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7. Develops training material and provides training to system users regarding new or modified business systems.
  8. Coordinates the release of program changes between the business users and the appropriate Information Technology staff.
  9. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
  10. Performs other related duties as assigned.

### **Information Technology Business Analyst II**

In addition to the duties listed above:

1. Works on projects of greater size and complexity than a Business Analyst I.
2. Identifies opportunities for continued improvements; uses creativity and integrates new approaches in solving problems; addresses and effectively solves organizational concerns/issues.
3. May provide more advanced business analysis support for projects that are medium in size and scope. Helps develop and monitor project budgets and resources; assists in monitoring vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; works with other IT disciplines to ensure system integration; coordinates project testing and quality assurance processes

### **MINIMUM QUALIFICATIONS**

Knowledge of:

- Formal methodologies of eliciting, analyzing and documenting business requirements and processes.
- Formal business analysis processes and standards.
- The business system development lifecycle and related methodologies.
- Standard principles and practices of business application development.
- Standard techniques for identifying and defining logical relationships among data, processes or events.
- Business case analysis and process modeling.
- Quality management and testing.
- Technical writing; audience analysis, document design, understanding institutional structures, standards and styles.
- Use case diagrams, sequence diagrams, class diagrams, collaboration diagrams, state chart diagrams, activity diagrams and implementation diagrams.
- Unified Modeling Language (UML) and it's use to specify, visualize, construct, and document the artifacts of software systems and business models
- Fundamental computer concepts, networks and communications, operating systems, relational databases, the Internet and World Wide Web, software programming concepts, IT based supply chain management, enterprise resource planning, customer relationship management and evaluating commercially available software solutions.
- Use case development, testing and validation of requirements..
- Methods of conducting effective meetings.



- Basic principles and practices of project management.
- Standard principles and practices of customer service.
- Standard methods and techniques of developing and presenting technical documentation and training materials.
- Principles and methods of providing information systems user training.

Ability to:

- Work with users/customers to define, analyze and document system and user requirements and translate them into functional system design specifications that can be successfully executed by Information Technology teams.
- Identify opportunities for business process and system improvements.
- Develop effective solutions for complex issues.
- Present to, and discuss information with, a wide variety of audiences.
- Develop and make well-organized and effective oral presentations.
- Test and troubleshoot routine application problems/changes and recommend/implement solutions.
- Respond appropriately to customer service requests.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology and processes as needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer software and hardware.
- Provide leadership on routine projects involving the planning, designing and implementation of business system solutions.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 9. Senior Information Technology Business Analyst

Performs professional duties pertaining to the identification of client business needs and the development of technology solutions to resolve business problems; meets with clients to elicit and document business, organizational and/or operational requirements, identify system changes that are needed in order to respond to regulatory requirements, resolve application problems, and/or to improve business efficiency and effectiveness; serves in a facilitator and liaison capacity to combine business expertise in one or more program and/or functional areas with information technology to analyze and translate departmental business requirements into system deployments; performs other related duties as assigned.

This is the advanced, journey-level class. Incumbents in this class are distinguished from the IT Business Analyst II by the performance of the full range of duties, which may include serving as a project lead over larger technology projects. Incumbents at this level work under minimal direction, while working toward a definite objective that requires use of a wide range of planning, process and procedures to meet assigned business problems.

This class is distinguished from the class of IT Business Analyst II because incumbents in this class are fully certified and may perform supervisory duties and/or advanced professional duties that include coordinating, administering or managing multiple projects that are larger in size and scope, requiring the support of multiple staff and/or significant resource management.

### **EXAMPLES OF DUTIES**

1. Consults with functional unit management and personnel to identify, analyze, define and document business requirements related to the development of new systems, or changes to existing systems or business processes; works as a liaison among stakeholders in order to elicit, analyze, communicate and validate requirements for changes to business processes; captures information using interviews, questionnaires, observation, document review and/or other methods.
2. Provides input and recommendations regarding current and proposed business practices and the options for translating such practices into effective system deployments.
3. Performs gap/fit analyses and application assessments to identify potential system development and/or modification needs; documents requirements, develops as-is and to-be flow diagrams to document current and future processes.
4. Reviews hierarchical logic charts, software requirements/specifications and procedure manuals to identify application linkages and relationships and determine the broad impact of proposed changes; prepares business rules and specifications.
5. Reviews and analyzes legislation, regulations, policies procedures, data audits, reports/logs, and/or other documents to define business process and/or application problems; analyzes computer and/or data error information.
6. Performs and/or coordinates system testing processes in a non-production environment; writes or provides assistance in writing user acceptance test (UAT) cases and validates UAT; performs comprehensive application test cases and scenarios to validate application requirements, functionality and business processes; documents test results.
7. Develops training material and provides training to system users regarding new or modified business systems.
8. Coordinates the release of program changes between the business users and the appropriate Information Technology staff.
9. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
10. Performs other related duties as assigned.
11. May serve as the project lead over business analysis projects that are medium to large in size and scope. Helps develop and monitor project budgets and leads or supervises other resources.
12. Performs complex professional/technical research and analysis to propose IT solutions for business problems; identifies risks; evaluate costs and determine benefits associated with the development of IT solution.
13. Identifies opportunities for continued improvements; uses creativity and integrates new approaches in solving problems; addresses and effectively solves organizational concerns/issues.

## MINIMUM QUALIFICATIONS

### Knowledge of:

- Formal methodologies of eliciting, analyzing and documenting business requirements and processes.
- Formal business analysis processes and standards.
- The business system development lifecycle and related methodologies.
- Standard principles and practices of business application development.
- Standard techniques for identifying and defining logical relationships among data, processes or events.
- Business case analysis and process modeling.
- Quality management and testing.
- Technical writing; audience analysis, document design, understanding institutional structures, standards and styles.
- Use case diagrams, sequence diagrams, class diagrams, collaboration diagrams, state chart diagrams, activity diagrams and implementation diagrams.
- Unified Modeling Language (UML) and its use to specify, visualize, construct, and document the artifacts of software systems and business models
- Fundamental computer concepts, networks and communications, operating systems, relational databases, the Internet and World Wide Web, software programming concepts, IT based supply chain management, enterprise resource planning, customer relationship management and evaluating commercially available software solutions.
- Use case development, testing and validation of requirements..
- Methods of conducting effective meetings.
- Basic principles and practices of project management.
- Standard principles and practices of customer service.
- Standard methods and techniques of developing and presenting technical documentation and training materials.
- Principles and methods of providing information systems user training.

### Ability to:

- Work with users/customers to define, analyze and document system and user requirements and translate them into functional system design specifications that can be successfully executed by Information Technology teams.
- Identify opportunities for business process and system improvements.
- Develop effective solutions for complex issues.
- Present to, and discuss information with, a wide variety of audiences.
- Develop and make well-organized and effective oral presentations.
- Test and troubleshoot routine application problems/changes and recommend/implement solutions.
- Respond appropriately to customer service requests.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology and processes as needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer software and hardware.
- Provide leadership on routine projects involving the planning, designing and implementation of business system solutions.

- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 10. Information Technology Database Administrator I and II

Performs professional duties that emphasize responsibility for the performance, integrity and security of one or more databases; administers, manages, designs, documents and evaluates a variety of database management systems; ensures that data remains consistent across the database(s) and that data is clearly defined; ensures that users can access the data concurrently in a form that meets business needs; ensures appropriate data security and disaster recovery; may serve as a project lead over routine technology projects that are small or medium in size and scope, and require limited staff and resources; performs other related duties as assigned.

IT Database Administrator I - This is the entry-level class. Positions in this class are distinguished from IT Database Administrator II by the performance of less than the full range of duties assigned to the IT Database Administrator II level. Incumbents work initially under general supervision while learning job tasks, progressing to reduced direction as the procedures and processes of the assigned areas of responsibilities are learned.

IT Database Administrator II - This is the journey-level class. Positions in this class are distinguished from IT Database Administrator I by the performance of the full range of duties, which may include serving as a project lead on routine projects. Incumbents receive occasional supervision while working toward a definite objective that requires use of a wide range of procedures and involves planning and/or determining specific procedures or equipment required in order to meet assigned objectives and solve more complex problems. Incumbents in this class may perform lead duties.

