City of Detroit
JOB SPECIFICATION

INFORMATION TECHNOLOGY SPECIALIST

OCCUPATIONAL INFORMATION

Information Technology Specialist professionals provide services that involve developing, delivering, and supporting information technology systems and services. Information technology refers to systems and services used in the automated acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, assurance, or reception of information. It includes computers, network components, peripheral equipment, software, firmware, services, and related resources. Continuous, significant developments in technology and its application dramatically influence this occupation, with a particular emphasis on information security and cloud computing. Information Technology Specialists analyze, plan, design, document, assess, and manage the information technology enterprise structural framework to align information technology systems with the mission, goals, and business processes of the City. They plan, develop, implement, and maintain programs, policies, and procedures to protect the integrity and confidentiality of systems, networks, and data and consult with users to refine functional requirements and translate functional requirements into technical specifications. Information Technology Specialists translate technical specifications into programming specifications; develop, customize, or acquire applications software programs; and test, debug, and maintain software programs. They install, configure, and maintain the operating systems environment, including systems servers and operating systems software on which applications programs run. They also navigate technology application in the cloud environment, which helps manage information technology infrastructure and platforms while providing access to remote data storage and software packages. Information Technology Specialists test, install, configure, and maintain networks including hardware (servers, hubs, bridges, switches, and routers) and software that permit the sharing and transmission of information. They develop and administer databases used to store and retrieve data and develop standards for the handling of data. In addition, they install, configure, troubleshoot, and maintain hardware and software to ensure the availability and functionality of systems. Information Technology Specialists also perform work involving the generation and/or application of theories, principles, practical concepts, processes, and methods related to computer science technology specific to computer programming languages, computer hardware and software integration, and computer systems design requirements, standards, codes, techniques, and practices.

Major Information Technology Specialist Functions

Five major functions performed by an Information Technology Specialist include monitor, maintain, and enhance hardware and software systems; manage information security; coordinate and manage database environments; design, build, or configure networks; and oversee geographic information system data. These functions are described below.

Monitor, Maintain, and Enhance Hardware and Software Systems. Information Technology Specialists perform activities regarding the design, implementation, maintenance, and enhancement of secure and reliable computer-based hardware, software, and data infrastructure. Information Technology Specialists modify existing software to correct errors, to adapt it to new hardware, or to upgrade interfaces and improve performance. They direct the installation of operating systems, network or application software, or computer or network hardware and perform ongoing hardware and software maintenance operations, including installing or upgrading hardware or software. Information Technology Specialists also navigate technology application in the cloud environment. Information Technology Specialists understand and have knowledge of emerging technologies and their applications to business processes to design, develop, and manage systems that meet current and future business requirements at the City.

Manage Information Security. Information Technology Specialists manage computer security measures by ensuring a strong firewall configuration, regular program updates, adequate antivirus protection, and

enforcing strong passwords. Based on standard approaches and applications, Information Technology Specialists oversee randomly conducted security checks on operating systems within City agencies. Information Technology Specialists develop plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure and to meet emergency data processing needs. They also perform risk assessments and train users to promote security awareness.

Coordinate and Manage Database Environments. Information Technology Specialists modify existing databases and database management systems and plan, coordinate, and implement security measures to safeguard information in computer files against accidental or unauthorized damage, modification, or disclosure.

Design, Build, or Configure Networks. Information Technology Specialists design, build, or operate equipment configuration prototypes, including network hardware, software, servers, or server operation systems. They determine specific network hardware or software requirements, such as platforms, interfaces, bandwidths, or routine schemas. Information Technology Specialists also maintain networks and develop strategies, proposals, and budgets for network equipment replacement.

Oversee Geographic Information System (GIS) Data. Information Technology Specialists design or prepare graphic representations of GIS data, using GIS hardware or software applications. They enter data into GIS databases, using techniques such as coordinate geometry, keyboard entry of tabular data, manual digitizing of maps, scanning or automatic conversion to vectors, or conversion of other sources of digital data. Information Technology Specialists also perform geospatial data building, modeling, or analysis, using advanced spatial analysis, data manipulation, or cartography software.

