

SERIES DESCRIPTION

The INFORMATION SYSTEMS SPECIALIST (ISS) classification series has eight levels that describe technical and professional non-supervisory positions working in Information Systems. The work in this series includes responsibility for planning, coordination, analysis and technical support functions. Positions solve problems and accomplish work processes through information systems and technology.

When deciding whether a position is properly allocated to the ISS series, the paramount considerations are the primary purpose for the position and the recruitment criteria. The knowledge of computers and information systems is an increasingly important part of many occupational fields. In most instances, the computer knowledge is secondary to the knowledge and skills associated with the occupational field. The computer is a tool to facilitate accomplishing the work. In this case, the position does not belong in the ISS Series.

There are three components to these Class Specifications: **Infrastructure Functions, Organizational Functions, and Complexity Levels.**

1. Infrastructure Functions

Software includes both applications and operating software;

Hardware refers to the physical components (PCs, servers, mainframes, peripherals, etc.);

Communications provides the connections that link systems and includes data, voice, image and video;

Data is concerned with data bases and associated master files.

A position is either a Specialist or a Generalist, depending on how many of these Infrastructure Functions are covered by the job. A Specialist typically spends 70% or more of work time on one or two of the infrastructure functions. The Generalist divides work time more or less evenly among three or four infrastructure functions. The series describes both Specialists and Generalists at most levels.

2. Organizational Functions

Customer Assistance (CA) is user assistance, systems maintenance and fixing problems of all sizes;

Operations (OP) is the day to day functions and includes such things as installation, performance monitoring, access, daily security, back-up, scheduling, inventory management and processing orders;

Construction (CO) refers to new systems and features and covers major remodels and enhancements as well as new systems; and

Planning (PL) is strategic, long term planning. This is not the regular, on-going planning required in many jobs. This is strategic planning as a separate primary job function and addresses issues such as resource utilization, disaster planning, new technologies and acquisition strategies, change control management, system performance, and overall security.

Both Specialists and Generalists work in one or more of these organizational functions.

3. Complexity Levels

There are varying levels of complexity connected with the work in this series. Complexity levels relate to the tasks (the work being done) and are based on the factors that influence those particular tasks. These factors include the size, scope and criticality of the environment, the diversity of systems, degree of independence, available guidelines, etc. Please refer to the allocation guide for more detailed information regarding complexity levels and scope.

GENERAL DESCRIPTION OF CLASS

The ISS 5 provides analytical and technical support for operating, maintaining, and installing information systems, designs and constructs new systems, or modifies and enhances existing systems. The ISS 5 provides technical consultation and training to users, technical assistance and coordination to IS support staff, leads projects as assigned, and participates in strategic planning. This is the Seasoned Professional level for the series.

DISTINGUISHING FEATURES

This is the fifth level in an eight level series. It covers both Specialists and Generalists.

The Specialist at this level differs from the lower level by either the addition of Strategic Planning responsibilities, or by working at complexity level 3 in Customer Assistance and Operations. At this level, the Specialist either does mid-level Strategic Planning for resource utilization, system performance, new technologies and acquisition strategies, and overall security; **OR**, in terms of Customer Assistance and Operations, establishes processes and procedures for others to use, consults with and advises other IS staff and deals with the most critical problems.

The lack of level 3 Construction distinguishes this Specialist from the next higher level. Complexity level 3 Construction involves projects that introduce new technology or new businesses and where there are conflicting needs and significant compatibility issues. These projects involve multiple vendors and require interjurisdictional cooperation. Level 2 Construction typically deals with new processes within established businesses, mixed standards, compatibility issues and a variety of users.

The Generalist at this level differs from the next lower level by the addition of level 2 Construction which typically deals with new processes within established businesses, mixed standards, compatibility issues and a variety of users.

The lack of complexity level 3 responsibilities distinguishes this Generalist from the next higher level. Level 3 Customer Assistance and Operations involves establishing processes and procedures for others to use, consulting with and advising other IS staff, and dealing with the most critical problems.

RELATIONSHIPS WITH OTHERS

The ISS 5 has daily contact with managers and technical staff and a wide range of system users to provide information and make recommendations regarding systems, to solve problems and to coordinate installations or construction projects. There is regular contact with other Information Systems staff and with vendors and external entities to coordinate problem solving and ensure conformity of methods and practices. The ISS 5 has regular contact with users to discuss business needs and system requirements, with contracted personnel to provide oversight and with vendors to discuss existing or new technology.