### EXAMPLES OF DUTIES

1. Designs, analyzes, develops, maintains and administers database solutions; captures basic database requirements; plans, determines and implements database hardware/software configurations, taking into consideration both front end user accessibility and back end organization needs; creates standard database menu formats.
2. Refines database logical designs into specific data models; refines physical designs to meet system storage requirements.
3. Develops support programs as needed to transfer, extract, transform and load data into databases and extract and transfer data between databases.
4. Monitors and optimizes database performance. Writes scripts to support database monitoring and administration tasks.
5. Installs and tests new versions of database management systems; plans and implements upgrades; regularly tests hardware and software to ensure optimal functionality.
6. Controls user access permissions and privileges; identifies and resolves database security issues; provides recommendations to improve performance and security.
7. Ensures that database storage, archiving, backup and recovery procedures are functioning correctly; plans for capacity needs.
8. Researches and responds to customer complaints regarding database functionality; investigates, analyzes and resolves a wide variety of database-related problems; troubleshoots failures and makes corrections to ensure business continuity.

9. Writes database documentation, including data standards, procedures and definitions.
10. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
11. Performs other related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### Knowledge of:

- Information technology operating systems, hardware, software and database components similar to those being used by the hiring department.
- Principles, practices, standards, terminology, protocols, and trends in database engineering and administration.
- The functions, features and benefits of database management platforms and associated structures.
- Database design methods and techniques.
- Best practice database design and software framework development.
- Database security methods, procedures and best practices.
- Applications development and support practices.
- Database performance tuning.
- Current industry standard database technology standards.
- Techniques for defining logical relationships among data, processes and events.
- Principles and practices of project management.
- Principles and practices of customer service.
- Methods and techniques of developing and presenting technical documentation and training materials.

### Ability to:

- Analyze, develop, maintain and administer databases and database management systems similar to those being used by the hiring department.
- Test and troubleshoot database performance problems and implement solutions to correct such problems.
- Respond appropriately to customer service requests.
- Plan, design and implement new database systems.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Read, understand and apply technical information pertaining to computer software and hardware.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 11. Senior Information Technology Database Administrator

Performs advanced professional duties that emphasize responsibility for the performance, integrity and security of one or more databases; may serve as a lead or supervisor with responsibility for assigning, directing and monitoring the work of subordinate professional staff; manages database projects; administers, manages, designs, documents and evaluates a variety of database management systems; ensures that data remains consistent across the database(s) and that data is clearly defined; ensures that users can access the data concurrently in a form that meets business needs; ensures appropriate data security and disaster recovery; performs other related duties as assigned.

Senior IT Database Administrator is the advanced journey-level class. Incumbents work under minimal direction, receiving occasional supervision while working toward a definite objective that requires use of a wide range of procedures and planning to resolve computer problems.

### EXAMPLES OF DUTIES

1. Serves as a lead or supervisor within an assigned work unit; schedules and assigns work; distributes resources; provides direction and guidance regarding processes and procedures; monitors staff work and work products to help meet unit goals and objectives; may provide input to supervisor(s) regarding employee performance or write employee performance evaluation.
2. Designs, analyzes, develops, maintains and administers database software solutions; captures basic database requirements; plans, determines and implements database hardware/software configurations, taking into consideration both front end user accessibility and back end organization needs; creates standard database menu formats; refines database logical designs into specific data models; refines physical designs to meet system storage requirements.
3. Serves as the administrator for one or more departmental databases; researches and identifies database environment requirements and specifications; determines integration requirements to ensure inter-operability across multiple platforms and technologies; coordinates with systems, applications, network and other staff to identify, plan and implement database design specifications and resolve integration issues.
4. May manage complex database development projects; develops and monitors project budgets and resources; monitors and manages vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; manages the use of project resources based on project specifications; designs and directs project testing and quality assurance processes.
5. Develops database programs as needed to transfer, extract, transform and load data into databases and extract and transfer data between databases.
6. Monitors database performance and manages various parameters; writes scripts to support database monitoring and administration tasks.
7. Installs and tests new versions of database management systems; plans and implements upgrades; regularly tests hardware and software to ensure optimal functionality.
8. Monitors database traffic, performance and security using a variety of evaluation tools; analyzes traffic patterns; checks logs to detect anomalies.
9. Controls user access permissions and privileges; identifies and resolves database security issues; provides recommendations to improve performance and security.
10. Ensures that database storage, archiving, backup and recovery procedures are functioning correctly; plans for capacity needs.

11. Researches and responds to customer complaints regarding database functionality; investigates, analyzes and resolves a wide variety of database-related problems; troubleshoots failures and makes corrections to ensure business continuity.
12. Writes database documentation, including data standards, procedures and definitions.
13. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
14. Performs other related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### Knowledge of:

- Principles of lead supervision, including how to train and motivate staff.
- Information technology operating systems and hardware and software components similar to those being used by the hiring department.
- Principles and practices of project management.
- Principles, practices, standards, terminology, protocols, and trends in database engineering and administration within large complex organizations.
- Functions, features and benefits of database management platforms and associated structures; data migration considerations.
- Database design methods and techniques.
- Best practice database design patterns and software framework development.
- Database security methods, procedures and best practices.
- Applications development and support practices.
- Methods of database performance tuning.
- Techniques for defining logical relationships among data, processes or events.
- Principles and methods of network and server administration.
- Principles and practices of customer service.
- Methods and techniques of developing and presenting technical documentation and training materials.

### Ability to:

- Assign, direct and lead the work of others.
- Manage complex projects involving the planning, designing and implementation of new database software and systems.
- Analyze, develop, maintain and administer moderately complex databases and database management systems similar to those being used by the hiring department.
- Test and troubleshoot moderately difficult database performance problems and implement solutions to correct such problems.
- Respond appropriately to customer service requests.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer software and hardware.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 12. Information Technology Network Engineer I and II

Performs professional duties pertaining to the analysis, development, maintenance and administration of computer networks to meet business needs; implements network configurations; analyzes network systems/structures for stable and reliable connectivity; monitors network traffic, performance and security; investigates, analyzes and resolves network-related problems; recommends network changes to enhance services; provides professional support on network-related projects that are small or medium in size and scope and require limited staff and resources; performs other related duties as assigned.

IT Network Engineer I/II positions may be assigned to independently administer a Local Area Network (LAN) infrastructure or may provide support for a Wide Area Network (WAN). In general, the duties assigned to an IT Network Engineer I/II emphasize network administration, maintenance and problem analysis/resolution. Incumbents may also maintain and administer network components such as network appliances and peripheral equipment and may provide professional support for network development projects.

IT Network Engineer I - This is the entry-level class. Positions in this class are distinguished from IT Network Engineer II by the performance of less than the full range of duties assigned to the Network Engineer II level. Incumbents work initially under general supervision while learning job tasks, progressing to reduced direction as the procedures and processes of the assigned areas of responsibilities are learned.

IT Network Engineer II - This is the journey-level class. Positions in this class are distinguished from IT Network Engineer I by the performance of the full range of duties, which may include serving as a project lead over routine technology projects. Incumbents receive occasional supervision while working toward a definite objective that requires use of a wide range of procedures and involves planning and/or determining specific procedures or equipment required in order to meet assigned objectives and solve routine problems. Incumbents in this class may perform lead duties.

### EXAMPLES OF DUTIES

#### Both Class Levels

1. Analyzes, develops, maintains and administers network infrastructures and systems; plans, determines and implements network hardware/software configurations including VOIP, wireless equipment, hubs, switches, routers, cabling.
2. Plans and implements network upgrades; tests hardware and software to ensure optimal functionality.
3. Monitors network and server traffic, performance and security using a variety of evaluation tools; analyzes traffic patterns; checks network logs to detect intruders; writes scripts to support network monitoring and network administration tasks.
4. Identifies and resolves network security issues; provides recommendations to improve network performance and security.
5. Researches and responds to customer complaints regarding network functionality; investigates, analyzes and resolves a wide variety of network-related problems; troubleshoots network failures and telecommunication problems and re-establishes connectivity to ensure business continuity.
6. Helps implement security for web browsing, sensitive data access, and password issues; performs and/or coordinates activities pertaining to business continuity and disaster



recovery; performs critical network configuration backup, network database backup, and network recovery; stays up to date on security issues such as threats, vulnerabilities, technology and vendors.