DEFINITION OF CLASS

An Information Technology Specialist in this class serves as a non-supervisory member assigned to the Department of Innovation and Technology. This class, in coordination with the Chief Information Officer, is responsible for leading, administering, developing, delivering, and supporting information technology systems and services. This class covers only those positions / specialties for which the paramount is knowledge of information technology principles, concepts, and methods; e.g. data storage, software applications, and networking. Parenthetical specialty titles defined below further identify the duties and responsibilities performed by an Information Technology Specialist and the special knowledge and skills needed.

DUTIES AND RESPONSIBILITIES (Illustrative)

The duties specified below are representative of the range of duties assigned to this job class and are not intended to be an inclusive list.

Information Technology Specialists (Software Engineers) may perform a range of duties including, but not limited to:

- Modifies existing software to correct errors, to adapt it to new hardware, or to upgrade interfaces and improve performance
- Develops or directs software system testing or validation procedures
- Directs software programming and development of documentation
- Consults with other DoIT personnel and City agencies on project status, proposals, or technical issues, such as software system design or maintenance
- Prepares reports or correspondence concerning project specifications, activities, or status
- Stores, retrieves, and manipulates data for analysis of system capabilities and requirements

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- Evaluates and selects computer hardware and software; Helps stage, install, and maintain systems; Troubleshoots compatibility and connectivity problems
- Assists system users on systems and equipment; Provides technical and functional advice to users as needed
- Responds to user email inquiries or sets up automated systems to send responses
- Monitors security system performance logs to identify problems and notifies Information Technology Specialists (Information Security Analysts) when problems occur
- Trains users to use new or modify equipment
- Performs special projects and other duties as assigned

Information Technology Specialists (Network / Enterprise Engineers) may perform a range of duties including, but not limited to:

- Communicates with system users to ensure accounts are set up properly or to diagnose and solve operational problems
- Coordinates network operations, maintenance, repairs, or upgrades
- Designs, builds, or operates equipment configuration prototypes, including network hardware, software, servers, or server operation systems
- Determines specific network hardware or software requirements, such as platforms, interfaces, bandwidths, or routine schemas
- Designs, organizes, and delivers product awareness, skills transfer, or product education sessions for system users
- Designs, builds, implements, and supports wireless technology (i.e. 802.11 a/b/g)
- Secures network system by establishing and enforcing policies; defining and monitoring access
- Monitors network performance and ensures system availability and reliability
- Prepares design presentations and proposals
- Researches and tests new or modified hardware or software products to determine performance and interoperability
- Maintains networks by performing activities such as file addition, deletion, or backup
- Participates in network technology upgrade or expansion projects, including installation of hardware and software and integration testing
- Develops strategies, proposals, and budgets for network equipment replacement
- Attends conferences and training sessions to keep up with changes in technology
- Trains other DoIT personnel to resolve redundant network problems/issues
- Performs special projects and other duties as assigned

Information Technology Specialists (Systems Engineers) may perform a range of duties including, but not limited to:

- Communicates with other DoIT personnel and City agencies to understand specific system requirements
- Provides advice on project costs, design concepts, or design changes
- Documents design specifications, installation instructions, and other system-related information
- Verifies stability, interoperability, portability, security, or scalability of system architecture
- Establishes functional or system standards to ensure operational requirements, quality requirements, and design constraints are addressed
- Directs the installation of operating systems, network or application software, or computer or network hardware
- Identifies system data, hardware, or software components required to meet user needs

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- Performs ongoing hardware and software maintenance operations, including installing or upgrading hardware or software
- Collaborates with Information Technology Specialists (Network/Enterprise Engineers) or Information Technology Specialists (Software Engineers) to select appropriate design solutions or ensure the compatibility of system components
- Evaluates current or emerging technologies to consider factors such as cost, portability, compatibility, or usability
- Trains users in system operation or maintenance
- Performs special projects and other duties as assigned

Information Technology Specialists (Systems Analysts) may perform a range of duties including, but not limited to:

