

**CITY OF RICHMOND
CLASS DESCRIPTION
Revised: September 2006**

CLASS TITLE: SYSTEMS DEVELOPER

GENERAL DESCRIPTION OF CLASS

Under general supervision, provides programming, analysis and communication capabilities for computer related information technology systems to support the Departmental, User Client and City Administration mission statements under the leadership of Systems Developer Leaders. Capable of performing work of moderate to considerable difficulty in the analysis, maintenance, revision and/or development of computer related systems and any related work required for complete client support. Performs additional work as required.

Qualifications for Zones I, II and III:

- Completion of the core curriculum for a Baccalaureate or Associate level major in computer science or a related field; and
- One to three years experience in computer programming including two years in computer systems analysis and design at the high end of the range; or
- An equivalent combination of training and experience.
- Project Management Practitioner's Certification preferred.

Core Job Functions:

Zone I: Entry Level

- Assists in detecting, locating, and removing programming problems of varying complexity;
- Assists in collecting, organizing, and coding, reducing, interpreting, and evaluating data;
- Assists in preparing flow charts, structure charts, and other design documents;
- Analyzes and determines the effectiveness of alternative approaches to satisfying user needs;
- Assists in researching system problems and resolving difficult technical problems;
- Ensures appropriate levels of client/user, IT peers and resources involvement during product development;
- Collaborates with other systems personnel for technical programming guidance and system knowledge;
- Codes and debugs program changes and corrections and documents code with required in-line comments;
- Creates and maintains required documentation for programs, testing, and other required deliverables;
- Adheres and produces programming deliverables according to departmental standards and guidelines;
- Converts existing programs to new languages and revises existing programs to improve efficiency;
- Proactively seeks to streamline business processes by working collaboratively with clients and IT staff;
- Remains on call 24 x 7 to provide support and resolve problems for critical and assigned systems and applications.

Zone II: Skilled Level

- All job functions of Zone I;
- Designs, codes and debugs complex program changes and corrections from formal program specifications, data descriptions, and flow charts;
- Designs program logic to meet design specifications for batch, on-line, web-based, UNIX or relational database systems and determines changes necessary to improve computer program efficiency;
- Produces deliverables including, but not limited to:
 - ♦ Periodic Status reports
 - ♦ Program Folder Documentation Verification Checklists
 - ♦ Change Control Requests
 - ♦ Time and task entries/updates
- Systems Development Methodology: requirements, specifications, and business process models/documentation;
- Participates in peer review for deliverable requirement documents developed by other analysts;
- Participates in peer reviews for design, coding, and final product evaluations;

Systems Developer

- Evaluates proposed changes, conversions, or corrections by studying program listings and documentation and makes appropriate recommendations;
- Enforces and adheres to all departmental documentation standards;
- Prepares formal time estimates;
- Prepare technical reports and manuals as required;
- Assists in the design and implementation of database applications.

Zone III: Expert Level

- All job functions of Zones I and II;
- Creates and documents reusable code modules for other developers;
- Initiates corrective action on problems discovered during the analytical process;
- Prepares program specifications and routines from formal system requirements;
- Writes formal program descriptions detailing component programs, functions and interfaces;
- Prepares detailed flow charts, diagrams, and other conceptual aids to guide programming design and organization in accordance with departmental standards;
- Designs and develops high-level object models for new or existing business applications;
- Studies appropriate literature to become proficient in the use of new computer languages;
- Studies, analyzes, designs, and assists in the installation of computer systems;
- Evaluates industry specific and business software and makes appropriate recommendations;
- Supervises, trains and mentors other System Developers in their assigned tasks;
- Provides knowledge and assistance in the design and implementation of database applications;
- Conducts presentations and training as required;
- Delivers innovative solutions to key clients in auditing and accounting, financial management, business process improvement, strategy and operations, information systems development, package implementation, enterprise transformation, business process and application automation, and a full range of resource/performance management tracking systems;
- Writes and debugs programming code to adapt existing programs and routines to new machine operations;
- Performs data analyses, reasons logically, exercises sound judgment, interprets requirements, makes sound decisions, and develops effective solutions to complex problems.

