Index of Surveyed Jobs

WEB-OPERATIONS

570. Manager, E-Operations
575. Manager, E-Marketing
595. Website Engineer
600. Web Administrator
605. Head of Web Content Internet Security Administrator
635. Web Developer, Specialist
640. Web Developer, Senior
645. Web Developer, Intermediate
665. Webmaster
675. Social Media and Content Development, Director of
680. Social Media and Web Specialist

ENGINEERS – Five Levels

Group	Engineering I	Engineering II	Engineering III	Engineering IV	Engineering V
Aeronautical/Aerospace Engineers	1000	1010	1020	1030	1040
Bio Engineers	1200	1210	1220	1230	1240
Chemical Engineers	1300	1310	1320	1330	1340
Civil Engineers	1400	1410	1420	1430	1440
Electrical/Electronics Engineers	1500	1510	1520	1530	1540
Environmental Engineers	1600	1610	1620	1630	1640
Industrial Engineers	1700	1710	1720	1730	1740
Mechanical Engineers	1800	1810	1820	1830	1840
Metallurgical Engineers	1900	1910	1920	1930	1940
Software Engineers	2100	2110	2120	2130	2140
Hardware Engineers	2200	2210	2220	2230	2240
Software Quality Assurance	2250	2260	2270	2280	2290
Telecommunications Engineers	2300	2310	2320	2330	2340
Production/[Processing Engineers	2400	2410	2420	2430	2440
Facilities Engineers	2600	2610	2620	2630	2640
Quality Control Engineers	2700	2710	2720	2730	2740
Safety Engineers	2800	2810	2820	2830	2840
Research & Development Engineers	3000	3010	3020	3030	3040

ENGINEERING - MANAGEMENT

3100. Supervisor of Engineering
3110. Manager of Engineering
3120. Director of Engineering
3130. Vice President of Engineering

DESIGNERS

3200. Designer
3210. Senior Designer

JOB DESCRIPTIONS

IT MANAGEMENT

1. CHIEF INFORMATION OFFICER - Serves as the company's top technology infrastructure executive. Focusing on internal customers (users and business units), incumbents are primarily responsible for overseeing the organization's internal IT operations and aligning the company's IT infrastructure with internal business priorities. Is responsible for the top level of management as it pertains to the company's technological infrastructure; ensures that the communication capacities of the company are upgraded appropriately, properly secured, and well managed. Develops strategies to increase the company's profitability. Responsible for communication and collaboration with technology vendors and works to streamline business processes with technology. Collaborates and manages vendors that supply infrastructure solutions. Often heads such divisions as internal IT, network operations and systems administration, and technical support or helpdesk.

4. CHIEF TECHNOLOGY OFFICER - Serves as the company's top technology architect with responsibilities for merging technology with production. Responsible for establishing a company's technical vision and leading all aspects of technology development, according to its strategic direction and growth objectives. Oversees the company's technological architecture and infrastructure with responsibilities for creating the intranets and communications systems. Focusing primarily on the product vis-à-vis the user or customer, aligns the company's product architecture with business priorities; devises and implements strategies to increase revenues through technological enhancements to the product offering, or the development of new products. It is generally responsible for the company's engineering function and the technical architect of the company's product offering and is generally is the technical design authority for the company's product. Additional duties include leading the strategy for technology platforms, partnerships and external relationships as well as building and managing the technology team.

10. IT DIRECTOR - Responsible for all corporate information technology activities including systems analysis, programming, and computer and auxiliary operations. Under a broad corporate plan, develops policies, procedures, technical standards, methods, and schedules. Oversees the strategic relationship between information technology and other functions within the organization. Maintains the organization's awareness of developments in information technology and computer hardware and software for the formulation of long- and short-range plans for the acquisition and implementation of new equipment and techniques. Reports to management on information technology plans, projects, performance and related matters. Directs and provides functional direction to middle IT managers in a division, subsidiary, or region. Typically, this position reports to the chief information technology executive. In small- and mid-sized organizations, may be the top IT position reporting to a top-level executive position.