- Expands or modifies systems to serve new purposes or improve work flow
- Develops specifications, diagrams, and flowcharts for Information Technology Specialists (Network/Enterprise Engineers) to follow
- Tests, maintains, and monitors computer programs and systems, including coordinating the installation of computer programs and systems
- Develops, documents, and revises system design procedures, test procedures, and quality standards
- Recommends new equipment or software packages
- Provides users with assistance solving computer related problems, such as malfunctions and program problems
- Prepares concise, informational systems documentation to provide historical and operating data on an automated systems
- Reads manuals, periodicals, and technical reports to learn how to develop programs that meet user requirements
- Coordinates and links computer systems to increase compatibility so information can be shared within City departments
- Develops complex spreadsheet, word processing, or desktop publishing applications
- Trains users to work with computer systems and programs
- Performs special projects and other duties as assigned

Information Technology Specialists (Systems Administrators) may perform a range of duties including, but not limited to:

- Maintains and administers computer networks and related computing environments including computer hardware, systems software, applications software, and all configurations
- Performs data backups and disaster recovery operations
- Diagnoses, troubleshoots, and resolves hardware, software, or other network and system problems, and replaces defective components when necessary
- Plans, coordinates, and implements network security measures to protect data, software, and hardware
- Designs, builds, and configures servers in a LINUX environment
- Configures, monitors, and maintains email applications or virus protection software
- Monitors the performance of computer systems and networks, and coordinates computer network access and use
- Designs, configures, and tests computer hardware, networking software, and operating system software

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- Monitors network performance to determine whether adjustments need to be made and to determine where changes will need to be made in the future
- Recommends changes to improve systems and network configurations and determine hardware or software requirements related to such changes
- Trains users in computer system use
- Performs special projects and other duties as assigned

Information Technology Specialists (Database Administrators) may perform a range of duties including, but not limited to:

- Tests databases, corrects errors, and makes necessary modifications
- Specifies users and user access levels for each segment of database
- Ensures all database environments are operating with proper data communication interfaces
- Modifies existing databases and database management systems
- Plans, coordinates, and implements security measures to safeguard information in computer files against accidental or unauthorized damage, modification, or disclosure
- Works as part of a project team to coordinate database development and determine project scope and limitations
- Approves, schedules, plans, and supervises the installation and testing of new products and improvements to computer systems such as the installation of new databases
- Reviews project requests describing database user needs to estimate time and cost required to accomplish projects
- Develops standards and guidelines to guide the use and acquisition of software and to protect vulnerable information
- Prepares bid documents and related material to obtain information on prices of goods and services from vendors; Analyzes bids and makes recommendations
- Plans and approves proposed database system storage, allocates current storage and capacity, and installs server database upgrades
- Trains users and answers questions
- Performs special projects and other duties as assigned

Information Technology Specialists (Geographic Information Systems Analysts) may perform a range of duties including, but not limited to:

- Designs or prepares graphic representations of GIS data, using GIS hardware or software applications
- Analyzes GIS data to identify spatial relationships or display results of analyses, using maps, graphs, or tabular data
- Designs or coordinates the development of integrated GIS spatial or non-spatial databases; Maintains or modifies existing GIS databases
- Maintains understanding of City Master Plan amendments, zoning and land use regulations, and architectural design standards
- Incorporates knowledge and expertise of planning data (census, demographic) into work product as applicable
- Enters data into GIS databases, using techniques such as coordinate geometry, keyboard entry of tabular data, manual digitizing of maps, scanning or automatic conversion to vectors, or conversion of other sources of digital data
- Reviews existing or incoming data for currency, accuracy, usefulness, quality, or completeness of documentation

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- Performs geospatial data building, modeling, or analysis, using advanced spatial analysis, data manipulation, or cartography software
- Selects cartographic elements needed for effective presentation of information
- Provides technical support to users regarding the maintenance, development, or operation of GIS databases, equipment, or applications
- Develops applications documentation, user training materials, and quality control procedures
- Trains users in the use of GIS and related software, workstations, printers, and plotters, digitizing tablets and tables, and GIS networking systems
- Develops presentations to be released to the public for community input
- Performs special projects and other duties as assigned

