software and provides upgrades of this software. Identifies peripherals to the systems and performs maintenance on these devices. Schedules and performs system maintenance activities such as performance monitoring, system tuning, data storage configuration and reorganization, and system backups.

Executes

application and maintenance batch jobs. Defines, establishes, and enforces security access to desktop/workstation and mid-level systems and applications. In most cases, serves as primary contact

with software vendors' technical support areas. Analyzes system problems, selects appropriate solutions, and implements corrective actions. Provides basic user training on user application software. As necessary, documents system support and maintenance processes and procedures. Primary skill set comprises basic familiarity with computer hardware and software installation and troubleshooting, with specific experience installing and supporting the following products: UNIX, Sun Solaris, Microsoft Office Suite (Standard), Microsoft Windows, Microsoft Windows NT Server, Microsoft Internet Explorer, NetWare, Netscape, Oracle, 3270, IBM Personal Communications/3270 Procomm Plus, Ethernet Adapter, and Token Ring Adapter. Secondary skill set comprises GroupWise, TCP/IP, and knowledge of all other Departmental/Desktop hardware and software standards. Requires a minimum of 1 year of current experience in this job class.

Systems Analyst - Analyzes and documents requirements for information systems. Develops and/or oversees plans for automated data processing systems from project inception to conclusion. Constructs data models and activity/process models as may be required to define system functions. Coordinates closely with programmers to ensure proper implementation of program and system specifications. Develops, in conjunction with functional users, system alternative solutions. Provides support for the installation, testing, implementation, and ongoing maintenance of information systems. Conducts and documents the results of special studies dealing with systems and/or business process issues. Requires a minimum of 3 years of current experience in this job class with excellent interpersonal and communication skills.

Systems / Applications Architect – High-level designer of a system to be implemented. Establishes the basic structure of the system, defining the core design features that are hard to change later. Provides the vision for where the system needs to go and strive to maintain its integrity as it evolves. Provides continuity in all major application solution decisions. Responsibilities include: defining the application architecture, resolving high-level functional issues, coaching the Application Engineer team in the development of the application solution on a Package Integration project, and guiding the Functional Specialist team in the development of the packaged application solution. Requires a minimum of 3 years of current experience in this job class.

WAN Project Manager – Responsible for complex wide area network (WAN) project management and technical work involving the analysis of network requirements, network design, and WAN solution performance monitoring. Provides senior level support for identifying end user business requirements; designing technical solutions to meet those requirements; developing project proposals, costs benefit analyses, and cost models for the project; managing projects to implement solutions; and providing senior

level technical support for project deployment and on-going operations. Coordinates communication on projects, including written status reports, oral briefings, and technical or management meetings.

Requires

a minimum of five (5) years experience in WAN administration, including three (3) years experience managing WAN technology projects.

Web Based Training (WBT) Developer – The WBT Developer must have 5 or more years experience developing computer based training (CBT) and web based training (WBT). The developer must use Instructional Design principles to develop the course. The developer must program the interactive training using software from Adobe and Macromedia, including Authorware, DreamWeaver, Flash, Captivate, and Photoshop or TechSmith's Camtasia Studio. The developer must be able to implement

the WBT using Oracle iLearning or other Learning Management Software (LMS). SCORM and AICC compliance experience is preferred. This WBT Developer position is a one-person development effort including design, programming, graphic creation, and implementation.

Web Designer - Develops layout of HTML/Javascript based User Interfaces. Develops graphic elements for use in HTML/Javascript based interfaces. Develops client side Javascript for use in front end user interfaces. Required skills include: Experience with UI design and information architecture principles, and testing. Experience with cross-browser web development using web standards (XHTML, CSS, Javascript/ECMAScript, DOM, XML). Experience with creation of graphic elements using state standard tools. Familiarity with Section 508 accessibility standards for web user interfaces. Experience with crossbrowser Javascript development and the W3C DOM level 1 and level 2. Experience with Macromedia Flash & Actionscript development. Experience with XML and dynamic XML processing in Javascript (XMLHttpRequest object). Requires a minimum of 2 years of current experience in this job class.

COMPUTER OPERATIONS MANAGER

Summary: Under general supervision, is responsible for professional supervisory and managerial work of average difficulty; and performs related work as required.

Distinguishing Features: An employee in this class manages (1) all major functional areas (data entry, production control and machine operations) in a small unit or site; (2) one or more major functional areas

at a medium sized or moderately complex unit or site or (3) assists in managing one major functional area

in a large and/or complex unit or site. Employees in this class supervise activities such as distributed or mainframe computer operations, data processing clerical operations, data entry, production control and scheduling and word processing operations. This class differs from Computer Operations Supervisor in that incumbents of the latter assist in planning, scheduling and supervising operations functions at a small

remote or centralized data processing operations site or act as the only operator at a small remote job entry site or shift and supervise subordinate data entry operators and computer operations control staff.

This class differs from Computer Operations Manager 2 in that incumbents of the latter manage (1) all major functional areas at a moderate sized and/or moderately complex site, (2) manage one or more, but

not all major functional areas at a large and or complex site, (3) function as off-shift manager over all activities at a large and/or complex site or (4) within OIR, serve as manager of a sub function or as off shift supervisor. **Examples of duties and responsibilities:**

1. Assigns, trains, supervises and evaluates subordinate data processing and computer operations staff and their work; assists in or makes recommendations on staff employment, retention, promotion, demotion, dismissal and other human resources actions.

2. Plans, schedules and determines priorities on all work to be run on the computer, in order to attain maximum utilization and efficiency of equipment and personnel; ensures that there are no conflicts in the time and sequence of work run on the computer.

3. Consults with information systems analysis staff, departmental personnel and upper management in resolving problems occurring during the implementation, modification and testing of computer programs and information systems; ensures that new systems are properly phased into production status.
4. Assists in or supervises the quality control of data input into the computer and the monitoring of data output for correctness and completeness; identifies computer operations errors and determines and attempts to correct factors causing the errors; consults with computer hardware vendors in correcting equipment malfunctions.
5. Assists in or analyzes site data processing resources and recommends ways to increase efficiency and cost effectiveness of equipment and organization, operations and procedures.
6. Interprets and enforces data processing policies and procedures at the site; may develop and maintain procedures for the operation of data processing equipment.
7. Supervises the preparation and maintenance of routine data processing records and reports such as printing output reports, logs on jobs and tapes run and operation error reports; prepares reports for upper management on the performance and utilization of subordinate operations staff.
8. Trains or supervises the training of subordinate personnel in performing data entry, remote job entry operations, computer operations, production control and scheduling functions.
9. May operate disk drives, tape drives, printers, master consoles, remote job entry and other related peripheral computer equipment in the performance of work.
10. May assist information systems analyst staff in conducting cost and feasibility studies to determine the advisability of converting existing administrative, reporting and statistical systems to electronic data processing systems.

Minimum Qualifications – Computer Operations Manager 1:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and one year of experience in one of the following areas: (1) leading, supervising, managing, or directing one or more computer operations functions (e.g., data entry, clerical computer operations, machine operations, or computer production control); or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or (3) diagnosing and resolving software and hardware interaction problems among computer platforms (e.g., microcomputers, mid-range computers, and mainframe computers, as well as peripheral devices attached to the mainframe computer). **Substitution of Experience for Education:** Experience in any one of the following areas may be substituted for the required degree on a year-for-year basis to a maximum of four years: (1) leading, supervising, managing, or directing one or more computer operations functions; or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms; or, (4) operating mainframe or mid-range computer equipment; or (5) repairing mainframe or mid-range computers and associated peripherals, or repairing telecommunications network devices. **Substitution of specific associate's degree for the required bachelor's degree:** Graduation from an accredited college or university with an associate's degree in computer and information sciences, office

supervision and management, business data processing, or business administration and management may substitute for the required bachelor's degree. **OR Substitution of graduate course work for the required experience:** Any graduate course work in computer and information sciences may substitute for one year of the required experience (36 graduate quarter hours or a master's degree in computer and information sciences is equivalent to one year of experience).

COMPUTER OPERATIONS MANAGER

Summary: Under general supervision, is responsible for professional computer operations managerial work of considerable difficulty; and performs related work as required.

Distinguishing Features: An employee in this class manages all major functional areas (data entry, production control and machine operations) at a moderate sized and/or moderately complex site, (2) manages one or more, but not all major functional areas at a large and/or complex site, (3) functions as off-shift manager over all activities at a large and/or complex site or (4) within OIR, serves as manager of a sub-function or as off-shift supervisor. Employees in this class supervise activities such as distributed or

mainframe computer operations, data processing clerical operations, data entry, production control and scheduling and word processing operations. This class differs from Computer Operations Manager 1 in that incumbents of the latter manage (1) all major functional areas at a small site (2) one or more but not

all major functional areas at a medium sized or moderately complex site or (3) assists in managing one or

more major functional areas at a large and/or complex site. This class differs from Computer Operations Manager 3 in that incumbents of the latter manager (1) all major functional areas at a large and/or complex operations site or (2) manage one or more, but not all major functional areas at the largest and/or most complex operations site.

Examples of duties and responsibilities:

1. Assigns, trains, supervises, and evaluates subordinate data processing operations staff and their work; assists in or makes recommendations on staff employment, retention, promotion, demotion, dismissal, and other human resources actions.
2. Plans, schedules, and prioritizes all work to be run on the computer in order to attain maximum utilization and efficiency of equipment and personnel; ensures that there are no conflicts in the time and sequence of work to be run on the computer.
3. Consults with information systems analysis staff, departmental personnel and upper management in resolving problems occurring during the implementation, modification, and testing of new and existing information systems; ensures that all new systems are properly phased into production status.
4. Assists in or supervises, through subordinate staff, the quality control of data input into the computer and the monitoring of data output for correctness and completeness; supervises and participates in identifying computer operations errors and determining and correcting factors causing the errors.
4. Analyzes data processing site organization, operations and procedures and makes recommendations for improvements in economy, efficiency and quality in these areas.
5. Assists in or evaluates data processing site equipment and operating software requirements to support the needs of the user department and recommends hardware and software purchases that will maximize

efficiency and improve services; assists in or coordinates the acquisition, installation, and testing of new operations equipment.

6. Interprets and enforces data processing policies and procedures at the site; may develop and maintain

procedures for the operation of data processing equipment.

7. Supervises the preparation and maintenance of routine data processing records and reports such as printing output reports, logs on jobs and tapes run and operation error reports; prepares reports on staff

utilization and performance for management.

8. Supervises the training of subordinate personnel in performing data entry, remote job entry, computer

operations, production control, and scheduling functions.

9. May coordinate functions, activities, and workflow of several small remote data processing operations sites, involving the provision of technical support in problem-solving and guidance in interpreting and procedure in order to standardize production and performance.

10. May assist information systems analysis staff in conducting cost and feasibility studies to determine the advisability of converting existing administrative, reporting, and statistical systems to data processing systems.

Minimum Qualifications – Computer Operations Manager 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and two years of experience in one of the following areas: (1) supervising, managing, or directing one or more computer operations functions (e.g., data entry, clerical computer operations, machine operations,

or computer production control); or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms (e.g., microcomputers, mid-range computers, as well as peripheral devices attached to the mainframe computer).

OR

Substitution of Experience for Education: Experience in any one of the following areas may be substituted for the required degree on a year-for-year basis to a maximum of four years; (1) supervising, managing, or directing one or more computer operations functions; or, (2) supervising, managing or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms; or, (4) operating mainframe or mid-range computer equipment; or, (5) repairing mainframe or mid-range computers and associated peripherals, or repairing telecommunications network devices.

OR

Substitution of specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in computer and information sciences, office supervision and management, business data processing, or business administration and management may substitute for the required bachelor's degree.

OR

Substitution of graduate course work for the required experience: Any graduate course work in

computer and information sciences may substitute for one year of the required experience (36 graduate quarter hours or a master's degree in computer and information sciences is equivalent to one year of experience.

OR

One year of experience as a Computer Operations Manager 1 with the State of Tennessee.

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COMPUTER OPERATIONS MANAGER 3

Summary: Under general supervision, is responsible for professional computer operations managerial work of considerable difficulty; and performs related work as required.

Distinguishing Features: An employee in this class manages (1) all major functional areas (data entry, production control and machine operations) at a large and/or complex site or (2) manages one or more, but not all major functional areas at the largest and/or most complex operations site. Employees in this class supervise activities such as distributed or mainframe computer operations, data processing clerical operations, data entry, production control and scheduling and word processing operations. This class differs from Computer Operations Manager 2 in that incumbents of the latter manage (1) all major functional areas at a moderate sized and/or moderately complex site, (2) manage one or more, but not all major functional areas at a large and/or complex site, (3) function as off-shift manager over all activities at a large and/or complex site or (4) for OIR, serve as manager or a sub-function or off-shift supervisor. This class differs from Computer Operations Manager 4 in that incumbents of the latter manage (1) more than one major functional area in the largest and/or most complex site or (2) for OIR, manage one major functional area.

Examples of duties and responsibilities:

1. Assigns, trains, supervises, and evaluates subordinate data processing operations staff and their work; makes recommendations on staff employment, retention, promotion, demotion, dismissal, and other human resources actions.
2. Plans, schedules and prioritizes all work to be run on the computer in order to attain maximum utilization and efficiency of equipment and personnel at a large and complex departmental operations site.
3. Consults with information systems analysis staff, programmers, and departmental managerial personnel in resolving problems occurring during the implementation, modification, and testing of new and existing information systems; keeps management informed of problems occurring during computer operation time and attempts to work out problem resolution.
4. Through subordinate staff, supervises the quality control of data input into the computer and the monitoring of data output for correctness and completeness; supervises the identification of computer operations errors and the determination and correction of these errors.
5. Analyzes data processing site organization, operation, and procedures and makes recommendations for improvements in economy, efficiency, and quality in these areas.
6. Evaluates data processing site equipment and operating software requirements to support departmental needs and recommends hardware and software purchases that will maximize efficiency and improve services; coordinates the acquisition, installation, testing, maintenance, and repair of

operations

equipment; supervises the physical planning and layout of equipment and the securing and evaluation of

bids for leased office space and equipment.

7. Interprets, enforces, and assists in developing data processing policies and procedures; develops and maintains procedures for the operation of data processing equipment.

8. Supervises the preparation and maintenance of routine data processing and managerial reports.

9. Supervises the training of subordinate personnel in performing data entry, remote job entry operations,

computer operations, production control and scheduling functions.

10. May assist information systems analysis staff in conducting cost and feasibility studies to determine the advisability of converting existing administrative, reporting, and statistical systems to data processing systems.

Minimum Qualifications – Computer Operations Manager 3:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and three years of experience in one of the following areas: (1) supervising, managing, or directing one or

more computer operations functions (e.g., data entry, clerical computer operations, machine operations,

or computer production control); or, (2) supervising, managing, or directing software systems.

development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms (e.g., microcomputers, mid-range computers,

as well as peripheral devices attached to the mainframe computer); one year of the above listed experience must include directing or managing multiple work functions within a mainframe or mid-range

computer operation (non-substitutable experience).

OR

Substitution of Experience for Education: Experience in any one of the following areas may be substituted for the required degree on a year-for-year basis to a maximum of four years: (1) supervising, managing, or directing one or more computer operations functions; or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms; or, (4) operating mainframe or mid-range computer equipment; or, (5) repairing mainframe or mid-range computers and associated peripherals, or repairing telecommunications network devices.

OR

Substitution of specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in computer and information sciences, office supervision and management, business data processing, or business administration and management may substitute for the required bachelor's degree.

OR

Substitution of graduate coursework for the required experience: Any graduate coursework in computer and information sciences may substitute for one year of the required experience (Thirty-six

graduate quarter hours or a master's degree in computer and information sciences is equivalent to one year of experience.)

OR

One year of experience as a Computer Operations Manager 2 with the State of Tennessee.

COMPUTER OPERATIONS MANAGER 4

Summary: Under general supervision, is responsible for supervisory and managerial work of considerable difficulty; and performs related work as required.

Distinguishing Features: An employee in this class manages (1) more than one major functional area (data entry, production control and machine operations) in the largest and/or most complex site or (2) for

OIR manages one major functional area such as statewide tape library and microfiche, state wide production control and scheduling, statewide mainframe computer operations and statewide technical monitoring. Employees in this class supervise activities such as distributed or mainframe computer operations, data processing clerical operations, data entry, production control and scheduling and work processing operations. This class differs from Computer Operations Manager 3 in that incumbents of the latter (1) manage all major functional areas at a large and/or complex site or (2) manage one or more, but

not all major functional areas at the largest and/or most complex operations site.

Examples of duties and responsibilities:

1. Through subordinate supervisory staff, assigns, trains, supervises, and evaluates data processing employees and their work at the largest and most complex of departmental operations sites; makes recommendations on staff employment, retention, promotion, demotion, dismissal, and other [human resources](#) actions.
2. Plans, schedules, and prioritizes all work to be run on the computer in order to attain maximum utilization and efficiency of equipment and personnel; ensures that there are no conflicts in the time and sequence of work run on the computer.
3. Consults with information systems analytic staff, programmers and departmental managerial personnel in resolving problems occurring during the implementation, modification, and testing of new and existing information systems; keeps management informed of problems occurring during computer operation time and attempts to work out problem resolution.
4. Through subordinate staff, supervises the quality control of data input into the computer and the monitoring of data output for correctness and completeness; supervises the identification of computer operations errors and the determination and correction of these errors.
5. Analyzes data processing site organization, operations, and procedures and makes recommendations for improvements in economy, efficiency, and quality in these areas.
6. Evaluates data processing site equipment and operating software requirements to support the needs of user divisions and recommends hardware and software purchases that will maximize efficiency and improve services; assists in and coordinates the acquisition, installation and testing of new operations equipment.

7. Interprets, enforces, and assists in developing data processing policies and procedures; develops and maintains procedures for the operation of data processing equipment.
8. Supervises the preparation and maintenance of a high volume of data processing and managerial records and reports.
9. Supervises the training of subordinate personnel in performing data entry operations, computer operations, production control and scheduling, and pre-editing of computer documentation.
10. May supervise the tape library and microfiche section at the statewide computer operations site and supervise the planning, physical layout, procurement and disposal of tapes and microfiche on a statewide basis, recovering information on lost or damaged tapes and microfiche and ensuring that tape and microfiche resources are available to user departments.
11. May supervise the technical monitoring of remote job entry teleprocessing and other computer systems on a statewide basis involving the use of operating system software packages and system controlling commands to ensure operating efficiency and standardization among user departments.
12. May assist information systems analytic staff in conducting cost and feasibility studies to determine the advisability of converting existing administrative, reporting, and statistical systems to data processing systems.