15. IT MANAGER - Responsible for managing IT operations including systems analysis, programming, and auxiliary operations of an organization's major division or branches. Directs the development and maintenance of timeliness and quality standards for all aspects of the data processing operation. Determines and recommends department budgets and analyzes controllable expenditures. May plan and coordinate the evaluation and effectiveness of existing data processing applications and the feasibility and potential value of new applications. Position typically reports to a director or a VP.

25. MANAGER, APPLICATION SYSTEMS ANALYSIS / PROGRAMMING AND OPERATING SYSTEMS PROGRAMMING - Is responsible for all systems analysis, applications programming, and operating systems programming. May have subordinate supervisors in charge of any or all of these functions. Is responsible for establishing priorities and schedules for the development of data processing applications and for the developing and maintaining standards for systems analysis and programming. Responsible for directing all technical efforts, which lead to the successful configuration between software systems, hardware configuration, and application programs. May be responsible for, or participate in, the evaluation of new computer hardware and software systems to determine the feasibility of installation.

30. MANAGER, COMPUTER OPERATIONS AND OPERATING SYSTEMS PROGRAMMING - Responsible for all equipment operations and related aspects of data processing as well as the operating systems programming function, but is not responsible for systems analysis or applications programming. Subordinate functions may include computer operations, data entry, data control, and scheduling. May also have subordinate supervisors in charge of any or all of these functions. Supervises, either directly or indirectly through a subordinate supervisor, the development, modification, and maintenance of systems software (general-purpose programs such as control systems, compilers, utility routines, etc.) Provides technical support to applications programmers in the use and the effective interface with the operating system. May be responsible for or participate in the evaluation of new computer hardware and software systems to determine feasibility of installation.

35. MANAGER, APPLICATION SYSTEMS ANALYSIS / PROGRAMMING - Responsible for all systems analysis and application programming in a data processing installation, but does not have responsibility for the supervision of operating systems programming. May have subordinate supervisors in charge of systems analysis and applications programming functions. Is responsible for the establishment of priorities and schedules for the development of data processing applications and for the maintenance of standards for systems analysis and applications programming.

37. SOFTWARE ENGINEER MANAGER - Responsible managing the activities relative to all software systems programming. These applications generally run the operating system and other applications, including high-end file maintenance routines, advance scientific software, large-scale telecommunications networks and ERP systems. Oversees department's budget and corporate objectives while providing input to policy level direction regarding standards and budget constraints. Based on resources and priorities, assigns personnel to projects and directs their activities. Large scale software and hardware projects and requirements are coordinated with other information systems managers. Develops standards for all software system applications and provides technical guidance to the information systems staff. Responsible for the interface of software systems and the hardware configuration and the applications systems. Additional areas of responsibility include: configuration/capacity planning, software products evaluations, and systems performance analysis and optimization. Provides activity and progress reports for software systems programming activities. Frequently reports to computer operations manager or information systems direct.

APPLICATIONS SYSTEMS ANALYSIS AND PROGRAMMING

45. APPLICATIONS SYSTEMS ANALYST / PROGRAMMER, SPECIALIST - Provides expert technical direction to projects that deal with one or more highly specialized applications of system analysis and programming. Devises or modifies procedures to solve complex problems considering computer equipment capacity and limitations, operating time, and form of desired results. Formulates/defines system scope and objectives. Prepares detailed specification from which programs will be written. Responsible for program design, coding, testing debugging, and documentation. Has full technical knowledge of all phases of applications systems analysis and programming. May be responsible for multiple phases of a project. May have responsibilities relative to instructing, directing, and checking the work of other application systems analysts and programming personnel. May have quality assurance review responsibilities.

50. APPLICATIONS SYSTEMS ANALYST / PROGRAMMER, SENIOR - Under general direction, prepares and defines system objectives and scope. Responsible for devising or modifying procedures to solve complex problems considering computer equipment capacity and limitations, operating time, and business objectives. Prepares detailed specifications from which programs will be written. Will design, code, test, debug, and document programs. Able to work at the highest technical level of all phases of applications system analysis and programming activities. Regularly provides guidance and training to less experienced analysts/programmers.