Information Technology Specialists (Information Security Analysts) may perform a range of duties including, but not limited to:

- Develops plans to safeguard computer files against accidental or unauthorized modification, destruction, or disclosure and to meet emergency data processing needs
- Encrypts data transmissions and erects firewalls to conceal confidential information as it is being transmitted and to keep out tainted digital transfers
- Reviews violations of computer security procedures and discusses procedures with violators to ensure violations are not repeated
- Monitors use of data files and regulates access to safeguard information in computer files
- Monitors current reports of computer viruses to determine when to update virus protection systems
- Modifies computer security files to incorporate new software, correct errors, or change individual access status
- Performs risk assessments and executes tests of data processing systems to ensure functioning of data processing activities and security measures
- Confers with users to discuss issues such as computer data access needs, security violations, and programming changes
- Coordinates implementation of computer system plan with other DoIT personnel, City agencies, and outside vendors
- Trains users and promotes security awareness to ensure system security and to improve server and network efficiency
- Performs special projects and other duties as assigned

KNOWLEDGE, SKILLS, AND ABILITIES

The knowledge, skill, and ability of an Information Technology Specialist increases with the level of responsibility and experience.

At the entry-level, knowledge requirements might include basic knowledge of:

- Information technology principles, methods, and practices in the assigned specialty area sufficient to perform routine and recurring assignments, such as local area and wide area networking principles and concepts; backup and recovery procedures; operating systems and platforms used; software distribution tools and mechanisms; and Federal enterprise architecture principles
- Information technology systems development life cycle management concepts to identify and resolve issues and problems
- Performance monitoring principles and methods and quality assurance principles sufficient to evaluate established methods and procedures and prepare recommendations for changes in

methods and practices where appropriate
- Technical documentation methods and procedures sufficient to prepare and update manuals, instructions, and operating procedures
- Avaya technologies (i.e. Edge, Distribution, Core Switches) and Fortinet Firewall and other Firewall solutions
- Groupwise 8 and Cloud email solutions; Symantec and other virus protection solutions; Virtual environments using VMware; Oracle Applications (i.e. EBS and Cloud); HRIS and Time and Attendance Solutions; and Microsoft SQL Databases
- City Master Plan amendments, zoning and land use regulations, architectural design standards, and planning data (census, demographic)
- City policies and regulations concerning use of vacant, publicly owned land for development
- City, State, and Federal regulations regarding the rehabilitation of vacant schools and religious buildings and housing, planning, and development
- ESRI platforms, including ArcGIS Online, ArcGIS for Server, ArcDesktop, and other products
- Systems security methods and procedures sufficient to ensure the application of appropriate security measures to an assignment
- Analytical methods and oral and written techniques
- Personal computer capabilities and technology application in the cloud environment
- Transmission, broadcasting, switching, control, and operation of telecommunications systems
- Circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming
- Arithmetic, algebra, geometry, calculus, statistics, and their applications
- Structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar

At the intermediate level, knowledge requirements might include detailed, intensive knowledge of:
- Information technology principles, methods, and practices in the assigned specialty area sufficient to plan and carry out difficult and complex assignments and develop new methods, approaches, and procedures, such as local area and wide area networking principles and concepts; backup and recovery procedures; operating systems and platforms used; software distribution tools and mechanisms; and Federal enterprise architecture principles
- The City's information technology infrastructure sufficient to provide advice and guidance on a wide range and variety of complex information technology issues
- Performance management/measurement methods, tools, and techniques to interpret information technology policies, standards, and guidelines
- Avaya technologies (i.e. Edge, Distribution, Core Switches) and Fortinet Firewall and other Firewall solutions
- Groupwise 8 and Cloud email solutions; Symantec and other virus protection solutions; Virtual environments using VMware; Oracle Applications (i.e. EBS and Cloud); HRIS and Time and Attendance Solutions; and Microsoft SQL Databases
- City Master Plan amendments, zoning and land use regulations, architectural design standards, and planning data (census, demographic)
- City policies and regulations concerning use of vacant, publicly owned land for development
- City, State, and Federal regulations regarding the rehabilitation of vacant schools and religious buildings and housing, planning, and development
- ESRI platforms, including ArcGIS Online, ArcGIS for Server, ArcDesktop, and other products
- Systems testing and evaluation principles, methods, and tools sufficient to test and optimize the