Minimum Qualifications – Computer Operations Manager 4:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and four years of experience in one of the following areas: (1) supervising, managing, or directing one or more computer operations functions (e.g., data entry, clerical computer operations, machine operations, or computer production control); or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms (e.g., microcomputers, mid-range computers, as well as peripheral devices attached to the mainframe computer); two years of the above listed experience must include directing or managing multiple work functions within a mainframe or mid-range computer operation (non-substitutable experience).

OR

Substitution of Experience for Education: Experience in any one of the following areas may be substituted for the required degree on a year-for-year basis to a maximum of four years: (1) supervising, managing, or directing one or more computer operations functions; or, (2) supervising, managing, or directing software systems development or maintenance for a computer system; or, (3) diagnosing and resolving software and hardware interaction problems among computer platforms; or, (4) operating mainframe or mid-range computer equipment; or, (5) repairing mainframe or mid-range computers and associated peripherals, or repairing telecommunications [network devices](#).

OR

Substitution of specific associate's degree for the required [bachelor's degree](#): Graduation from an accredited [college or](#) university with an associate's degree in computer and information sciences, office supervision and management, business data processing, or business administration and management may substitute for the required bachelor's degree.

OR

Substitution of [graduate coursework](#) for the required experience: Any graduate coursework in computer and information sciences may substitute for one year of the required experience (36 graduate quarter hours or a master's degree in computer and information sciences is equivalent to one year of experience).

OR

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One year of experience as a Computer Operations Manager 3 with the State of Tennessee.

COMPUTER OPERATOR 1 (CLASS CODE 002711)

Summary: Under immediate supervision, performs computer operations work of routine difficulty in learning to operate tape drives, [printers](#), and master console equipment controlling all job production at a

central operations site or learning to operate computer systems and related equipment in a distributed environment; and performs related work as required.

Distinguishing Features: This is the entry-level in the Computer Operator sub series. An employee in this class learns to maintain and operate peripheral equipment as well as monitor job processing through

the mainframe, minicomputer, or microcomputer systems. This class is flexibly staffed with and differs from Distributed Computer Operator 2 in that an incumbent of the latter maintains and operates peripheral

equipment, as well as, processes jobs through a computer system. This class is flexibly staffed with and differs from Mainframe Computer Operator 2 in that an incumbent of the latter operates and maintains peripheral equipment, as well as, monitors the master console to identify problems that affect the processing of jobs across agencies.

Examples of duties and responsibilities:

1. Learns to operate printers, tape/disk drives correctly; types START, RUN, and other operational commands to initiate the processing of a job; responds to operator commands to mount tapes, disks, microfiche and other peripheral devices; types operator commands which define parameters for reports, forms, microfiche, special forms, and other output devices; sets parameters on printers that regulate print density, print quality, and alignment; loads appropriate non-negotiable forms onto output device.
2. Learns to distribute microfiche, special forms, and other types of output to users; examines forms while printing to ensure proper alignment and the legitimacy of information on forms; separates output into individual jobs; loads forms into decollators or bursters to ensure pages are appropriately trimmed and separated, and carbons are removed.
3. Learns to maintain printers, tape drives, card readers, and other peripheral equipment as well as bursters, decollators, shredders and other auxiliary equipment; determines which equipment needs cleaning from a schedule or from error messages on input-output devices; may record specific problems associated with input/output devices and types of repairs undertaken in a log so that recurring problems may be identified; replaces ribbons, print bands, and other consumables which facilitate the running of equipment.
4. Learns to correct problems when jobs exceed operational parameters; determines whether a job is

running within a defined execution time, awaiting set-up, or printing by entering job name into terminal; may identify a variety of operational commands from a documentation manual including whether to resubmit the job, cancel job or change job priority; may enter appropriate commands to initiate a solution

which corrects an operational problem.

5. Learns to correctly transmit jobs to a mainframe or minicomputer; ensures data entry personnel have entered alphanumeric data correctly by identifying error messages on printout, incomplete header sheets

and incomplete labels on tapes or disks; keys in execution commands which send jobs to the mainframe or other processing units; records identifying information in a log including job name, job number, and time submitted in order to track job status; may type in alphanumeric data a second time to remedy data

entry errors; may verify budget balances with accounting totals.

6. Learns to enter data in an accurate and complete manner; accesses computer files from which data will be entered; identifies files to which a clerk will enter data by assigning control numbers and job names; identifies the appropriate means to enter data for different formatted screens.

Minimum Qualifications – Computer Operator 1:

Education and Experience: Education equivalent to graduation from a standard high school.

OR

Substitution of Experience for Education: Full-time employment in one of the following areas may be substituted for the required education on a year-for-year basis to a maximum of four years: (1) office clerical or storekeeping experience; or (2) computer operations; or (3) troubleshooting related software or

hardware problems on a minicomputer or microcomputer.

Necessary Special Qualifications: A valid vehicle operator's license may be required for employment in some positions.

COMPUTER OPS SUPERVISOR

Summary: Under general supervision, is responsible for computer operations supervisory work of average difficulty and performs related work as required.

Distinguishing Features: An employee in this class may be required to work fixed or rotating shifts in specific assignments. This work involves (1) supervising a small unit or shift of subordinate remote job entry operators, or (2) assisting a computer operations manager in supervising all personnel at a small remote operations site or, (3) functioning as the only remote job entry operator on a small shift or unit, with supervisory responsibilities over data entry and/or computer operations control personnel, or (4) assisting the Computer Operations Manager at a large and complex computer operations site. This class differs from Distributed and Mainframe Computer Operator 3's in that incumbents of the latter have no supervisory responsibilities. This class differs from Computer Ops Manager 1 in that incumbents of the latter have more input into policy and planning at their operations site.

Examples of duties and responsibilities:

1. Assists in or assigns, trains, evaluates, and supervises subordinate data processing, computer operations, or computer operations control staff and their work; assists in or makes recommendations on

staff employment, retention, promotion, demotion, dismissal and other human resources actions.

2. Assists in or plans schedules and determines priorities on all work to be processed or entered into the

computer, based on the time frame required and needs of user groups; assists in or plans and schedules work of subordinate staff in order to insure the most efficient processing of data and use of computer operation time.

3. Assists in or supervises and participates in running a number of programs such as operating system backup, maintenance, tape creation and tape retrieval programs; may assist in or supervise and participate in writing, testing, compiling and analyzing format coding for data entry equipment.

4. Assists in or supervises the quality control of data input into the computer and the monitoring of data output for correctness and completeness; identifies computer operations errors and determines and attempts to correct factors causing the errors; consults with computer hardware vendors in correcting equipment malfunctions.

5. Assists in or supervises and participates in operating distributed or mainframe computer systems and their peripheral equipment (i.e., tape drives, disk drives, printers, decollators, sorters, shredders).

6. Installs computer equipment and associated software; trains interdepartmental system users how to operate and use computer equipment and software packages.

7. Consults with systems analytic, programming, or computer operations managerial staff in preparing, planning, and scheduling data for processing and resolving problems affecting the operation of equipment and software packages.

8. Interprets and enforces data processing policies and procedures at the site; may develop and maintain procedures for the operation of data processing equipment.

9. Assists in or supervises and participates in preparing and maintaining routine records and reports (i.e., program error logs, equipment breakdown and malfunction logs, operating and production reports, job documentation cost reports).

Minimum Qualifications – Computer Ops Supervisor:

Education and Experience: Education equivalent to graduation from a standard high school and four years of experience in one or more of the following areas: (1) supervising, managing, or directing a computer operations or data processing unit; OR (2) supervising or managing the activities of staff who conduct systems analysis, systems development, or applications programming; OR (3) operating or repairing mainframe or midrange computers, associated peripheral equipment, or telecommunications hardware.

OR

Substitution of Education for Experience: Additional coursework from an accredited college, university, or technical school may be substituted for the required experience on a year for year basis to a maximum substitution of three years (45 quarter hours is equivalent to one year; 90 quarter hours is equivalent to two years; and 135 quarter hours or more is equivalent to three years).

OR

Substitution of Vocational Education for Experience: Education equivalent to a certificate in Data Processing or Computer Electronics (1296 clock hours) from a vocational school may substitute for one year of the required experience. (108 clock hours in the above Data Processing or Computer Electronics program is equivalent to one month of experience).

OR

Substitution of a Computer Operations Certificate for the Required Experience: Education

equivalent to successful completion of a one year computer operations certificate program (53 quarter hours) from an accredited technical school may substitute for one year of the required experience. (Four quarter hours in the above program is equivalent to one month of experience).

DATABASE ADMINISTRATOR 2

Summary: Under general supervision, is responsible for implementing and revising database structures; and performs related work as required.

Distinguishing Features: An employee in this class assists database developers or other database administrators in designing, implementing or revising data structures and database systems following defined standards and procedures. This class is flexibly staffed with Information Systems Associate* and differs in that an incumbent of the latter learns to implement or revise databases. This class differs from Database Administrator 3 in that an incumbent of the latter is responsible for implementing methods, techniques, and standards for data and database management.

Examples of duties and responsibilities:

1. Under supervision, designs and revises data structures and database systems following defined standards, procedures and guidelines; constructs physical databases (e.g., cluster indexes, physical database schema, space parameters) on appropriate system platforms; assists other database administrators in implementing and reviewing database systems to ensure accuracy and efficiency.
2. Provides technical assistance to other personnel involved in computer applications development; answers questions from application development teams and describes techniques related to database management (e.g. structured query language, coding performance, security authorization, problem resolution); clarifies system and user requirements for vendors; writes procedures to control migration of database components.
3. Assists other database administrators in monitoring application systems performance; checks status of disk space; identifies areas of poor response and turnaround times by reviewing historical data and information from users; learns to evaluate information gathered from users, other staff, and review of historical data to ensure optimal performance and productivity of database systems.
4. Performs daily maintenance, tracking and documentation of production database systems; creates and schedules database specific jobs or recovery jobs; uses database documentation and knowledge of the system to determine necessary actions to recover from problems or failures; identifies system characteristics that provide information for ongoing database documentation.
5. Assists other database administrators in development and enforcement of standards, procedures and guidelines; reviews user activities and deliverables, system requirements, and current needs in order to establish the operational framework in which database management systems are utilized.
6. Assists other database administrators in identification, selection and use of database software; tests software products and talks to end users about the products; learns to evaluate database software to enhance database system usage, facilitate problem resolution, and maximize customer service.

Minimum Qualifications – Database Administrator 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and one year of professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB, DB2, Oracle).

Substitution of Experience for Education: Professional level experience in the analysis, design, or

programming of business information systems utilizing database management systems (e.g., IMS/DB, Oracle) may be substitute for the required bachelor's degree on a year-for-year basis to a maximum of four years.

OR

Education and Experience: Graduation from an accredited college or university with an associate's degree in business data processing, management information systems, computer and information systems, computer science, or other directly related field and one year of professional level experience in

the analysis, design, or programming of business information systems utilizing database management systems (i.e., IMS/DB, DB2, Oracle).

Substitution of Specific Experience for the Specialized Associate's Degree: Experience in data modeling, database design, or performance monitoring and tuning of database management systems may substitute for the specialized associate's degree on a year-for-year basis to a maximum of two years.

OR

One year of experience as an Information Systems Associate* in training for systems programmer, Programmer Analyst, Information systems Specialist, or Database Administrator with the State of Tennessee.

DATABASE ADMINISTRATOR 3

Summary: Under general supervision, is responsible for implementing methods, techniques, and standards for effective management of data resources; and performs related work as required.

Distinguishing Features: An employee in this class reviews data models and database designs; monitors, evaluates, and recommends changes affecting database performance; and implements new or revised methods, techniques, and standard for data and database management. This class differs from Database Administrator 2 in that an incumbent of the latter assists database developers or other database administrators in designing, implementing or revising data structures and database systems, using defined standards and procedures. This class differs from Database Administrator 4 in that an incumbent of the latter functions as a project leader and is responsible for coordinating the efforts of other database administrators.

Examples of duties and responsibilities:

1. Designs and reviews database systems; determines data resource needs; designs data structures following Office of Information Resources standards, procedures, and guidelines; resolves problems with incompatibility between application data models and overall State data architecture; evaluates data model deliverables for conformity to Office of Information resources standards, procedures, and guidelines and user requirements; reviews logical databases to determine database design changes needed; designs physical database objects (e.g., cluster indexes, alternate indexes, physical database schema); constructs physical databases on appropriate system platforms; calculates database parameters; implements new or revised systems to ensure accuracy, efficiency, and adherence to technical standards.
2. Provides technical assistance to other personnel involved in computer applications development; answers questions from application development teams and describes techniques related to database management (e.g., structured query language, coding performance, security authorization, problem

resolution); clarifies system and user requirements for vendors; writes procedures to control migration of database components; grants appropriate user privilege levels; instructs other programmers and analysts

to make changes to programs which result in better database performance.

3. Monitors application systems performance and identifies performance enhancements to application programs and databases; identifies causes of poor response and turnaround times in database systems; recommends application data access changes (e.g., adding indexes, moving data sets, changing systems parameters); evaluates information gathered from users and other staff to establish minimum standards for services and determine impact of database changes on other systems; identifies service needs related

to software and hardware improvements; runs system utility programs on on-line monitors to collect statistical data; recommends changes to database systems to ensure optimal performance and productivity.

4. Performs daily maintenance, tracking and documentation of production database systems; creates and

schedules database specific jobs (e.g., image copy utility jobs, reorganization utility jobs, statistics collection utility jobs, backup utility jobs, database recovery jobs); uses database documentation and knowledge of the system to determine necessary actions to recover from problems or failures; identifies system characteristics that provide information for ongoing database documentation; coordinates the database maintenance and implementation activities with programming staff, vendors, agency users, and

overall State data architecture.

5. Develops and enforces standards, procedures, and guidelines to establish the operational framework in which database management systems are consistently and effectively utilized; reviews system requirements, current needs, current State standards, procedures, and guidelines and corrects any violations; identifies changes that need to be made in repository facility to met current needs.

6. Identifies database software which can be used to solve existing problems or improve existing systems; researches and tests new products; evaluates and selects database software products which will enhance the performance and integration of data management tasks; writes computer programs which provide user-friendly interfaces and procedures to automate maintenance and reporting tasks associated with database facilities; reviews output and software documentation, monitors software packages, and talks to vendors and users to identify causes of errors in software packages (e.g., installation errors, exit code errors); instructs users in the use of database software to enhance database system usage, facilitate problem resolution, and maximize customer service.

Minimum Qualifications – Database Administrator 3:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and three years of professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB, DB2, Oracle), including at least one year of specialized experience that involved data modeling, database design, or performance monitoring and tuning of database management systems.

Substitution of Experience for Education: Professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB, DB2, Oracle) may substitute for the required bachelor's degree on a year-for-year basis to a maximum of

four years.

Substitution of Graduate Education for the Required Experience: Any graduate coursework in management information systems, business data processing, computer and information systems, or computer science may substitute for the required experience on a year-for-year basis to a maximum of one year (thirty-six graduate quarter hours or a master's degree in the above listed fields is equivalent to one year of experience), there being no substitution for the required one year of specialized experience.

OR

Substitution of Specific Experience for the Specialized Associate's Degree: Experience in data modeling, database design, or performance monitoring and tuning of database management systems may substitute for the specialized associate's degree on a year-for-year basis to a maximum of two years.

OR

Two years of experience as a Database Administrator 2 with the State of Tennessee.

DATABASE ADMINISTRATOR 4

Summary: Under general supervision, is responsible for developing and implementing methods, techniques, and standards for the effective management of data resources; and performs related work as required.

Distinguishing Features: This is the lead working level class in the Database Administrator sub-series. An employee in this class functions as a project leader and is responsible for monitoring, evaluating, and recommending changes affecting database performance, and designing or implementing new or revised methods, techniques, and standards for data and database management. This class differs from Database Administrator 3 in that an incumbent of the latter is responsible for implementing methods, techniques, and standards for data and database management and does not function as a lead worker.

Examples of duties and responsibilities:

1. Leads a staff of database administrators in the design and review of database systems; determines data resource needs; reviews data structures and physical database objects designed by staff to verify that Office of Information Resources standards, procedures, and guidelines have been followed; evaluates data model deliverables for conformity to Office of Information Resources standards, procedures, and guidelines and user requirements; reviews logical databases to determine design changes needed; talks with agency administrators, end users and others to coordinate the implementation processes for new or revised database system designs with the overall State data architecture.
2. Provides technical assistance to other personnel involved in computer applications development; answers questions from application development teams and describes techniques related to database management (e.g., structured query language, coding performance, security authorization, problem resolution); clarifies system and user requirements for vendors; writes procedures to control migration of database components; grants appropriate user privilege levels; instructs other programmers and analysts to make changes to programs which result in better database performance.
3. Acts as project leader in monitoring performance of application systems; identifies performance enhancements to application programs and databases; identifies causes of poor response and turnaround times in database systems; recommends application data access changes (e.g., adding

indexes, moving data sets, changing system parameters); evaluates information gathered from users and other staff to establish minimum standards for services and determine impact of database changes on other systems; identifies service needs related to software and hardware improvements; makes recommendations to management concerning problems or issues in the database environment to ensure optimal performance and productivity of database systems.

4. Performs daily maintenance, tracking and documentation of production database systems; creates and schedules database specific jobs (e.g., image copy utility jobs, reorganization utility jobs, statistics collection utility jobs, backup utility jobs, database recovery jobs); uses database documentation and knowledge of the system to determine necessary actions to recover from problems or failures; identifies system characteristics that provide information for ongoing database documentation; coordinates the database maintenance and implementation activities with programming staff, vendors, agency users, and overall State data architecture.

5. Leads other database administrators in the development and enforcement of standards, procedures, and guidelines and policies for data processing methods, techniques, and procedures to establish the operational framework in which database management systems are consistently and effectively utilized; reviews system requirements, or current needs, current State standards, procedures, and guidelines and Office of Information Resources policies to define techniques for monitoring and evaluating database performance; compares user activities and deliverables to standards, procedures, and guidelines to determine adherence; instructs users to correctly follow standards, procedures, and guidelines and correct any violations; identifies changes that need to be made in repository facility to meet current needs.

