

DEPARTMENT OF HUMAN RESOURCES DEVELOPMENT	2.935
STATE OF HAWAII	2.936
.....	2.937
	2.938
Class Specifications	2.939
for the	2.940
	2.929

INFORMATION TECHNOLOGY SPECIALIST SERIES

Series Definition:

This series reflects responsibility for the performance and/or supervision of professional information technology (IT) work involving the analysis, design, development, implementation, modification, maintenance and/or development of standards for computer-based information system(s) and services, database(s), network(s), applications, and/or security requirements to meet the business needs of an organization. Positions are engaged in such work for a majority of work time and may specialize in one or more specialty areas or serve as a generalist in multiple capacities for an organization or program. Specialty areas include:

Applications Programming: involves developing, testing, implementing, documenting, developing standards, and maintaining mainframe, mid-range, micro and client server application programs in a user organization.

Database Administration/Analysis: involves designing, implementing, maintaining, documenting, developing standards, and securing databases. This includes installing software; defining required parameters for database definition; analyzing data volume and space requirements; performing database and parameter tuning; executing database backups and recoveries; monitoring database requirements; verifying integrity of data in databases; and coordinating the transformation of logical structures to properly performing physical structures.

Internet Services: involves the administration, backup/disaster recovery, and management of Internet servers; development, deployment, and maintenance of Internet applications, server access and security, intrusion detection, mail services, domain name services, video production, and/or storage management; and/or monitoring of usage, effectiveness and changing requirements.

Networking Services: involve management, administration, and development and implementation of standards for a local area network (LAN), wide area network (WAN), or wireless network for an organization; includes ensuring network security, firewall installation, maintenance, and administration and intrusion detection; installing new applications, distributing software upgrades, monitoring daily activity, enforcing licensing agreements, developing a storage management program, and providing for routine backups; or designing, developing, implementing, and maintaining telecommunication (e.g., voice, data, video) networks.

Security Administration/Analysis: involves developing, implementing, administering, and/or maintaining physical and systems security standards, policies, procedures, and access to ensure the confidentiality, integrity, and availability of systems, networks, servers and data by monitoring physical access to restricted areas and electronic access to systems, reviewing logs, identifying security threats and developing countermeasures through use of appropriate technologies.

Systems Analysis: involves the development of new information systems and/or enhancement of existing systems. This includes determining feasibility and designing a new system or enhancements of an existing system; converting user requirements into a set of functional specifications; implementing the new system or enhancements; and/or assisting with or designing the databases; preparing application test data and running of unit, string, and systems tests; and developing and implementing systems analysis standards and procedures.

Systems Programming: involves systems software installation; debugging, testing and maintenance for some or all of a computer system's software (e.g., operating systems, network, database management systems, etc.) in a user organization; providing technical assistance/advice to systems analysts, application programmers, database analysts, network analysts, and operations personnel; and developing and implementing systems programming standards and procedures.

Performance of work requires knowledge and application of information technology principles, concepts, standards, policies and procedures; computer hardware, software, languages and procedures; personal computer (PC), server, mini and/or mainframe operating systems; basic mathematics; problem solving methods and techniques; and report writing.

Level Distinctions:

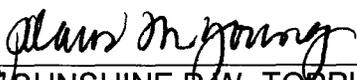
Classes in this series are distinguished from each other by differences in:

1. Scope and complexity of work assignments;
2. Breadth of knowledge and abilities required to perform work;
3. Nature and scope of recommendations, decisions and commitments;
4. Nature and degree of supervision received;
5. The nature and extent of supervisory control exercised over subordinate positions, and the complexity and size of the organization supervised;

6. Guidelines available.

This is an amendment to the class specification for the INFORMATION TECHNOLOGY SPECIALIST (I, II, III, IV, V, VI and VII) SERIES approved on August 27, 2008.

DATE APPROVED: 7/29/11



for SUNSHINE P.W. TOPPING
Director of Human Resources Development

INFORMATION TECHNOLOGY SPECIALIST I
(INFORMATION TECHNOL SPCLT I)

2.935

Distinguishing Characteristics:

This is the entry trainee level and involves assisting with providing IT services within an agency under close supervision and receives training in the principles, concepts and techniques pertinent to a specialty area(s). The work involves simple and routine assignments in analysis, programming, installation, maintenance and/or systems support; and is performed according to detailed instructions and specific methods, procedures and standards.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Attends orientation and training sessions;
2. Learns the fundamentals of specialized area(s) of work assigned;
3. Accompanies a higher level specialist on interviews and meetings as an observer or assistant;
4. Performs simple tasks to gain knowledge and develops skill in the application of work processes and techniques;

5. May compile data and search records for data on a specific project; and research specific subject matter area in assisting a higher level specialist;
6. May draft system flow charts; and receive training in computer programming;
7. Assists with database definition of elementary fields;
8. Updates content on web sites under supervision of a higher level specialist.

INFORMATION TECHNOLOGY SPECIALIST II
(INFORMATION TECHNOL SPCLT II)

2.936

Distinguishing Characteristics:

This is the advanced trainee level where assignments range from simple to moderately complex involving computers and/or telecommunication hardware/software, applications, systems support projects and/or databases for small scale systems/programs or segments of larger systems/programs.