functionality of systems, networks, and data
- Analytical methods and practices sufficient to conduct analyses and recommend resolution of complex issues affecting the specialty area
- Information technology security principles and methods
- Internet technologies to analyze the Internet potential of systems, networks, and data
- New and emerging information technologies and/or industry trends sufficient to evaluate and recommend adoption of new or enhanced approaches to delivering information technology services
- Acquisition management and cost-benefit analysis policies and procedures to evaluate proposals for the acquisition of information technology products or services
- Project management principles and methods
- Oral and written communication techniques necessary to prepare and present reports
- Personal computer capabilities and technology application in the cloud environment
- Transmission, broadcasting, switching, control, and operation of telecommunications systems
- Circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming
- Arithmetic, algebra, geometry, calculus, statistics, and their applications
- Structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar

At the advanced level, knowledge requirements might include professional, comprehensive knowledge of:
- Information technology principles, methods, and practices in the assigned specialty area sufficient to develop and interpret policies, procedures, and strategies governing the planning and delivery of services throughout the City; provide expert technical advice, guidance, and recommendations to management on critical information technology issues; apply new developments to previously unsolvable problems; and make decisions or recommendations that significantly influence important City information technology policies or programs
- The City's information technology architecture
- Emerging technologies and their applications to business processes to design, develop, and manage systems that meet current and future business requirements
- Avaya technologies (i.e. Edge, Distribution, Core Switches) and Fortinet Firewall and other Firewall solutions
- Groupwise 8 and Cloud email solutions; Symantec and other virus protection solutions; Virtual environments using VMware; Oracle Applications (i.e. EBS and Cloud); HRIS and Time and Attendance Solutions; and Microsoft SQL Databases
- City Master Plan amendments, zoning and land use regulations, architectural design standards, and planning data (census, demographic)
- City policies and regulations concerning use of vacant, publicly owned land for development
- City, State, and Federal regulations regarding the rehabilitation of vacant schools and religious buildings and housing, planning, and development
- ESRI platforms, including ArcGIS Online, ArcGIS for Server, ArcDesktop, and other products
- Information technology security concepts, standards, and methods
- Project management principles, methods, and practices, including developing plans and schedules, estimating resource requirements, defining milestones and deliverables, monitoring activities, and evaluating and reporting on accomplishments
- Oral and written communication techniques sufficient to communicate complex technical requirements to non-technical personnel and present briefings to senior management officials on

complex and/or controversial issues
- Personal computer capabilities and technology application in the cloud environment
- Transmission, broadcasting, switching, control, and operation of telecommunications systems
- Circuit boards, processors, chips, electronic equipment, and computer hardware and software, including applications and programming
- Arithmetic, algebra, geometry, calculus, statistics, and their applications
- Structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar

Skill in:
- Collecting and analyzing pertinent data; utilizing a geographical database as applicable; and documenting and maintaining complex application and process or configuration information
- Application of object oriented programming techniques, languages, and software development and engineering frameworks
- A variety of programming languages, databases, and operating systems on multiple hardware platforms
- Installing and maintaining applications, operating systems, or equipment
- Preparing clear and concise technical reports, recommendations, and presentations
- Delivering public presentations using GIS data and graphics
- Deploying and managing complex event processing engines
- Infrastructure, technical IT operations, networking and cloud computing, IOT integration platforms or complex system integrations, IT security and privacy, big data, analytics and streaming real-time analytics, IoT field technology such as devices/sensors, M2M, SCADA, edge computing, and wireless communication protocols
- Writing computer programs for various purposes
- Diagnosing technology applications capabilities and requirements in order to resolve operational problems
- Identifying complex problems and reviewing related information to develop and evaluate options and implement solutions
- Security assessments and recommendations
- The use of relational and distributed database technology
- Use of Microsoft Office (e.g. Word, Access, PowerPoint, and other office software packages) in order to prepare presentations, write letters and memorandums
- Use of Excel (e.g. Formulas, Pivot Tables, Vlookup, Hlookup, other functions, charts and tables) functionality in order to analyze data and present data on technology operations
- Use of large complex, multi-departmental systems, and demonstrate the knowledge required to interpret resulting reports and summaries
- Interpersonal skills to interact effectively with personal contacts in a business-like, customer service oriented manner, and maintain favorable public relations
- Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times
- Talking to others to convey information effectively
- Understanding written sentences and paragraphs in work related documents
- Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems

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Ability to:

- Apply the principles, practices and techniques of systems programming to the installation, modification and maintenance of databases, and operating and telecommunication systems
- Maintain multiple information technology systems that may have different databases and use different programming languages and operating systems
- Evaluate, test, implement, and support new network systems
- Research, develop, design, implement, and maintain complex operating systems
- Work with sensitive information and maintain confidentiality of such data and information
- Use project management methods, principles, and tools (software) to schedule projects and monitor progress
- Lead efforts in implementing configuration management and systems change management
- Provide technical advice / guidance to management for system use, i.e., capacity and resource utilization
- Demonstrate hands-on experience in the following areas: technology architecture assessments; strategy definition; blueprints; integration platforms, methods, and related technologies, including IOT Platforms, APIs, MQx, Android, iOS; programming languages such as Java, J2EE, Node.js, groovy, ruby on rails, python, Objective-C; and any other technologies used in IoT, including RFID, Bluetooth LE, Zigbee, Cisco, Axeda, Thingworx, WindRiver, SCADA, M2M, AI, 2lemetry, and AWSConduct research into new information technology
- Analyze and evaluate administrative processes and procedures for automation purposes
- Write computer program operating instructions
- Create models, diagrams, or visuals to illustrate enterprise architecture direction
- Diagnose and correct computer hardware and software problems
- Analyze data and develop logical and cost effective solutions to problems
- Make decisions based on factual data and to evaluate the progress or success of systems
- Provide information technology-related advice and assistance to technical and non-technical individuals at all levels of the City
- Understand and explain technical terms and concepts in a non-technical manner
- Read and interpret technical manuals used in the assembly, installation, repair, and operation of personal computers and data communications equipment
- Work with multiple priorities under time constraints
- Combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events)
- Develop training methods, procedures, and materials
- Effectively adapt to rapidly changing technology and apply it to business needs
- Interact effectively with senior leadership, department personnel, vendors, and others with tact and diplomacy
- Read and understand information and ideas presented in writing
- Communicate information and ideas in speaking so others will understand
- Listen to and understand information and ideas presented through spoken words and sentences
- Speak clearly so others can understand you
- Work as part of a team

SUPERVISORY CONTROLS

The level and nature of the supervision given to an Information Technology Specialist will vary depending on their experience and level, i.e. whether the Information Technology Specialist is at the entry, intermediate or advanced professional level. Supervision may range from close and detailed up to

and including a review only for adherence to policy.

At the entry-level, the Information Technology Specialist works as instructed and consults with the supervisor, higher-grade information technology specialist professionals or higher-grade information technology professionals on matters not specifically covered in the original instructions. All work is closely controlled either through the structured nature of the work itself, through review in-progress, or through review of completed work for accuracy, adequacy, and adherence to instructions and established procedures.