7. Assists with network design, development and maintenance projects by researching resources, timelines and other issues; analyzes potential issues pertaining to geographic location, capacity, technology/knowledge resources, and interface requirements for connectivity with other systems; plans and coordinates work in conjunction with other teams that may be affected; executes project implementations.
8. Coordinates assigned network activities with vendors; maintains effective communications with users regarding vendor activities, problems, status, timelines and other details.
9. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
10. Prepares technical documentation and procedural manuals including detailed project plans, network diagrams, circuit schematics and user training materials.
11. Performs other related duties as assigned.

### IT Network Engineer II

In addition to the duties listed above:

1. Works on network projects of greater size and complexity.
2. May provide more advanced professional support for network-related projects that are medium in size and scope. Helps develop and monitor project budgets and resources; assists in monitoring vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; coordinates the use of project resources based on project specifications; designs and implements project testing and quality assurance processes.

### **MINIMUM QUALIFICATIONS**

#### Knowledge of:

- Information technology operating systems and hardware and software components similar to those being used by the hiring department.
- Principles, practices, standards, terminology, protocols, and trends in network engineering and administration within large complex organizations.
- Logical and physical network system designs including network layer standards and how they work together.
- Network hardware and software such as routers, LAN and WAN switches, cabling and testing equipment.
- Network routing and switch languages and protocols pertaining to TCP/IP, Ethernet, VLAN, VOIP, and other industry standard network technologies.
- Technologies pertaining to various types of network cabling (e.g., fiber and Ethernet), network circuits, and other connectivity solutions.
- Network hardware and software security.
- Principles of network administration.
- Internet service infrastructure and data circuits; Internet and Intranet architectures.
- Networking protocols, documentation, configuration, maintenance and diagnostic procedures/techniques; standard network security policies, techniques and procedures.

- Telecommunication concepts, principles, protocols, equipment, devices and operational characteristics.
- Principles and practices of computer hardware and software testing and troubleshooting.
- Principles and practices of customer service in an information technology environment.
- Basic project management principles and techniques such as organizing and managing a project, developing schedules, identifying critical paths, and breaking down a project into individual tasks.
- Methods and techniques of developing and presenting technical documentation and training materials.

Ability to:

- Analyze, develop, maintain and administer network-related systems, equipment and software similar to that being used by the hiring department.
- Configure, test, maintain, troubleshoot, and repair complex data, voice and video network equipment.
- Troubleshoot a variety of technical network systems hardware and software problems, identify and recommend alternative technical solutions, and respond appropriately to customer service requests.
- Plan and evaluate new systems and equipment.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

### **13. Senior Information Technology Network Engineer**

Performs advanced professional duties pertaining to the analysis, development, maintenance and administration of computer networks to meet business needs; may serve as a lead or supervisory worker with responsibility for assigning, directing and monitoring the work of subordinate professional staff; may manage projects that are large in size and scope, requiring the support of multiple staff and the procurement/utilization of significant resources; designs network configurations; administers network systems and ensures reliable connectivity; monitors network performance and security; investigates, analyzes and resolves complex network-related problems; plans, designs and implements network changes to enhance services; provides professional leadership and support for network-related projects; performs other related duties as assigned.

This is the advanced journey-level class. Incumbents at this level work under minimal direction, receiving occasional supervision while working toward a definite objective that requires use of a wide range of procedures and planning to resolve complex problems.

A Senior IT Network Engineer may lead the work of other professional staff and/or may function as the network administrator for a large and complex Local Area Network (LAN) or for a medium to large-sized Wide Area Network (WAN). Duties may include responsibility for administering a wide variety of network equipment, peripherals and other network components. Incumbents may also serve as project managers over large network projects. This class is distinguished from the class of IT Network Engineer II by its lead or supervisory duties and/or advanced professional network duties.

### **EXAMPLES OF DUTIES**

1. May serve as a lead or supervisor over subordinate professional network staff within an assigned work unit; schedules and assigns work; distributes resources; provides direction and guidance regarding processes and procedures; monitors staff work and work products to help meet unit goals and objectives; may provide input to or write employee performance reviews.
2. Serves as the administrator for a complex LAN and/or WAN; researches and identifies network environment requirements and specifications; determines integration requirements to ensure inter-operability across multiple platforms and technologies; coordinates with systems, applications, database and other staff to identify, plan and implement system design specifications and resolve integration issues.
3. Leads and performs network tests and queries; plans, determines and implements hardware/software configurations including VOIP, wireless equipment, hubs, switches, routers, cabling, and peripherals; installs and configures hardware, software and internet connections; maintains network and data security by implementing administrative and technical safeguards as necessary; plans and leads network upgrades; tests hardware and software to ensure optimal functionality.
4. Researches and obtains new and upgraded network-related hardware and software from vendors; oversees and directs the installation and testing of critical upgrades and patches; may develop utility programs as needed to ensure that new and upgraded programs work effectively within the network architecture; ensures that the network functions in a manner to support smooth integration, transition and efficiency.
5. Develops, recommends and establishes policies and procedures pertaining to network administration; ensures that all related documentation is current.
6. Monitors server/network traffic, performance and security using a variety of evaluation tools; analyzes traffic patterns; checks server logs to detect intruders; writes scripts to support network monitoring and server administration tasks.
7. Identifies and resolves network security issues; provides recommendations to improve network performance and security.
8. May serve as the project lead over network-related projects, requiring the support of multiple staff, the procurement/utilization of significant resources; develops and monitors project budgets and resources; monitors vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; coordinates the use of project resources based on project specifications; designs and implements project testing and quality assurance processes.
9. Researches and responds to customer complaints regarding network functionality; investigates, analyzes and resolves a wide variety of network-related problems; troubleshoots network failures and telecommunication problems and re-establishes connectivity to ensure business continuity.
10. Ensures security for web browsing, sensitive data access, and password issues; performs and/or coordinates activities pertaining to business continuity and disaster recovery;

performs critical network configuration backup, network database backup, and network system recovery; stays up to date on security issues such as threats, vulnerabilities, technology and vendors.

11. Coordinates assigned network activities with vendors; maintains effective communications with users regarding vendor activities, problems, status, timelines and other details.
12. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
13. Prepares technical documentation and procedural manuals including detailed project plans, network diagrams, circuit schematics and user training materials.
14. Performs other related duties as assigned.

## MINIMUM QUALIFICATIONS

### Knowledge of:

- Principles of lead supervision, including how to train and motivate staff.
- Project management principles and techniques such as organizing and managing a project, developing schedules, identifying critical paths, breaking down a project into individual tasks and delegating assignments to project staff.
- Advanced principles, practices, standards, terminology, protocols, and trends in network engineering and administration.
- Operations, services, concepts, terms and activities common to a comprehensive, state-of-the-art information systems program.
- Information technology operating systems and hardware and software components similar to those being used by the hiring department.
- Complex logical and physical network system designs including network layer standards and how they work together.
- Advanced concepts and practices of network restart and recovery (including disaster).
- Advanced principles and practices of network security.
- Network development lifecycle and design principles using flowcharting techniques and prototype development tools.
- Network hardware and software such as routers, LAN and WAN switches, network servers, cabling and testing equipment, and computer integrated systems.
- Network routing and switch languages and protocols pertaining to TCP/IP, Ethernet, VLAN, VOIP, and other technologies.
- Technologies pertaining to various types of network cabling (e.g., fiber and Ethernet), network circuits, and other connectivity solutions.
- Principles of network administration.
- Internet service infrastructure and data circuits; Internet and Intranet architectures.
- Networking protocols, documentation, configuration, maintenance and diagnostic procedures/techniques; standard network security policies, techniques and procedures.
- Telecommunication concepts, principles, protocols, equipment, devices and operational characteristics.
- Principles and practices of computer hardware and software testing and troubleshooting.
- Principles and practices of customer service.
- Methods and techniques of developing and presenting technical documentation and training materials.