- Supervision typically is relaxed on simple to routine assignments but close on more complex work.
- Work results are reviewed for technical competence, accuracy, and completeness; and personal contacts are usually limited to the immediate supervisor or other staff in the work unit.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Receives orientation on State programs, recordkeeping and reporting systems, machine capabilities, and management needs for information;
2. Writes program instructions from diagrams developed by others;
3. Devises program logic, diagrams and instructions for programs and program segments of limited scope and difficulty;
4. Under close supervision, prepares and/or modifies simple application program test data and documentation;

5. Modifies existing routines to accommodate limited subject matter or specification changes;
6. Participates in equipment installation activities to learn specialized area(s) of work; e.g., computer operations, coding, diagramming, programming, etc.;
7. Under close supervision, assists with identifying and resolving user problems involving applications installed on various platforms; and verifying system changes;
8. Under close supervision, assists with analysis of telecommunication services and user needs; and analysis of telecommunication system malfunctions;
9. Under close supervision, assists with unit, system and/or usability testing to evaluate hardware and software products to determine success in meeting user needs and/or standards;
10. Under close supervision, assists with monitoring and tracking of actual IT security risks, threats, and/or violations;
11. Performs routine debugging according to established methods and procedures to resolve problems with low impact on others;
12. Assists higher level specialist with establishing and maintaining data dictionaries and standard glossaries of terms;
13. Reviews system logs to identify events and errors; and runs basic tests on hardware/software and resolve simple problems;
14. Under close supervision, assists with creating, editing, and/or maintaining web pages;
15. Under close supervision, assists with Internet server monitoring and maintenance;
16. Installs and updates basic PC configurations; and troubleshoots hardware/networking problems of simple to moderate complexity;
17. Assists with database definition of data files and tablespaces.

INFORMATION TECHNOLOGY SPECIALIST III
(INFORMATION TECHNOL SPCLT III)

2.937

Distinguishing Characteristics:

This level reflects independent performance of moderately complex work involving systems analysis, programming, installation, maintenance, troubleshooting and/or technical support for an IT program.

- Assignments are normally limited in complexity and include:
 - developing a subsystem or a system which is simple and narrow in scope;
 - systems analysis where the design involves specified requirements and a fairly direct translation of existing work processes;
 - developing programming logic and detailed diagrammatic plans which do not require substantive subject matter knowledge;
 - responding to and resolving trouble reports from users according to established guidelines and precedent actions;
 - coordinating installations and modifications of systems; and
 - analyzing problems for segments or modifications of existing applications and assisting with resolution of problems.
- Work processes analyzed are relatively uniform and stable, and generally involve one homogenous group of subject matter; in-depth analysis and interpretations are not required.
- Personal contacts are made within and outside the work unit to obtain or provide routine, factual information.
- Work is performed under general supervision according to established policies, procedures, techniques and methods.

Illustrations:

IT Specialist (Generalist)

Performs a limited range of activities involved with monitoring, maintaining, and supporting installed systems and services. Established procedures are followed and

appropriate methods are applied to ensure that systems and services are functioning properly.

IT Specialist (Applications Programming)

Performs enhancements on applications software program; makes periodic revisions to code or updates technical documentation in response to changes in activities being supported; prepares or modifies application program test data; debugs source code to correct program execution errors; exercises judgment in determining the most efficient methods for updating, testing, and debugging code; and identifies and refers appropriate problems to a higher level specialist.

IT Specialist (Database Administration/Analysis)

Maintains databases that are accessible over the network to customers within the organization; applies troubleshooting skills to respond to basic accessibility, availability, or operability problems; monitors file and tablespace space usage; and recognizes and refers major problems encountered to a higher level IT Specialist.

IT Specialist (Internet Services)

Assists a higher level specialist with the installation, configuration, migration, and documentation of Internet servers and services and performs various Internet applications and protocols, modifications, and enhancements; or independently provides Internet services for departmental programs that require relatively limited design, Internet applications and protocols, management and maintenance services.

IT Specialist (Networking Services)

Monitors network performance through use of established online network monitoring tools according to established procedures to isolate potential sources of network problems; and monitors and alerts network administrators regarding deterioration in performance and implements established actions, as directed, to restore network functionality. May also install and test new network software including upgrades, fixes and patches using well documented performance monitoring tools, and requiring judgment in evaluating software performance based on established parameters.

IT Specialist (Security Administration/Analysis)

Maintains IT systems security documentation. Periodic revisions, as directed, are made in response to new requirements or changes in policies; and decisions are made on the most efficient methods for updating documentation. May also monitor and analyze systems logs to identify systems security trends according to established

procedures to monitor activities; identify and refer potential problems to a higher level IT Specialist; and provide basic security services such as resetting of user passwords.

IT Specialist (Systems Programming)

Maintains documentation of installations and modifications made to systems software program by following established procedures for documenting installation activities. Determines the most effective way to organize documentation to facilitate use by more experienced specialists in troubleshooting problems.