55. APPLICATIONS SYSTEMS ANALYST / PROGRAMMER, INTERMEDIATE - Under general supervision, prepares and defines system objectives and scope. Will assist in research and fact-finding to develop or modify information technology. Typically, this position has a broad understanding of the end product (application). Will assist in preparing detailed specifications from which programs will be written. Will design, code, test, debug, and document programs. Incumbents in this position will generally have responsibility for only specific aspects of a project. May require guidance on complex projects and usually does not deviate from set policies or procedures.

APPLICATIONS PROGRAMMING

65. APPLICATIONS PROGRAMMER, SPECIALIST - Applies a comprehensive body of knowledge to all phases of application programming. Plans, conducts, schedules, and may provide technical direction to the work of a group of application programmers. Provides training for entry-level programmers and evaluates/recommends changes in procedures, when necessary. May act as a liaison between departments. Has comprehensive technical knowledge of all phases of applications programming. Typical responsibilities may include directing and checking the work of other applications programmers. May have quality assurance review responsibilities. Exclude those performing systems analysis.

70. APPLICATIONS PROGRAMMER, SENIOR - Under general direction and considering computer capacity and limitations, operating time, and form of desired results, develops and modifies applications programs of a high degree of complexity and scope. Designs, codes, tests, debugs, and documents those programs. May carry-out or participate in problem analysis and system design preparatory for the development of programs. May advise on operating problems of assigned programs. May give some technical assistance to lower classifications. Competent to work at the highest technical level of all phases of applications programming activities. Exclude those performing systems analysis.

75. APPLICATIONS PROGRAMMER, INTERMEDIATE - Under general supervision, works from basic systems designs and specifications and uses standard procedures and techniques to maintain, modify, and devise new or existing applications programs of moderate complexity and scope. Prepares flow charts, writes machine instructions and procedures for computer operators, debugs, and documents programs. May assist higher-level programmers in the development of programs of a more complex nature. Work assignments at this level are aimed more at production than training, but work is still subject to regular checks by higher levels. Exclude those performing systems analysis.

80. APPLICATIONS PROGRAMMER, ENTRY-LEVEL (TRAINEE) - Under immediate supervision, modifies application programs from detailed specifications. Will code, test, debug, document, and maintain programs. Receives formal training and on-the-job instruction in conjunction with a progression of increasingly more difficult work assignments involving the flow-charting, coding, debugging, and documentation of application programs. Carries-out work assignments designed to prepare him/her for promotion to the next level of application programming. Ordinarily does not remain in this category more than 18 months and usually moves to the next level considerably sooner, based on skills development. Exclude those performing systems analysis.

OPERATIONS SYSTEMS PROGRAMMING

90. OPERATING SYSTEMS PROGRAMMER, SPECIALIST - Applies a comprehensive body of knowledge to all phases of operating systems programming of a high degree of complexity and scope. Is usually responsible for formulating specifications for applications dealing with the complete operating system including sophisticated file maintenance routines, large telecommunications networks, computer accounting, and advanced mathematical/ scientific software programs. Responsibilities typically include program design, coding, testing, debugging, and documentation. May plan the technical schedule and oversee the work of a group of operating systems programmers. May carry-out or participate in feasibility studies relative to new hardware or software systems and the implementation of such systems. May have quality assurance review and/or new and existing software product evaluation responsibilities.

95. OPERATING SYSTEMS PROGRAMMER, SENIOR - Under general direction, applies thorough knowledge to formulate and define specifications for complex operating software programming applications that may include modifications to existing applications. Is competent to work at the highest technical level on all phases of operating systems programming applications; may have responsibilities for evaluating new and existing software products. Responsible for program design, coding, testing, debugging, and documentation. Is concerned with achieving the most efficient use of available hardware through effective use of software programs and routines. May evaluate available software and make recommendations concerning purchase of software packages or development of in-house programs.

100. OPERATING SYSTEMS PROGRAMMER, INTERMEDIATE - Under general supervision, maintains and modifies existing operating systems programs. Typically works on such general-purpose operating programs such as utility programs, job control language, macros, subroutines, and related control modules. May work with new software operating programs of moderate complexity and scope and provide continuing technical support to applications programmers in making the most efficient use of such software. Responsibilities include program design, coding, testing, debugging, and documentation. May develop and secure acceptance for standards and common procedures for software systems.