SUPERVISION RECEIVED

The ISS 5 receives general guidance. Work is assigned in terms of broad product or general project objectives. Overall performance is reviewed for technical sufficiency and conformance with standards. The ISS 5 has considerable latitude in deciding methods and resources to accomplish work goals.

System documentation, consultation with vendors, agency/division process and procedures and state and federal laws provide guidance.

EXAMPLES OF DUTIES AND ACCOUNTABILITIES

The duties and accountabilities listed are not inclusive, but characteristic of the type and level of work associated with this class. Individual positions may be assigned all or some combination of the duties described as well as other related duties.

**SPECIALIST: CUSTOMER ASSISTANCE, OPERATIONS, CONSTRUCTION, PLANNING -
COMPLEXITY LEVEL 2**

This Specialist works 70% of the time in one or two infrastructure functions (Communications, Software, Hardware or Data) and typically performs all four organizational functions at complexity level 2.

1. Customer Assistance (help use & fix) - Complexity Level 2

Helps users and answers unusual or less common questions which may be referred from other IS staff or require on-site analysis or extensive dial-in diagnosis. Typically deals with problems that are recurring or have widespread consequences and those that require actual system fixes rather than eliminating operator errors. Assesses situation and deals with implications to the overall system.

Contacts vendors and other external entities to coordinate problem solutions. Prioritizes problems and works with users, vendors and other parties to resolve conflicts. Tracks and reports progress. Assists users with reporting. May physically repair hardware and write or configure software. May conduct both formal and informal training for assigned infrastructure(s).

2. Operations (day-to-day) - Complexity Level 2

Tasks in this Organizational Function relate to keeping the operations going on a day-to-day basis. This includes installation, performance monitoring, access, security, back-ups, scheduling, inventory management and processing orders.

Installations at this level often do not have precedents or established procedures to follow and could be the initial installation, requiring configuration modifications, testing and troubleshooting (for example, software new to agency/division or major hardware upgrades). Installations at this level usually require coordinating the changes with other systems or users affected by the installation. Writes installation documentation and maintains data dictionary.

Monitors performance of software, hardware, data base or communications systems, and diagnoses and solves problems. Manages physical storage of data bases. Deals with version compatibility issues. Tracks operational and system changes in preparation for recovery needs. Addresses day-to-day security issues and may implement new or unique changes to system security (e.g., first time vendor dial-in). Processes orders for purchases not under contract or those that require a Request For Proposal. Manages inventory.

This level typically operates in a mixed environment with multiple hardware and application software standards. Normally there is a single operating system standard. May have mixed data bases and share data with other entities. Generally involves remote locations with no established backbone, a moderate level of expansion or change and a moderate number of devices.

3. Construction (new) - Complexity Level 2

Conducts business analysis and research on significant portions of a large system or on a new process within an established business. Identifies and deals with compatibility issues. Addresses a variety of users and deals with a mixture of standards for assigned infrastructure function(s) and a moderate level of change. Negotiates with vendors and chooses vendor from existing contracts. Builds implementation plan. Creates documentation. For data projects, uses data dictionary and may establish standards and precedents for data base design.

Environment typically has a moderate number and mixture of devices, remote locations and a moderate level of change. Projects often involve a variety of users and a mixture of standards for the infrastructure function(s) and require cross-agency or cross-jurisdiction cooperation.

4. Planning (Strategic) - Complexity Level 2

Participates in mid-level strategic planning, considering issues such as resource utilization, disaster planning, new technologies and acquisition strategies, change control management, overall system performance and security on a strategic basis. At this level, the work requires a broad business perspective and identifying opportunities where systems could provide better benefits to the organization. In disaster planning, addresses legal mandates for processing and considers other entities relying on the systems' operations.

Environment contains a variety of software, hardware, communications and data base management systems and typically involves multiple vendors. Generally must consider external users from other agencies or public access and dial-in access. These factors influence the strategic enterprise modeling done at this level. Evaluates and recommends new platforms, systems and utilities. Plans for future system performance in light of the impact caused by exceeding system capacity.

**SPECIALIST: CUSTOMER ASSISTANCE, OPERATIONS - COMPLEXITY LEVEL 3
CONSTRUCTION - COMPLEXITY LEVEL 2**

This Specialist works 70% of the time in one or two infrastructure functions (Communications, Software, Hardware or Data) and typically does Customer Assistance and Operations at complexity level 3 and Construction at level 2, as described below.