IT Specialist (Systems Analysis)

Reviews a variety of program documents and attends design meetings with more experienced specialists to obtain an understanding of the customer's organization and desired objectives. Analysis is conducted of business processes for which systems are being developed/enhanced, and additional information is collected from customers as necessary. Decisions are limited to resolving well-defined problems.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Conducts studies of work processes, procedures, and operations of limited complexity and difficulty as they relate to the conversion of data to a computer-based information system; and analyzes and identifies problems and needs;
2. Performs various fact-finding tasks of limited complexity and difficulty and develops preliminary evaluations and recommendations; Develops plans, procedures, test data and documentation for implementing a computerized system of limited complexity and difficulty;
3. Analyzes, evaluates, and makes recommendations to a higher level specialist on methods and procedures related to assigned projects;
4. Performs application maintenance and minor modifications for a program;
5. Participates with higher level specialist in designing report formats; determining data elements, data dictionary, and database design; or development and maintenance of a system;
6. Prepares system documentation, operational and user procedural manuals;
7. Assists with program coding and development to assure consistency with program design specifications;

8. Creates and modifies programs for a client/server system according to established specifications;
9. Converts generalized process or flow charts of limited complexity and difficulty into detailed plans, diagrams or charts depicting the operational sequences required for a variety of specific work processes;
10. Assists with gathering users' service and equipment needs for client applications, hardware and software product, network infrastructure and/or telecommunications activity;
11. Researches hardware/software information, and drafts specifications;
12. Coordinates equipment installations, modifications and/or changes;
13. Maintains backup, batch queuing, directory maintenance, capacity and resource management, and printing systems;
14. Performs standard maintenance, preventive maintenance, modification, testing, debugging, and disaster preparedness, testing and recovery processing according to appropriate standards;
15. Assists users in resolving simple connectivity problems, problems logging onto a system, and/or using security software;
16. Identifies, monitors, tracks and reports potential and/or actual IT security risks, threats, and/or violations;
17. Prepares standard documentation for the maintenance and processing of application programs and subsystems;
18. Develops test data and test plans for application programs and subsystems, including the backup of test data for regression testing;
19. Assists in setting up a live web cast, configuring a web server, and/or programming Internet applications;
20. Monitors and insures user requirements and vendor operational requirements;
21. Utilizes system and database utilities to develop and maintain database test data for regression testing of changes to an application;
22. Develops and maintains standard reports.

INFORMATION TECHNOLOGY SPECIALIST IV
(INFORMATION TECHNOL SPCLT IV)

2.938

Distinguishing Characteristics:

This level involves the independent performance of systems analysis, design, acquisition, installation, maintenance, programming, troubleshooting, problem resolution, and/or consulting services for specific aspects of complex IT systems. Work involves the full range of problems and consists of various duties that involve applying a series of different and unrelated processes and methods; and requires identifying and analyzing important factors and conditions to recognize and apply an understanding of interrelationships among different IT functions and activities.

- Work varies in complexity from simple to highly complex and involves one or more of the following:
 - Systems analysis of work methods and practices and design of projects which require analysis of several processes, functions, or procedures serving several purposes;
 - developing complex subsystems of large systems where the individual subsystem is of sufficient scope to exist as a system in its own right, but is being combined with other subsystems in order to facilitate the sharing of information and improve processing efficiencies;
 - developing all levels of diagrams, logical flow charts and coding material into one of a variety of computer languages, and organizing and sequencing programming actions for an application;
 - creating installation plans, procedures, test data and documentation;
 - analyzing and resolving network malfunctions;
 - monitoring or enhancing operating environments; and/or
 - supporting, maintaining and enhancing existing applications.
- Controlling precedents, policies, procedures and decisions are not immediately apparent to problems being analyzed. In some cases, guides are non-existent due to newness of major changes.
- Guidance is sought from higher level specialist in performing highly complex work.

- Recommendations, decisions and commitments at this level are limited to results obtained from analysis for data processing purposes of the assigned project area. Judgment and recommendations are heavily relied upon in making final decisions within the assigned project.
- Personal contacts vary from routine to providing and securing information on matters or problems of non-recurring nature; and explaining or interpreting facts pertaining to policies, methods, programs, plans, or individual actions.
- Duties and responsibilities may include supervising a project team of lower level IT Specialists performing moderately complex work.

Illustrations:

IT Specialist (Generalist)

Provides a variety of services essential to the effective performance of installed systems. This includes monitoring the availability and functionality of networks and hardware/software systems, and detecting and reporting problems; participating in testing and installing hardware/software systems modifications and upgrades; providing information and assistance to customers on using installed systems; and participating on teams responsible for implementing major systems changes. Judgment is exercised to identify, determine nature and potential sources of, and select appropriate actions in response to problems; evaluate test data; and anticipate customers' needs for information and assistance.

IT Specialist (Applications Programming)

Works from requirements approved by a higher level IT Specialist; generates codes for multiple applications; translates, compiles, links, tests and debugs programs; prepares instructions for operating personnel; maintains complete records of program development and revisions; and provides post-implementation support that involves troubleshooting and correcting problems with program execution.

IT Specialist (Database Administration/Analysis)

Maintains and supports databases including adding new elements to databases as directed; using database management tools and utilities in monitoring, optimizing and managing assigned databases; develops, maintains, and supports data archival procedures; and troubleshoots problems such as corrupted tables and consumption of table space, by identifying the most likely problem sources and recommending solutions.