6. Identifies database software which can be used to solve existing problems or improve existing systems; researches and tests new products; evaluates and selects database software products which will enhance the performance and integration of data management tasks; writes computer programs which provide user-friendly interfaces and procedures to automate maintenance and reporting tasks associated with database facilities; reviews output and software documentation, monitors software packages, and talks to vendors and users to identify causes of errors in software packages (e.g., installation errors, exit code errors); instructs users in the use of database software to enhance database system usage, facilitate problem resolution, and maximize customer service; makes recommendations to management and purchasing units on viable vendor proposals based on the evaluation process.

Minimum Qualifications – Database Administrator 4:

Education and Experience: graduation from an accredited college or university with a bachelor's degree and five years of professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB, DB2, Oracle) including at least three years of specialized experience that involved data modeling, database design, or performance monitoring and tuning of database management systems.

Substitution of Experience for Education: Professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB,

DB2, Oracle) may substitute for the required bachelor's degree on a year-for-year basis to a maximum of four years.

Substitution of Graduate Education for the Required Experience:

Any graduate coursework in management information systems, business data processing, computer and information systems, or computer science may substitute for the required experience on a year-for-year basis to a maximum of one year (thirty-six graduate quarter hours or a master's degree in the above listed

fields is equivalent to one year of experience), there being no substitution for the required three years of

specialized experience.

OR

Education and Experience: Graduation from an accredited college or university with an associate's degree in business data processing, management information system, computer and information systems, computer science, or other directly related field and five years of professional level experience in the analysis, design, or programming of business information systems utilizing database management systems (e.g., IMS/DB, DB2, Oracle) including at least three years of specialized experience that involved data modeling, database design, or performance monitoring and tuning of database management systems.

Substitution of Specific Experience for the Specialized Associate's Degree: Experience in data modeling, database design, or performance monitoring and tuning of database management systems may substitute for the specialized associate's degree on a year-for-year basis to a maximum of two years.

OR

Two years of experience as a Database Administrator 3 with the State of Tennessee

MAINFRAME COMPUTER OPERATOR 2

Summary: Under general supervision, is responsible for mainframe computer operations work of average

difficulty in operating "large system" tape drives, printers and master console equipment controlling all job

production at a complex operations site; and performs related work as required.

Distinguishing Features: *This is the working class in the Mainframe Computer Operations sub series.

An employee in this class maintains and operates peripheral equipment and monitors the master console

and other computer operations to identify problems that affect the processing of jobs across agencies.

This class differs from Computer Operator 1 in that incumbents of the latter are learning to operate equipment and monitor job processing. This class differs from Mainframe Computer Oper 3 in that incumbents of the latter coordinate the operation of peripheral equipment, master console, as well as, monitoring jobs submitted for processing.

Examples of duties and responsibilities:

1. Corrects problems with jobs that exceed operational parameters; determines whether a job is running within a defined execution time, awaiting set-up, or printing by entering job name into terminal; identifies a

variety of solutions from an operations manual including whether to resubmit the job, cancel job or change priority to correct problems with jobs that exceed operational parameters; identifies and

isolates

operational errors, such as incorrect program applications, that would cause the entire mainframe system to fail.

2. Maintains printers, tape drives, card readers and other peripheral equipment as well as bursters, decollators, shredders and other auxiliary equipment; determines which equipment needs cleaning from a

schedule or from messages on input-output devices; prepares equipment for service work by draining printer, taking equipment off-line, and taking other necessary steps; records information pertaining to equipment problems in a log to identify recurring problems; replaces print bands, ribbons, and other consumables to facilitate the running of equipment.

3. Maintains files in the tape library; retrieves requested tapes by locating tape number and removing appropriate tape from rack; places tapes into cleaning machine so that contaminants are removed and tape attributes including tape length and bad sectors can be identified; records specific problems and types of repairs into a log; learns how to retrieve dropped tapes, remove stuck tapes, or take other corrective action to repair malfunctions in a mechanical tape library management system; learns to identify error codes on screen so that tape management system can be updated.

4. Ensures that printers and disk/tape drives operate correctly; types START, STOP, RUN, and other operational commands to initiate the processing of a job; responds to operator commands to mount tape, disk, microfiche, and other output medium; types operational commands which define parameters for reports, microfiche, special forms and other output device; enters commands which identify the specific output device to be used; sets parameters on printers which regulate print density, print quality, and alignment; loads payroll checks, bills, and other negotiable documents into printer; replaces ribbons, changes drives or takes corrective steps to repair frequently occurring hardware malfunctions.

5. Prepares and distributes microfiche, special forms, and other types of output; separates output into individual jobs; loads forms to decollators or bursters to ensure pages are appropriately trimmed, separated and carbons removed; matches job name or identification number on reports, microfiche, special forms, and other types of output to distribute the product to users and other computer operators;

determines whether job control commands should be separated from output before distribution; assures

that printed negotiable documents are distributed only to authorized personnel.

6. Backs-up and recovers data from the original files; monitors terminals while alphanumeric data contained in files are being duplicated to a tape or disk to identify hardware (e.g., disk drive or tape drive)

or data (e.g., disk, diskette, tape) errors; takes corrective action including cleaning tape drive or disk drive, changing drives, or inserting new tapes, disks, or diskettes to correct specific hardware errors; separates tapes or disks on which the back-up files are stored by file identification number or vault specification to prepare files to be transferred to a secured location.

7. Learns to enter data to update a data file; types authorization codes to gain entry to secured areas of the system; compares input records to established format requirements to ensure the suitability of the input; keys data to produce an automated file or record.

8. Submits jobs for processing; ensures data entry personnel have entered alphanumeric data correctly

by examining header sheets and labels, or identifying error messages or printouts; types in execute commands that send jobs to mainframe or other processing units; records identifying information in a log

including job name, number and time submitted in order to track job status; may type in alphanumeric data a second time to remedy data errors.

9. Helps users solve their problems with computer terminals or printers; determines whether the problem

is related to hardware, software, or line errors; tells user how to correct minor hardware and software problems; contacts vendor to obtain a service technician for hardware malfunctions.

10. Assists the supervisor by helping teach trainees to operate and maintain peripheral equipment, monitor computer processing and perform other functions required to facilitate processing of jobs on the

mainframe.

Minimum Qualifications – Mainframe Computer Operator 2:

Education and Experience: Education equivalent to graduation from a standard high school and one year of full-time employment in one or more of the following areas: (1) submitting and monitoring jobs on

the mainframe computer or operating high speed printers, bursters, decollators, or peripheral or auxiliary

equipment related to a mainframe computer (e.g., computer operations); or (2) keying, scanning, or verifying data from a hard-copy to a mainframe or minicomputer system to meet production targets (i.e.,

data entry); or (3) correcting codes on records which are then keyed into a computer system to meet production targets (i.e., data processing); or (4) creating and revising typed documents to meet production targets using a microcomputer, minicomputer or mainframe computer system (i.e., word processing); or (5) troubleshooting inaccurate job control commands, pathway dysfunctions, terminal controller problems, or other related software or hardware problems on the microcomputer, minicomputer, or mainframe computer system.

OR

Substitution of Experience for Education: Full-time employment in one of the following areas may be substituted for the required education on a year-for-year basis to a maximum of four years: (1) office clerical or storekeeping experience; or (2) computer operations; or (3) troubleshooting related software or

hardware problems on a minicomputer, microcomputer, or mainframe computer system.

OR

Substitution of Vocational Education for Experience: Education equivalent to a certificate in data processing or computer electronics repair from a vocational school (1296 clock hours) may substitute for one year of the required experience (108 clock hours in the above data processing program or computer electronics repair program is equivalent to one month of experience). Successful completion of a oneyear computer operations certificate program (53 quarter hours) from an accredited technical school may

substitute for one year of the required experience (Four quarter hours in the above program is equivalent

to one month of experience).

OR

Substitution of Education for Experience: Successful completion of a degree or at least 18 out of 90 quarter hours in data processing, computer technology, or related computer and information sciences from an accredited college or university may substitute for one year of the required experience.

Necessary Special Qualifications: A valid vehicle operator's license may be required for employment in some positions.

MAINFRAME COMPUTER OPERATOR 3

Summary: Under general supervision, is responsible for lead mainframe computer operations work of average difficulty in operating "large system" tape drives, printers and master console equipment controlling all job production at a complex operations site; and performs related work as required.

Distinguishing Features: This is the lead-level of the Mainframe Computer Oper sub series. An employee in this class coordinates the operation of peripheral equipment and the master console, as well as, monitoring jobs submitted for processing to identify problems that affect computer functions across agencies. This class differs from Mainframe Computer Oper 2 in that an incumbent of the latter maintains

and operates peripheral equipment and the master console, as well as, monitors job processing.

Examples of duties and responsibilities:

1. Helps users solve problems with the connection between their terminals and the mainframe computer;

runs a diagnostic program to make sure that the central modem is connected; runs a diagnostic program to pinpoint where a line is broken; calls Telephone Company to repair line.

2. Assists the supervisor in coordinating activities and other supervisory functions; prioritizes work; assigns work loads; teaches new workers and relays procedural changes to staff; identifies deficiencies in

workers and trainees for the supervisor; oversees operation of unit when supervisor is absent.

3. Enters data to make changes in a data file; types authorization codes to gain entry to secured areas of the system; compares input records to establish format requirements to ensure the suitability the input; keys data to produce an automated file or record.

4. Coordinates the submission of jobs for processing; sequences jobs on the computer based on the type of jobs that are in need of processing, relative importance of jobs, and other priority indicators; assigns subordinate staff to operate peripheral equipment, terminal console, library maintenance, and other operations activities; corrects errors in job specifications and execution problems identified by subordinate

staff; submits jobs for processing.

5. Resubmits job, cancels a job, changes job priority, or performs other actions necessary to correct a problem that prevents a job from being completed; contacts technician or vendor to correct errors in the

mainframe computer that would cause the system to fail.

6. Ensures the smooth operation of tape library; retrieves dropped tapes, removes tapes that are hung in

a drive, and takes other corrective actions to repair malfunctions in a mechanical tape library management system; identifies recurring problems with equipment and requests service technician from a

vendor; runs diagnostic programs to identify and/or correct equipment malfunctions; identifies and corrects errors in tape management system; prepares bills for library service; confers with users to solve the problems; maintains adequate tape storage space by removing inactive tapes from the tape library.

7. Ensures that printers, tape drives, card readers and other peripheral equipment as well as bursters, decollators, shredders and other auxiliary equipment operate correctly; determines which equipment needs cleaning from cleaning schedule or from messages on input/output devices; confers with service technicians about specific equipment malfunctions; prepares equipment for service work by draining printer and taking equipment offline; records information on equipment problems in a log to identify recurring problems in equipment; replaces print bands and other consumables.

8. Ensures that a duplicate of all the files on the mainframe is saved on magnetic tape; types commands that prepare the system for backup and initiate the process; assures that all disk packs have been copied.

9. Solves execution problems so that printers and tape/disk drives operate correctly; explains the meaning of error messages to professional staff and suggests corrective steps; cleans hubs on tape, sensors on the printer; checks physical attributes of a tape, or takes other steps to repair infrequently occurring problems with hardware.

10. Coordinates the preparation and distribution of computer reports to users; maintains appropriate levels of unused forms to ensure the availability of blank forms for processing; unlocks safe to receive new negotiable documents and/or get blank documents for printing.

Minimum Qualifications – Mainframe Computer Operator 3:

Education and Experience: Education equivalent to graduation from a standard high school and two years of full-time employment in one or more of the following areas: (1) submitting and monitoring jobs on

the mainframe computer or operating high speed printers, bursters, decollators, or peripheral or auxiliary

equipment related to a mainframe computer (e.g., computer operations); or (2) keying, scanning, or verifying data from a hard-copy to a mainframe or minicomputer system to meet production targets (i.e.,

data entry); or (3) correcting codes on records which are then keyed into a computer system to meet production targets (i.e., data processing); or (4) creating and revising typed documents to meet production targets using a microcomputer, minicomputer or mainframe computer system (i.e., word processing); or (5) troubleshooting inaccurate job control commands, pathway dysfunctions, terminal controller problems, or other related software or hardware problems on the microcomputer, minicomputer or mainframe computer system.

OR

Substitution of Experience for Education: Full-time employment in one of the following areas may be substituted for the required education on a year-for-year basis to a maximum of four years: (1) office clerical or storekeeping experience; or (2) computer operations; or (3) troubleshooting related software or hardware problems on a minicomputer, microcomputer or mainframe computer system.

OR

Substitution of Vocational Education for Experience: Education equivalent to a certificate in data processing (1296 clock hours) (108 clock hours in the above data processing program is equivalent to

one month of experience); or a certificate in computer electronics repair from a vocational school (1296 clock hours) may substitute for one year of the required experience. (108 clock hours in the above computer electronics repair program is equivalent to one month of experience); successful completion of a one year computer operations certificate program (53 quarter hours) from an accredited technical school may substitute for one year of the required experience. (Four quarter hours in the above program is equivalent to one month of experience).

OR

Substitution of College Education for Experience: Successful completion of at least 18 out of 90 quarter hours or a degree in data processing, computer technology, or related computer and information

sciences from an accredited college or university may substitute for one year of the required experience.

Necessary Special Qualifications: A valid vehicle operator's license may be required for employment in some positions.

MAINFRAME COMPUTER TECHNICIAN 1

Summary: Under immediate supervision, is responsible for professional mainframe computer operations

technical work of average difficulty in identifying and analyzing computer operations errors to determine

the factors causing the errors; and performs related work as required.

Distinguishing Features: This is the working level class in the Mainframe Computer Tech sub-series. An employee in this class identifies, documents, and analyzes computer operations errors to determine factors causing the errors. This work involves correcting those errors caused by computer operators and referring problems caused by equipment malfunction or programming mistakes to appropriate computer

hardware vendors or programming staff for correction. This class differs from sub professional computer operator classes in that incumbents of the latter perform duties of operating computer equipment with less

emphasis on analysis of equipment failures or errors. This class differs from Mainframe Computer Tech 2 in that incumbents of the latter lead subordinate Mainframe Computer Tech and acting as technical consultants to user departmental personnel on resolving equipment failures, hardware problems or programming errors.

Examples of duties and responsibilities:

1. Monitors master terminal operations; identifies, documents and analyzes computer operations errors to

determine factors causing the errors, whether related to equipment or hardware malfunction, operator mistakes, or programming errors.

2. Corrects operator-caused errors by keying in corrective commands to the computer terminal.

3. Consults with computer equipment vendors to correct hardware problems; identifies hardware malfunctions and provides vendors with documentation on the time, location, and description of operation

problems caused by equipment malfunction; follows up on all corrective maintenance performed by the hardware vendor to ensure that machine failures are adequately corrected.

4. Provides technical assistance in problem solving to remote job entry computer terminal operators; advises operators on procedures and techniques to start, maintain, and end system operating functions and gives guidance on procedures to correct operator errors.
5. Assists with the installation of new computer equipment by determining cable requirements, electrical requirements and designing floor space layouts; maintains up-to-date cable inventory, electrical circuit breaker information, and system configuration diagrams.
6. Operates tape drives, disk drives, printers, and computer master consoles in the performance of error identification and correction duties; learns to operate a variety of test equipment such as oscilloscopes, computer monitors and telephone patch panels in monitoring and identifying telephone line related problems causing teleprocessing errors.
7. May determine proper scheduling and space allocation for work to be run through the computer in order to maximize resources for the most effective and efficient utilization of computer time and equipment.
8. May assist technical programming staff in conducting recovery operations in the event of inadvertent destruction of all or part of the operating system; may assist with recovery activities related to installed telecommunications software.
9. May maintain test and production libraries of programs containing space, directory block, and password information and keep these libraries updated and accurate; may monitor program output to identify errors, and inform programmers of the need for corrective action.
10. May assist in training computer operators in the performance of work.
11. Prepares and maintains a variety of routine computer operation reports; compiles statistics on system operations, and documents equipment malfunctions and programming and operator errors.

Minimum Qualifications – Mainframe Computer Technician 1:

Education and Experience: Graduation from an accredited two year college, or technical institute with an Associate's Degree in Business Computer and Console Operation, Business Data Entry Equipment Operation, Business Data Peripheral Equipment Operation, Computer Engineering, Electrical, Electronics and Communications Engineering, Electrical and Electronics Technologies, Computer Servicing Technology, Business Machine Repair, Computer Electronics, Math and Computer Science, Systems Analysis, Electro-mechanical Technology, Robotics Technology, Air Conditioning, Heating, and Refrigeration Technology, Architectural Interior Design Technology, Architectural Design and Construction Technology, Architectural Technologies, Communications Electronics and two years fulltime experience in (1) identifying, documenting, and resolving operations problems involving hardware or software on mainframe computers and peripheral equipment; (2) the manual operation and monitoring of mainframe, mini, or microcomputers and their associated peripheral equipment; (3) installation or maintenance of hardware (C.R.T.'s, personal computers, modems, controllers, printers, cables) needed to access mainframe computer systems; (4) assigning, training, or evaluation of staff in a computer operations environment; (5) installing and maintaining computer hardware and peripheral equipment and providing technical support to agencies on the proper use of hardware, software, and peripheral

equipment on micro or mini computers.

OR

Substitution of Experience for Education: Qualifying full-time experience in one of the following areas may substitute for the required education on a year-for-year basis the a maximum substitution of two years; (1) identifying, documenting, and analyzing operational problems involving hardware or software on mainframe computers and peripheral equipment; (2) manually operating and monitoring mainframe, mini, or micro computers and their associated peripheral equipment; (3) installing or maintaining hardware (C.R.T.'s personal computers, modems, controllers, printers, cables) needed to access mainframe computer systems; (4) assigning, training or evaluation of staff in a computer operations environment; (5) installing and maintaining computer hardware and peripheral equipment and providing

technical support to agencies on the proper use of hardware, software, and peripheral equipment on micro or mini computers. (One year of college (45 quarter hours) with 12 quarter hours in one or more of

the special education areas listed above is equivalent to one year of experience).

Necessary Special Qualifications: A valid vehicle operator's license may be required for employment in some positions.

MAINFRAME COMPUTER TECHNICIAN 2

Summary: Under immediate supervision, is responsible for professional mainframe computer operations

technical work of considerable difficulty and lead work of routine difficulty in leading subordinate technical

staff in identifying and analyzing computer operation errors to determine factors causing the errors; and performs related work as required.