At the intermediate level, the Information Technology Specialist independently plans and carries out the assignments in conformance with accepted policies and practices; adheres to instructions, policies, and guidelines in exercising judgment to resolve commonly encountered work problems and deviations; and brings controversial information or findings to the supervisor's attention for direction. The supervisor outlines or discusses possible problem areas and defines objectives, plans, priorities, and deadlines. Assignments have clear precedents requiring successive steps in planning and execution. The supervisor provides assistance on controversial or unusual situations that do not have clear precedents; reviews completed work for conformity with policy, the effectiveness of the Information Technology Specialist's approach to the problem, technical soundness, and adherence to deadlines; and does not usually review in detail the methods used to complete the assignment.

At the advanced level, the Information Technology Specialist determines the most appropriate principles, practices, and methods to apply in all phases of assignments, including the approach to be taken, degree of intensity, and depth of research in management advisories. The Information Technology Specialist frequently interprets regulations on his/her own initiative, applies new methods to resolve complex and/or intricate, controversial, or unprecedented issues and problems, and resolves most of the conflicts that arise. The Information Technology Specialist also keeps the supervisor informed of progress and of potentially controversial matters. The supervisor outlines overall objectives and available resources. The Information Technology Specialist and supervisor, in consultation, discuss timeframes, scope of the assignment including possible stages, and possible approaches. The supervisor reviews completed work for soundness of overall approach, effectiveness in meeting requirements or producing expected results, the feasibility of recommendations, and adherence to requirements. The supervisor does not usually review methods used.

GUIDELINES

A wide range of guidelines exist for Information Technology Specialists. The difference in levels is determined by the judgment required to identify which guidelines to use, how to interpret the guidelines, and to make judgments with missing, incomplete, or conflicting information. At the entry-level, the Information Technology Specialist uses specific and detailed guidelines that cover all aspects of the work. At the intermediate level, the Information Technology Specialist uses a wide variety of reference materials and manuals; however they are not always directly applicable to issues and problems or have gaps in specificity. Precedents are available outlining the preferred approach to more general problems or issues. At the advanced level, the Information Technology Specialist uses guidelines and precedents that are very general regarding agency policy statements and objectives. Guidelines specific to assignments are often scarce, inapplicable, or have gaps in specificity that require considerable interpretation and/or adaptation for application to issues and problems. Guidelines exist in the form of agency regulations, legislation, information technology procedures, manuals for hardware and software, installation guides, online references, and workbooks covering daily equipment operations; specialized dictionaries and models; and local, state, and federal rules and regulations. The City of Detroit Charter also offers guidelines for how the city should be run; therefore the Information Technology Specialists must ensure

compliance with the Charter in addition to compliance with other information technology standard bodies. However, judgment is required to determine applicability of these other guidelines.

COMPLEXITY
The complexity of the work derives from the nature, number, variety, and intricacy of tasks, steps, processes, or methods in the work performed; the difficulty in identifying what needs to be done; and the difficulty and originality involved in performing the work. Work complexity is further driven by the policies and procedures that guide the work or from communications with City employees unfamiliar with information technology activities that are easily understood and used by people with and without a technology background.

SCOPE & EFFECT
The scope and effect of the work centers on support to the supervisor or higher-grade information technology professionals in the administration, design, or programming of information technology software, hardware, systems, or databases. The problems and error conditions encountered are conventional to data processing although solutions are not always covered by established or standardized procedures. Results of the work affect the efficiency or processing services, adequacy of products used in subsequent activities, and processing procedures and methods.

PERSONAL CONTACTS
Contacts are with employees in the same agency, but outside the immediate organization. For example, contacts may be with personnel in other functional areas. Contacts also may be with employees in other agencies who are providing feedback or making requests for information. Contacts may also be with members of the general public in a moderately structured setting or with consultants and contractor representatives such as vendor repair technicians, customer engineers, or representatives of professional associations.

PURPOSE OF CONTACTS
At the entry and intermediate levels, the purpose of contacts is to acquire, clarify, or exchange information needed to complete assignments, regardless of the nature of the information. The information may range from easily understood to highly technical. At the advanced level, the purpose of contacts is to plan, coordinate, or advise on work efforts, or to resolve issues or operating problems by influencing or persuading people who are working toward mutual goals and have basically cooperative attitudes. Contacts typically involve identifying options for resolving problems.