Ability to:

- Assign, direct and lead the work of others.
- Coordinate and administer large complex information technology projects.
- Perform advanced network administration duties, including security administration.
- Gather and evaluate information in order to reason logically, draw valid conclusions, take appropriate actions and/or make appropriate recommendations.
- Analyze, develop, and maintain network-related systems, equipment and software similar to that being used by the hiring department.
- Configure, test, maintain, troubleshoot, and repair complex data, voice and video network equipment.
- Troubleshoot a variety of technical network systems hardware and software problems, identify and recommend alternative technical solutions, and respond appropriately to customer service requests.
- Plan and evaluate new network systems and equipment.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

**14. Information Technology Security Administrator I and II**

Performs professional duties to support and maintain the County's information technology security environment; assists with network security implementation and maintenance. May serve as a project lead over routine technology projects that are small or medium in size in scope, and require limited staff and resources; performs other related duties as assigned.

IT Security Administrator I - This is the entry-level class, Positions in this class are distinguished from IT Security Administrator II by the performance of less than the full range of duties assigned to the IT Security Administrator II level. Incumbents work initially under general supervision while learning job tasks, progressing to reduced direction as the procedures and processes of the assigned areas of responsibilities are learned.

IT Security Administrator II - This is the journey-level class, Positions in this class are distinguished from IT Security Administrator I by the performance of the full range of duties. Incumbents receive occasional supervision while working toward a definite objective that requires use of a wide range of procedures and involves planning and/or determining specific procedures or equipment required to meet assigned objectives and solve problems. Incumbents in this class may perform lead duties.

## **EXAMPLES OF DUTIES**

1. Maintains the information security program for servers, networks, database and mainframe systems.
2. Develops policies for Local Area Network (LAN), Wide Area Network (WAN), mainframe, server and desktop security; assists with maintenance of security controls.
3. Attends committees, task forces and meetings to identify, resolve and administer security-related issues and activities.
4. Assists in the identification and analysis of potential security threats that could harm or destroy information assets; interacts and communicates with other government agencies to stay aware of security issues; as appropriate, assists in the issuance of information regarding the identification, avoidance and mitigation of security threats.
5. Participates in information security audits to identify security weaknesses.
6. Participates in operations incident response teams; assists in the collaborative development and enforcement of information technology security policies; participates in security architecture project reviews, audits and e-discovery efforts.
7. Reviews research on information technology security directions, emerging technologies and information technology management approaches.
8. Prepares reports, correspondence and other documents; participates on committees; attends meetings, conferences and training sessions.
9. Performs other related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### Knowledge of:

- Knowledge of information security principles, best practices and legislation that affects the agencies security posture.
- Concepts, principles and practices of LAN and WAN design, development, protocols, security and administration.
- Operations, services and security related capabilities and limitations of a database administration program.
- Information technology and systems management best practices.
- New developments in information technology and their relevance to current business needs and security strategies.
- Familiarity with computer operating systems, hardware, software and languages used in the County.
- The operations, services, concepts, terms and security related activities common to a comprehensive, state-of-the-art information systems program.
- Principles pertaining to the information system development lifecycle; application design principles.
- Principles and practices of customer service.

### Ability to:

- Analyze department procedures and data to develop logical security solutions for systems.
- Collaborate and work with others in a team environment.
- Participate in complex information technology projects.

- Gather and evaluate information in order to reason logically, draw valid conclusions, take appropriate actions and/or make appropriate recommendations.
- Interpret information system designs, flow charts, report layouts and screen designs.
- Clearly communicate technical information to a wide variety of users.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively, both verbally and in writing.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 15. Senior Information Technology Security Administrator

Performs advanced professional duties in planning and overseeing the County's information technology security. Plans, develops, directs, establishes, maintains and ensures the security of complex technology operations and administration of network and database security systems; performs comprehensive programmatic analysis, design, development and maintenance in support of County security requirements. Performs other related duties as assigned.

This class is distinguished from the class of IT Security Administrator II because Senior IT Security Administrator incumbents perform supervisory and/or advanced professional duties that include coordinating, administering or managing large, complex security projects requiring the support of multiple staff and the procurement/utilization and management of significant resources.

### EXAMPLES OF DUTIES

1. Plans, develops, directs, establishes and maintains the County information security program, designed to ensure the security of the County's information systems infrastructure.
2. Develops, coordinates, establishes and maintains policies to provide guidance to County departments and staff regarding Local Area Network (LAN), Wide Area Network (WAN), mainframe, server and desktop security issues; researches and drafts policies and procedures regarding security controls.
3. Plans, organizes and coordinates committees, task forces and meetings to identify, resolve and administer security-related issues and activities.
4. Researches, identifies and analyzes existing and potential security threats that could harm or destroy County information assets; interacts and communicates with other government agencies and external organizations to stay aware of security issues; as appropriate, issues County-wide virus and threat warnings as well as information regarding the identification, avoidance and mitigation of such threats.
5. Performs County-wide information security audits to identify and mitigate weaknesses that could be used to gain unauthorized access to County information resources.
6. Serves as the central point of contact for the County regarding information technology-related incidents or violations; assists department information technology staff and others (e.g., law enforcement staff) in investigating security violations.
7. Leads County operations incident response teams; collaboratively develops and enforces County-wide information technology security policies; participates in countywide security working groups; leads security architecture project reviews, audits and e-discovery efforts.
8. Leads the design and development of the County's security infrastructure; represents the County in inter-county, intra-county, and state matters.

9. Leads or manages projects that could require the support of multiple diverse staff and the procurement/utilization of specialized resources. Project-related duties may include, but are not limited to:
  - determining and developing cost benefit analyses for project justifications; developing comprehensive project budgets; identifying available resources needed to conduct the work; evaluating risk concerns and options; coordinating the development of specifications for "requests for proposals" pertaining to external services; reviewing vendor submissions and providing recommendations on vendor selection;
  - monitoring vendor performance to ensure compliance with County standards and specifications; ensuring project compliance with external laws, County procedures and protocols, budgetary constraints and staff/resource utilization;
  - serving as the highest-level client interface on assigned projects; reviewing recommendations with clients and receiving approval to proceed; reviewing final outcomes with the client and obtaining their sign off that all work has been conducted in accordance with client requirements;
  - directing the resources of assigned projects, including subordinate project management staff, to ensure compliance with budget and project specifications;
  - designing and directing project testing and quality assurance processes for assigned projects.
10. Conducts research on information technology security emerging technologies and industry best practices.
11. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
12. Performs other related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### Knowledge of:

- Operations, services and activities of comprehensive information systems security programs.
- Advanced principles and practices of system security design, development, analysis and testing.
- Advanced methods and techniques of evaluating information security and developing appropriate solutions.
- Functional structures of various operating systems components and associated security features.
- Advanced concepts, principles and practices of LAN and WAN design, development, protocols, security and administration.
- Operations, services and activities of a comprehensive database administration program.
- Operational characteristics of database support tools, servers and communication devices.
- Principles and practices of administrative and operations management including budget development and execution.
- New developments in information technology and their relevance to current business needs and security strategies.
- Process analysis, flow and documentation methodologies.



- Advanced project management principles and techniques including project budgeting, quality assessment and control and resource management.
- Computer operating systems, hardware, software used in the County.
- The operations, services, concepts, terms and activities common to a comprehensive, state-of-the-art information systems security program.
- Advanced principles pertaining to the information system development lifecycle.
- State-wide and industry direction for access to government information.
- Principles and practices of customer service.
- Methods and techniques of developing and clearly presenting technical documentation and training materials.

Ability to:

- Plan, develop, establish, monitor and maintain information technology security strategies.
- Direct and coordinate technical information security operations and services.
- Participate on technical committees to serve as a countywide technical advisor regarding information technology security.
- Analyze department procedures and data to develop logical security solutions for complex systems.
- Recommend, evaluate, design, develop, test and install complex security systems.
- Provide advanced-level technical support and troubleshooting for the analysis of security system problems.
- Plan and oversee quality assurance and security procedures for server based, database, network and mainframe systems.
- Assign, direct, and monitor the work of others in a team environment.
- Coordinate and manage complex information technology projects.
- Gather and evaluate information in order to reason logically, draw valid conclusions, take appropriate actions and/or make appropriate recommendations.
- Develop information system designs, flow charts, report layouts and screen designs.
- Communicate technical information to a wide variety of users in a coherent manner.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Interpret and apply complex technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively, both verbally and in writing.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## **16. Information Technology Supervisor**

Supervises a group of information technology (IT) staff in one of the following technology disciplines: Application Development, Network, Security, Database or General Technology Support; performs other related duties as assigned.