Distinguishing Features: This is the lead class in the Mainframe Computer Tech sub-series. An employee in this class leads subordinate staff in identifying, documenting, and analyzing computer operations errors and determining factors causing the errors. An employee in this class leads in correcting errors caused by computer operators and referring problems caused by equipment malfunction

or programming mistakes to appropriate computer hardware vendors or programming staff for correction.

This class differs from Mainframe Computer Tech 1 in that incumbents of the latter perform computer operations technical work at the working level. This class differs from computer operations managerial classes in that incumbents of the latter supervise certain segments of professional and sub-professional computer operations staff.

Examples of duties and responsibilities:

1. Leads in identifying, documenting, and analyzing computer operation errors and determining factors causing the errors, whether related to equipment or hardware malfunction, operation mistakes, or programming errors.
2. Leads in correcting operator-caused errors by keying in corrective commands to the computer terminal.
3. Leads in consulting with computer equipment vendors to correct hardware problems; leads in identifying hardware malfunctions and providing vendors with documentation on the time, location, and description of operation problems caused by the equipment malfunction; follows up on all corrective

maintenance performed by the hardware vendor to ensure that machine failures are adequately corrected.

4. Leads in providing technical assistance in problem-solving to remote job entry computer terminal operators; leads in advising operators on procedures and techniques to start, maintain, and end system operating functions and giving guidance on procedures to correct operator errors.

5. Assists with the installation of new computer equipment by determining cable requirements, electrical

requirements and designing floor space layouts; maintains up-to-date cable inventory, electrical circuit breaker information, and system configuration diagrams.

6. Leads in operating tape drives, disk drives, printers and computer master console equipment in the performance of error identification and correction duties; leads in operating a variety of test equipment such as oscilloscopes, computer monitors and telephone patch panels in monitoring and identifying telephone line related problems causing teleprocessing errors. 7. May lead in determining proper scheduling and space allocation for work to be run through the computer in order to maximize resources

for the most effective and efficient utilization of computer time and equipment.

7. May lead in assisting technical programming staff in conducting recovery operations in the event of inadvertent destruction of all or part of the operating system; may assist in recovery activities related to installed telecommunications software.

8. May lead in maintaining test and production libraries of programs containing space, directory block, and password information and keep these libraries updated and accurate; may monitor program output to

identify errors and inform programmers of the need for corrective action.

9. Trains subordinate mainframe computer technical staff in performing duties of work; may assist in training computer operators in the performance of work.

10. Leads in preparing and maintaining a variety of average computer operations reports; compiles statistics on system operations, and documents equipment malfunctions and programming and operator errors.

Minimum Qualifications – Mainframe Computer Technician 2:

Education and Experience: Graduation from an accredited two year college or technical institute with an

Associate's Degree in Business Computer and Console Operation, Business Data Entry Equipment Operation, Business Data Peripheral Equipment Operation, Computer Engineering, Electrical, Electronics and Communications Engineering, Electrical and Electronics Technologies, Computer Servicing Technology, Business Machine Repair, Computer Electronics, Math and Computer Science, Systems Analysis, Electro-mechanical Technology, Robotics Technology, Air Conditioning, Heating, and Refrigeration Technology, Architectural Interior Design Technology, Architectural Design and Construction Technology, Architectural Technologies, Communications Electronics and three years fulltime experience in (1) identifying, documenting, and analyzing operational problems involving hardware

or software on mainframe computers and peripheral equipment; (2) the manual operation and monitoring

of mainframe, mini, or micro computers and their associated peripheral equipment; (3) installation or

maintenance of hardware (C.R.T's, personal computers, modems, controllers, printers, cables) necessary to access mainframe computer systems; (4) assigning, training, or evaluation of staff in a computer operations environment; (5) installing and maintaining computer hardware and peripheral equipment and

providing technical support to agencies on the proper use of hardware , software, and peripheral equipment on micro or mini computers, of which one year must be in identifying, documenting, and resolving operational problems involving hardware or software on mainframe computers and peripheral equipment.

OR

Substitution of Experience for Education: Qualifying full-time experience in one of the following areas may substitute for the required education on a year-for-year basis to a maximum of two years: (1) identifying, documenting, and resolving operations problems involving hardware or software on mainframe computers and peripheral equipment; (2) manually operating and monitoring mainframe, mini

or micro computers and their associated peripheral equipment; (3) installing or maintaining hardware (C.R.T.'s, personal computers, modems, controllers, printers, cables) needed to access mainframe computer systems; (4) assigning, training or evaluation of staff in a computer operations environment; (5)

installing and maintaining computer hardware and peripheral equipment on micro or mini computers. and

providing technical support to agencies on the proper use of hardware, software, and peripheral equipment. (One year of college (45 quarter hours) with 12 quarter hours in one or more of the special education areas listed above is equivalent to one year of experience.

NETWORK TECHNICAL SPECIALIST 1

Summary: Under immediate supervision, is responsible for entry level professional network technical support work of routine difficulty; and performs related work as required.

Distinguishing Features: This is the entry level class in the Network Tech Specialist sub-series. An employee in this class learns to install telecommunications hardware and network components and provide technical support to network users. This class differs from the Network Tech Specialist 2 in that an incumbent of the latter performs at the intermediate level. This class flexes to and differs from the Network Technical Specialist 3 in that an incumbent of the latter provides technical consultation for network problem diagnosis and resolution, plans and implements network design, and writes technical specifications.

Examples of duties and responsibilities:

1. Learns to install CRT's, personal computers, modems, controllers, printers and other hardware needed

to access the State's mainframe computer via the teleprocessing system; ensures that the installation site

is prepared with grounded electrical outlets, cables and appropriate work surfaces for equipment; learns to bind cables and arrange passive equipment such as modems, splitters and control units in a manner that is least disruptive to the office environment; in the installation process, ensures network capability, software accessibility and terminal security.

2. Learns to diagnose and resolve problems with telecommunications and related equipment including terminals, printers, modems, multiplexors, channel extendors, digital service units, communications

circuits, interface cables and other network components; learns to use diagnostic equipment such as line

and modem monitors, cable testers, telephone signal testers, toner-continuity testers and short circuit detecting devices to locate and identify the source of problems.

3. Learns to repair and replace defective equipment on site, whenever possible, or refers to telecommunication vendors for repair in cases of vendor responsibility.

4. Learns to provide technical support to network users in areas such as solving routine problems and instructing them on procedures for reporting problems with and using their equipment; learns to provide

technical support to applications programming, computer operations and technical software support staff

in situations involving network use or problem resolution.

5. Maintains inventory of terminal equipment, cables, connectors and supplies; ensures that accurate information is maintained on what equipment is tied into the network; documents what parts and equipment are installed and ensures that this information is entered into the network inventory data base.

6. May learn to assist in writing technical specifications for procuring network related equipment; may learn to assist in technical product evaluation and procurement activities.

Minimum Qualifications – Network Technical Specialist 1:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree.

Substitution of Experience for Education: Experience in one or more of the following areas may substitute for the required degree on a year-for-year basis to a maximum of four years; (1) diagnosing or resolving problems with communications circuitry, video displays, printer, modems, controllers, or other closely related software and hardware malfunctions on a telecommunication network system or on computer platforms such as microcomputers, minicomputer, as well as peripheral devices utilized by the mainframe; or (2) installing computer hardware; or (3) planning telecommunications hardware requirements to meet business needs; or (4) diagnosing or resolving problems with job control language,

business programs, or system codes or other related software errors caused by computer platforms or telecommunications network malfunctions; or (5) information systems consulting (i.e., the planning and implementation of new information systems, or planning and integrating new technologies into existing systems).

Substitution of the specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies, or other related field may

substitute for the required bachelor's degree.

NETWORK TECHNICAL SPECIALIST 2

Summary: Under general supervision, is responsible for professional network technical support work of average difficulty; and performs related work as required.

Distinguishing Features: This is the intermediate level class in the Network Tech Specialist sub-series.

An employee in this class installs telecommunications hardware and network components and provides

technical support to network users. This class differs from the Network Tech Specialist 1 in that an incumbent of the latter performs at the entry level. This class flexes to and differs from the Network Tech

Specialist 3 in that an incumbent of the latter provides technical consultation for network problem diagnosis and resolution, plans and implements network design, and writes technical specifications.

Examples of duties and responsibilities:

1. Installs CRT's, personal computers, modems, controllers, printers and other hardware needed to access the State's mainframe computer via the teleprocessing system; ensures that the installation site is

prepared with grounded electrical outlets, cables and appropriate work surfaces for equipment; binds cables and arranges passive equipment such as modems, splitters and control units in a manner that is least disruptive to the office environment; in the installation process, ensures network capability, software

accessibility and terminal security.

2. Diagnoses and resolves problems with telecommunications and related equipment including terminals,

printers, modems, multiplexors, channel extenders, digital service units, communications circuits, interface cables and other network components; uses diagnostic equipment such as line and modem monitors, cable testers, telephone signal testers, toner-continuity testers and short circuit detecting devices to locate and identify the source of problems.

3. Repairs and replaces defective equipment on site, whenever possible, or refers to telecommunication vendors for repair in cases of vendor responsibility.

4. Provides technical support to network users in areas such as solving routine problems and instructing them on procedures for reporting problems with and using their equipment; provides technical support to

applications programming, computer operations and technical software support staff in situations involving network use or problem resolution.

5. Maintains inventory of terminal equipment, cables, connectors and supplies; ensures that accurate information is maintained on what equipment is tied into the network; documents what parts and equipment are installed and ensures that this information is entered into the network inventory data base.

6. Assists in writing technical specifications for procuring network related equipment; assists in technical product evaluation and procurement activities.

Minimum Qualifications – Network Technical Specialist 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and one year of experience in one or more of the following areas: (1) planning telecommunication

hardware requirements for business needs; or (2) diagnosing or resolving problems with communications

circuitry, telecommunications lines, video displays, printers, or other closely related hardware and software malfunctions on a telecommunications network system or on computer platforms such as microcomputers, minicomputers, as well as peripheral devices utilized by the mainframe; or (3) installing

computer hardware; or (4) diagnosing or resolving problems with job control language, business

programs or systems codes or other related software errors caused by computer platforms or telecommunications network malfunctions; or (5) information systems consulting (i.e., planning and implementing new information systems or planning and integrating new technologies into existing systems).

Substitution of Experience for Education: Experience in one or more of the following areas may substitute for the required degree on a year for year basis to a maximum of four years; (1) planning telecommunication hardware requirements for business needs; or (2) diagnosing or resolving aforementioned hardware malfunctions or software errors for telecommunications networks or computer platforms; or (3) installing computer hardware; or (4) information systems consulting.

Substitution of the specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies, or other related field may substitute for the required bachelor's degree.

OR

One year of experience as a Network Tech Specialist 1 with the State of Tennessee.

NETWORK TECHNICAL SPECIALIST 3

Summary: Under general supervision, is responsible for professional network consultative support work of considerable difficulty and network design and implementation planning of average difficulty; and performs related work as required.

Distinguishing Features: This is the working level class in the Network Tech Specialist sub-series. An employee in this class provides technical consultation for network problem diagnosis and resolution, plans and implements network design, and writes technical specifications. *This class is flexibly staffed with and differs from the Network Tech Specialist 2 in that an incumbent of the latter performs at an intermediate level. This class is also flexibly staffed with the Network Tech Specialist 1. This class differs from the Network Tech Specialist 4 in that an incumbent of the latter performs design and implementation work of considerable difficulty.

Examples of duties and responsibilities:

1. Designs and plans the implementation of State communication networks; attempts to achieve the most cost effective configuration of lines and services and to maintain acceptable performance of the communication lines at all times; continually reviews network utilization to ensure that no area becomes overloaded; analyzes agency telecommunication needs and expansion compatibility to provide the most functional network design; analyzes circuit mixes and coordinates line layout and procurement with telecommunications vendor.
2. Writes technical specifications for and participates in procuring network related hardware, components, communication lines and diagnostic equipment; evaluates technical equipment and components to determine if they can be used to enhance the State's telecommunication systems and increase efficiency and effectiveness; evaluates agency requests for telecommunications equipment to determine their

needs.

3. Diagnoses and resolves complex problems with telecommunications and related equipment including terminals, printers, modems, multiplexors, channel extenders, digital service units, communications circuits, interface cables and other network components; uses diagnostic equipment such as line and modem monitors, cable testers, telephone signal testers, toner-continuity testers and short circuit detecting devices to locate and identify the source of complex problems.

4. Performs the most difficult repairs and replacements of defective equipment or refers to telecommunication vendors for repair in cases of vendor responsibility.

5. Provides technical support to network users in areas such as solving complex problems; provides technical support to applications programming, computer operations and technical software support staff

in situation involving network use or problem resolution.

6. May oversee the installation of CRT's, personal computers, modems, controllers, printers and other hardware needed to access the State's mainframe computer via the teleprocessing system; ensures that the installation site is prepared with grounded electrical outlets, cables and appropriate work surfaces for

equipment; binds cables and arranges passive equipment such as modems, splitters and control units in a manner that is least disruptive to the office environment; in the installation process, ensures network capability, software accessibility and terminal security.

Minimum Qualifications – Network Technical Specialist 3:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and two years of experience in one or more of the following areas: (1) planning telecommunications hardware requirements for business needs; or (2) diagnosing or resolving problems with communications circuitry, telecommunications lines, video displays, printers, or other closely related

hardware and software malfunctions for telecommunications networks or computer platforms such as microcomputers, minicomputers, as well as peripheral devices utilized by the mainframe; or (3)

installing

computer hardware; or (4) diagnosing or resolving problems with job control language, business program

or system codes or other related software errors created by computer platforms or telecommunications network malfunctions; or (5) information systems consulting (i.e., planning and implementing new information systems, or planning and integrating new technologies into existing systems).

Substitution of Experience for Education: Experience in one or more of the following areas may substitute for the required degree on a year for year basis to a maximum of four years; (1) planning telecommunications hardware requirements for business needs; or (2) diagnosing or resolving aforementioned hardware malfunctions or software errors for telecommunications networks or computer

platforms; or (3) installing computer hardware; or (4) information systems consulting.

Substitution of the specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies, or other related field substitute for the required bachelor's degree.

OR

One year of experience as a Network Technical Specialist 2 with the State of Tennessee.

NETWORK TECHNICAL SPECIALIST 4

Summary: Under general supervision, is responsible for professional network technical support work of considerable difficulty and lead work of average difficulty; and performs related work as required.

Distinguishing Features: This is the lead level in the Network Tech Specialist sub-series. An employee in this class leads subordinate staff and participates in designing, developing, implementing and modifying networks of considerable scope and complexity. This work involves reviewing and analyzing complex network specifications for compatibility and conformance with network capabilities and performing consultative technical support work of considerable difficulty. This class differs from Network

Tech Specialist 3 in that an incumbent of the latter does not perform lead work on a regular basis.

Examples of duties and responsibilities:

1. Leads in designing and planning the implementation of State communication networks; attempts to achieve the most cost effective configuration of lines and services and to maintain acceptable performance of the communication lines at all times; continually reviews network utilization to ensure that no area becomes overloaded; analyzes agency telecommunication needs and expansion compatibility to provide the most functional network design; analyzes circuit mixes and coordinates line layout and procurement with telecommunications vendor; oversees the conversion of complex technical specifications into network design.
2. Leads in writing technical specifications for and participates in procuring network related hardware, components, communication lines and diagnostic equipment; analyzes specifications prepared by subordinate staff to ensure compatibility and conformance with existing network design; leads in analyzing the capabilities of various hardware and component features and identifies practical applications to the State service; determines if they can be used to enhance the State's telecommunication systems and increase efficiency and effectiveness; leads in evaluating agency requests for telecommunications equipment to determine their needs.
3. Leads in diagnosing and resolving complex problems with telecommunications and related equipment including terminals, printers, modems, multiplexors, channel extenders, digital service units, communications circuits, interface cables and other network components; leads in using diagnostic equipment such as line and modem monitors, cable testers, telephone signal testers, toner-continuity testers and short circuit detecting devices to locate and identify the source of complex problems.
4. Leads in performing repairs and replacements of defective equipment or refers to telecommunication vendors for repair in cases of vendor responsibility.
5. Leads in providing technical support to network users in areas such as solving complex problems; leads in providing technical support to applications programming, computer operations and technical software support staff in situations involving network use or problem resolution.
6. Leads in the installation of CRT's, personal computers, modems, controllers, printers and other hardware needed to access the State's mainframe computer via the teleprocessing system; leads in ensuring that the installation site is prepared with grounded electrical outlets, cables and appropriate work surfaces for equipment; leads staff in binding cables and arranging passive equipment such as modems, splitters and control units in a manner that is least disruptive to the office environment; in the

installation

process, leads in ensuring network capability, software accessibility and terminal security.

7. Leads in maintaining inventory of terminal equipment, cables, connectors and supplies; leads in ensuring that accurate information is maintained on what equipment is tied into the network; leads in documenting what parts and equipment are installed and ensuring that this information is entered into the network inventory data base.

Minimum Qualifications – Network Technical Specialist 4:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and four years experience in one or more of the following areas: (1) designing, planning, or implementing telecommunications network systems; or (2) diagnosing and resolving problems with communications circuitry, telecommunications lines, video displays, printers or other closely related software and hardware malfunctions for telecommunications networks or computer platforms such as microcomputers, minicomputers, as well as peripheral devices utilized by the mainframe; or (3) installing

computer equipment; or (4) planning telecommunications hardware requirements for business needs; or

(5) diagnosing or resolving problems with job control language, business program or system codes or other related software errors created by computer platforms or telecommunications network malfunctions;

NON-SUBSTITUTABLE EXPERIENCE: One year of the above listed experience must include planning the design of a telecommunications network system or leading or supervising project teams involved in the diagnosis and resolution of software and hardware problems for computer platforms.

Substitution of Experience for Education: Experience in one or more of the following areas may substitute for the required degree on a year for year basis to a maximum of four years: (1) designing, planning, or implementing telecommunications network systems; or (2) diagnosing or resolving aforementioned hardware malfunctions or software errors for telecommunications networks or computer

platforms; or (3) installing computer equipment; or (4) planning telecommunications requirements for business needs.

Substitution of the specific associate's degree for the required bachelor's degree: Graduation from an accredited college or university with an associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies, or other related field may substitute for the required bachelor's degree.

OR

Two years of experience as a Network Tech Specialist 3 with the State of Tennessee.

PROGRAMMER/ANALYST 2

Summary: Under general supervision, is responsible for professional applications computer programming work of average difficulty; and performs related work as required.