IT Specialist (Internet Services)

Monitors ongoing operation of Internet servers and/or services for a State agency(ies) to ensure systems are functioning properly and meeting optimal performance standards; maintains user accounts; trains, diagnoses and resolves operational problems; maintains configuration files, and maintains server and/or application documentation; and installs, configures and documents new Internet servers and/or services. May work with a higher level specialist to design, program, test, debug, document and implement highly complex Internet applications that utilize various applications and protocols; and integrate multiple Internet applications into larger systems.

IT Specialist (Networking Services)

Monitors the ongoing operation of LANs and WANs to ensure that systems are functioning properly and meeting optimal performance standards. This includes administering customer accounts; providing initial orientations to new customers; diagnosing and resolving operating problems; maintaining documentation of LAN configuration including schematic diagram with layout and location of all components; executing systems backups; implementing and monitoring compliance with systems security procedures; and ensuring that proposed software applications will function in the current network environment. Work also consists of troubleshooting network problems including review of audit logs and tracing files to identify, analyze and isolate potential problem sources; and initiating contacts with applications developers or systems analysts to assist in resolving problems involving equipment, applications, or infrastructure.

IT Specialist (Security Administration/Analysis)

Installs, configures, initializes, and maintains firewalls that protect the network from intrusions, threats, and compromises; and sets up and configures firewall logs. This includes setting up and configuring servers; applying filtering rules; and performing other tasks required in maintaining security services, including monitoring firewall services and initiating action in response to attempted intrusions. Performs systems administration tasks to grant, test, modify, list or remove user logon and data access rights to servers, mini and/or mainframe computers; and develops, implements and modifies logon scripts that define system and data access rights. May also analyze and define security requirements for new software applications; review technical specifications; perform risk analyses and risk assessments; identify potential security risks; and recommend program modifications to ensure proper levels of security are implemented. Solutions are devised for security issues related to the testing and implementation of new applications.

IT Specialist (Systems Programming)

Schedules the installation of changes to the operating system. Works closely with vendors and customers in coordinating installation; and tests processes according to plans approved at a higher level. Tunes operating systems performance parameters including installing patches and downloading new drivers to optimize performance by selecting and applying standard optimization tools and techniques. Judgment is exercised to determine order in which changes must be made and the impact of changes on the current configuration and on other elements of the operating environment.

IT Specialist (Systems Analysis)

Develops design specifications for a complex module or component of a new or enhanced software system. This requires translating and interpreting customer-provided business requirements to produce technical specifications; cooperating with other design team members in integrating specifications at the system level; participating in preparing test plans; and reviewing and analyzing test data. Judgment is exercised in assisting with troubleshooting design problems encountered during testing and implementation; and modifying specifications as needed to improve design features.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Formulates plans to conduct studies relating to various work processes and procedures;
2. Conducts or leads systems analysis studies; analyzes, identifies and evaluates needs; and designs, programs, implements and troubleshoots applications for complex systems;
3. Participates in identifying hardware/software-related problems, determines appropriate solution, and develops complete specifications for its resolution and implementation;
4. Analyzes and modifies existing computer programs to increase system capabilities, corrects errors, increases system efficiencies, enhances system performance and/or satisfies the changes in the federal and State reporting requirements;
5. Prepares job control language parameters and utility control statements to execute utility programs to monitor statuses of files;

6. Integrates acquisition needs with business plan for users;
7. Implements security policies and standards;
8. Serves as organization's network, configuration, systems management, and programming resource;
9. Develops and maintains security model and procedures for information system and network;
10. Recommends hardware and software purchases; and develops specifications for hardware and software;
11. Researches new information technologies and identifies potential benefits and impact to program;
12. Configures, installs, troubleshoots and maintains program hardware/software for networks;
13. Participates in establishing and maintaining network directory structure;
14. Participates in the measurement, analysis, and performance tuning of networks to insure security, connectivity, standard adherence, and proper operations;
15. Coordinates work with hardware/software vendors and other State agencies to plan, install and maintain program's computer equipment and networks;
16. Designs, writes, tests, corrects, documents and prepares operational computer programs from general system flow charts for project requirements;
17. Analyzes and evaluates computer programming problems, determines cause, and recommends and implements corrections;
18. Provides assistance to lower level programmers in designing, coding, and testing of programs;
19. Modifies existing programs or program modules to correct or enhance program;
20. Prepares comprehensive test files for use in debugging programs and systems to validate that program modifications and enhancements work correctly;
21. Prepares detailed production application program and system operating documentation to be used for regularly scheduled processing;
22. Prepares backup/restore production processing documentation and disaster preparedness, testing and recovery processing documentation;

23. Designs, modifies, tests, and/or implements complex enhancements to web pages; e.g., develops forms and database tables to collect information for internal and consumer use;
24. Codes programs from translation of program specification to computerized procedure;
25. Performs LAN system administration in accordance with policies, procedures, and standards; and provides planning, guidance, assistance consulting and other technical support services to State agencies in the development, implementation, interconnectivity and interoperability among and between LAN and other computing platforms;
26. Maintains and configures database system to update data in multiple related databases; and troubleshoots and resolves database system conflicts which prevent data transmittal;
27. Maintains and configures Internet servers and/or domain name services tables;
28. Develops Internet applications within design specifications; troubleshoots and resolves problems such as broken links, incorrect formats, and lost pages;
29. Performs system administration and maintenance to the web hosting servers, web developing servers, and backup, purges and file compressions;
30. Conducts live web casts and other multimedia projects;
31. Writes database procedures to document process to archive and retrieve archived data.