This is a full supervisory-level class where incumbents work under general direction, and broad policies. Although incumbents may supervise a variety of professional, technical and/or other support staff, the preponderant responsibility assigned to positions in this class is to directly supervise the operations and staff within an information technology work unit.

## EXAMPLES OF DUTIES

1. Supervises a group of technology professionals within an assigned technology work unit. Selects, trains and directs staff; schedules, assigns and evaluates work; procures and provides resources to staff as needed; monitors and evaluates staff performance and quality of work; initiates informal and formal disciplinary actions as necessary.
2. Develops and recommends work unit goals, objectives, policies and procedures; maintains procedure manuals and other unit documentation; plans and prioritizes work strategies for self and subordinates; creates workflow processes; identifies and recommends staffing changes in response to workload requirements.
3. Assists in administering and monitoring departmental budgets; tracks and monitors expenses for assigned areas; researches costs for new hardware, software and other items and prepares reports and recommendations.
4. Designs, directs and oversees work unit quality assurance activities.
5. May manage complex technology projects requiring the support of multiple diverse staff and the procurement/utilization of specialized resources; develops and monitors project budgets and resources; monitors and manages vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; manages the use of project resources based on project specifications; designs and directs project testing and quality assurance processes.
6. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
7. Performs other related duties as assigned.

## 8. MINIMUM QUALIFICATIONS

Note: technology discipline-based knowledge and ability requirements may differ, and are subject to area of assignment.

### Knowledge of:

- Principles and practices of public administration; including, budgeting, staff development, customer service and human resource management.
- Principles and practices of supervision and leadership.
- Computer hardware and software systems similar to those being used by the hiring department, including business applications, operating systems, and network systems.
- Project management principles and techniques.
- Principles, methods and techniques used in designing, developing, testing and implementing information technology applications, systems and networks.
- Advanced operations, services, concepts, terms and activities common to a comprehensive, state-of-the-art information technology program.
- Advanced information technology development lifecycle and design principles.
- Advanced methods and techniques of evaluating business need requirements to provide technology solutions.
- Database concepts.
- Operational characteristics of local and wide area network systems.
- Operational characteristics of communication systems, equipment and devices.
- Principles and methods of troubleshooting computer hardware, software and network problems.
- Principles and practices of customer service.

- Methods and techniques of developing and presenting technical documentation and training materials.

Ability to:

- Supervise a unit of subordinate employees who perform professional information technology work.
- Develop work plans and methods to ensure that assigned work areas are functioning in the most effective and efficient manner.
- Develop and maintain comprehensive procedures manuals and documentation.
- Assist with development and administration of the budget for the assigned unit.
- Perform professional level applications, systems and network analysis and administration duties.
- Coordinate and administer a variety of information technology projects.
- Gather and evaluate information in order to reason logically, draw valid conclusions, take appropriate actions and/or make appropriate recommendations.
- Communicate technical information to a wide variety of users.
- Interpret and apply complex and technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively, both verbally and in writing.
- Establish and maintain effective working relationships with those encountered during the course of the work.

**17. Information Technology Systems Engineer I and II**

Performs professional duties pertaining to the analysis, development, maintenance and administration of servers to meet business needs; implements server configurations; analyzes server systems/structures for stability and reliability, monitors server traffic, performance and security; investigates, analyzes and resolves server-related problems; recommends server changes to enhance services; provides professional support on server-related projects that are small or medium in size and scope and required limited staff and resources; performs other related duties as assigned.

These positions may be assigned to independently administer County network operating systems, directory services, distributed server systems and storage solutions. The duties emphasize server administration, maintenance and problem analysis/resolution. Incumbents may also maintain and administer devices such as SANS (Storage Area Networks) and peripheral equipment and may provide professional support for network and application development projects.

IT Systems Engineer I - This is the entry-level class. Positions in this class are distinguished from IT System Engineer II by the performance of less than the full range of duties assigned to the System Engineer II level. Incumbents work initially under general supervision while learning job tasks, progressing to reduced direction as the procedures and processes of the assigned areas of responsibilities are learned.

**IT Systems Engineer II** - This is the journey-level class. Positions in this class are distinguished from IT System Engineer I by the performance of the full range of duties, which may include serving as a project lead over routine technology projects. Incumbents receive occasional supervision while working toward a definite objective that requires use of a wide range of procedures and involves planning and/or determining specific procedures or equipment required to meet assigned objectives and solve routine problems. Incumbents in this class may perform lead duties.

## **EXAMPLES OF DUTIES**

### **Both Class Levels**

1. Analyzes, develops, maintains and administers server infrastructures and systems; plans, determines and implements server hardware/software configurations including domain controllers, email and file servers, distributed application systems, software and security patch distribution servers, terminal services servers, and virtual servers.
2. Plans and implements server upgrades; tests hardware and software to ensure optimal functionality.
3. Monitors server performance, reliability and security using a variety of evaluation tools; analyzes server usage patterns; checks server logs to detect intruders; writes scripts to support server administration tasks.
4. Identifies and resolves server security issues; provides recommendations to improve server performance and security.
5. Researches and responds to customer complaints regarding server and application functionality; investigates, analyzes and resolves a wide variety of server-related problems; troubleshoots server failures and problems and re-establishes server functionality to ensure business continuity.
6. Helps implement security for file sharing, sensitive data access, and password issues; performs and/or coordinates activities pertaining to business continuity and disaster recovery; performs critical server configuration backup, server database backup, and server recovery; stays up to date on security issues such as threats, vulnerabilities, technology and vendors.
7. Assists with server design, development and maintenance projects by researching resources, timelines and other issues; analyzes potential issues pertaining to geographic location, capacity, technology/knowledge resources, and interface requirements for connectivity with other systems; plans and coordinates work in conjunction with other teams that may be affected; executes project implementations.
8. Coordinates assigned server activities with vendors; maintains effective communications with users regarding vendor activities, problems, status, timelines and other details.
9. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
10. Prepares technical documentation and procedural manuals including detailed project plans, server diagrams, and user training materials.
11. Performs other related duties as assigned.

## IT Systems Engineer II

In addition to the duties listed above:

- Works on server projects of greater size and complexity.
- May provide more advanced professional support for server-related projects that are medium in size and scope. Helps develop and monitor project budgets and resources; assists in monitoring vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; coordinates the use of project resources based on project specifications; designs and implements project testing and quality assurance processes.

## **MINIMUM QUALIFICATIONS**

Knowledge of:

- Information technology operating systems, hardware and software components similar to those being used by the hiring department.
- Principles, best practices, standards, and terminology in system engineering and server administration within large complex organizations.
- Distributed systems, single servers, mass storage and virtual server design and solutions that address high availability, fault tolerance and load balancing requirements.
- Server hardware and software such as blade servers, mass storage solutions, tape libraries, and server virtualization and monitoring software.
- Server operational requirements including configuration, documentation, hardware and software upgrade, backup and restore operations.
- Technologies pertaining to various types of server connectivity solutions (e.g., fiber and Ethernet).
- Server hardware and software security.
- Principles of server administration.
- Internet service infrastructure; Internet and Intranet architectures.
- Network operating system, directory services and web application protocols, documentation, configuration, maintenance and diagnostic procedures/techniques; standard server security policies, techniques and procedures.
- Directory services and network operating system concepts, principles, and operational characteristics.
- Principles and practices of computer hardware and software testing and troubleshooting.
- Principles and practices of customer service in an information technology environment.
- Basic project management principles and techniques such as organizing and managing a project, developing schedules, identifying critical paths, and breaking down a project into individual tasks.
- Methods and techniques of developing and presenting technical documentation and training materials.

Ability to:

- Analyze, develop, maintain and administer server-related systems, equipment and software similar to that being used by the hiring department.

