

## SOFTWARE ENGINEER II

DISTINGUISHING FEATURES OF THE CLASS: Under general supervision, incumbents of this class are responsible for providing technical leadership in the design, development, building, configuration, integration, testing and operation of custom programming projects and systems, including in-house and third party software components, as well as off-the-shelf software modules, in order to provide quality IT services. Incumbents are expected to supervise other departmental staff and function as a team leader and manage vendor relationships. Does related work as required.

### EXAMPLES OF WORK: (Illustrative Only)

Provides supervision and leadership to teams and team members with responsibility for the preparation of project plans, design of software module architecture, documentation and presentation of designs and code to acquaint other staff with the details of the system and undertakes any other necessary and related tasks to a successful and timely conclusion at any point in the life-cycle of an application system to build effective application systems;

Collects and organizes functional requirements, analyzes those requirements and develops a conceptual (logical) representation of the requirements;

Prepares work-flow analyses and process re-engineering;

Operates and refines application systems to ensure they function reliably and efficiently;

Assists in preparing RFP's for vendor software, software tools and components and manages vendor relationships;

Designs and develops Web-based applications using one or more of HTML, C/C++, Java, ASP, Visual Basic, UNIX Shell Script, Perl, and SQL, or other tool appropriate to the application;

Uses systems configuration management and version control tools in the various life-cycle stages of a system;

Designs database schemas to meet the data needs of the departments, as identified in requirements analysis or county-wide mandates;

Designs, develops and administers systems based upon relational database management software such as Oracle and Microsoft SQL Server, or upon object-oriented database software;

Uses computer applications or other automated systems such as spreadsheets, word processing, calendar, email and database software in performing work assignments;

May perform other incidental tasks, as required.

REQUIRED KNOWLEDGE, SKILLS, ABILITIES AND ATTRIBUTES: Thorough knowledge of the fundamental concepts of server and client operating systems, including UNIX, Windows NT, and Windows 95; good knowledge of designing and programming in C/C++ and Java; good knowledge of at least one of the following languages: Visual Basic, SQL, JavaScript, UNIX Shell Script, Perl; good knowledge of formal requirements, analysis and design methodologies and CASE tools, such as Yourdon-DeMarco or UMT; good knowledge of the design and programming of effective, maintainable solutions - at the module level - and its architecture; good knowledge concerning how to use and select software components/objects as appropriate; knowledge of object-oriented programming and database management systems; knowledge of distributed computing and 3-tier architectures as well as middleware and other systems integration tools; knowledge of embedded systems; familiarity with GIS and expert systems; knowledge of relational database design, operation, optimization and tuning; skill in the use of Rapid Application Development tools; ability to plan, coordinate, supervise and evaluate the work of others; ability to identify, evaluate and convey (both orally and in writing) requirements, designs and operations of application software and systems; ability to establish and maintain effective working relationships; ability to manage technical projects and vendor relationships; ability to gather and analyze data and draw conclusions; ability to establish and maintain effective working relationships; ability to effectively use computer applications such as spreadsheets, word processing, calendar, email and database software; ability to read, write, speak, understand, and communicate in English sufficiently to perform the duties of the position; thoroughness and attention to detail; resourcefulness; initiative; imagination; good judgment; physical condition commensurate with the demands of the position.

MINIMUM ACCEPTABLE TRAINING AND EXPERIENCE: Either: (a) a Bachelor's Degree\* and two years of experience (pre- or post-degree) designing and programming application software in at least one of the following languages: C/C++, Java, Oracle Database, Microsoft SQL, Javascript, UNIX Shell Script, or Perl; or (b) a Bachelor's Degree\* or a Master's Degree\* in Computer Science, Information Technology, or closely related field which included or was supplemented by a computer programming course† in, or including coursework in, C/C++ and/or JAVA, and a course† in database design (see definition), and one year of experience as stated in (a).

SPECIAL REQUIREMENT: At time of permanent appointment, must provide evidence of satisfactory completion of one of the following industry-standard certifications from the vendor of the software tool: Microsoft C/C++, Java, Oracle Database or Microsoft SQL.

DEFINITION: A course in database design is defined as a course that covers how to analyze, classify and maintain an organization's data and data relationships and develop data models and data dictionaries.

NOTE #1: Experience solely on a home personal computer may not be used as a substitute for the aforementioned experience.

NOTE #2: Unless otherwise noted, only experience gained after attaining the minimum education level indicated in the minimum qualifications will be considered in evaluating experience.

\*SPECIAL NOTE: Education beyond the secondary level must be from an institution recognized or accredited by the Board of Regents of the New York State Department of Education as a post-secondary, degree-granting institution.

†NOTE: For the coursework in C/C++ and database design, the only courses that will be accepted are courses taken at recognized colleges and universities (as defined above in the Special Note), or a vendor approved course from a commercial business.