INFORMATION TECHNOLOGY SPECIALIST V
(INFORMATION TECHNOL SPCLT V)

2.939

Distinguishing Characteristics:

This level reflects responsibility for work of a highly complex nature requiring comprehensive knowledge in one or more specialty areas. Work typically involves supervising a staff of lower level specialists (IT Specialist IV) performing the full range of IT work on a permanent basis; serving as a project or team leader (e.g., initiating and completing highly complex projects, coordinating and directing a team of lower level specialists, ensuring accuracy and timely completion) on a regular basis; serving as the chief IT Specialist for a department; or serving as a senior/expert specialist in an assigned area requiring highly specialized technical knowledge for a range of various

systems or for a highly complex system.

Work regularly involves systems analysis, design, acquisition, installation, maintenance, programming, troubleshooting, security and/or consultation for complex computing systems, applications, databases or database management systems, telecommunication, web page and/or operational problems.

- As a supervisor or project leader, work involves analysis and evaluation of major program areas which require integration and coordination, and are of such scope to require assistance of several IT Specialists; a variety of duties that involve many different and unrelated processes and methods pertinent to the IT field; substantial and complex problems; interpretation of data, planning of work, and refining methods and techniques being used. Such work includes one or more of the following:
 - planning, designing and directing large scale projects; developing complex systems; redesigning/enhancing major systems; or maintaining multiple separate and distinct systems;
 - conducting capacity planning;
 - designing multiple-server systems;
 - directing or facilitating the installation of complex systems, hardware, software, application interfaces or applications;
 - designing, developing, testing and implementing Internet servers and services, and performing a range of programming duties that require integration of various and multiple applications;
 - developing and implementing quality assurance testing and performance monitoring; and/or
 - developing security policies and standards.
- As chief IT Specialist for a department with IT activities of limited to moderate complexity, plans, directs and oversees the departmental IT systems and services independently or with the assistance of a small staff/unit of lower level specialists. The work involves responsibility for all IT systems, policies and procedures for the department and involves development, integration, coordination, management and maintenance services.
- As a senior/expert specialist in a highly specialized area such as database management, telecommunications networking, operating systems, IT security or other comparable area, provides services for a variety of programs and systems or for a highly complex and major system (delivery of multiple

purposes or functions, services multiple users and/or jurisdictions with differing needs, is utilized by large groups of users, requires on-line [real time] interfaces, etc.); and is regarded as the technical expert by other agencies for the specialized IT area or system in resolving or assessing controversial or precedent setting issues concerning the specialty area. Work involves integrating multiple systems and/or multiple system components that have a major effect on work of the organization and includes:

- designing plans and systems solutions and coordinating with developers, customers and managers to assure attainment of functionality, capacity and performance;
 - developing system procedures, maintenance procedures, resource allocations, security procedures, testing procedures, disaster and recovery standards and procedures, and system standards;
 - planning systems utilization including hardware/software, storage memory, communications, access management, database management, and networking; and/or
 - possessing highly complex technical knowledge and experienced judgment to perform work.
- Determinations are based on specialized knowledge and on precedents and decisions that can be interpreted and applied only through use of experienced judgment.
 - Final authority to make commitments is limited by established policies, precedents and administrative regulations; and final work products are reviewed primarily for conformance with administrative policies and procedures, budgetary impact, etc. Actions taken may form precedent for other related activities; and work assignments may include problems that require consideration of or recommendations for new or amended legislation for successful resolution.
 - Personal contacts involve providing and securing information on matters or problems of a non-recurring nature; and explaining or interpreting facts pertaining to policies, methods, programs, plans or individual actions.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Plans and carries out various fact-finding tasks to define pertinent information for IT system needs;

2. Conducts studies related to work flow, work measurement, time distribution, organizational relationships, etc.;
3. Prepares comprehensive reports of findings and recommendations;
4. Plans, organizes, directs and coordinates activities to ensure acceptability, reliability and security of departmental LAN/WAN systems; identifies constraints and alternative solutions; and performs cost benefit analysis on different alternatives;
5. Supervises and participates in system development process including hardware/software installation, program coding and testing, data conversion and implementation;
6. Supervises lower level specialists and/or participates in the implementation of major/complex application systems, and/or computer programming;
7. Advises in the development of training programs on the proper and effective use of the State's multi-processor computer hardware, application development software, utility software, and other general use software;
8. Serves as project leader and provides high level technical assistance and guidance to system developers in integrating and/or utilizing a wide range of hardware and software (e.g., use of application tools, integration of applications on different platforms, utilization of system utilities and methods and techniques for the development of application systems);
9. Serves as technical resource to State agencies in their planning, designing, modifying purchasing, leasing, installing, maintaining, securing and troubleshooting of specialized areas such as voice and telephone communication networks, information access and security management, website administration, etc.;
10. Advises State agencies in the evaluation of connectivity alternatives and provides assistance with the use of network resources, and diagnosis and resolution of voice and telephone communication problems;
11. Plans and coordinates hardware and software upgrades and changes including circuits, line types, line speeds, line monitors and scopes, server installation, peripheral hardware and network management software products;
12. Provides expertise and security consultant services to State user agencies on the development of application systems, conformance with and implementation of IT security standards and guidelines, installing information security hardware, software and other devices;