Distinguishing Features: This is the working-level class in the Programmer/Analyst series. An employee in this class, either independently or as a member of a team, designs, modifies, codes, and/or implements

business applications programs. This class is flexibly staffed with and differs from Information Systems Associate* in that an incumbent of the latter learns to write computer source code for business applications. This class differs from Programmer/Analyst 3 in that an incumbent of the latter functions at the advanced working level and performs programming duties of greater scope and complexity.

Examples of duties and responsibilities:

1. Interprets and modifies basic previous code base.
2. Designs simple database, tables, and files for use in a system.
3. Identifies and develops simple data elements, indexes, data retrieval requirements, and levels of security needed for an application.
4. Monitors and debugs simple program code and makes recommendations for modifications.
5. Reviews code spec specifications, develops basic code, and makes recommendations when additional changes are needed.
6. Codes a basic instruction set in a procedural control language that enables the computer to initiate a processing sequence and executes an application.
7. Generates data to test a single application.
8. Produces an executable application according to the specifications identified in a program design.
9. Performs necessary unit tests on code changes to ensure accuracy of modifications.
10. Troubleshoots applications using generated control data to identify program errors.
11. Modifies existing code to address any unexpected or inaccurate processes.
12. Identifies basic needed modifications to code, data elements, meta-data, security, etc.
13. Identifies basic input and output parameters for data and operating parameters.
14. Identifies simple data elements, variables, tables, databases, etc.
15. Analyzes data gathered in basic trouble shooting activities, evaluates the results and chooses a solution.
16. Researches and develops basic processing efficiencies to maximize processing performance of an application or a system.
17. Verifies that project goals and objectives are met on a timely basis.
18. Adheres to scheduled completion dates for tasks.
19. Compares current system processes with proposed system changes in order to determine the potential impact on other systems and business operations.
20. Reviews the proposed system changes with stakeholders to ensure that the project goals are consistent with user and legal requirements.
21. Reviews specifications to ensure they satisfy the business requirements.
22. Estimates development time for a work unit, task and/or project.
23. Estimates costs, timelines, and resources for a given task.
24. Maintains good working relationship with managers, peers, and the customers served.
25. Uses computer systems to enter data, and utilize email and office productivity tools.
26. Uses computer systems to develop, test, and deploy basic code.
27. Uses appropriate basic software development tools.
28. Gathers basic requirements from end users for developing requirement documentation for assigned projects.
29. Uses various methods to perform research from technical knowledge base and other resources.
30. Reviews and extracts pertinent information from detail requirement documents when needed.
31. Reviews and becomes familiar with the state's technology acceptable-use policy.

32. Gathers basic information from vendors, peers, and subject matter experts to be used to solve problems for problem solving.
33. Examines simple system specifications, input/output reports, existing equipment, security protocols, and system interfaces to understand how the current system operates.
34. Communicates effectively by keeping supervisor informed of issues affecting performance.
35. Communicates on a regular basis with coworkers/team to share knowledge.
36. Communicates effectively in written form, by email, by phone or in person.
37. Complies with published programming standards and practices, including security standards, coding, and naming conventions, etc.
38. Adheres to the code validation rules for the Agency.
39. Adheres to the established release schedule of the application.
40. Develops and maintains simple installation instructions for a single hardware and/or software solution for the agency.
41. Maintains user manuals for proper use of software applications.
42. Creates test scripts for basic software and basic applications adhering to testing requirements of the project.
43. Maintains knowledge base of issue resolutions to be used by IT peers to help solve problems.
44. Compiles and prepares basic program documentation which may include test plans.
45. Documents the operation of the current and proposed systems, user needs, and the resources available for the project.
46. Documents all appropriate code modifications based on the development standards when modifying code, data structures, etc.
47. Documents all user, data, equipment, security and legal requirements for proposed system changes.
48. Documents levels of user accesses to system based on user and/or legal requirements.
49. Develops specific performance goals that meet the organization mission and goals.
50. Prioritizes and organizes work.
51. Communicates effectively with outside vendors while representing the state in a professional manner.
52. Maintains a communication plan and executes the plan to keep customers informed of status, timelines, expectations, etc. for all IT projects and events.
53. Discusses current system operations, proposed system requirements and user needs with stakeholders.
54. Discusses with stakeholders how interfaces will operate, how input forms and output reports will appear and function, and the details of the security plan to ensure that user requirements and established guidelines are met.
55. Uses Personal computer, Telephone, Fax machine, Printer, Bar code scanners, Mobile devices, and copy machine.

Minimum Qualifications – Programmer/Analyst 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree AND one year of professional experience in one or a combination of the following: (1) software development; (2) database design; (3) systems analysis or design; or (4) information systems instruction.

Substitution of Experience for Education: Additional professional level experience in software development, database design, systems analysis or design, or information systems instruction may

substitute for the required degree on a year-for-year basis to a maximum of four years (e.g., one year of experience in the above areas is equivalent to forty-five quarter hours of coursework).

Substitution of Specific Associate's Degree for the Required Bachelor's Degree: Graduation from an accredited college or university with an associate's degree in computer engineering, computer and information science, computer hardware networking, management information systems, or software development may substitute for the required bachelor's degree.

OR

One year as an Information Systems Associate* with a major portion of the job involving software development, database design, or systems analysis or design with the State of Tennessee.

PROGRAMMER/ANALYST 3

Summary: Under general supervision, is responsible for professional applications computer programming work of considerable difficulty and computer systems design work of average difficulty; and performs related work as required.

Distinguishing Features: This is the advanced working-level class in the Programmer/ Analyst series. An employee in this class, either independently or as a member of a project team, designs, modifies, codes, and/or implements complex business applications programs. This class differs from Programmer/Analyst 2 in that an incumbent of the latter performs programming work of lesser scope and complexity. This class differs from Programmer/Analyst 4 in that an incumbent of the latter leads a project team in the design, modification, coding, and/or implementation of new or modified complex business applications programs.

Examples of duties and responsibilities:

1. Interprets and modifies advanced code base.
2. Designs advanced database, tables, and files for use in a system.
3. Identifies and develops data elements, indexes, data retrieval requirements, and level of security needed for an application.
4. Monitors and debugs program code and makes recommendations for modifications.
5. Reviews code spec specifications, develops code, and makes recommendations when additional changes are needed.
6. Codes an instruction set in a procedural control language that enables the computer to initiate a processing sequence and execute an application.
7. Generates advanced data to test programs.
8. Produces an advanced executable application according to the specifications identified in a program design.
9. Performs advanced unit and system tests on code changes to ensure accuracy of modifications.
10. Troubleshoots applications using generated control data to identify program errors.
11. Modifies existing code to address any unexpected or inaccurate processes.
12. Transfers executable files and associated table structures from one operating environment to another in order to implement the approved code modifications.
13. Implements advanced application software in a user-ready environment.
14. Identifies advanced modifications to code, data elements, meta-data, security, etc.

15. Identifies advanced input and output parameters for data and operating parameters.
16. Identifies data elements, variables, tables, databases, etc.
17. Reviews project specifications with database administrators to ensure that programs are moved to appropriate production environments, established standards are met, and data integrity is maintained.
18. Analyzes advanced data gathered in trouble shooting activities, evaluates the results and chooses a solution.
19. Researches and develops processing efficiency to maximize processing performance of an application or a system.
20. Verifies that project goals and objectives are met on a timely basis and within budget.
21. Identifies and plans project tasks, task dependencies or interrelationships for advanced problems.
22. Schedules completion dates for tasks.
23. Compares current system processes with proposed system changes in order to determine the potential impact on other systems and business operations.
24. Reviews the proposed system changes with stakeholders to ensure that the project goals are consistent with user and legal requirements.
25. Advises management of options that are available to develop or modify an existing system or purchase and modify a commercially available system.
26. Reviews commercially available software or hardware in order to determine whether available products may accomplish system requirements.
27. Reviews advanced specifications to ensure they satisfy the business requirements.
28. Estimates development time for a work unit, task and/or project.
29. Estimates costs, timelines, and resources for a given task.
30. Establishes and documents the cost effectiveness of an approved system.
31. Maintains good working relationship with managers, peers, and the customer served.
32. Uses computer systems to enter data, and utilize email and office productivity tools.
33. Uses computer systems to develop, test, and deploy code.
34. Uses appropriate software development tools.
35. Gathers requirements from end users for developing requirement documentation for assigned projects.
36. Uses various methods and performs research from technical knowledge base and other resources.
37. Reviews and extracts pertinent information from detail requirement documents when needed.
38. Reviews and becomes familiar with the state's technology acceptable-use policy.
39. Gathers information from vendors, peers, and subject matter experts to be used to solve problems for problem solving.
40. Examines advanced system specifications, input/output reports, existing equipment, security protocols, and system interfaces to understand how the current system operates.
41. Communicates effectively by keeping supervisor informed of issues affecting performance.
42. Communicates on a regular basis with coworkers/team to share knowledge.
43. Communicate effectively in written form, by email, by phone or in person.
44. Complies with published programming standards and practices, including security standards, coding, and naming conventions, etc.
45. Adheres to the code validation rules for the Agency.
46. Adheres to the established release schedule of the application.

47. Develops and maintains complex installation instructions for various hardware and software solutions for the agency.
48. Creates and maintains user manuals for proper use of software applications.
49. Creates test scripts for software and applications adhering to testing requirements of the project.
50. Maintains knowledge base of advanced issue resolution to be used by IT peers to help solve problems.
51. Develops and maintains training materials for software projects.
52. Compiles and prepares program documentation which may include test plans.
53. Documents the operation of the current and proposed systems, user needs, and the resources available for the project.
54. Documents all appropriate code modifications based on the development standards when modifying code, data structures, etc.
55. Documents all user, data, equipment, security and legal requirements for proposed system changes.
56. Documents levels of user accesses to system based on user and/or legal requirements.
57. Writes data backup procedures documenting how and when files are to be copied and saved.
58. Develops specific performance goals that meet the organization mission and goals.
59. Prioritizes and organizes work.
60. Itemizes manpower requirements, processing costs, equipment, and all other known costs associated with the project.
61. Communicates effectively with outside vendors while representing the state in a professional manner.
62. Maintains a communication plan and executes the plan to keep customers informed of status, timelines, expectations, etc. for all IT projects and events.
63. Discusses current system operations, proposed system requirements and user needs with stakeholders.
64. Discusses with stakeholders how interfaces will operate, how input forms and output reports will appear and function, and the details of the security plan to ensure that user requirements and established guidelines are met.
65. Communicates with vendors about user requirements for a proposed system in order to obtain an estimate of time and cost required to purchase software or hardware products.
66. Identifies and designs application efficiencies in coding and in operations.
67. Solves technical problems creatively by researching new or innovative ways to develop an application and/or data structure.
68. Draws graphical diagrams to describe data flow and relationships and the manual and automated business processes of the system.
69. Uses Personal computer, Telephone, Fax machine, Printer, Bar code scanners, Mobile devices, and copy machine.

Minimum Qualifications – Programmer/Analyst 3:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree AND two years of professional experience in one or a combination of the following: (1) software development; (2) database design; (3) systems analysis or design; or (4) information systems instruction.

Substitution of Experience for Education: Additional professional level experience in software development, database design, systems analysis or design, or information systems instruction may substitute for the required degree on a year-for-year basis to a maximum of four years (e.g., one year of experience in the above areas is equivalent to forty-five quarter hours of coursework).

Substitution of Specific Associate's Degree for the Required Bachelor's Degree: Graduation from an accredited college or university with an associate's degree in computer engineering, computer and information science, computer hardware networking, management information systems, or software development may substitute for the required bachelor's degree.

OR

One year of experience as a Programmer/Analyst 2* with the State of Tennessee.

PROGRAMMER/ANALYST 4

Summary: Under general supervision, is responsible for professional applications computer programming lead work of considerable difficulty; and performs related work as required.

Distinguishing Features: This is the lead-level class in the Programmer/Analyst series. An employee in this class leads a project team in the design, modification, coding, and/or implementation of new or modified business applications programs. Work includes developing project work plans, making specific task assignments, and reviewing work of team members. This class differs from Programmer/Analyst 3 in

that an incumbent of the latter, either independently or as a member of a project team, designs, modifies,

codes, and/or implements complex business applications programs. This class differs from Programmer/Analyst Supervisor in that an incumbent of the latter supervises one or more project teams of Programmer/Analysts.

Examples of duties and responsibilities:

1. Interprets and modifies complex previous code base for multiple systems.
2. Leads the design of complex database, tables, and files for use in a system.
3. Leads the development of complex data elements, indexes, data retrieval requirements, and levels of security needed for an application.
4. Designs complex databases and data tables/files for use in a large impact, highly interconnected system, with multiple users, based on state approved data naming and structure standards.
5. Leads in the coding of instruction sets using advanced procedural control language that enables the computer to initiate a processing sequence and execute an application.
6. Leads the creation of data to test programs.
7. Produces and leads the development of advanced executable applications.
8. Develops specifications for a complex program design.
9. Develops and leads necessary units and system tests on code changes to ensure accuracy of modifications.
10. Troubleshoots complex and advanced applications using generated control data to identify program errors.
11. Transfers complex executable files and associated table structures from one operating environment to another in order to implement the approved system.
12. Creates a data dictionary describing the included data elements and the structure of information.
13. Implements completed and approved application software in a multi-user environment.
14. Identifies needed modifications to code, data elements, meta-data, security, etc.

15. Identifies input and output parameters for data and operating parameters.
16. Identifies data elements, variables, tables, databases, etc.
17. Reviews project specifications with database administrators to ensure that programs are moved to appropriate production environments, established standards are met, and data integrity is maintained.
18. Researches and develops complex and advanced processing efficiencies to maximize processing performance of an application or a system.
19. Leads the effort to verify that project goals and objectives are met on a timely basis and within budget.
20. Identifies and plans project tasks, task dependencies or interrelationships.
21. Schedules completion dates for tasks.
22. Compares current complex system processes with proposed system changes in order to determine the potential impact on other systems and business operations.
23. Reviews the proposed system changes with stakeholders to ensure that the project goals are consistent with user and legal requirements.
24. Advises management of options that are available to develop or modify an existing advanced system or purchase and modify a commercially available system.
25. Reviews complex commercially available software or hardware in order to determine whether available products may accomplish system requirements.
26. Compares the costs of complex commercially available software packages and applications based on purchase price and potential in-house modification costs.
27. Develops and reviews specifications to ensure they satisfy the business requirements.
28. Leads the effort to estimate development time for a work unit, task and/or project.
29. Leads the effort to estimate costs, timelines, and resources for a given task.
30. Leads the effort to establish and document the cost effectiveness of an approved system.
31. Maintains good working relationship with managers, peers, and the customers served.
32. Uses complex computer systems to enter data, and utilize email and office productivity tools.
33. Uses complex computer systems to develop, test, and deploy code.
34. Uses advanced software development tools.
35. Leads the effort to gather requirements from end users for developing requirements documentation for assigned projects.
36. Conducts research from technical knowledge base and other resources.
37. Reviews and extracts advanced information from complex requirement documents when needed.
38. Reviews and becomes familiar with the state's technology acceptable-use policy.
39. Leads the effort to gather information from vendors, peers, and subject matter experts to be used to solve problems for problem solving.
40. Leads the effort to examine system specifications, input/output reports, existing equipment, security protocols, and system interfaces to understand how the current system operates.
41. Communicates effectively by keeping supervisor informed of issues affecting performance.
42. Communicates on a regular basis with coworkers/team to share knowledge.
43. Communicates effectively in written form, by email, by phone or in person.
44. Makes recommendations to management regarding recruitment and selection decisions based on interview results and review of applicant qualifications.
45. Develops and complies with published programming standards and practices including security standards, coding, and naming conventions, etc.

46. Adheres to the code validation rules for the Agency.
47. Adheres to the established release schedule of the application.
48. Leads the effort to develop and maintain complex installation instructions for various hardware and software solutions for the agency.
49. Leads the effort to create and maintain user manuals for proper use of software applications.
50. Creates complex test scripts for software and multiple applications adhering to testing requirements of the project.
51. Maintains an advanced knowledge base of issue resolution to be used by IT peers to help solve problems.
52. Leads the effort to develop and maintain training materials for software projects.
53. Compiles and prepares program documentation which may include test plans.
54. Documents the operation of the current and proposed systems, user needs, and the resources available for the project.
55. Documents all appropriate code modifications based on the development standards when modifying code, data structures, etc.
56. Documents all user, data, equipment, security and legal requirements for proposed system changes.
57. Documents levels of user access to system based on user and/or legal requirements.
58. Writes data backup procedures documenting how and when files are to be copied and saved.
59. Creates or maintains documentation detailing established standards and procedures for information systems division staff.
60. Develops complex and advanced performance goals that meet the organization mission and goals.
61. Prioritizes and organizes work.
62. Itemizes manpower requirements, processing costs, equipment, and all other known costs associated with the complex projects.
63. Communicates effectively with outside vendors while representing the state in a professional manner.
64. Maintains a communication plan and executes the plan to keep customers informed of status, timelines, expectations, etc. for all IT projects and events.
65. Discusses current system operations, proposed system requirements and user needs with stake holders.
66. Discusses with stakeholders how interfaces will operate, how input forms and output reports will appear and function, and the details of the security plan to ensure that user requirements and established guidelines are met.
67. Communicates with vendors about user requirements for a proposed system in order to obtain an estimate of time and cost required to purchase software or hardware products.
68. Provides on-the-job training to staff regarding specific software and hardware requirements, programming standards, and data storage, transmission, exchange, and maintenance procedures.
69. Leads the effort to create and maintain training documentation as needed.
70. Identifies and designs application efficiencies in coding and in operations.
71. Solves complex technical problems creatively by researching new or innovative ways to develop an application and/or data structure.
72. Draws complex graphical diagrams to describe data flow and relationships and the manual and automated business processes of the system.

73. Uses Personal computer, Telephone, Fax machine, Printer, Bar code scanners, Mobile devices, and copy machine.

Minimum Qualifications – Programmer/Analyst 4:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree AND three years of professional experience in one or a combination of the following: (1) software development; (2) database design; (3) systems analysis or design; or (4) information systems instruction.

Substitution of Experience for Education: Additional professional level experience in software development, database design, systems analysis or design, or information systems instruction may substitute for the required degree on a year-for-year basis to a maximum of four years (e.g., one year of experience in the above areas is equivalent to forty-five quarter hours of coursework).

