



Class Code: 835  
FLSA: Covered

## **IT GIS Programmer Analyst**

### **General Class Purpose**

The IT Geographic Information Systems (GIS) Programmer Analyst defines, develops, tests, analyzes, and maintains GIS software applications that support City department operations. Employees design custom applications that increase the functionality of standard software, automate GIS data functions, integrate databases, and create web-based access to GIS information. They also provide consultative expertise to other IT staff in the area of GIS.

### **Distinguishing Features**

The IT - GIS Programmer Analyst is a journey-level professional classification. The employee applies knowledge of specialized subject matter, and decides when and how to apply existing guidelines. The employee may develop procedures and standards within their area of specialty. The classification is distinguished from other professional IT classifications by the focus on GIS.

The IT - GIS Programmer Analyst is distinguished from a GIS Analyst by the responsibility for enterprise level GIS system administration, and application design and development. The IT - GIS Programmer Analyst integrates GIS with other city information systems, designs and maintains GIS enterprise-level features and coordinates citywide use of geospatial data among City departments. These are not features of the GIS Analyst. The IT - GIS Programmer Analyst is distinguished from the GIS Technician by the application of professional judgment.

### **Supervision Received and Exercised**

The IT - GIS Programmer Analyst works under the general direction of a supervisor or manager. The employee receives instructions regarding the scope of and approach to projects or assignments. Procedures and techniques are left to the employee's discretion. The IT - GIS Programmer Analyst may provide direct supervision to technical staff. They will manage projects within their specialty and when acting, as project manager will functionally supervise other professional level staff.

### **Examples of Essential Duties and Responsibilities**

*The listed examples are illustrative of the classification level and not intended to list all duties typically assigned to this classification. Employees may do all or some of the listed duties, or other related duties.*

1. Analyze and evaluate existing GIS systems and procedures. Research, design, document, and modify GIS software specifications throughout the production life cycle. Write, code, test, and analyzing software programs and applications. Design and develop web-based GIS architecture and applications for citywide GIS.
2. Troubleshoot programs and applications according to specifications. Design, run and monitor software performance tests on new and existing programs for the purposes of

- isolating and correcting errors. Develop, recommend and schedule software improvements, patches, and upgrades.
3. Design, manage and modify spatial databases to maintain the accuracy, security and accessibility of geographic data. Integrate data across various GIS databases, non-GIS applications and systems, and City business systems. Design and manage GIS database models and develop database applications and prototypes. Develop and manage enterprise data warehousing and file repository.
  4. Use various programming languages to modify existing software to increase functionality, automate processes and build analysis tools. Write and maintain scripts, routines and menus for programming GIS processes and applications. Debug application flow and design issues. Document and test software modifications. Translate geographic and tabular data into formats suitable for data entry, export and integration. Develop and maintain web pages.
  5. Collaborate with end users, GIS staff, programmers, network and systems analysts to conceptualize and develop new software solutions and applications; provide guidance to other IT staff to resolve problems with GIS software products or systems.
  6. Define, develop, and document GIS business requirements, objectives, deliverables, and specifications on a project-by-project basis in collaboration with internal users and multiple departments. Develop project plans including scope, schedule, and implementation steps. Manage projects through implementation.
  7. Compile statistics and write reports for management or team members on the status of project tasks or system functioning. Develop and maintain user training manuals and guidelines. Provide consultative advice to city staff on GIS applications; produce advanced presentation of cartographic products using GIS software. Train end users in the operation or use of existing, new, or modified data and applications.
  8. Research emerging GIS applications, products, languages, and standards in support of procurement and development efforts; recommend purchases and manage implementation of new products.

### **Minimum Qualifications Upon Entry**

#### General knowledge of:

- Theory, principles, practices and methods of operating GIS systems; including methods of web-based computer applications
- GIS software applications, programming languages and development tools
- Principles and practices of statistical and spatial data analysis
- Theories, principles and practices of relational database structures, design and database management including methods of maintaining data privacy
- Current Internet technologies, including familiarity with contemporary software packages and web authoring tools.
- Current Web platforms, technologies, protocols and publishing tools
- Typical desktop operating systems and how they integrate and affect GIS software
- Principles, practices and methods of cartography, graphic illustrations and presentation

#### Basic knowledge of:

- Methods and techniques of project management
- Principles and processes of providing customer service including customer needs assessment, meeting quality standards for services and evaluation of customer satisfaction
- Methods of marketing information using the Internet and web-based technologies

Skill to:

- Plan and develop GIS architecture and applications
- Modify existing and create new GIS applications, programs and coding
- Research software related issues and products
- Communicate effectively interpersonally and in groups
- Write clear and concise memorandums, reports and other documentation related to the job
- Use logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems
- Manage projects typical to the job assignment.

Ability to:

- Effectively prioritize tasks and plan work
- Be careful about detail and thorough in completing work tasks
- Develop, design or create new applications, ideas, relationships, systems or products
- Explain to people with a non-technical background what the technical information means and how it can be used
- Establish effective working relationships with members inside and outside the organization
- Be pleasant with others on the job and display a good-natured, cooperative attitude
- Accept criticism and deal calmly and effectively in high stress situations

**Experience and Education**

*A typical way to obtain the required knowledge, skills and abilities would be:*

A Bachelor's Degree in Geography, Geographic Information Systems, Management Information Systems, Cartography, Environmental Science, Planning, Engineering, Computer Science, Software Engineering or related course of study; and three years GIS experience which included designing, creating, maintaining and analyzing geospatial and tabular data; and writing GIS script or applications programming.

**Physical and Mental Demands**

*The listed physical and mental demands are representative of those that must be met by an employee to successfully do the essential functions of this classification. Persons with disabilities may be able to carry out the duties with accommodation. Reasonable accommodation will be evaluated upon request.*

Employees must be able to lift or move personal computers, terminals and peripheral equipment, which weigh up to 50 pounds. Employees must see detail at close range. They will regularly communicate with others to convey or receive information and express ideas; therefore, they must understand the speech of another person, and speak clearly so others can understand. Employees will regularly sit for extended periods. They will use their fingers to make precise coordinated movements when using a computer keyboard.

Employees apply principles of logical or scientific thinking to define problems, collect data, establish facts, and draw valid conclusions. Work requires that employees deal with several abstract and concrete variables and order information into a logical sequence. Employees will occasionally work with emotionally charged individuals and must negotiate agreements between people with varying interests.

### **Work Environment**

Work is regularly performed in an indoor office setting. The employee may work early and late hours to meet time lines, provide off-hour upgrade and maintenance, and respond to emergency situations.

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IT - GIS Programmer Analyst, Created 12/03/2007