Competencies:

Zone I: Entry Level

- Contributes to departmental goal achievement;
- Proactively incorporates reusable code for assignments;
- Demonstrates and applies the ability to analyze and understand the department's, customers' and City's "big picture" and to assess current and future IT needs and identify and resolve key issues;
- Demonstrates knowledge of city audit requirements and adheres to departmental standards;
- Demonstrates knowledge of relevant and current data processing technology;
- Applies and demonstrates excellent interpersonal and communication skills (verbal and written);
- Contributes to and enhances customer satisfaction by effectively planning and delivering project work;
- Demonstrates the ability to train user agency personnel;
- Demonstrates proficiency at preparing and delivering well thought out, tested, and engaging presentations and training;
- Supports group decisions, works with group to achieve goals, and handles conflict constructively;
- Applies and demonstrates knowledge of the operation of the computer system and its peripheral equipment;
- Applies and demonstrates knowledge of JCL and current principle programming languages;
- Possesses the ability to plan, develop, and prepare technical documentation, reports and manuals;
- Acquires and continuously develops professional/technical skills and knowledge;
- Applies and demonstrates knowledge of the following:
 - ◆ Programming
 - ◆ Testing
 - ◆ Operations
 - ◆ Forms design
 - ◆ Problem solving
 - ◆ Structure charting
 - ◆ Flow charting
- Demonstrates proven ability to analyze computer software and hardware programs;
- Demonstrates ability to provide on-call application support for reported problems throughout the software development life cycle including maintenance, replacement, and application retirement;

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- Applies and demonstrates knowledge of laws, ordinances and regulations on data access, use and confidentiality;
- Applies and demonstrates knowledge, professional experience and competency with City systems, applications, operating systems and processes which emphasize the interrelationships in networked City operations;
- Appropriately utilizes a variety of service oriented architecture to effectively and efficiently integrate the City's networked operations;
- Applies and demonstrates knowledge of laws, ordinances and regulations on data access, use and confidentiality;
- Applies and demonstrates a knowledge of problem solving by consistently utilizing efficient and effective administrative and technical skills in problem resolution;
- Applies and demonstrates ability to plan, organize and execute work and assignments effectively and efficiently including time management, effective utilization of resources and productivity reporting;
- Possesses and exhibits a strong work ethic; self-confidence; a demonstrated commitment to producing a substantive work product.

Zone II: Skilled Level

- All competencies of Zone I;
- Ensures appropriate developmental opportunities for team members;
- Applies and demonstrates knowledge data modeling and business process analysis;
- Maintains current knowledge of applicable technology, business activities and external influences that may impact business needs or software applications and systems;
- Applies and demonstrates knowledge of the techniques and principles of systems analysis;
- Applies and demonstrates ability to develop business and data process flow models as appropriate to support and reflect current and proposed requirements processes. Identify options for consideration to improve data flow, security, performance and effectiveness of software or systems;
- Applies and demonstrates ability to perform market searches for available software to meet user needs;
- Research options from searches, analyze options against defined criteria to identify potential matches, and define functional gaps between options and defined needs;
- Applies and demonstrates the ability to integrate applications (both internally developed and COTS products);
- Develops and maintains effective partnerships with internal and external organizations to help clients use technology integration to solve business challenges;
- Applies and demonstrates skills in providing support to ensure requirements are understood when developing test procedures, screen shots, prototypes, interpreting test results, and preparing initial software and database design;
- Demonstrates ability to perform impact and hazard analysis when requirements change, including communicating information to lead developers on how the change impacts resource requirements, project schedules, and costs to the business.

Zone III: Expert Level

- All competencies of Zones I and II;
- Exercises independent judgment in the writing of programs;
- Seeks methods and opportunities for cost savings and revenue generation;
- Demonstrates knowledge of current and emerging Graphical User Interface Design concepts and best practices (Human Engineering of Computer Interfaces);
- Demonstrates proficiency in developing GUI interfaces using ATL/WTL, HTML, XML, the HTTP protocol, JavaScript, COM and ActiveX;
- Demonstrates proficiency developing applications for mobile and wireless devices and platforms, including cellular phones, Pocket PC's, and PDA's, and Mobile Computers;
- Demonstrates proficiency in review and validation of project requirements provided by the customer to ensure they are accurate and complete (both functional and non-functional requirements);
- Demonstrates proficiency performing code reviews with the application development teams (internal and external) to ensure all project requirements and application functionality is being achieved;
- Applies and demonstrates proficiency in Business Process Modeling techniques including but not limited to Object Oriented Design and Analysis (OOAD);

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- Applies and demonstrates knowledge of database performance, tuning and theory and data normalization rules. Including referential integrity, use of stored procedures, triggers, and other advanced database design and coding techniques;
- Demonstrates effective team leadership and management skills with an proven excellent record of managing technical staff through various project/system life cycle phases;
- Applies and demonstrates skill in supervisory, principles, practice and techniques;
- Demonstrates the ability to work with client personnel to analyze, evaluate, and enhance information systems facilitating the business internal control process, and assist clients and other professionals in performing information technology (IT) control and security engagements;
- Applies and demonstrates proficiency in developing an utilizing internet technologies, communication protocols, Http, HTML, XML, and scripting languages;
- Proficient with client-side web technologies including DHTML, JavaScript, experience with C#, ASP.NET as well as test case developments;
- Applies and demonstrates a broad base of technical experience that includes proficiency in :
 - ♦ Web application servers
 - ♦ Application security knowledge
 - ♦ Understanding of service oriented architecture
 - ♦ Relational databases (SQL Server, DB2 and Oracle).
 - ♦ IBM Z/Os, Unix, NT, and Windows platforms
 - ♦ Experience with UML or other Modeling Tools.
 - ♦ Infrastructure and/or Network knowledge