1. Customer Assistance (help use and fix) - Complexity Level 3

Diagnoses user problems and questions, addressing the most complex problems for systems most critical to the state. (Critical means those systems with significant time constraints, such as Payroll systems, systems tracking revenues, systems meeting regulatory requirements or systems dealing with public safety issues.) Problem solving usually requires a high level of coordination with other IS staff and multiple vendors, and involves situations requiring conflict resolution.

As the expert, helps other IS staff solve problems and deal with major system crashes. Establishes procedures for diagnosing and solving problems. Develops formal training for assigned function(s). The typical system environment is diverse, with a mixture of data base management systems and hardware devices or standards. Usually deals with distributed data, multiple remote locations, multiple jurisdictions and a high level of expansion or change.

2. Operations (day-to-day) - Complexity Level 3

Tasks in this Organizational Function relate to keeping the operations going on a day-to-day basis. This includes installation, performance monitoring, access, security, back-ups, scheduling, inventory management and processing orders.

Plans and schedules installations considering timing, version compatibility and other factors. Installations typically involve products new to the industry or significant changes, such as overall system hardware upgrades or those that require creative network tuning.

Analyzes system performance and addresses performance problems. Evaluates costs, specifications and organizational policies to recommend system performance tuning. Resolves resource competition issues.

The typical environment is diverse with multiple vendors, multiple sites, distributed needs within the agency and multiple entities in the work flow. Typically, it has relational databases, multiple distributed databases, and must maintain relational integrity of the data bases, taking into consideration constraints, linked tables, and consistency. Security is usually at the data level.

3. Construction (new) - Complexity Level 2

Conducts business analysis and research on significant portions of a large system or major new processes within an established business. Identifies and deals with compatibility issues. Addresses a variety of users, deals with a mixture of standards for assigned infrastructure function(s) and a moderate level of change. Negotiates with vendors and chooses vendor from existing contracts. Builds implementation plan. Creates documentation. For data projects, uses data dictionary and may establish standards and precedents for data base design.

Environment typically has a moderate number and mixture of devices, remote locations and a moderate level of change. Projects often involve a variety of users and a mixture of standards for the infrastructure function(s) and require cross-agency or cross-jurisdiction cooperation.

GENERALIST: CUSTOMER ASSISTANCE, OPERATIONS, CONSTRUCTION - COMPLEXITY LEVEL 2

PLANNING - COMPLEXITY LEVEL 1

The Generalist at this level works in three or four of the infrastructure functions (Communications, Software, Hardware or Data) and typically does Customer Assistance, Operations and Construction at complexity level 2, as described below. May do Strategic Planning at complexity level 1.

1. Customer Assistance (help use & fix) - Complexity Level 2

Helps users and answers unusual or less common questions which may be referred from other IS staff or require on-site analysis or extensive dial-in diagnosis. Typically deals with problems that are recurring or have widespread consequences and those that require actual system fixes rather than eliminating operator errors. Assesses situation and deals with implications to the overall system.

Contacts vendors and other external entities to coordinate problem solutions. Prioritizes problems and works with users, vendors and other parties to resolve conflicts. Tracks and reports progress. Assists users with reporting. May physically repair hardware and write or configure software. May conduct both formal and informal training for assigned infrastructures.

The Generalist answers questions and solves problems related to at least three of the four infrastructure functions.

2. Operations (day-to-day) - Complexity Level 2

Tasks in this Organizational Function relate to keeping the operations going on a day-to-day basis. This includes installation, performance monitoring, access, security, back-ups, scheduling, inventory management and processing orders.

Installations at this level often do not have precedents or established procedures to follow and could be the initial installation, requiring configuration modifications, testing and troubleshooting (for example, software new to the agency/division or major hardware upgrades). Installations at this level usually require coordinating the changes with other systems or users affected by the installation. Writes installation documentation and maintains data dictionary.

Monitors performance of software, hardware, data base or communications systems and diagnoses and solves problems. Manages physical storage of data bases. Deals with version compatibility issues. Tracks operational and system changes in preparation for recovery needs. Addresses day-to-day security issues and may implement new or unique changes to system security (e.g. first time vendor dial-in). Processes orders for purchases not under contract or those that require a Request For Proposal. Manages inventory.

This level typically operates in a mixed environment with multiple hardware and application software standards. Normally there is a single operating system standard. May have mixed data bases and share data with other entities. Generally involves remote locations with no established backbone, a moderate level of expansion or change and a moderate number of devices.