13. Assists higher level specialist in planning, installing, implementing and maintaining the multiple information security systems in the State's multi-vendor computer environment;
14. Detects security violations and determines level of compromise;
15. Serves as a database specialist in providing analytical and technical support for the database, data dictionary and database software; and advises project managers, analysts and programmers in structuring databases, on use of data dictionary, and/or database software;
16. Designs database files and/or tablespace;
17. Reviews and analyzes requests for database resources and services from user agencies and recommends appropriate response;
18. Represents the department on statewide IT related projects as chief departmental IT Specialist;
19. Designs, develops, configures, integrates, tests, and implements Internet servers and applications;
20. Reviews requests from State departments and agencies for Internet services and makes recommendations on web development, multimedia production and Domain Name System (DNS) name-space allocation;
21. Provides expertise, planning, and development in Internet services to ensure reliability, accessibility and security; and advises and assists in evaluating alternative Internet services;
22. Plans, designs, and directs procurement processes for complex system and equipment purchases; e.g., operating system, application program, specialized hardware.

INFORMATION TECHNOLOGY SPECIALIST VI
(INFORMATION TECHNOL SPCLT VI)

2.940

Distinguishing Characteristics:

This level reflects responsibility for planning, directing and supervising a major program or functional area of such scope and complexity to require oversight of several lower level IT Specialists through IT Specialist V supervisor(s) or team leader(s); or

supervising a staff of lower level (IT Specialist V) specialists responsible for developing, implementing and maintaining statewide services in a highly specialized area for a variety of programs.

- Work consists of broad functions and processes such as planning and leading efforts to address issues in areas where precedents do not exist; overseeing the daily operations of the program or specialized area; and advising on specialized analysis, design, acquisition, installation, programming, quality assurance and/or problem resolution for a major statewide program or a highly critical and specialized area.
- Assignments are characterized by exceptional breadth and intensity of effort; and involve several activities being pursued concurrently or sequentially with the support of others within or outside the program such as coordinating numerous and various stakeholders and users with differing needs and requirements which impact the complexity of assignments.
- Available guidelines and precedents are limited in usefulness or are largely lacking; and decisions and determinations are based on specialized knowledge and the interpretation and adaptation of legislation, policies and rules and regulations.
- Personal contacts involve providing and securing information on matters or problems of a non-recurring nature and in the explanation or interpretation of facts pertaining to policies, methods, programs, plans, or individual actions within an applicable subject area.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties which are not listed.)*

1. Plans, assigns, organizes, directs and coordinates all activities of a major IT project;
2. Plans, schedules and evaluates activities and projects; and provides technical expertise to satisfy needs of services;
3. Develops and implements project plans and new applications to apply and integrate technologies, devices, techniques and methodologies to expand and enhance programs;
4. Develops, recommends and implements policies and procedures for disaster preparedness, testing, recovery, security, and data management to ensure effectiveness, efficiency and protection of system hardware, software, data, and information resources;

5. Develops, recommends, implements and administers information database management policies and procedures to ensure effective and efficient access to databases;
6. Designs complex systems for the organization, coordinates and implements complex installation projects for major systems for organization-wide functions;
7. Serves as technical expert to State departments and agencies in communications and networking, applications development, system development, Internet services or information security;
8. Analyzes and assesses industry direction and analyzes new capabilities applicable to the organization;
9. Evaluates new products and makes recommendations for implementation;
10. Participates in management and administration of program and assists with establishing and maintaining policies, procedures and standards;
11. Prepares budget projections, expenditures, and justifications to obtain necessary resources;
12. Plans and recommends technical training programs and subject matter in appropriate areas of information processing;
13. Directs technical resources and provides technical expertise in support of the management and maintenance of the State communications networks databases, Internet services, etc.;
14. Oversees daily management of all phases of a major project including preparation of budget requirements, evaluating workload activity to evaluate and modify work plans, determining conditions of operations, expediting work flow to achieve efficient and economical utilization of resources;
15. Supervises, trains, advises, and evaluates performance of subordinate specialists and team/unit leaders.

INFORMATION TECHNOLOGY SPECIALIST VII
(INFORMATION TECHNOL SPCLT VII)

2.929

Distinguishing Characteristics:

This level reflects responsibility for planning, directing and supervising the development, enhancement, implementation and maintenance of a broad-based

information technology program that supports a major State industry. The work involves a myriad of varied interrelated systems and operational requirements (e.g., audio/visual public address, cellular/wireless including antennae, signage, multi-user flight information display, energy monitoring control, fire alarm, security and access control, government, tenant systems, etc.). The systems are considered "real time" systems which operate continuously (24 hours/day, 7 days/week) to capture and process a steady flow of data with interrelated systems. The systems also include highly specialized mission critical systems which operate in an environment where computer processing must be completed within determined time boundaries; involve simultaneous processing of several events at the same time with processing completed within determined time boundaries; immediately update appropriate files in response to transactions and/or generate a response within a time frame fast enough to maintain an operation at its required speed; and generate responses to changing conditions while maintaining operations at its required speed (i.e., Noise Monitoring System, etc.).