APPLICATIONS SYSTEMS ANALYSIS

110. APPLICATION SYSTEMS ANALYST, SPECIALIST - Formulates, organizes, and provides technical direction to major projects involving all phases of application systems analysis. Will formulate, design, and guide systems analysis implementation projects while taking the capacity and limitation of the equipment, operating time, and form of desired results into consideration. Prepares detailed specifications from which programs will be written. Analyzes and revises existing system logic difficulties as necessary. Has full technical knowledge of all systems analysis activities, which may include instructing, directing, and checking the work of other systems analysis personnel. May also provide quality assurance reviews. Exclude supervisors with permanent responsibility of a particular department.

115. APPLICATION SYSTEMS ANALYST, SENIOR - Under general direction, plans and performs the analysis of major company activities and guides the subsequent design and implementation of systems for the application of electronic data processing or for the improvement of existing data processing applications. Is concerned primarily with the broad aspects of data processing systems with the objective of utilizing available personnel resources and computer hardware and software to provide the information that is most useful to the company in the most efficient manner. Is concerned with the interaction between systems, not only to avoid redundancies in storage and processing, but also to take advantage of new and more effective ways of providing needed information. May occasionally train and guide the work of less experienced analysts, but this function is incidental to specific projects.

120. APPLICATION SYSTEMS ANALYST, INTERMEDIATE - Under general supervision, studies specific administrative, scientific, or engineering functions to determine, define, and formulate the applicability of new or modified application programs. Identifies all aspects of the assigned problem and evaluates user requirements in terms of the capabilities of the available hardware and software. Develops proper documentation that outlines the logical steps to be followed in solving the problem and prepares systems specifications including input and output formats. Able to work in most aspects of application systems analysis in accordance with acceptable practices standards.

SOFTWARE DEVELOPERS

130. SOFTWARE DEVELOPER, TEAM LEADER - Leads other developers by providing direction on the development of new or existing business needs. Provides top technical expertise in the development, modification, and implementation of software systems designed to support new or existing business needs. Assigns personnel to projects, directs their activities, and evaluates their work. Projects are of significant complexity and require considerable experience in managing/leading large-scale development efforts. Oversees development projects from concept to implementation using solutions in multi-platform environments including object oriented applications, languages, and third party tools such as GUI (C/C++), CASE, and RAD client/server-based tools and comparable applications. Has responsibility for all phases of a project and regularly audits the progress of teams.

135. SOFTWARE DEVELOPER, SPECIALIST - Based on project requirements, provides top technical expertise in the development, modification, and implementation of software systems designed to support new or existing business needs. Projects are usually of considerable complexity and require a mastery of developmental tools. Based on a thorough analysis of the project and considering staff, equipment, and deadlines, develops solutions from concept to implementation using object oriented applications, languages, and third party tools such as GUI (C/C++), CASE, and RAD client/server based tools and comparable applications. Has responsibility for all technical phases of a project and regularly audits the progress of senior-level and less-experienced staff members.

140. SOFTWARE DEVELOPER, SENIOR - Under general direction, is responsible for the development, modification, and implementation of software systems designed to support new or existing business needs. Projects are usually of considerable complexity and require a mastery of developmental tools. Based on analysis, develops multi platform solutions using object oriented applications, languages, and third party tools such as GUI (C/C++), OOP, CASE, and RAD client/server based tools and comparable applications. Typically, works in all phases of a project and may review work of less experienced staff members.

145. SOFTWARE DEVELOPER, INTERMEDIATE - Under general direction, is responsible for the development, modification, and implementation of software systems designed to support a new or existing business. Assignments are usually of a fairly complex nature and require working mastery of developmental tools. Based on analysis, assists in the formulation of the concept and the implementation of solutions in multi-platform environments using object oriented applications, languages, and third party tools such as GUI (C/C++), OOP, CASE, and RAD client/server based tools and comparable applications. Typically works in most phases of a project but work is subject to review by senior staff.