Substitution of Specific Associate's Degree for the Required Bachelor's Degree: Graduation from an accredited college or university with an associate's degree in computer engineering, computer and information science, computer hardware networking, management information systems, or software development may substitute for the required bachelor's degree.

OR

One year of experience as a Programmer/Analyst 3 with the State of Tennessee.

PROGRAMMER/ANALYST SUPERVISOR

Summary: Under general supervision, is responsible for professional applications computer programming work of considerable difficulty and supervisory work of average difficulty; and performs related work as required.

Distinguishing Features: This is the supervisory class in the Programmer/Analyst series. An employee in this class supervises one or more teams of Programmer/Analysts in the design, modification, coding, and/or implementation of new or modified business applications programs. Work includes planning projects, projecting time and resource requirements, allocating staff, and reviewing progress and deliverables. This class differs from Programmer/Analyst 4 in that an incumbent of the latter leads a team

in the design, modification, coding, and/or implementation of business applications programs.

Examples of duties and responsibilities:

1. Interprets and modifies complex previous code base for multiple systems.
2. Leads the design of complex database, tables, and files for use in a system.
3. Leads the development of complex data elements, indexes, data retrieval requirements, and levels of security needed for an application.
4. Designs complex databases and data tables/files for use in a large impact, highly interconnected system, with multiple users, based on state approved data naming and structure standards.
5. Leads in the coding of instruction sets using advanced procedural control language that enables the computer to initiate a processing sequence and executes an application.
6. Leads the creation of data to test programs.
7. Produces and leads the development of advanced executable applications.
8. Develops specifications for a complex program design.
9. Develops and leads necessary unit and system tests on code changes to ensure accuracy of modifications.
10. Troubleshoots complex and advanced applications using generated control data to identify program errors.

11. Transfers complex executable files and associated table structures from one operating environment to another in order to implement the approved system.
12. Creates a data dictionary describing the included data elements and the structure of information.
13. Implements completed and approved application software in a multi-user environment.
14. Identifies needed modifications to code, data elements, meta-data, security, etc.
15. Identifies input and output parameters for data and operating parameters.
16. Identifies data elements, variables, tables, databases, etc.
17. Reviews project specifications with database administrators to ensure that programs are moved to appropriate production environments, established standards are met, and that data integrity is maintained.
18. Researches and develops complex and advanced processing efficiency to maximize processing performance of an application or a system.
19. Leads the effort to verify project goals and objectives are met on a timely basis and within budget.
20. Identifies and plans project tasks, task dependencies or interrelationships.
21. Schedules completion dates for tasks.
22. Compares current complex system processes with proposed system changes in order to determine the potential impact on other systems and business operations.
23. Reviews the proposed system changes with stakeholders to ensure that the project goals are consistent with user and legal requirements.
24. Advises management of options that are available to develop or modify an existing advanced system or purchase and modify a commercially available system.
25. Reviews complex commercially available software or hardware in order to determine whether available products may accomplish system requirements.
26. Compares the costs of complex commercially available software packages and applications based on purchase price and potential in-house modification costs.
27. Evaluates financial aspects of proposed and actual projects in order to ensure that state funds are expended in the most cost-effective manner available.
28. Develops and reviews specifications to ensure they satisfy the business requirements.
29. Leads the effort to estimate development time for a work unit, task and/or project.
30. Leads the effort to estimate costs, timelines, and resources for a given task.
31. Leads the effort to establish and document the cost effectiveness of an approved system.
32. Evaluates financial aspects of proposed and actual projects in order to ensure that state funds are expended in the most cost-effective manner available.
33. Maintains good working relationship with managers, peers, and the customers served.
34. Uses computer systems to enter data, and utilize email and office productivity tools.
35. Uses computer systems to develop, test, and deploy code.
36. Uses appropriate software development tools.
37. Leads the effort to gather requirements from end users for developing requirements documentation for assigned projects.
38. Conducts research from technical knowledge base and other resources.
39. Reviews and extracts advanced information from complex requirements documents when needed.
40. Reviews and becomes familiar with the state's technology acceptable-use policy.
41. Leads the effort to gather information from vendors, peers, and subject matter experts to be used to solve problems for problem solving.

42. Leads the effort to examine system specifications, input/output reports, existing equipment, security protocols, and system interfaces to understand how the current system operates.
43. Communicates effectively by keeping supervisor informed of issues affecting performance.
44. Communicates on a regular basis with coworkers/team to share knowledge.
45. Communicates effectively in written form, by email, by phone or in person.
46. Makes recommendations to management regarding recruitment and selection decisions based on interview results and review of applicant qualifications.
47. Advises management of options available to update an existing system, develop a new system, or to purchase and modify, as necessary, a commercially available system.
48. Develops and complies with published programming standards and practices including security standards, coding, and naming conventions, etc.
49. Adheres to the code validation rules for the Agency.
50. Adheres to established release schedule of the application.
51. Leads the effort to develop and maintain complex installation instructions for various hardware and software solutions for the agency.
52. Leads the effort to create and maintain user manuals for proper use of software applications.
53. Creates complex test scripts for software and multiple applications adhering to testing requirements of the project.
54. Maintains an advanced knowledge base of issue resolution to be used by IT peers to help solve problems.
55. Leads the effort to develop and maintain training materials for software projects.
56. Compiles and prepares program documentation which may include test plans.
57. Documents the operation of the current and proposed systems, user needs, and the resources available for the project.
58. Documents all appropriate code modifications based on the development standards when modifying code, data structures, etc.
59. Documents all user, data, equipment, security and legal requirements for proposed system changes.
60. Documents levels of user access to system based on user and/or legal requirements.
61. Writes data backup procedures documenting how and when files are to be copied and saved.
62. Creates or maintains documentation detailing established standards and procedures for information systems division staff.
63. Tracks actual costs versus proposed costs throughout the life-cycle of the project in order to ensure adequate funding is available for the project.
64. Develops complex and advanced performance goals that meet the organization mission and goals.
65. Prioritizes and organizes work.
66. Itemizes manpower requirements, processing costs, equipment, and all other known costs associated with the complex projects.
67. Communicates effectively with outside vendors while representing the state in a professional manner.
68. Maintains a communication plan and executes the plan to keep customers informed of status, timelines, expectations, etc. for all IT projects and events.
69. Discusses current system operations, proposed system requirements and user needs with stake holders.

70. Discusses with stakeholders how interfaces will operate, how input forms and output reports will appear and function, and the details of the security plan to ensure that user requirements and established guidelines are met.
71. Communicates with vendors about user requirements for a proposed system in order to obtain an estimate of time and cost required to purchase software or hardware products.
72. Provides on-the-job training to staff regarding specific software and hardware requirements, programming standards, and data storage, transmission, exchange, and maintenance procedures.
73. Leads the effort to create and maintain training documentation as needed.
74. Develops a training plan for subordinate staff.
75. Briefs staff on specifications and functions of new technology by presenting emerging software and/or hardware products.
76. Identifies and designs application efficiencies in coding and in operations.
77. Solves complex technical problems creatively by researching new or innovative ways to develop an application and/or data structure.
78. Draws complex graphical diagrams to describe data flow and relationships and the manual and automated business processes of the system.
79. Sets and monitors performance standards of others.
80. Supervises one or more teams of Programmer/Analysts and related staff.
81. Oversees the work schedules of all subordinate staff to ensure projects stay on target.
82. Writes goals for employees in order to define duties as they relate to accomplishing a task.
83. Assigns work tasks to staff based on agency goals, project requirements, employee skill sets, time considerations, and availability of resources.
84. Identifies employee training needs based on current and potential assigned work tasks and the employee's potential for professional advancement.
85. Monitors schedule and attendance of staff.
86. Assigns performance ratings for subordinate staff according to established criteria and reviews results of performance evaluation with management and respective employees.
87. Provides feedback to management regarding staff performance and project status.
88. Oversees multiple project teams in the development of information technology systems.
89. Interviews applicants to determine best-qualified candidates for vacant positions.
90. Makes hiring recommendations to management.
91. Writes individual goals for new employees in order to define duties and performance expectations.
92. Identifies areas of satisfactory employee performance and areas needing improvement.
93. Uses Personal computer, Telephone, Fax machine, Printer, Bar code scanners, Mobile devices, and copy machine.

Minimum Qualifications – Programmer/Analyst Supervisor:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree AND four years of professional experience in one or a combination of the following: (1) software development; (2) database design; (3) systems analysis or design; or (4) information systems instruction.

Substitution of Experience for Education: Additional professional level experience in software development, database design, systems analysis or design, or information systems instruction may substitute for the required degree on a year-for-year basis to a maximum of four years (e.g., one year of

experience in the above areas is equivalent to forty-five quarter hours of coursework).

Substitution of Specific Associate's Degree for the Required Bachelor's Degree: Graduation from an accredited college or university with an associate's degree in computer engineering, computer and information science, computer hardware networking, management information systems, or software development may substitute for the required bachelor's degree.

OR

One year of experience as a Programmer/Analyst 4 with the State of Tennessee.

SYSTEMS PROGRAMMER 1

Summary: Under immediate supervision, is responsible for assisting in the support of multi-agency, Statewide hardware and software technical support on State-standard server platforms (MVS, UNIX, Novell, Windows/NT) and performs related work as required.

Distinguishing Features: This is the entry level in the Systems Programmer sub-series. An employee in this class assists in the support of operating systems software and related hardware with the guidance of

upper level staff. This class differs from Systems Programmer 2 in that an incumbent of the latter performs at the working level.

Examples of duties and responsibilities:

1. Assists in evaluating hardware and software features available through vendors of information technology systems; reads trade journals, talks to vendors and attends seminars identifying currently available developments in hardware and software.
2. Communicates with other staff about system/user requirements that can be satisfied by vendor supplied software or hardware products.
3. Researches and monitors hardware and selected software packages with guidance from upper level staff; loads software, installs hardware, applies prerequisites and corrects release-level problems; conducts tests of hardware and software and determines impact on system.
4. Learns to prepare a record of steps taken to install a software package, operating instructions to be followed by operations staff and instructions for end users.
5. Reviews the timeliness of work produced and observes response time to determine if minimum standards of service are maintained; assists in reviewing system logs, message queues, system and network monitor reports, paging level and error analysis reports to identify the causes for lack of timely service.

Minimum Qualifications – Systems Programmer 1:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and one year of professional-level experience equivalent to one or a combination of the following:

- (1) analysis of systems, software design for systems, or programming of application or systems software for a mainframe, mid-level, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation,

Substitution of Experience for Education: Qualifying experience in (1) the analysis of systems, software design for systems, or programming of application or systems software for a mainframe, midlevel, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe, mid-level, LAN, WAN, or video

conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment; or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment may substitute for the required education to a maximum of four years (e.g., experience equivalent to one year of full-time work in one or a combination of the above

listed fields may substitute for one year of the required education).

Substitution of Specific Associate's Degree for the Required Bachelor's Degree: Substitution of a Specific Associate's Degree for the Required Bachelor's Degree: An associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies,

or other related field from an accredited college or university may substitute for the required bachelor's degree.

OR

One year of experience as an Information Systems Associate with the State of Tennessee.

SYSTEMS PROGRAMMER 2 Summary: Under general supervision, is responsible for providing multi-agency, Statewide hardware and software technical support on State-standard server platforms (MVS, UNIX, Novell, Windows/NT) and performs related work as required.

Distinguishing Features: This is the working level in the Systems Programmer sub-series. An employee in this class researches, tests, implements, and monitors operating systems software and related hardware. The Systems Programmer 2 is responsible for collecting information and discussing findings with other systems staff. This class provides technical support to multiple agencies. This class is flexibly staffed with Systems Programmer 1 and differs in that incumbents of the latter perform duties under immediate supervision at the entry level. This class differs from Systems Programmer 3 in that incumbents of the latter are responsible for implementation, integration, and management of hardware and operating systems software that is primarily integrated with applications and with client (desktop) software in a multi-agency environment.

Examples of duties and responsibilities:

1. Evaluates hardware and software features available through vendors of information technology systems; reads trade journals, talks to vendors and attends seminars identifying currently available developments in hardware and software.
2. Communicates with other O.I.R. staff about system/user requirements that can be satisfied by vendor supplied software or hardware.
3. Researches and monitors hardware and selected software packages; loads software, installs hardware, applies prerequisites, and corrects release level problems; conducts tests of hardware and software and determines impact on the technical environment.
4. Prepares a record of steps taken to install software, to implement related hardware, and for operating instructions to be followed by operations staff and instructions for end users.
5. Reviews the timeliness of work produced and observes response time to determine if minimum standards of service are maintained; reviews system logs, message queues, system and network monitor reports, traces, paging level, error analysis reports and system dumps to identify the causes of slow

response or poor throughput.

6. Monitors software packages by reviewing output and discussing exceptions with other systems staff and users to assure accuracy of information produced by the software.

7. Provides input for capacity planning by monitoring usage and users request.

8. Assists in the implementation, configuration, and diagnosis of network topologies including token ring, Ethernet, and SNA.

Minimum Qualifications – Systems Programmer 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and two years of professional-level experience equivalent to one or a combination of the following:

(1) analysis of systems, software design for systems, or programming of application or systems software for a mainframe, mid-level, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe, midlevel, LAN, WAN, or video conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment;

or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment.

Substitution of Experience for Education: Qualifying experience in: (1) the analysis of systems, software design for systems, or programming of application or systems software for a mainframe, midlevel, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe, mid-level, LAN, WAN, or video conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment; or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment may substitute for the required education to a maximum of four years (e.g., experience equivalent to one year of full-time work in one or a combination of the above listed fields may substitute for one year of the required education).

Substitution of a Specific Associate's Degree for the Required Bachelor's Degree: An associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer

servicing technologies, or other related field from an accredited college or university may substitute for the required bachelor's degree.

Substitution of Graduate Education for the Required Experience: Additional graduate course work credit received from an accredited college or university in computer and information sciences may substitute for the required experience on a month for month basis to a maximum of one year (e.g., 36 graduate quarter hours or a master's degree in one or a combination of the above fields may substitute for one year of the required experience).

OR

One year of experience as a Systems Programmer 1 with the State of Tennessee.

SYSTEMS PROGRAMMER 3 (CLASS CODE 075513)

Summary: Under general supervision, is responsible for providing multi-agency, Statewide hardware and

software technical support on State-standard server platforms (MVS, UNIX, Novell, Windows/NT) and performs related work as required.

Distinguishing Features: This is the advanced working level in the Systems Programmer sub-series. An employee in this class is responsible for implementation, integration, and management of hardware and operating system software, which is primarily integrated with applications or with client (desktop) software

in a multi-agency environment. This class differs from the Systems Programmer 2 in that an incumbent of

the latter implements and manages operating systems software and hardware in a multi-agency environment. This class differs from the Systems Programmer 4 in that an incumbent of the latter functions as a project leader and is responsible for the implementation, planning, evaluation, integration and management of operating systems software and hardware that spans server platforms, network protocols/topologies, and multi-agency facilities.

Examples of duties and responsibilities:

1. Develops evaluation criteria for selecting mainframe software or hardware by identifying user requirements, technical considerations and business considerations.
2. Writes narratives that summarize the functional and technical requirements of the server-related hardware; answers inquiries from representatives of the purchasing department; answers inquiries from potential vendors clarifying user and system requirements; compares low bids with technical specifications to assure compliance with the specifications.
3. Determines installation requirements for hardware and software by reviewing selected hardware and software compatibility, prerequisite packages and maintenance and release levels required; loads software, implements hardware, applies prerequisite and corrects release-level problems; runs selected jobs and reviews output, condition codes and impact on the infrastructure.
4. Prepares a variety of technical records and reports such as program documentation, written recommendations on technical problems and evaluation of hardware and software.
5. Reviews output, talks to vendors and reviews software documentation identifying causes of installation or exit code errors; recodes exit code or contacts vendor to correct errors in the software package.
6. Writes exit routines or scripts (e.g., with Assembler language or UNIX shell scripts) to modify and implement software; develops new software when a product is not commercially available.
7. Reviews the timeliness of work produced and observes response time to determine if minimum standards of service are maintained; reviews system logs, message queues, system and network monitor reports, traces, paging level, error analysis reports and system dumps to identify the causes of slow response or poor throughput.
8. Monitors software packages by reviewing output and discussing exceptions with other systems staff and users to assure accuracy of information produced by the software.
9. Reviews information provided by automated performance monitor tools to determine service levels and infrastructure health; diagnoses exceptions.

10. Collects statistical data such as the number of input/output (I/O) accesses, processor cycles utilized, amount of memory and direct access storage capacity used by running system utility programs and executing on-line monitors.

11. Formats, verifies the reliability and tests new disk hardware by running utility programs; enters definitions of network configurations into software packages assuring hardware/software compatibility.

12. Performs capacity planning (e.g., memory, storage, processing power) for hardware by monitoring usage and user requirements.

13. Implements and diagnoses network topologies including token ring, Ethernet, and SNA. Configures or

gens network equipment including switches, hubs, and front end processors.

14. Uses network management tools (e.g., SNMP management tools, Netview, HP Openview, Optivity) to

diagnose network problems.

Minimum Qualifications – Systems Programmer 3:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and four years of professional-level experience equivalent to one or a combination of the following: (1) analysis of systems, software design for systems, or programming of application or systems

software for a mainframe, mid-level, LAN, WAN, video conferencing, or microcomputer environment; (2)

the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe,

mid-level, LAN, WAN, or video conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment;

or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment.

Substitution of Experience for Education: Qualifying experience in (1) the analysis of systems, software design for systems, or programming of application or systems software for a mainframe, midlevel, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation,

evaluation, monitoring, or problem diagnosis and resolution of mainframe, mid-level, LAN, WAN, or video

conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment; or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop

information systems and related equipment may substitute for the required education to a maximum of four years (e.g., experience equivalent to one year of full-time work in one or a combination of the above

listed fields may substitute for one year of the required education).

Substitution of a Specific Associate's Degree for the Required Bachelor's Degree: An associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer

servicing technologies, or other related field from an accredited college or university may substitute for the required bachelor's degree.

Substitution of Graduate Education for the Required Experience: Additional graduate course work credit received from an accredited college or university in computer and information sciences may substitute for the required experience on a month for month basis to a maximum of one year (e.g., 36 graduate quarter hours or a master's degree in one or a combination of the above fields may substitute for one year of the required experience).

OR

Two years of experience as a Systems Programmer 2 with the State of Tennessee.