In addition, duties and responsibilities include providing IT support for a variety of facilities and the operations of various external parties (e.g., government agencies, private businesses, tenants and conference room rentals) which are integrated with one or several of the systems; and overseeing several lower level IT Specialist positions through IT Specialist VI supervisors.

Examples of Duties: *(Positions may not be assigned all of the duties listed, nor do the examples necessarily include all of the duties that may be assigned. This does not preclude the assignment of duties that are not listed. The scope and level of complexity of assigned duties are commensurate with the scope and level of complexity of work reflected in each class.)*

1. Plans, directs and supervises a highly specialized IT program that supports a major State industry;
2. Plans, schedules and evaluates activities and projects;
3. Provides technical leadership and advice to project teams, and program managers;
4. Designs, develops and analyzes information systems and provides alternative solutions for successful implementation;
5. Develops and implements project plans to apply and integrate technologies, devices, techniques and methodologies to expand and enhance systems;
6. Develops new methods, approaches and procedures;

7. Develops, recommends and implements policies and procedures for disaster preparedness, testing, recovery, security and data management to ensure effectiveness, efficiency and protection of system hardware, software, data and information resources;
8. Develops, recommends, implements and administers information database management policies and procedures to ensure effective and efficient access to databases;
9. Develops enterprise IT strategic plan;
10. Ensures compliance with various pertinent rules, regulations, policies, procedures and guidelines;
11. Analyzes and assesses industry direction and analyzes new capabilities applicable to the organization;
12. Develops new application systems utilizing merging technologies;
13. Evaluates new products and makes recommendations for implementation;
14. Prepares budget projections, expenditures, and justifications to obtain necessary resources;
15. Establishes and administers IT education and training programs for the organization;
16. Supervises, trains, advises and evaluates performance of subordinate supervisors.

Knowledge and Abilities Required: *(The knowledge and abilities required in order to effectively perform the key duties for each of these classes are indicated in the table below: The degree of each knowledge and ability required is commensurate with the scope and level of complexity of the duties and responsibilities that are reflected in each class.)*

*“P” indicates prerequisite knowledge and abilities, which must be brought to the job.
“A” indicates knowledge and abilities that are required for full performance but may be acquired on the job, within the probationary period.*

	Information Technol Spclt						
	I	II	III	IV	V	VI	VII
KNOWLEDGE:							
1. Basic mathematics (e.g., addition, subtraction, multiplication, division, fractions, percentages, etc.).	P	P	P	P	P	P	P
2. Research methods and techniques.	P	P	P	P	P	P	P
3. Problem solving methods and techniques.	P	P	P	P	P	P	P
4. Report writing.	P	P	P	P	P	P	P
5. Knowledge of IT principles, concepts and technical aspects of responsible IT specialty area.	A	P	P	P	P	P	P
6. Use of auxiliary and peripheral IT equipment.	A	P	P	P	P	P	P
7. Functions of various computer operating systems; e.g., computer network, desktop, and/or mainframe, and their applications.	A	P	P	P	P	P	P
8. Pertinent functions and mission of the program/organization, including rules, policies, procedures, systems and applications.	A	A	A	A	A	P	P
9. Principles and methods to identify, analyze, specify, design and manage functional and infrastructure requirements.				P	P	P	P
10. Planning, organizing, prioritizing and evaluating programs/projects.				P	P	P	P
11. Principles, methods or tools for developing, scheduling, coordinating and managing projects and resources.				P	P	P	P
12. Principles and practices of supervision.						A/P	P
ABILITY TO:							
1. Understand and apply the fundamentals of assigned IT specialty area(s).	P	P	P	P	P	P	P
2. Analyze and evaluate data logically.	P	P	P	P	P	P	P
3. Solve problems and draw logical conclusions.	P	P	P	P	P	P	P
4. Communicate clearly and concisely both orally and in writing.	P	P	P	P	P	P	P
5. Prepare reports.	P	P	P	P	P	P	P
6. Establish and maintain effective working relationships with others.	P	P	P	P	P	P	P
7. Solve practical problems through appropriate application of a variety of mathematical and statistical techniques.	P	P	P	P	P	P	P
8. Perform work thoroughly with attention to detail.	P	P	P	P	P	P	P