Skills:

Zone I: Entry Level

- Business software: Microsoft Office: Word, Excel, PowerPoint, Outlook, Microsoft Project
- City software and systems: DIT Project Time Accounting, Network Associates – Support Magic
- IBM Enterprise Server Developer skills including, but not limited to:
 - ♦ Roscoe
 - ♦ Easytrieve +
 - ♦ Others as required
 - ♦ TSO
 - ♦ SQL programming against Oracle, SQL Server, Unix or DB2
 - ♦ IBM JCL
 - ♦ Cobol
- Business intelligence analysis and reporting tools (Business Objects, SQL)
- Web based applications and portal development skills including, but not limited to:
 - ♦ HTML
 - ♦ JavaScript
 - ♦ VB .NET
 - ♦ Cascading style sheets
 - ♦ ASPX
 - ♦ HXML
 - ♦ VB Script
 - ♦ .net
 - ♦ Web Services
 - ♦ ASP
 - ♦ C#
 - ♦ Others as required
- Web based application design, deployment, and management best practices for a Microsoft ASP, .NET, and any current or emerging service oriented architecture as required
- Visual Studio IDE
- Systems development methodologies
- Ability to identify, learn, and effectively incorporate evolving technology trends as required
- Ability to efficiently and effectively problem solve
- Effective time management and organizational skills with ability to multitask and meet deadlines
- Knowledge of business English and general mathematics
- Ability to communicate accurately and effectively in both verbally and written communications

Zone II: Skilled Level

- All skills required in Zone I
- Operating Systems: AIX, Data General OS, and others as required
- DB2: previous, current and future versions as required
- Interactive Debugging and Testing of Applications
- Relational data based design, maintenance, and reporting with Oracle, DB2, Unix and Microsoft SQL Server
- Languages: SQL, DML, DDL and others as required
- Business Basic
- Visual Source Safe
- IBM Enterprise Server Developer skills required in Zone I plus:
 - ♦ Compuware Expediter Batch/CICS
 - ♦ Z/Os
 - ♦ Others as required
- Unix Oracle Developer Skills required in Zone I plus:
 - ♦ PL/SQL
 - ♦ HP-UX
 - ♦ RCS/CVS Version Control
 - ♦ Oracle 9i, 10g
 - ♦ Unix Shell Scripting
 - ♦ Others as required

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- Systems Development methodology with proficiency in HTML, JavaScript, ASP, ASPX and others as required
- SQL Server 7, 2000 and SQL Navigator – includes previous, current and future versions as required
- Windows Batch/Shell File Programming
- Adobe Professional and PhotoShop
- Ability to effectively and efficiently incorporate and manage new technology to improve operational effectiveness and client satisfaction

Zone III: Expert Level

- All skills required in Zone I
- Geographic Information Systems and spatial data analysis, reporting, and programming (ArcGIS)
- Quality Assurance and Testing of Systems Development Work Products
- Developing stress automation and working with Rapid Development techniques
- Unix Oracle Developer Skills required in Zones I and II plus:
 - ♦ ProC
 - ♦ Oracle Forms 9i
 - ♦ Oracle Application Server 9ias
 - ♦ Oracle Reports 9i
 - ♦ Oracle Designer 9i
- Web based applications and portal development skills, including but not limited to, design, coding, testing, deployment, and management best practices for a Microsoft ASP, .NET service oriented architecture required in Zones I and II plus:
 - ♦ Windows .net applet
 - ♦ Network Topology – OSI model
 - ♦ ActiveX.
 - ♦ ADO (ActiveX Data Objects)
 - ♦ Microsoft IIS
 - ♦ Active Director
 - ♦ Macro Media Flash MX
 - ♦ Asynchronous user interface (AJAX)
 - ♦ DBM Data Base Management development with XML gateway
 - ♦ Design and deployment (ESRI ARCims) spatially enabled web user interfaces
 - ♦ Others as required
- Business Intelligence and data warehousing development skills required in Zones I and II plus:
 - Design and implementation of data marts (star or snowflake schema) and ETL processes, Oracle 9i, and Business Objects Universe for reporting and analysis
 - Develop Business intelligence analysis and reporting using current versions of Designer, Webi, and other reporting tools
 - Relational database design, maintenance, tuning, and reporting with Oracle, DB2, and Microsoft SQL Server
 - Others as required

ADA COMPLIANCE

The City of Richmond is an Equal Opportunity Employer. ADA requires the City to provide reasonable accommodations to qualified individuals with disabilities. Prospective and current employees are invited to discuss accommodations.

The City of Richmond is committed to Quality Customer Service.