- Configure, test, maintain, troubleshoot, and repair complex server, storage and peripheral equipment.
- Troubleshoot a variety of technical server hardware and software problems, identify and recommend alternative technical solutions, and respond appropriately to customer service requests.
- Plan and evaluate new systems and equipment.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## **18. Senior Information Technology Systems Engineer**

Performs advanced professional duties pertaining to the analysis, development, maintenance and administration of servers to meet business needs; may serve as a lead or supervisory worker with responsibility for assigning, directing and monitoring the work of subordinate professional staff; may manage projects that are large in size and scope, requiring the support of multiple staff and the procurement/utilization of significant resources; designs server and directory services configurations; administers servers and ensures availability; monitors server performance and security; investigates, analyzes and resolves complex server-related problems; plans, designs and implements network operating system and server changes to enhance services; provides professional leadership and support for server-related projects; performs other related duties as assigned.

This is the advanced journey-level class. Incumbents at this level work under minimal direction, receiving occasional supervision while working toward a definite objective that requires use of a wide range of procedures and planning to resolve complex problems.

A Senior IT System Engineer may lead the work of other professional staff and/or may function as the directory services and network operating system administrator for a large and complex Local Area Network (LAN) or for a medium to large-sized Wide Area Network (WAN). Duties may include responsibility for administering a wide variety of servers, mass storage solutions, peripherals and other network components. Incumbents may also serve as project managers over large network projects. This class is distinguished from the class of IT System Engineer II by its lead or supervisory worker and/or advanced professional network duties.

### **EXAMPLES OF DUTIES**

1. May serve as a lead or supervisor over subordinate professional network staff within an assigned work unit; schedules and assigns work; distributes resources; provides direction and guidance regarding processes and procedures; monitors staff work and work products to help meet unit goals and objectives; may provide input to or write employee performance reviews.
2. Serves as the server administrator for a complex LAN and/or WAN; researches and identifies server environment requirements and specifications; determines integration requirements to ensure inter-operability across multiple platforms and technologies; coordinates with network, applications, database and other staff to identify, plan and implement system design specifications and resolve integration issues.

3. Leads and performs server tests; plans, determines and implements hardware/software configurations including domain controllers, file servers, application servers, terminal servers, mass storage solutions and virtual servers, installs and configures hardware and software; adds and deletes users; administers user accounts, electronic mail systems; maintains server and data security by implementing administrative and technical safeguards as necessary; plans and leads server and network operating system upgrades; tests hardware and software to ensure optimal functionality.
4. Researches and obtains new and upgraded server-related hardware and software solutions from vendors; oversees and directs the installation and testing of critical upgrades and patches; may develop utility programs as needed to ensure that new and upgraded programs work effectively within the network architecture; ensures that the server infrastructure functions in a manner to support smooth integration, transition and efficiency.
5. Develops, recommends and establishes policies and procedures pertaining to server administration; ensures that all related documentation is current.
6. Monitors server traffic, performance and security using a variety of evaluation tools; analyzes traffic patterns; checks server logs to detect intruders; writes scripts to support server monitoring and server administration tasks.
7. Identifies and resolves server security issues; provides recommendations to improve server performance and security.
8. May serve as the project lead over server-related projects, requiring the support of multiple staff, the procurement/utilization of significant resources; develops and monitors project budgets and resources; monitors vendor performance to ensure compliance with County standards and specifications; interfaces with clients to define project scope and review project activities, recommendations and outcomes; coordinates the use of project resources based on project specifications; designs and implements project testing and quality assurance processes.
9. Researches and responds to customer complaints regarding server functionality; investigates, analyzes and resolves a wide variety of server-related problems; troubleshoots server failures and availability issues and re-establishes server operations to ensure business continuity.
10. Ensures security for file sharing, sensitive data access, and password issues; performs and/or coordinates activities pertaining to business continuity and disaster recovery; performs critical system backup, database backup, and system recovery; stays up to date on security issues such as threats, vulnerabilities, technology and vendors.
11. Coordinates assigned server activities with vendors; maintains effective communications with users regarding vendor activities, problems, status, timelines and other details.
12. Prepares reports, correspondence and other documents; participates on committees and task forces; attends meetings, conferences and training sessions.
13. Prepares technical documentation and procedural manuals including detailed project plans, server diagrams and user training materials.
14. Performs other related duties as assigned.

## MINIMUM QUALIFICATIONS

### Knowledge of:

- Principles of lead supervision, including how to train and motivate staff.
- Project management principles and techniques such as organizing and managing a project, developing schedules, identifying critical paths, breaking down a project into individual tasks and delegating assignments to project staff.
- Advanced principles, best practices, standards, terminology, and trends in server engineering and administration.
- Operations, services, concepts, terms and activities common to a comprehensive, state-of-the-art information systems program.
- Information technology operating systems and hardware and software components similar to those being used by the hiring department.
- Distributed systems, single servers, mass storage and virtual server design and solutions that address high availability, fault tolerance and load balancing requirements.
- Advanced concepts and practices of server restart and recovery (including disaster).
- Advanced principles and practices of server security.
- Server hardware and software such as blade servers, mass storage solutions, tape libraries, and server virtualization and monitoring software.
- Technologies pertaining to various types of server connectivity solutions (e.g., fiber and Ethernet).
- Principles of server administration.
- Internet service infrastructure; Internet and Intranet architectures.
- Distributed systems documentation, configuration, maintenance and diagnostic procedures/techniques; standard server security policies, techniques and procedures.
- Principles and practices of computer hardware and software testing and troubleshooting.
- Principles and practices of customer service.
- Methods and techniques of developing and presenting technical documentation and training materials.

### Ability to:

- Assign, direct and lead the work of others.
- Coordinate and administer large complex information technology projects.
- Perform advanced system administration duties, including security administration.
- Gather and evaluate information in order to reason logically, draw valid conclusions, take appropriate actions and/or make appropriate recommendations.
- Analyze, develop, and maintain server-related systems, equipment and software similar to that being used by the hiring department.
- Configure, test, maintain, troubleshoot, and repair complex server, storage and peripheral equipment.
- Troubleshoot a variety of technical server systems hardware and software problems, identify and recommend alternative technical solutions, and respond appropriately to customer service requests.
- Plan and evaluate new systems and equipment.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer and network systems.



- Adapt quickly to changes in policies, procedures, assignments and work locations.
- Communicate effectively both in orally and in writing for technical and non-technical audiences.
- Establish and maintain effective working relationships with those encountered during the course of the work.

## 19. Information Technology Systems Technician I and II

Performs a variety of technical duties emphasizing customer support for desktop computer systems and related equipment; serves as a first-level responder for computer hardware/software issues; troubleshoots and repairs system problems and provides technical assistance to customers; monitors, installs, configures and upgrades hardware, software and peripherals; and performs other related duties as assigned.

IT Systems Technician I - This is the entry-level class. Positions in this class typically require minimum directly related work experience. Positions in this class are distinguished from IT Systems Technician II by the performance of less than the full range of duties assigned to the IT Systems Technician II level. Incumbents work initially under close supervision while learning job tasks, progressing to general supervision as the procedures and processes of the assigned areas of responsibilities are learned.

IT Systems Technician II - This is the journey-level class. Positions in this class are distinguished from IT Systems Technician I by the performance of the full range of duties under general supervision. Incumbents at this level work alone on routine or regular work assignments, checking with a supervisor on non-routine assignments or when in doubt as to the correct procedures to follow.

