

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 8 provides expert consultation to management, professional IS staff and other jurisdictions, and, in a leadership role, conducts comprehensive analysis, planning, development, implementation and coordination for the operations, maintenance, installation and construction of information systems. This is the Principal Professional level for the series.

DISTINGUISHING FEATURES

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

The Specialist at this level differs from the next lower level by working in Data, Software or both and by working at the highest levels of Construction and Strategic Planning (Level 4) in those areas.

Level 4 Data Construction may address technology new to the State, distributed data with remote input and manipulation and a mixed environment of database management systems. This level decides what tools to use in constructing new database structures.

Level 4 Software Planning involves Strategic Planning in an environment that integrates multiple systems from multiple organizations (State, County, Federal, Private) and assessment of technology new to the industry.

The Generalist at this level differs from the next lower level by working at the highest levels of Construction and Strategic Planning in assigned infrastructure areas (Communications, Software, Hardware or Data). This may include level 4 Data Construction or Software Strategic Planning as described above. Level 3 Construction deals with projects that introduce new technology or new business requirements where there are conflicting needs and significant compatibility issues and that involve multiple vendors and require interjurisdictional cooperation. Planning at level 3 involves establishing standards, recommending changes in business processes for effective utilization of the system resources and reviewing new construction for conformance to overall system standards.

RELATIONSHIPS WITH OTHERS

The ISS 8 consults with and advises management, professional IS staff, and other jurisdiction staff on planning, development, implementation and coordination for the operations, maintenance, installation and construction of information systems on a regular basis. The ISS 8 has frequent contact with vendors to assess new technology and with contracted personnel to provide oversight, negotiate contract modifications, and analyze compliance with contract specifications.

SUPERVISION RECEIVED

The ISS 8 receives administrative direction in terms of broadly defined goals. Assignments are usually in relatively unexplored areas of the field or require novel and unprecedented application of fundamental principles and theories of the field. There is no technical review of work. Review occurs for compatibility with organizational goals and objectives.

Guidelines exist in the form of general agency policy, legislation, or broadly stated technical objectives which require extensive interpretation and definition. The ISS 8 often must develop or adopt guidelines to the specific circumstances in response to unprecedented problems or issues.

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: SOFTWARE AND/OR DATA - CUSTOMER ASSISTANCE, OPERATIONS, CONSTRUCTION, PLANNING - HIGHEST LEVELS

This Specialist works 70% of the time in Software, Data or both and is working at the highest levels of Construction and Planning (i.e., Level 4 Software Planning, Level 4 Data Construction, Level 3 for all others), as described below. May also do Customer Assistance and Operations functions at the highest level.

1. Customer Assistance (help use & 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, those tracking revenues, with regulatory requirements or 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. May physically repair hardware. Develops formal training for assigned infrastructure functions.

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, has 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, considering constraints, linked tables, and consistency. Security is usually at the data level.

3. Construction (new) - Complexity Level 3-4

Conducts business analysis and research for large or unprecedented projects and for projects that involve new businesses or introduce new technology. Does business process modeling and formal data modeling, considering overall system performance. Builds implementation plans which involve multiple vendors, multiple jurisdictions, and require cross agency cooperation.

Sets data standards, approves design changes, sets documentation policies and procedures, and has final authority for consensus decisions. Establishes metadata (dictionary).

Develops bid specifications and provides recommendations to high level management which include costs, performance factors, and vendor selection.

At this level, the typical Construction environment has a mix of database management systems and distributed data with remote input and manipulation, multiple remote locations, a mixture of IS standards and a significant amount of expansion or change. Projects assigned generally involve a high level of coordination and there are usually conflicting needs and significant compatibility issues. Construction at this level may entail, for example, complete overall hardware system upgrades or coding extensions to communications software (such as Firewall, Enterprise DBMS, or system management software).

4. Planning (Strategic) - Complexity Level 3-4

Responsible for high-level strategic planning, considering issues such as resource utilization, acquisition planning and new technologies, disaster planning, overall system performance, and security on a strategic basis.