	Information Technol Spclt						
	I	II	III	IV	V	VI	VII
9. Gather information from various sources.	P	P	P	P	P	P	P
10. Understand, interpret and apply technical written material.	P	P	P	P	P	P	P
11. Analyze, interpret and apply pertinent laws, rules, policies and procedures to specific issues.	P	P	P	P	P	P	P
12. Evaluate the effectiveness of or identify the need for appropriate computer programs or information systems.	P	P	P	P	P	P	P
13. Understand, evaluate and apply pertinent technical information.	P	P	P	P	P	P	P
14. Make sound and objective decisions.			P	P	P	P	P
15. Conduct studies of work processes and make sound recommendations.			P	P	P	P	P
16. Identify, analyze and resolve errors and problems logically and systematically.			P	P	P	P	P
17. Advise others on pertinent technical and/or non-technical matters.				P	P	P	P
18. Identify and understand economic, political and social trends affecting the organization.				P	P	P	P
19. Coordinate and manage projects.					P	P	P
20. Plan, organize, prioritize, coordinate and evaluate programs/projects.					P	P	P
21. Plan, organize, direct and evaluate work of others.						A/P	P

MINIMUM QUALIFICATION REQUIREMENTS

Basic Education Requirement:

Graduation from an accredited four (4) year college or university with a bachelor's degree.

Excess work experience as described under the Specialized Experience, below, or any other responsible administrative, professional or analytical work experience which provided knowledge, skills and abilities comparable to those acquired in four (4) years of successful study while completing a college or university curriculum leading to a baccalaureate degree may be substituted on a year-for-year basis. To be acceptable,

the experience must have been of such scope, level and quality as to assure the possession of comparable knowledge, skills and abilities.

The education or experience background must also demonstrate the ability to write clear and comprehensive reports and other documents; read and interpret complex written material; and solve complex problems logically and systematically.

Experience Requirements:

Except for the substitutions provided for in this specification, applicants must have had progressively responsible experience of the kind and quality described in the statements below and in the amounts shown in the following table, or any equivalent combination of training and experience:

Class Title	Spclzd Exp (Yrs)	Supvy/ Sr. Spclt Exp (Yrs)	Total Exp (Yrs)
Information Technology Specialist I	0	0	0
Information Technology Specialist II	1/2	0	1/2
Information Technology Specialist III	1-1/2	0	1-1/2
Information Technology Specialist IV	2-1/2	0	2-1/2
Information Technology Specialist V	3-1/2	0	3-1/2
Information Technology Specialist VI	3-1/2	1*	4-1/2
Information Technology Specialist VII	3-1/2	2**	5-1/2

For the Information Technology Specialist V, VI and VII levels, at least one (1) year of the required Specialized Experience must have been at the fully competent level comparable to the class Information Technology Specialist IV in State service.

*Applicants for Information Technology Specialist VI must possess at least one (1) year of Supervisory Experience, **OR** one (1) year of Senior Specialist Experience and Supervisory Aptitude.

**Applicants for Information Technology Specialist VII must possess two (2) years of Supervisory Experience.

Specialized Experience: Progressively responsible professional work experience in information technology which involved systems analysis, design, programming, security and access management, database design and management, consulting, and/or installing and maintaining computer software applications, hardware,

telecommunications, web or network infrastructure equipment. The work must have demonstrated knowledge and understanding of information technology principles, methods, techniques and practices; computer hardware, software and peripheral equipment; and personal computer, server, mini and/or mainframe operating systems.

Senior Specialist Experience: Professional work experience as a senior/expert specialist in a highly specialized area of information technology which involved providing services for a variety of programs and systems, or for a highly complex and major system as described at the Information Technology Specialist V level.

Supervisory Aptitude: Supervisory aptitude is the demonstration of aptitude or potential for the performance of supervisory duties through successful completion of regular or special assignments which involve some supervisory responsibilities or aspects; by serving as a group or team leader, or in similar work in which opportunities for demonstrating supervisory capabilities exist; by the completion of training courses in supervision accompanied by application of supervisory skills in work assignments; or by favorable appraisals by a supervisor indicating the possession of supervisory potential.

Supervisory Experience: Applicants must possess supervisory work experience which included: 1) planning, organizing, scheduling, and directing the work of others; 2) assigning and reviewing their work; 3) advising them on difficult work problems; 4) training and developing subordinates; and 5) evaluating their work performance.

Substitutions Allowed:

1. A bachelor's degree from an accredited college or university in computer science or in another major which included completion of coursework comparable to a major in computer science may be substituted for six (6) months of the required Specialized Experience.
2. A master's degree in management information science from an accredited college or university may be substituted for one (1) year of the required Specialized Experience.
3. A master's degree in computer science from an accredited college or university may be substituted for one and one-half (1-1/2) years of the required Specialized Experience.

Quality of Experience:

Possession of the required number of years of experience will not in itself be accepted as proof of qualification for a position. The applicant's overall experience must have been of such scope and level of responsibility as to conclusively

demonstrate that he/she has the ability to perform the duties of the position for which he/she is being considered.

Selective Certification:

Specialized knowledge, skills and abilities may be required to perform the duties of some positions. For such positions, Selective Certification Requirements may be established and certification may be restricted to eligibles who possess the pertinent experience and/or training required to perform the duties of the position.

Agencies requesting selective certification must show the connection between the kind of training and/or experience on which they wish to base selective certification and the duties of the position to be filled.

Tests:

Applicants may be required to qualify on an appropriate examination.

Physical and Medical Requirements:

Applicants must be able to perform the essential duties and responsibilities of the position effectively and safely, with or without reasonable accommodation.