### EXAMPLES OF DUTIES

1. Provides help desk assistance to customers pertaining to desktop computer, peripheral and related technology; responds to requests for help over the phone, remotely and/or in person; receives and logs requests for assistance from end users; utilizes and updates system maintenance logs and other tools to prepare trouble tickets and to track and respond to service requests; verifies the location of the problem by eliciting information from end users regarding the nature of the issue; determines severity of problem and either resolves or refers to higher-level information technology staff.
2. Conducts an on-site assessment of problems; investigates, troubleshoots, evaluates and resolves a variety of routine computer hardware, software and peripheral equipment problems; determines whether a problem needs to be escalated to a higher level staff member.
3. Performs a variety of technical support work pertaining to the basic operation and maintenance of computers and peripheral equipment for an information technology unit or division; monitors routine system parameters such as response time and general performance; tests and sets up basic hardware and software configurations; performs basic maintenance and repair on system components.
4. Performs routine system backups, upgrades and/or other hardware/software support activities; connects computers to printers, scanners, PDA's and other peripheral equipment; loads software.
5. Performs routine system support duties such as monitoring or adding users/devices, modifying user profiles, re-setting passwords and performing regular file maintenance;

- sets up basic user access permissions consistent with County policies and procedures; documents all changes and revisions.
6. May conduct online, group and/or one-on-one training sessions with desktop users regarding routine technical processes; provides information on basic system and application functions; explains user access rights.
  7. May assist higher-level information technology staff in the acquisition and distribution of computer hardware and software solutions; may contact vendors and research/gather product information.
  8. Helps coordinate equipment repairs with external vendors by contacting vendors and arranging to have parts purchased/shipped as needed; arranges for vendors to perform on-site repairs.
  9. Prepares technical reports, correspondence and other documents; provides general administrative support that may include maintaining records; participates on committees and task forces; attends meetings, conferences and training sessions; may serve on project teams.
  10. Performs other related duties as assigned.

## **MINIMUM QUALIFICATIONS**

### Knowledge of:

1. Operations, services, concepts, terms and activities common to a comprehensive, state-of-the-art information technology program.
2. Computer hardware and software components similar to those being used by the hiring department.
3. Basic operational characteristics of local and wide area network systems.
4. Basic operational characteristics of communication systems, equipment and devices.
5. Tools and test equipment used in the installation, maintenance and repair of desktop computer systems.
6. Methods and techniques of troubleshooting desktop computer system hardware and software problems.
7. Basic principles and practices of technical-level system administration.
8. Principles and practices of customer service.
9. Methods and techniques of developing and presenting technical documentation and training materials.

### Ability to:

- Operate, maintain and perform routine repairs on information technology equipment and software similar to that being used by the hiring department.
- Troubleshoot a variety of routine desktop hardware and software issues and respond appropriately to customer service requests.
- Test and repair electronic equipment using appropriate tools.
- Communicate technical information to a wide variety of users.
- Assist in planning and evaluating new systems and equipment.
- Plan, organize, prioritize and process work to ensure that deadlines are met.
- Learn and utilize specialized terminology if needed by the specific assignment.
- Read, understand and apply technical information pertaining to computer and network systems.
- Adapt quickly to changes in policies, procedures, assignments and work locations.

- Communicate effectively, both verbally and in writing.
- Establish and maintain effective working relationships with those encountered during the course of the work.

**20. Mainframe Computer Analyst Programmer**

Perform analysis and difficult programming work for mainframe-based computer systems including the creation of programming specifications based on previously approved system specifications as well as detailed logic design, coding, testing, and documentation.

This requires knowledge and experience in structured programming techniques including but not limited to, NATURAL and COBOL programming languages, interactive programming tools, on-line systems, and ADABAS database management. Experience with CICS, DB2 and ORACLE database management is also desirable.

**21. Mainframe Computer Programmer**

Perform computer programming for mainframe-based computer systems from previously approved program specifications including detailed logic design, coding, testing, and documentation.

This requires knowledge and experience in structured programming techniques including but not limited to, NATURAL and COBOL programming languages, interactive programming tools, on-line systems, and ADABAS database management. Experience with CICS, DB2 and ORACLE database management is also desirable.

**22. Mainframe Computer Systems Analyst**

Perform the most difficult and complex information systems analysis work for mainframe-based computer systems. This includes, but is not limited to, the creation of detailed systems specifications, technical systems design, data analysis, and program specifications.

This requires knowledge and experience in structured programming techniques including but not limited to, NATURAL and COBOL programming languages, interactive programming tools, on-line systems, and ADABAS data case management. Experience with CICS, DB2 and ORACLE database management is desirable.

**23. Oracle Case Analyst Programmer**

Perform analysis and the more difficult programming work including the creation of programming specifications based on previously approved system specifications as well as detailed logic design, coding, testing, and documentation.

This requires knowledge and experience regarding the use of, but not limited to Oracle's Developer 2000 including the use of Oracle Forms Designer and Oracle Reports Designer. Requires experience with the programming language PL/SQL.

**24. Oracle Case Systems Analyst**

Perform the most difficult and complex information systems analysis work for case-designed computer systems. This includes but is not limited to the creation of detailed systems specifications, technical systems design, data analysis, and program specifications.

This requires knowledge and experience regarding the use of, but not limited to Oracle's Designer 2000 case tool utilizing case concepts for business process modeling, systems analysis modeling (Entity Relationship, Dataflow, Function Hierarchy), systems design and application generation.

**25. Project Manager I, II, and III**

Utilizing technical and project management knowledge, education and experience, Project Managers plan, organize, coordinate, manage and ensure completion, to the County's satisfaction, of information technology projects performed by County and private contractor staff. Project Managers are responsible for the effective and ethical management of public resources, effective communication ensuring high quality work and other work as assigned.

Project Manager I - Under close supervision, manages small to large-sized projects and/or may assist one or more higher level staff with elements of mid to large-sized projects such as administrative research, drafting policies and procedures, proposing project changes and coordinating and implementing specific project related tasks.

Project Manager II - May supervise a team responsible for a broad range of projects and/or under the direction of higher-level staff independently manage projects involving specialized functions or components of major projects. Project Manager II's negotiate contract issues and provide direction and decision-making per Department policy on changes to project scope and project implementation matters.

Project Manager III - Independently manages one or more information technology projects from inception to conclusion. Projects assigned to the Project Manager III level are typically of moderate complexity in terms of technical, logistical, and legal issues and may require issue analysis and coordination with external entities such as cities, and/or state or federal regulatory agencies. Project Manager III's oversee diverse project teams composed of internal and/or contracted staff as well as government officials and private corporate executives. Projects assigned to this level of project manager may have major financial or operational impact on key business units and County objectives.

1. Communication - Effectively present, orally and in writing, proposals, progress reports and recommendations to the highest levels in the organization including the Board of Supervisors, County executive management, private sector executives and external government Agency staff.
2. Leadership - Assist executive management in developing departmental business objectives and specific project strategies.

**26. Senior Project Manager** - Independently manages one or more of the largest and most technically, legally and politically complex projects managed by the County. Projects assigned to this level involve significant resources, complex technical execution requirements and complicated relationship management issues. Positions at this level may provide full supervision to staff and/or manage the most complex and diverse project teams. Senior Project Managers also serve as technical consultants to Senior Management on technical and strategic issues and manage internal cross functional issues to resolution.

## Core Competencies

In addition to the education and experience requirements for each level in the Project Manager series, Senior Project Manager must possess the following core competencies.

1. Planning and Organization - Plans and organizes work effectively to ensure that assignments are on schedule.
2. Results Orientation - Completes assignments on time and within budget and policy.
3. Analysis and Problem Solving - Researches, evaluates estimates and accurately interprets and applies technical data and policy information to solve problems and/or make recommendations to management.
4. Communication - Communicates in a timely and effective manner both orally and in writing to individuals and/or groups with diverse interests including contractors and departmental representatives.
5. Customer Service - Is committed to understanding and meeting customer needs within policy and building strong customer relationships.
6. Technology - Proficiently uses common office and technical computer software programs to complete assignments.
7. Ethics - Makes sound decisions within a professional ethical framework.
8. Teamwork - Leads a project team or serves as an active team participant for the purposes of project completion and/or individual development.
9. Technical - Apply fundamental hardware and systems.
10. Project Management - Effectively apply Project Management industry standards and practices in the areas of project planning, coordinating, budget management, scheduling and monitoring.
11. Legal Compliance - Apply knowledge of Federal, State and local codes and regulations to ensure the compliance of County projects.
12. Contract Administration - Negotiate and manage competitive bidding processes for complex contracts for diverse development and maintenance services.
13. Supervision - Some assignments work with direct reports to establish and achieve project and professional developmental goals that are aligned with business objectives
14. Communication - Effectively present, orally and in writing, proposals, progress reports and recommendations to the highest levels in the organization including the Board of Supervisors, County executive management, private sector executives and external government Agency staff.
15. Leadership - Assist executive management in developing departmental business objectives and specific project strategies.