Assesses new technologies, selects, tests with existing systems and evaluates for adoption. Recommends changes in business operations to effectively utilize system resources. Addresses resource utilization issues where there are distributed needs within the agency and competition for resources. Considers system features, configuration and compatibility issues. Establishes standards for assigned infrastructure functions. For data, decides overall issues of data sharing, data location, usage, security, integrity, and flexibility and makes resource allocation decisions. Establishes and enforces metadata standards. Reviews and approves logical data models for new projects for conformance to overall strategic plan and physical design standards. Conducts training in data modeling and design.

The planning environment at this level typically has multiple remote locations, a mixture of standards, and a high level of expansion or change. The environment may require integrating multiple systems from multiple public and private organizations.

GENERALIST: CUSTOMER ASSISTANCE, OPERATIONS, CONSTRUCTION, PLANNING - HIGHEST LEVELS

This Generalist works in three or four infrastructure functions (Communications, Software, Hardware, or Data) at the highest complexity levels of Construction and Strategic Planning.

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, those tracking revenues, meeting regulatory requirements or 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. May physically repair hardware. Develops formal training for assigned infrastructure functions.

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.

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

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, has 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, considering constraints, linked tables, and consistency. Security is usually at the data level.

3. Construction (new) - Complexity Level 3-4

Conducts business analysis and research for large or unprecedented projects and for projects that involve new businesses or introduce new technology. Does business process modeling and formal data modeling, considering overall system performance. Builds implementation plans which involve multiple vendors, multiple jurisdictions, and require cross agency cooperation.

Sets data standards, approves design changes, sets documentation policies and procedures, and has final authority for consensus decisions. Establishes metadata (dictionary).

Develops bid specifications and provides recommendations to high level management which includes costs, performance factors, and vendor selection.

At this level, the typical Construction environment has a mix of database management systems and distributed data with remote input and manipulation, multiple remote locations, a mixture of IS standards and a significant amount of expansion or change. Projects assigned generally involve a high level of coordination and there are usually conflicting needs and significant compatibility issues. Construction at this level may, for example, entail complete overall hardware system upgrades or coding extensions to communications software (such as Firewall, Enterprise DBMS, or system management software).

4. Planning (Strategic) - Complexity Level 3-4

Responsible for high-level strategic planning, considering issues such as resource utilization, acquisition planning and new technologies, disaster planning, overall system performance, and security on a strategic basis.

Assesses new technologies, selects, tests with existing systems and evaluates for adoption. Recommends changes in business operations to effectively utilize system resources. Addresses resource utilization issues where there are distributed needs within the agency and competition for resources. Considers system features, configuration and compatibility issues. Establishes standards for assigned infrastructure functions. If working in data, decides overall issues of data sharing, data location, usage, security, integrity, and flexibility and makes resource allocation decisions. Establishes and enforces metadata standards. Reviews and approves logical data models for new projects for conformance to overall strategic plan and physical design standards. Conducts training in data modeling and design.

The planning environment at this level typically has multiple remote locations, a mixture of standards, and a high level of expansion or change. The environment may require integrating multiple systems from multiple public and private organizations.

KNOWLEDGE AND SKILLS (KS)

INFORMATION SYSTEMS SPECIALIST 8 positions require the following Knowledge and Skills.

Extensive Knowledge of:

- theories, principles and practices of Information Systems Technology.
- project administration methods, principles, techniques and practices.
- trends, technological changes and developments in IS.
- operations and business of the organization.
- information systems architecture.

General Knowledge of:

- business systems and organizational structures.
- contracting for IS services, including negotiation and performance monitoring.

Skill:

- administering and managing comprehensive, multi-system projects including directing and motivating internal staff, contractors and other participants.
- identifying the scope and complexity of a project and assigning segments of that project to others.
- assigning and reviewing the work of others to determine accuracy and adequacy of identified conditions, criteria, recommendations and supporting materials.
- developing agreements or contracts.
- developing long and short range plans to meet established goals.
- developing policies and procedures.
- analyzing organizational needs and implementing cost-effective solutions.

Specialists also require one or more of the following:

Extensive Knowledge of:

- methods and procedures for designing, developing, monitoring and maintaining databases.
- tools for constructing database structures.
- automation products that support a variety of data management environments.

Skill:

- determining efficient design of data structures, software applications and equipment interfaces.
- assessing new technology developments.

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.

Adopted 7/1/97

Revised

STATE OF OREGON

Dept. of Administrative Services
Human Resource Services Division