3. Construction (new) - Complexity Level 2

Conducts business analysis and research on significant portions of a large system or on a new process within an established business. Identifies and deals with compatibility issues. Addresses a variety of users and deals with a mixture of standards for all assigned infrastructure functions and a moderate level of change. Negotiates with vendors and chooses vendor from existing contracts. Builds implementation plan. Creates documentation. For data projects, uses data dictionary and may establish standards and precedents for data base design.

Environment typically has a moderate number and mixture of devices, remote locations and a

moderate level of change. Projects often involve a variety of users and a mixture of standards for the infrastructure functions and require cross-agency or cross-jurisdiction cooperation.

4. Planning (Strategic) - Complexity Level 1

Participates in entry-level strategic planning about such issues as resource utilization, disaster planning, new technologies and acquisition strategies, change control management, system performance, and overall security on a strategic basis. Evaluates and recommends new tools, products or releases. Monitors system usage and determines maintenance requirements. Does disaster planning for a redundant or stand-alone system. Applies system management standards and security standards for the agency or division.

Environment is typically standardized with similar users and equipment.

KNOWLEDGE AND SKILLS (KS)

SPECIALIST positions require the following Knowledge and Skills in one or two of the four infrastructure specialities

General Knowledge of:

- information system analysis, design and data management concepts.
- information systems operating software and operating systems language.
- performance monitoring techniques.
- project planning and coordination.
- business analysis and research.
- feasibility study and cost/benefit analysis methods.
- testing and troubleshooting techniques.
- program areas specific to users.
- resources and references for state and federal law and administrative rules specific to the program area.
- state purchasing procedures and resources.

Skill:

- developing systems specifications.
- writing technical reports and instructional manuals for operations and users.
- analyzing and defining user requirements.
- testing and debugging information programs and systems.
- planning and implementing special tasks or projects.
- coordinating and directing team efforts.
- estimating resource requirements.
- developing, coordinating or presenting staff training.
- evaluating proposed new Information Systems resources.

Depending on the assigned Organizational Functions and Infrastructure Specialty(ies), **SPECIALIST** positions also require some of the following Knowledge and Skills.

Extensive knowledge of:

- systems components, capabilities and interrelationships of infrastructure speciality(ies).
- performance tuning and monitoring techniques.

General knowledge of:

- software development methods including analysis, design and programming standards and techniques.
- files management principles and techniques.
- programming languages and utilities.

Basic Knowledge of:

- current trends, technological changes and developments in infrastructure speciality(ies).
- data security systems.
- information systems architecture.
- operations and business of the organization.

Skill:

- solving system performance problems.

- establishing procedures for diagnosing and solving problems.
- coordinating problem solving and resolving resource issues and conflicts.
- developing formal training in infrastructure specialty(ies).
- evaluating costs, specification and organizational policies to recommend performance tuning.
- analyzing and proposing system development tasks.

GENERALIST positions require the following Knowledge and Skills in at least three of the four Infrastructure specialties.

General Knowledge of:

- information systems equipment, technologies, terminology, methods, and procedures.
- information systems components, capabilities and interrelationships.
- performance tuning and monitoring techniques.
- needs assessment analysis.
- feasibility study and cost/benefit analysis methods.
- diagnostic tools and troubleshooting techniques.

Basic Knowledge of:

- state purchasing procedures and resources.
- testing and troubleshooting techniques.
- project management methods and techniques.

Skill:

- communicating technical concepts to users.
- installing and modifying hardware, software and/or data communications equipment.
- writing documentation according to established standards.
- analyzing and defining user requirements.
- writing technical reports and instructional manuals for operations and users.
- developing, coordinating or presenting staff training.
- evaluating proposed new system resources.
- coordinating with other analysts and administrators on team/group projects.

Some Generalist positions may also require one or more of the following:

General Knowledge of:

- data communications hardware, software and equipment components (e.g., modems, multiplexors, lines, etc.).
- data management concepts.
- programming and documentation principles and procedures.

Basic Knowledge of:

- hardware configuration.
- network design.
- business analysis and research.

Skill:

- configuring and assembling computer hardware.

NOTE: The KNOWLEDGE and SKILLS are required for initial consideration. Some duties performed by positions in this class may require different KS's. No attempt is made to describe every KS required for **all** positions in this class. Additional KS requirements will be explained on the recruiting announcement.

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Revised

STATE OF OREGON
Dept. of Administrative Services
Human Resource Services Division