SYSTEMS PROGRAMMER 4

Summary: Under general supervision, is responsible for providing multi-agency, Statewide hardware and

software technical support on State-standard server platforms (MVS, UNIX, Novell, Windows/NT) and performs related work as required.

Distinguishing Features: This is the lead level class in the System Programmer sub-series. An incumbent in this class functions as a project leader and is responsible for the implementation, planning, evaluation, integration, and management of operating systems software and hardware that spans server platforms, network protocols/topologies, and multi-agency facilities. This class differs from Systems Programmer 3 in that an incumbent of the latter is responsible for implementation, integration, and management of hardware and operating systems software, which is primarily integrated with applications

or with client (desktop) software in a multi-agency environment.

Examples of duties and responsibilities:

1. Develops evaluation criteria for selecting software or hardware by identifying user requirements, technical considerations and business considerations.
2. Writes narratives that summarize the functional and technical requirements of the server-related hardware; answers inquiries from representatives of the purchasing department; answers inquiries from potential vendors clarifying user and system requirements; compares low bids with technical specifications to assure compliance with the specifications.
3. Evaluates and selects hardware and software by comparing information in technical literature, conducting on-site trials, consulting vendor references, and reviewing recommendations from other systems staff.
4. Determines installation requirements for integrated hardware and software by reviewing selected hardware/software compatibility, prerequisites and maintenance and release levels required; loads software, implements hardware, applies prerequisites; and corrects release-level problems; conducts tests of software and hardware and determines impact on infrastructure.
5. Prepares a variety of technical records and reports such as program documentation, written recommendations on technical problems and evaluation of software and hardware.
6. Reviews output, talks to vendors and reviews integrated software documentation identifying causes of errors; recodes exit code or scripts; researches compatibility with other software and hardware; contacts vendor to correct errors in software.
7. Writes exit routines or scripts (e.g., in languages such as Assembler or scripting) to modify and

implement integrated software; develops new software when a product is not commercially available.

8. Reviews the timeliness of work produced and observes response time to determine if minimum standards of service are maintained; reviews system logs, message queues, system and network monitor reports, traces, paging level, error analysis reports and system dumps to identify the causes of slow response or poor throughput.

9. Monitors software by reviewing output and discussing exceptions with other systems staff and users to assure accuracy of information produced by the software.

10. Reviews information provided by automated performance monitor tools to determine service levels and infrastructure health; diagnoses exceptions; establishes minimum standards for response and turnaround time by reviewing past practices or talking to users and other systems staff.

11. Collects statistical data such as the number of input/output (I/O) accesses, processor cycles utilized, amount of memory and direct access storage capacity used by running system utility programs and executing on-line monitors.

12. Projects future hardware and software resource needs using historical data, projected growth of current user system requirements and new user system requirements; adjusts system resources by adding memory, message regions or page space, moving data sets, or changing system parameters.

13. Adjusts parameters that control allocation of processes cycles and storage; acts as a project team leader assuring hardware/software compatibility; verifies information that users supply on requests for disk space; formats, verifies the reliability of and tests new disk hardware.

14. Designs, implements, diagnoses network topologies, including Token ring, Ethernet, and SNA; implements, configures, or gens network equipment including switches, hubs, and front end processors.

15. Uses network management tools (e.g., SNMP management tools, Netview, HP Openview, Optivity) to diagnose problems and manage the network.

16. Aids with network design, including cable types and layout, hub and/or switch interconnectivity, front end processor design and configuration.

Minimum Qualifications – Systems Programmer 4:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and five years of professional-level experience equivalent to one or a combination of the following:

(1) analysis of systems, software design for systems, or programming of application or systems software for a mainframe, mid-level, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe, midlevel, LAN, WAN, or video conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment;

or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment.

Substitution of Experience for Education: Qualifying experience in (1) the analysis of systems, software design for systems, or programming of application or systems software for a mainframe, midlevel, LAN, WAN, video conferencing, or microcomputer environment; (2) the configuration, installation, evaluation, monitoring, or problem diagnosis and resolution of mainframe, mid-level, LAN,

WAN, or video conferencing network hardware, software and related equipment; (3) the configuration, installation or maintenance of stand-alone microcomputer hardware and related equipment; or (4) analyzing business processes and preparing technical specifications in order to acquire, install, maintain, or develop information systems and related equipment may substitute for the required education to a maximum of four years (e.g., experience equivalent to one year of full-time work in one or a combination of the above listed fields may substitute for one year of the required education).

Substitution of a Specific Associate's Degree for the Required Bachelor's Degree: An associate's degree in business data processing (e.g., business data programming, business systems analysis, or computer accounting), management information systems, computer and information systems, computer servicing technologies, or other related field from an accredited college or university may substitute for the required bachelor's degree.

Substitution of Graduate Education for the Required Experience: Additional graduate course work credit received from an accredited college or university in computer and information sciences may substitute for the required experience on a month for month basis to a maximum of one year (e.g., 36 graduate quarter hours or a master's degree in one or a combination of the above fields may substitute for one year of the required experience).

OR

One year of experience as a Systems Programmer 3 with the State of Tennessee.

WEBSITE DEVELOPER 1

Summary: Under general supervision, is responsible for professional Web site development work of average difficulty involving the creation of Web pages for Intranet/Internet websites; and performs related work as required.

Distinguishing Features: This is the working level class in the Website Developer series. An employee in this class creates Web pages for a department's Web site including the layout of content, graphics development, and maintenance of current information. This class differs from a Website Developer 2 in that an incumbent of the latter either leads others in designing and developing pages and special projects for the Web site or performs Web based applications programming in developing a Web site.

Examples of duties and responsibilities:

1. Programs HTML code for Web sites; selects colors, formats, file types, and other properties for web pages; sequences content such as tables, charts, links, pictures, lists, and buttons in a logical format; writes HTML code using State-approved web page development tools; views web pages for errors, screen size and resolution, fonts, and browser compatibility; verifies links work properly by navigating the web page in a test environment; corrects HTML code based on observations during testing; learns to program DHTML or other dynamic markup languages and use State-approved scripting languages.
2. Plans options for the proposed Web sites which will meet client specifications; identifies the end user, goals, purpose, and site requirements; searches comparable and existing Web sites for alternate ways of presenting information; proposes the best methods for web page layout and design to the client; educates the client about Internet operations, State web page guidelines, and costs of proposal implementation; reads trade publications and attends web development software or hardware demonstrations to keep

abreast of emerging Web site technologies.

3. Develops graphics such as icons, logos, buttons, and pictures using graphics editing software; selects the types of graphics to be utilized in the web page based on the goals for overall site design; obtains pictures or logos from clients, Internet, or graphics designers in accordance with federal copyright laws and State guidelines; edits graphics content for aesthetics and quality of presentation (i.e., crops and resizes images; examines picture and color quality); formats graphics and file sizes based on user connection speed and bandwidth limitations; learns to develop and edit multimedia content such as streaming video and audio for web pages.

4. Edits Web sites; adds and deletes content; checks for broken links and proper Web site operation; requests information regarding content changes from client; changes HTML code based on observations during maintenance check; provides Web site support to users by responding to public, client, and user inquiries regarding problems; learns to change DHTML code; learns to correct errors in script execution.

5. May install Web sites to Web servers utilizing State and industry standard security measures; obtains appropriate authorization for implementation of State Internet Web sites; transfers the files using data transfer methods; verifies installation is successful by accessing and navigating the site on the server; informs management when site is fully operational; learns how to verify that there are no security breaches in the Web site.

Minimum Qualifications – Website Developer 1:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and experience equivalent to one year of professional work in one or a combination of the following: 1) Web site design or management, 2) computer programming, or 3) graphic design.

Substitution of Experience for Education: Qualifying professional experience in one or a combination of the following areas may substitute for the required education, on a year for year basis, to a maximum of four years: 1) Web site design or management, 2) computer programming, or 3) graphic design (e.g., experience equivalent to one year of full-time work in one or a combination of the above listed fields may substitute for one year of the required education).

OR

Graduation from an accredited college or university with an associate's degree in one of the following:
1)

Web site design or management, 2) computer programming, or 3) graphic design and experience equivalent to one year of professional work in one or a combination of the following: 1) Web site design or management, 2) computer programming, or 3) graphic design.

OR

Possession of a certificate (equivalent to 45 quarter hours) in Web site design or Web site management from an accredited technical or community college and experience equivalent to one year of professional work in one or a combination of the following: 1) Web site design or management, 2) computer programming, or 3) graphic design.

Note: A transcript is required for a proper evaluation for this class.

WEBSITE DEVELOPER 2

Summary: Under general supervision, is responsible for professional Web site development work of considerable difficulty involving the overall project management for Intranet/Internet Web sites; and

performs related work as required.

Distinguishing Features: This is the lead or advanced working level class in the Website Developer series. An employee in this class either leads others in designing and developing pages and special projects for the Web site, or develops the department's Web site including some Web-based applications

programming. This class differs from a Web site Developer 1 in that an incumbent of the latter performs at the working level creating web pages for an agency.

Examples of duties and responsibilities:

1. Programs DHTML or other dynamic markup languages for Web sites; selects colors, formats, file types, and other properties for the Web site; sequences content such as drop-down menus, interactive web applications, and multimedia in a logical format; writes DHTML code using State-approved scripting languages and other web page development tools; views web pages for errors, screen size and resolution, fonts, and browser compatibility; verifies links work properly by navigating the web page in a test environment; tests Web sites that use dynamic scripting languages to verify they interact properly with pages that use State-approved server-side programming languages; corrects DHTML code based on observations during testing.
2. Develops graphics and multimedia content such as icons, logos, and streaming video and audio using multimedia editing software; selects the types of multimedia to be utilized in the web page based on the goals for overall site design; obtains pictures, video, audio, or logos from clients, Internet, or graphics designers in accordance with federal copyright laws and State guidelines; edits video, audio, and other images based on frame rates, bandwidth, codec's, file compression, streaming/non-streaming formats, image quality, and other related factors; formats multimedia and file sizes based on user connection speed and bandwidth limitations.
3. Plans options for the proposed Web sites which will meet client specifications; identifies the end user, goals, purpose, and site requirements; searches comparable and existing Web sites for alternate ways of presenting information; proposes the best methods for web page layout and design to the client; educates the customer about Internet operations, State web page guidelines, and costs of proposal implementation; reads trade publications and attends web development software and hardware demos to keep abreast of emerging Web site technologies.
4. Edits Web sites; adds and deletes content; checks for broken links and proper Web site operation; requests information regarding content changes from client; changes DHTML code based on observations during maintenance check and security updates; corrects errors in script execution that may have developed since release; provides Web site support to users by responding to public, client, and user inquiries regarding problems.
5. May install Web sites to Web servers utilizing State and industry standard security measures; obtains appropriate authorization for implementation of State Internet Web sites; transfers the files using data transfer methods; verifies installation is successful by accessing and navigating the site on the server; verifies there are no security breaches; informs management when site is fully operational.
6. May supervise staff involved in maintaining Web sites; interviews prospective employees; develops

subordinates' job plans and responsibilities that detail exceptional performance; sets goals for the work unit and advises staff on job processes; reviews subordinate's work for accuracy and provides feedback about performance to identify and correct weaknesses and to reinforce strengths; implements all State policy and architecture requirements for Web sites including hardware and software standards.

Minimum Qualifications – Website Developer 2:

Education and Experience: Graduation from an accredited college or university with a bachelor's degree and experience equivalent to two years of professional work in one or a combination of the following: 1) Web site design or management, 2) computer programming, or 3) graphic design.

Substitution of Experience for Education: Qualifying professional experience in one or a combination of the following areas may substitute for the required education, on a year for year basis, to a maximum of four years: 1) Web site design or management, 2) computer programming, or 3) graphic design (e.g., experience equivalent to one year of full-time work in one or a combination of the above listed fields may substitute for one year of the required education).

OR

Graduation from an accredited college or university with an associate's degree in one of the following:

1)

Web site design or management, 2) computer programming, or 3) graphic design and experience equivalent to two years of professional work in one or a combination of the following: 1) Web site design

or management, 2) computer programming, or 3) graphic design.

OR

Possession of a certificate (equivalent to 45 quarter hours) in Web site design or Web site management from an accredited technical or community college and experience equivalent to two years of professional

work in one or a combination of the following: 1) Web site design or management, 2) computer programming, or 3) graphic design.

Note: A transcript is required for a proper evaluation for this class.

Process Improvement Training Consultant

The Tennessee Department of Human Services (TDHS) believes a foundation of continuous improvement is critical to the services provided every day to Tennesseans. The implementation of the Baldrige framework and a culture of continuous improvement must be synonymous with the TDHS culture. TDHS is seeking a vendor that can assist in embedding the Baldrige Program and a continuous improvement framework throughout the agency. Additionally, TDHS is seeking services to consult and train a team of TDHS employees in continuous improvement methodologies that will ultimately enable them to become problem-solvers and lead continuous improvement initiatives in their respective areas.

Job Duties: Evaluation, strategic consultation, and assistance with the continuous quality improvement training and department-wide continuous improvement efforts. Evaluation, strategic consultation, and assistance with the Continuous Quality Improvement Champion Program. Provide expert-level assessment, preparation and consultation of the agency to achieve recognition in state and/or nationally accepted performance quality award programs (e.g. TNCPE and/or Baldrige).

IT Auditor

At TennCare, each year, Audit & Investigations performs an independent assessment to ensure ACA systems comply with MARS-E. The assessment and resulting attestation report provided to CMS help identify and address systemic security and privacy issues and provides a detailed understanding of the current security and privacy posture associated with the broader ACA program. The annual security and privacy attestation is necessary for the renewal of an Authority to Connect (ATC). This contractor will provide application assessment support for the TEDS project. They will be working under the direction of TennCare Audit Director and TennCare IT Audit Manager performing security and privacy assessments to ascertain compliance with federal requirements, supporting the Audit and Investigations team members during security and privacy assessments to provide timely and effective results. As directed by TennCare audit management, developing security and privacy assessment scopes and project plans, providing regular updates on project plans to TennCare audit management, and organizing and participating in meetings with key stakeholders for security and privacy assessments.

Speech and Language Pathologist

The Department of Children's Services is looking to retain a Speech Language Pathologist to support their rural facility, Wilder. This role is a requirement of the facility to ensure they meet mandated compliance initiatives. To sustain the Agency's requirements to deliver these services to the residents of Wilder, the Agency is requesting approval for an experienced SLP that is able to manage the workload associated with the clientele, and that would be able to service the rural facility on a consistent basis. The level 2 will encompass staff that is able to meet the demands immediately with expertise.

Warehouse Worker

General Laborer role within a warehouse environment. Ability to lift up to 30lbs.

Forester

Program Manager

The Program Manager's responsibilities will include managing the day-to-day operations of the project; managing grants, contracts, and budget; convening an advisory committee; attending calls with Project Officers; and meeting regularly with the project subcontractors and other partners.

Bioinformatician

Bioinformatician to assist the TN Public Health Lab (PHL) in applying biological and statistical knowledge to draw rigorous, actionable conclusions from complex data sets that are routinely requested. This person will be a subject matter expert for PulseNet organism Whole Genome Sequencing (WGS) data, HAI pathogen, and other organism's data currently being generated at the laboratory. The individual will be expected to prepare written reports and oral presentations summarizing data analysis results, including detailed description of bioinformatics methods, detailed analysis of results, and synthesis of conclusions from summary tables to external customers including other states, APHL, NCBI, and CDC. Failure to fill this position could result in information transmission loss, additional responsibilities, and stress to current laboratory personnel.

Executive Consultant – Ebola

The TDEC Office of Energy Programs (OEP) / State Facility Utility Management (SFUM) Section is understaffed. Without staff augmentation through Knowledge Services, SFUM will not be able to launch and operate the Energy Liaison Program (ELP). The State Building Energy Management Statutes, Tenn. Code Ann. 4-3-1012 and 4-3-1017 through 1020, require SFUM to launch and operate the ELP. OEP will utilize federal funding sources to cover the costs of engaging contingent labor. The contractor will work closely with SFUM staff throughout the duration of this engagement. However, the standard work week for the contractor will not be 37.5 hours. This is due to the iterative nature of several of the work products that the contractor and SFUM staff will be responsible for generating and the current capacity of SFUM staff.

Public Health Nurse

The Department of Health has received funding from the CDC to increase the infrastructure of our state maternal mortality review program. The Public Health Nurse Consultant 2 position established to work on the grant was eliminated. CDC has notified TDH that they may cut funding if this position is not filled. To sustain the Agency's funding and complete the grant activities required by the CDC, the Agency is requesting a Public Health Nurse Consultant. The level 3 will encompass staff that is able to meet the demands immediately with expertise.

Custodial Services

Ability to clean facilities as requested by the agency.

Athletic Trainer

Alvin C. York Agricultural Institute at P.O. 70, Jamestown, TN 38556, intends to re-open school. In doing so, they are required to have an onsite Athletic Trainer to support the school's Athletics' Program.

CPR Trainer

Agencies are requesting instruction for CPR training for staff members that must be certified as per program requirements. At the request of the facility, these services are requested at various times throughout the year and would need to take place on-site at the Agency's location.

Social Worker

Under supervision by State personnel, this person's job duties would include:

- 1) Documentation of biopsychosocial assessments, progress notes, and discharge plans in the Electronic Medical Record.
- 2) Working with an interdisciplinary Treatment Team to help develop and execute treatment plans.
- 3) Providing group therapy and completing group notes.
- 4) Preparing individualized Discharge Plans to include securing appropriate housing, arranging psychiatric aftercare, alcohol and drug treatment, and medical follow-up appointments.

Medical Technician/CNA/CNT

Bathe and dress patients, Serve meals and help patients eat, Take vital signs, Turn or reposition patients who are bedridden, Collect information about conditions and treatment plans from caregivers, nurses

and doctors, Lift patients into beds, wheelchairs, exam tables, etc., Examine patients for bruises, blood in urine or other injuries/wounds, Clean and sanitize patient areas, Change bed sheets and restock rooms with necessary supplies.

Public Health Educator

Given an ongoing partnership with the Tennessee Department of Correction (TDOC), a TN Department of Health Educator is needed to assist with onboarding all fourteen TDOC facilities to the Project ECHO Peer Education Model. As TDOC facilities are located statewide, this will require significant travel to various parts of the state and will entail weeklong trainings that occur monthly. S/he will be responsible for communicating directly with TDOC to determine where and when trainings will be held and a summary of each training (who attended, strengths, weaknesses) will be provided in writing to direct supervisor within seven business days following each training.