## 27. **Quality Assurance Analyst**

Ensures software development processes and procedures are in place and are used. Can and should include industry standards in Design review, and testing. Establishes and maintain production libraries for source and executable programs and related modules.

**28. Software Quality Assurance Administrator**

Responsible for the effective development and implementation of programs to ensure that all information systems products and services meet minimum County standards and end-user requirements. Develops, modifies, applies and maintains standards for quality operating methods, processes, systems, and procedures. Provide coordination and guidance of testing, change control and problem resolution. Bachelor's degree or experience in related field; approximately ten years of experience in a related field, two of which must be management experience.

**29. Technical Writer**

The duties assigned to the individual in this positions will include but are not limited to writing, editing and re-writing manuscript copy for reference manuals, operations manuals, operations manuals, user manuals and programming manuals. Coordinates with programmers and software engineering to acquire or verify knowledge of subject. Oversees preparation of illustrative material, selecting drawings, sketches, diagrams and charts. May assist in preparation and layout of work publication.

**30. Senior Technical Writer**

Generate user, administrative, system, and policies and procedures documentation in support of current operations. The writer is involved in the full documentation process, from creation of objectives, requirements and specifications, on through product delivery.

Duties:

- Project management.
- Scheduling, development and status reporting
- Creating hard copy user manuals, online documentation and online help
- Assisting in the design and development of documentation architecture
- Participating in reviews
- Testing of implemented and embedded help features
- Writing, editing, and proofreading all documentation

Qualifications:

Minimum of 5 years technical writing experience

**31. Senior Applications Developer/ EHR Meaningful Use Informatics Specialist:**

This position will assist the HCA Behavioral Health EHR team with performing activities related to the achievement of meaningful use of the EHR system, as required by the U.S. Department of Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS) and the Office of National Coordinator (ONC) for Health Information Technology.

This position will work closely with our Clinical, Information Technology and Administrative Teams to provide application support for the Cerner Behavioral Health Electronic Health Record system and associated third party HIT software. Primary responsibilities include:

- Identify, define, monitor, audit, and analyze required metrics and reports for assigned eligible professionals and identify process and performance gaps to ensure overall meaningful use achievement.
- Provide summary reports and information about patterns of care for clinics, providers, and consumers to Health Care Agency Behavioral Health and IRIS Leadership, and Clinical Staff.

- Define, collaborate on implementation, and monitor clinical quality outcome reporting tools as related to HCA's participation in Clinical Quality Improvement Initiatives, and act as the information technology liaison for collecting, analyzing, evaluating, and presenting clinical data documentation to a wide range of audiences.
- Work directly with physicians, clinicians and contract providers and office staff in developing and implementing clinical documentation improvement plans in support of meaningful use and to leverage any related patient/consumer care opportunities.
- Maintain awareness, interpret and communicate accurate and current information relating to evolving ARRA/HITECH/MU requirements and timelines. Understand relevance to HCA and perform necessary actions to communicate to internal staff and take steps towards compliance and training.
- Ensure ongoing compliance with all privacy, security, and HIPAA regulations.
- Collaborate with administrative/IT/ clinical users to analyze and optimize electronic health record clinical software workflows and administrative and clinical operational plans to support the collection and production of meaningful use metrics.
- Develop training plans within the clinical setting and the admin staff.
- Ensure all development meets all privacy, security, and HIPAA regulations.

Requirements:

- Four year Bachelor's college degree or higher preferred.
- Clinical environment knowledge and experience helpful.
- At least 3 years work experience in a lead position.
- Basic knowledge of SQL/ Oracle/ Business Objects/ Crystal Reports preferred.
- Demonstrable experience and in and working knowledge of Health Information Technology areas, electronic health record systems, meaningful use, HIPAA, privacy and security requirements.
- Considerable knowledge of clinical protocols, compliance requirements and documentation methods.
- Effective organizational, oral and written communication skills.
- Strong business writing, PC and MS Office skills.
- Excellent communication and teamwork skills.
- Willingness to accommodate anticipated local travel of between 20-50%

### **32. Senior Applications Developer/ EHR/Meaningful Use Technical Analyst**

This individual will assist the HCA IRIS team with the development of necessary software systems and solutions for the collection and reporting of necessary data required for the continuing achievement of EHR meaningful use metrics to appropriate state and federal agencies, as required by the U.S. Department of Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS) and the Office of National Coordinator (ONC) for Health Information Technology. In addition, this position will support general CCL based rules development within the Cerner system. This position will perform the following activities:

- Work directly with clinical informatics specialists and other technical and program staff in ensuring the collection of necessary clinical data that supports the multi-stage meaningful use metrics, via a combination of the Cerner application and other database and web development tools.
- Develop and implement clinical, administrative and compliance rules and scripts within the Cerner/CCL system to support the EHR system.
- Design, code, test, debug, and validate each required reporting application and solution.

- Compile, analyze, and review required meaningful use metrics prior to presentation to program staff and transmittal to state and federal agencies.
- Maintain awareness of accurate and current information relating to evolving ARRA/HITECH/MU requirements and timelines.
- Ensure all development meets all privacy, security, and HIPAA regulations.
- Develop documentation and training plans within the clinical setting and the admin staff for the collection and reporting solution.
- Assist in the pre and post implementation EHR planning and deployment as it relates to the meaningful use technical component.
- Assist in ensuring a standardized and consistent approach relating to meaningful use compliance and implementation across the different programs.

Requirements:

- Four year Bachelor's college degree or higher preferred.
- Experience with Cerner applications and development tools preferred.
- Clinical environment knowledge and experience helpful.
- High expertise in SQL/ Oracle/ Business Objects/ Crystal Reports/ JavaScript/ HL7/ XML required.
- Demonstrable experience and in and working knowledge of Health Information Technology areas, electronic health record systems, meaningful use, HIPAA, health information privacy and security requirements.
- At least 3 years of experience using/maintaining software development platforms and servers.
- Knowledge of clinical protocols, compliance requirements and documentation methods helpful.
- Effective organizational, oral and written communication skills.
- Strong business writing, PC and MS Office skills.
- Excellent communication and teamwork skills.
- Willingness to accommodate anticipated local travel of approximately 20%.

**33. Senior Systems/ Programmer Analyst/ EHR Interoperability Technical Analyst**

This individual will serve as the primary individual to design and establish interoperability between the HCA Behavioral Health EHR system and external entities including local contract provider organizations and state and federal Health Information Exchanges. This is in support of the integration and interoperability requirements established by the U.S. Department of Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS) and the Office of National Coordinator (ONC) for Health Information Technology. This position will perform at least the following activities:

- Design and establish EHR connectivity between internal EHR system and a number of external EHR and/or electronic databases to share necessary patient and clinical data, in compliance with all relevant state and federal requirements for content, transport and encryption standards, as well as overall compliance with HL7 and HIPAA data privacy and security requirements.

Requirements:

- Four year Bachelor's college degree or higher preferred.
- Experience with Cerner applications and development tools preferred.
- Must be familiar with all published and best-practices methodologies and requirements for EHR data interoperability as mandated by such federal agencies as the U.S.



Department of Health and Human Services (HHS), the Centers for Medicare & Medicaid Services (CMS), the Office of National Coordinator (ONC) Office of Standards & Interoperability, and National Institute of Standards and Technology.

- High expertise and knowledge of network design, connectivity, security, authentication systems, servers and multi-purpose appliances.
- High expertise and knowledge of databases and data warehouses, messaging standards, health information exchanges, network device integration.
- High expertise in SQL/ Oracle/ Business Objects/ Crystal Reports/ JavaScript/ HL7/ XML required.
- Demonstrable experience and in and working knowledge of Health Information Technology areas, electronic health record systems, meaningful use, HIPAA, health information privacy and security requirements.
- Clinical environment knowledge and experience helpful.
- At least 3 years of experience using/maintaining software development platforms and servers.
- Knowledge of clinical protocols, compliance requirements and documentation methods helpful.
- Effective organizational, oral and written communication skills.
- Strong business writing, PC and MS Office skills.
- Excellent communication and teamwork skills.
- Willingness to accommodate anticipated local travel of approximately 20%.

#### **34. Other Positions as Needed**