PHYSICAL DEMANDS
The work is sedentary. Some work may require walking and standing in conjunction with travel and to attendance at meetings and conferences away from the work site. Some Information Technology Specialists may carry light items, such as papers, books, or small parts, or drive a motor vehicle. The work does not require any special physical effort.

WORK ENVIRONMENT
Work is performed in a comfortable office environment, which is appropriately lighted, heated and, cooled. The work environment contains no significant hazards. Some work may require walking and standing in conjunction with travel to and attendance at meetings and conferences away from the work site. The Information Technology Specialist may encounter individuals that are upset.

During extended periods each year, Information Technology Specialists may be required to work considerable overtime.

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MINIMUM QUALIFICATIONS

These minimum qualifications establish the education, training, experience, special skills and /or license(s), which are required for employment in the classification. Minimum qualifications increase based on the level of the position. Note: additional qualifications (i.e., special conditions) may apply to a particular position.

Education

For all Information Technology Specialists, it is a requirement to have completed a bachelor's degree from an accredited college or university, with major course of work in computer science, information systems, programming, systems analysis, geographic information science, engineering, communications, or other related field of study.

Experience

For entry into the Information Technology Specialist position, no work experience is required; however, the minimum education requirements must be met. One year of experience in systems analysis, computer science engineering, programming, information security management, or geographical information systems analysis is preferred but not required. Information Technology Specialists must demonstrate proficiency with integrated word processing and spreadsheet functions.

For selection, appointment to an Information Technology Specialist level II or higher, in addition to the minimum education requirements, more progressive levels of experience are required based on the following:

Information Technology Specialist II – at least two (2) years of experience
Information Technology Specialist III – at least three (3) years of experience
Information Technology Specialist IV – at least four (4) years of experience

License / Certificates

Some positions may require certification in specific hardware, software, or other technology related matters.

Equivalency

Equivalent combinations of education and experience that provide the required knowledge, skills, and abilities will be evaluated on an individual basis.

WRITTEN TEST REQUIREMENTS

Applicants may be required to illustrate proficiency in the use of software packages such as the Microsoft Office Suite including Word and Excel. Applicants may be required to take written tests or work simulations to illustrate proficiency in other skill sets as may be determined based on the duties and responsibilities to be performed. These written tests might include mathematical skills and writing skills, including grammar and reading comprehension.

BACKGROUND AND OTHER CHECKS

Applicants may be subject to background, criminal, and credit checks.

POSITION TITLES

There are four positions in the Information Technology Specialist job class specification:

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Information Technology Specialist I
This is the entry-level. As a trainee, the Information Technology Specialist carries out a range of professional assignments while learning the methods of the work.

Information Technology Specialist II
This is the intermediate level. The Information Technology Specialist performs an expanding range of professional information technology and/or computer science and engineering assignments in a developing capacity.

Information Technology Specialist III
This is the experienced level. The Information Technology Specialist performs a full range of professional information technology and/or computer science and engineering assignments. Considerable independent judgment is used to make decisions in carrying out assignments that have significant impact on services or programs. Guidelines may be available, but require adaptation or interpretation to determine appropriate courses of action.

Information Technology Specialist IV
This is the advanced level. The Information Technology Specialist may function as a lead information technology specialist or head information technology specialist. At this level, Information Technology Specialists are responsible for overseeing the work assignments of other professionals or have regular assignments, which have been recognized by Human Resources as having significantly greater complexity than those assigned at the experienced level.

Based on the program functional area, parenthetical titling may be used when special subject matter knowledge of a specific functional area is required.

PROBATIONARY PERIOD

Individuals appointed to a position in this class will be required to serve a probationary period of six months with the possibility of a six-month extension for a total of twelve months. If promoted to a position in this class, an individual will be required to serve a probationary period of six months. Performance will be carefully evaluated during the probationary period. Continued employment in this class will be contingent upon successful completion of the probationary period and meeting all of the performance expectation requirements.

CODE DESIGNATIONS

Class Code: 15-1100-00
EEO Code: 2
Date Established: 11/23/2015