Additionally, as treatment recommendations for hepatitis C have recently changed, this Public Health Educator will be responsible for identifying children aged 3-12 with chronic (viremic) hepatitis C and link them to treatment; children with positive Ab only will be referred for confirmatory testing. S/he will coordinate with existing Viral Hepatitis Case Navigators to update resource directories and will ensure the most recent resource directory is utilized in each jurisdiction when providing linkage to care. All contact attempts and referrals provided will be logged in a project-specific REDCap database.

LPN class. LPN/LPN Travel/LPN Supervisor

Must have a registered Licensed Practical Nurse license with a minimum of 1 year experience.

Supervision aspects include: Communicates with outside departments, including answering questions and providing teaching as needed. Attends scheduled departmental meetings to keep the medical department involved and aware of issues with the other departments, Provides and supervises orientation to new medical department employees and new teaching to current medical department employees. Prepares staff nurse schedule and communicates to vendors. Helps to resolve scheduling conflicts and manage staff needs. Solely responsible to take after hours call ins and find nursing staff to maintain medical coverage as required by the facility. Frequently comes into work or stays late to cover the vacancies. Works very closely with physicians. Preparing medical records for physicians clinic visits. Making sure physician's orders are transcribed and followed through upon to ensure the medical needs of the adolescents are taken care of. Medical Supplies: Checks and maintains supplies needed for the medical department. Compliance: Maintains records and other documentation to ensure that medical clinic remains in compliance at all times.

Pharmacy Transporter

The pharmacy transport courier will manage the safe transfer of vaccinations from the approved sending provider to the accepting provider under CDC storage and handling guidelines. Reports to: Tennessee Vaccine-Preventable Diseases and Immunization Program (VPDIP) Pharmacist. The Vaccine-Preventable Diseases and Immunization Program (VPDIP) requires all vaccine transport couriers who will transport allocations of the Moderna, Pfizer, or Johnson and Johnson vaccines to complete CDC's COVID-19 Vaccine Training Modules and be knowledgeable of CDC shipping and handling guidelines.

Infection Control

Serve as an Infection Prevention and Control SME when standing up alternate care sites. Additionally, will serve as Infection Prevention Specialist at functioning alternate care sites. They will be supervised and trained by the Tennessee Department of Health Central Office. Statewide travel will be expected. This person will serve as the Infection Prevention liaison at COVID-19 alternate care sites.

This role entails: Conducting on-site infection prevention and control assessments of alternate care sites, Ensuring the mitigation of identified infection control gaps, Observing infection control practices and reviews policies and procedures to ensure compliance with national best practices endorsed by the Healthcare Infection Control Practices Advisory Committee (HICPAC), the Association for Professionals in Infection Control and Epidemiology (APIC) and the Society for Healthcare Epidemiology of America (SHEA). Providing infection control training to internal and external stakeholders, including state, regional and local health department staff, state surveyors, Emergency Medical Services (EMS) providers, infection preventionists and quality improvement specialists. Working on nights and/or weekends will be expected.

Project Manager

Summary: The Senior Project Director will be responsible for oversight and management of large application development projects including mission-critical interfaces, business process re-engineering and complex change management efforts. This person will consult with agency personnel to clearly understand the scope of work and contract requirements to effectively manage large complex projects. This person reports to the Business Solutions Delivery (BSD) Assistant Director. Duties may include contract negotiations, vendor relationships, recruiting, team building, resource management, and risk/issue resolution. The initial assignment for this position will be with the Bureau of TennCare to support the TennCare Eligibility Determination System (TEDS) project. Significant healthcare experience is required. Requires an extensive background in managing large, complex projects with outstanding interpersonal and communication skills. Must demonstrate strong leadership and communication skills in working with all levels in state government and any external stakeholders. Experience must include scheduling, establishing level of effort, resource loading and management of the project team, comprised of technical and program staff as well as contractors from one or more firms, to complete tasks within estimated time frames and budget. Implement methodologies for managing and measuring the program/system development lifecycle. Effectively manages and monitors issues/risks. Ensures issues/risks are tracked and escalated as needed. Must demonstrate strong interpersonal skills with all levels of personnel and demonstrate the ability to motivate employees/teams to apply skills and techniques to solve dynamic problems. Must have a bachelor's degree. Must have at least 10 + years large, complex IT development and implementation experience. **Preferred Experience:** Medicaid experience is strongly preferred. 15-20 years large, complex IT development and implementation experience. MBA or Master's degree. Experience as software developer or development manager. Experience working with Agile software development methods. Experience working in the governmental sector (local, state, or federal). Certification in one of the following: Project Management Professional (PMP), Six Sigma, LEAN, Business Process Management.

Lab Technician

Examines incoming specimens for appropriateness, to include the following: Age of specimen,

Information provided on form, Paired specimens when required. (15%). Always selects proper specimen area to be punched and performs punching disk procedure with accuracy. (15%). Shreds specimens that

are outside the State of TN retention policy. (15%). Accurately keying and verifying Newborn Screening data into the Neometrics System (25%). Accurately numbers and dates forms and enters specimen on daily log sheets and worksheets. (10%). Performs additional tasks when necessary to enhance the total laboratory performance. Aides in identifying repeat specimens for specific tests. (10%). Accurately checks patient name/number on specimen form. (5%). Properly pre-accessions specimens for individual tests. (4%). Provides proper holding temperatures and/or conditions for specimen being processed at a later date. (1%). *Levels progress depending on years of experience and specialty.*

Registered Nurse class: RN/Travel RN

Currently licensed as a Registered Nurse and experience equivalent to one year of registered nursing. Or Currently licensed as a Registered Nurse and education equivalent to a bachelor's or graduate degree in nursing from an accredited college or university or a diploma in registered nursing from an accredited school of nursing. Currently licensed as a Registered Nurse in the State of Tennessee or holds a privilege to practice in the State of Tennessee under the Nurse Licensure Compact (NLC). A valid motor vehicle operator license may be required. Under general supervision, is responsible for registered nursing duties of average difficulty based on a wide range of circumstances and performs related work as required. Provides nursing care and procedures according to physicians orders and nursing protocol. Administers medication according to the physician's orders and protocol. Evaluates possible side effects and the overall effectiveness of medication. Performs BLS (Basic Life support), CPR (cardiopulmonary resuscitation), and other emergency responses. Participates in emergency response setting.

Tech Writer/Analyst

Technologies and Duties include Format & compile build book documentation, Assist with IP address mgmt. processes, Create style guides, SOP's, Process flows, Policy documentation, and reports, Website content management

Art Director

THE ART DIRECTOR is responsible for art concepts in the production of advertising and marketing projects and campaigns. Reports to marketing director as an outside contractor. Compensation is based on a project-by-project basis and an agreed timeframe for completion. The art director must respond to project request with 24 hours with a project estimate and a proposed timeframe for completion.

Responsibilities include Concept and designs print ads, web design, marketing collateral, annual reports, billboards, interactive/web ads, business pitch presentations, illustrated infographics and similar

deliverables, according to strategic plans provided and assignment from the marketing director. Works with marketing director in selection of design elements and all internal/external resources needed to fulfill production of each project the art director designs. Meets assigned and previously agreed deadlines, even under limited timeframes. Works with production personnel, providing complete input, and any instruction and supervision required to smoothly complete production of approved design. Provides all required specifications (colors, fonts, papers, sizes, etc.) to production department on Production Input Form. Reviews all production materials for errors and delivers native design files upon completion. Has working knowledge of computer design software and hardware and strives to stay current in level of knowledge and abilities.

PSYCHIATRIST

Provide psychiatric and mental health care services to TRC students, who may possess a wide variety of physical, mental and emotional disabilities. Provide psychiatric services to clients of TRC including but not limited to psychiatric screenings, psychiatric evaluations, conducting individual therapy, and prescribing medications as indicated. Complete a comprehensive psychiatric evaluation on all clients who are entering rehabilitation evaluation and training programs at the TRC, with a focus on identifying functional capacities and limitations. Results of said evaluation shall be provided by the psychiatrist in a form and substance acceptable to TRC within five business days of the evaluation. Review all psychiatric records for clients pending admission to the TRC programs to determine the appropriateness of accepting them into a program. Evaluate and treat acute psychiatric illnesses of TRC clients and monitor chronic psychiatric conditions, treating these as appropriate. Be available for consultation regarding psychiatric and mental health care matters by pager or phone 24 hours per day, seven days per week and shall respond to a page or phone call by TRC staff within 30 minutes of receipt. Review client's MAR during each office visit and/or chart review. Write orders for psychiatric discharges or psychiatric leaves as needed. Work with an interdisciplinary rehabilitation team to communicate, plan, coordinate, and

deliver needed individualized services to clients in a manner that adheres to current standards of psychiatric practice, and conveys respect and professionalism. Meet monthly with the Utilization Review Committee as a member of the committee, to review student cases that were referred for review. Consult and communicate with TRC staff, private physicians, other psychiatrists, psychologists, specialty physicians, and/or parents/conservators to advise regarding a client's psychiatric/social needs. In addition, report any clinical issue or problem to the Director of Nursing and/or their designee. Advise TRC nursing and other staff regarding skills and techniques of caring for clients with various psychiatric manifestations, such as suicidal ideation, since clients with such may require that they be isolated in the infirmary. Provide ongoing verbal case consultation to TRC and field staff regarding individual clients, including recommending services requisite to improving a client's chances for successful employment. Review, as necessary, current policies described in the TRC Policy Manual and psychiatric protocols regarding nursing and psychiatric care of clients as described in the Student Health Protocol Manual, to ensure that these policies and protocols are consistent with current standards of psychiatric practice. When implementing new psychiatric procedures and protocols, and at the request of the State, conduct training activities with nursing and/or other center staff. Personally read and respond to all emails, as appropriate, that are received on state computer system. Routinely work 12 hours per week according to a schedule prescribed by the State. The State reserves the right to modify the weekly schedule to accommodate a larger or smaller patient workload, with a notice of the schedule modification provided to the psychiatrist no less than 24 hours prior. Maintain a current, full and unrestricted license to practice psychiatry in Tennessee and provide the state a copy of each license renewal within 5 days of receipt. Maintain a current DEA registration and certificate and a current CPR certification and shall provide the State a copy of each certificate renewal within 5 business days of receipt. Arrive promptly as scheduled to conduct clinic duties and to attend meetings. Be appropriately attired in a manner that

contributes to projecting an image of quality and professionalism, and shall wear an authorized identification nametag.

Consultant – Finance & Administration

Developing an orientation and training plan for the Deputy Commissioner position. Conducting initial training with the new Deputy Commissioner. Consultation services on year end close process. Consultation on federal technical assistance processes. Consultation with the development and implementation of fiscal services accountability huddles. Development and implementation of F&A quality assurance program. Consultation services on the development of the FY 17 budget. Consultation services on the development and implementation of specific policies and procedures related to federal reporting.

ADMINISTRATIVE ASSISTANT AND SIMILAR Class

Summary: under general supervision, is responsible for professional staff work of routine through average difficulty in relieving an executive of administrative detail; and performs related work as required.

An employee in this class routinely performs general assignments to relieve an executive of administrative detail and other duties which do not require his/her personal attention. Routinely acts as liaison between executive's office and the governor's office, departmental staff, and other state departments and agencies, local and federal agencies, and community organizations and groups; attends legislative functions and meetings as required to gain information; routinely handles complaints and requests from members of the legislature and other departments, citizens, and employees, as required; attends receptions, luncheons, dinners, and other gatherings in performing personal contact duties. Assigns, trains, supervises, and evaluates assigned clerical and other staff and their work; makes recommendations on personnel actions such as employment, promotion, demotion, transfer, retention, and increases for exceptional performance. Handles routine correspondence including composition of replies and routes to the appropriate operating division for reply; prepares non-routine correspondence as requested; assembles information for speeches, staff meetings, and other purposes; may take minutes at staff meetings. Makes travel arrangements; keeps expense accounts; orders office supplies as needed. Operates standard office machines and equipment as necessary. Education and Experience: Graduation from an accredited college or university with a bachelor's degree; qualifying full- time increasingly responsible sub-professional experience or paraprofessional or professional experience may be substituted for the required education, on a year-for-year basis, to a maximum of four years.

DATA CLASSIFICATION (GENERAL)

Develop and enhance procurement related work flows and accompanying work procedures/instructions. Develop and enhance financial models for IBM Mainframe Outsourcing program. analysis of procurement related transactions; develop analysis of transaction patterns, process timings, etc. Review and validation of cost models related to IT service offerings. Development, managing of and reporting on "mini project plans/schedules". Analysis of issues and development of related including risk analysis, options development, solution roadmaps. Must have strong analytical skills, Self-guidance skills, Work/process flow principles, Writing skills, Organizational skills. Project management skills, Microsoft Excel skills, Microsoft Word skills, Microsoft PowerPoint skills, Microsoft Visio skills

ACCOUNTING CLASSIFICATIONS

Mon-Fri 8-4:30pm /1 hour lunch. Must have prior Grant experience. Must have Adv Levels of Excel and other MS office products, great attention to detail. Entering Accounts Payables into Edison (state Accounting System) and filing into the proper files– 60%

Opening, Sorting, and Calculating Checks into Proper Categories for Deposits – 25%

Communicating with external and internal customers regarding invoices, receiving, etc. – 15%

Must have some Accounts payable experience

Must be very detailed oriented and accuracy is a must!!

Must be local candidates already living within commute distance from agency

Data Processing - 40%

Accounts Payable - 30%

Communication with internal and external customers - 30%

Reviews data and prepares payments to servicers; processes ACH transactions and handles reconciliation of payments; tracks transactions and monitors accounts to ensure payments are up to date; resolves payment discrepancies; follows THDA procedures for requesting, delivery and security of checks for payments. Maintains other necessary documentation and files while safeguarding personal borrower information. After reviewing data, completes data entry in system for payments to servicers, and while doing so, maintain a high level of accuracy. Processes wire transfers and handles reconciliation of payments. Analyzes accounts and prepares reports. Tracks transactions and monitors accounts to ensure payments are up to date. Resolves payment discrepancies. Maintains records and vendor files. Performs data entry as assigned. Corresponds with servicers, counselors and other vendors.

Offers support to other areas in the division as necessary or as time allows. Performs additional duties as needed. Detail Oriented.

LEGAL ASSISTANT

Will be working remotely temporarily, but will need to go into office as needed 2-3 times per week when requested. Training may be in the office up to 6 weeks. Training can take up to 6 weeks and is extensive - must be there everyday for training. Ideal candidate will have below experience. Paralegal experience. Some college experience. Customer Service background. Proficiency with building, updating, and maintaining spreadsheets, and working efficiently in multiple data bases. Timely management of casework, including proper documentation and case resolution. Responsible for research/review of case information and document findings accurately. Responsible for making outreach to internal/external customers for case information and remain professional at all times. May be required to use Excel to track actions on incoming/outgoing correspondence, both paper and electronic. Strong verbal and written communication skills, with the ability to send clear, concise emails and respond in a timely manner. Be flexible and adaptable to changing work demands/tasks. Organization and attention to detail required. Utilize good time management, note-taking, email organization and distribution skills. Timely and Efficiently process and index documents. Attend staff meetings and participate in discussions. Required to maintain confidentiality and security of documents. Miscellaneous tasks as required by department

ADMINISTRATIVE SERVICES

Proficiency with building, updating, and maintaining spreadsheets, presentation software, and working efficiently in multiple data bases. Timely management of all pending cases and appeals, including proper documentation and case resolution. Responsible for research/review of case information and document

findings clearly for all medical and eligibility appeals regarding. Required to make two calls to appellants a day seeking an authorized representative. Typing, proofreading, and formatting documents. Filing management skills for paper and electronic documents. Schedule management, note-taking, email organization and distribution skills. Using Excel to track actions on incoming/outgoing correspondence, both paper and electronic. Strong verbal and written communication skills, with the ability to send clear, concise emails and respond in a timely manner. Be flexible and adaptable to changing work demands/tasks. Organization and attention to detail required. Utilize good time management, note-taking, email organization and distribution skills. Fax, FedEx, Certified Mail, Print. Timely and Efficiently process and upload documents, alert necessary staff. Attend staff meetings and participate in discussions. Required to maintain confidentiality and security of documents. Legal Assistants will be required to prepare packets for hearings to make sure the Attorneys have all the proper documentation to determine the validity of an appeal. Miscellaneous tasks as required by department.

ATTORNEY

Juris Doctor degree from an accredited law school with an active license to practice law in Tennessee. 2 years of professional experience. Experience drafting policy documents. Proven research skills. Excellent verbal and written communications skills. Proven technical skills (e.g. Microsoft Word, Excel, Outlook, PowerPoint, SharePoint, etc.). Responsible for all new contracts and contract amendments, readiness reviews, contract compliance, drafting policy documents, facilitate business owner review for reports and various documents, completing research requests, and being a liaison with OGC and the Contracts Department. Drafting contract amendments and policy documents - 25%. Assisting with the contract readiness review process - 25%. Tracking amendments to contracts and policy documents as well as due

dates - 15%. Saving contract related documents and correspondence - 15%. Attend meetings and take copious notes to share information obtained - 15%. Conduct research and summarize findings - 5%

WILDLIFE SUPPORT

The person hired would assist in the propagation, hatching, feeding, counting, grading, distribution and general care of fish at Tellico State Fish Hatchery, a cold water hatchery. This job will require performing physical activities that require considerable use of your arms and legs and moving your whole body, such as climbing, lifting, balancing, walking, stooping, and handling of materials. The individual will need to have the ability to use their abdominal and lower back muscles to support part of the body repeatedly or continuously over time without 'giving out' or fatiguing. This is a physically demanding job, the individual would need to have the ability to work in inclement weather and have the ability to lift 50lbs. The individual would be required to operate a Utility Terrain Vehicle.

PHYSICIAN

Seeking an experience physician, medical practitioner, medical doctor, who practices medicine, which is concerned with promoting, maintaining or restoring health through the study, diagnosis, prognosis and treatment of disease, injury, and other physical and mental impairments. Focus on patient care, understanding types of patients, and methods of treatment. Examining patients, taking medical histories, addressing patients' concerns, and answering questions as they arise from team or patient or patient family. Diagnosing and treating injuries, illnesses, and disorders. Ordering, performing, and interpreting diagnostic tests and explaining the results to patients.