DATABASE MANAGEMENT & DEVELOPMENT

150. DATABASE MANAGER - Responsible for all functions associated with the efficient management/administration of computerized databases either through supervisors or technical staff. Directs various projects and their activities to staff. Reviews and evaluates staff's work and prepares performance reports. Consults with and advises staff on administrative policies and procedures, technical problems, priorities, and methods. Instructs and advises database users of the various administration and technical issues in conjunction with other IT managers. Responsible for preparing activity and progress reports regarding the database management section. As a rule, this position is not an administrative position. Incumbents exercise control over database functions through subordinates; therefore, excluded are those with no functional subordinates. (For Database manager with no functional subordinates, see DATABASE ADMINISTRATOR.)

155. DATABASE ADMINISTRATOR - Responsible for all activities related to the administration of computerized databases including design, control, and maintenance. Analyzes information requirements and develops specifications for database construction and maintenance to ensure economy, efficiency, safety of information, and utilization of new technical developments. Based on the project and on a limited basis, assigns various projects to personnel and directs their activities. Reviews and evaluates personnel's work and prepares performance reports. May confer and advise system analysts and subordinates on administrative policies and procedures, technical problems, priorities, and methods and of new or existing data files. May project long-range requirements for database administration in conjunction with other managers in the data processing function. Normally reports to the IT Manager.

160. DATABASE ANALYST / PROGRAMMER, SPECIALIST - Under minimal direction, applies a comprehensive body of knowledge to all phase of database development. Designs, implements, and maintains extremely complex databases with respect to JLC, access time, access methods, device allocation, validation checks, organization, protection and security, documentation, guidelines, and statistical methods. Provides top technical direction to support user/business needs, developmental efforts, and the project/department team. Provides direction to solutions involving all database activities including physical structure, functional capabilities, security, and back-up/recovery specifications. Additional areas of responsibility also include the maintenance of database dictionaries, the overall monitoring of standards and procedures, and the integration of systems through database design. Incumbents in this position have the highest competency to work in all database functions.

165. DATABASE ANALYST / PROGRAMMER, SENIOR - Under general direction designs, implements, and maintains extremely complex databases with respect to JLC, access time, access methods, device allocation, validation checks, organization, protection and security, documentation, guidelines, and statistical methods. Examines and coordinates database requirements of the user, the capabilities of databases, data security, and data back-up/recover specifications. Will maintain database dictionaries, monitor standards and procedures, and integrate systems through database design. For the following three classifications, report the job codes listed in Guide A corresponding to the platform being used.

170. DATABASE ANALYST / PROGRAMMER, INTERMEDIATE - Under general supervision, designs, implements, and maintains complex databases relative to JLC, access time, access methods, device allocation, validation checks, organization, protection and security, documentation, guidelines, and statistical methods. Examines and coordinates database requirements of the user, the applications programmer, and the operators. May recommend solutions requiring the knowledge of the physical structure and the functional capabilities of databases, data security, and data back-up/recovery specifications. May maintain databases dictionaries, monitor standards and procedures, and the integration of systems through database design.

206. DATA WAREHOUSEING ANALYST, SR. - Under general supervision, designs and constructs relational databases for data warehousing. Defines, develops, and builds dimensional databases. Translates business needs into long-term architecture solutions, examines the acquisition, access, and design of data, handles the archive, recovery, and load strategy design and implementation procedures. Responsible for developing data warehousing blueprints, evaluating hardware and software platforms, and integrating systems. Coordinates new data integration with existing warehouse structure. Evaluates reusability of current data for additional analyses and cleans system of old, unused, or duplicate data. Examines object and data models and the metadata repository to configure the data for efficient use and quick access. Incumbents usually have 2 to 4 years of experience.

207. DATA WAREHOUSE ADMINISTRATOR - Administer data warehouse systems including maintenance and verification of extract, transform, and load operations. Manages all aspects of the warehouses such as data sourcing, migration, quality, design, and implementation. Develops and implements information management strategies. Install, configure, troubleshoot, and maintain data warehouse systems. Handle customer requests for querying information. Installs, deploys and upgrades data warehouse systems applications. Maintains documentation, and performs routine systems administration maintenance activities. Provides assistance to end users and programmers regarding data warehouse related problems and issues. Generally has considerable experience with creating, troubleshooting, tuning, and maintaining data warehouse systems, database administration, or systems administration including and work experience in various database programs and systems, i.e., SAS Business Intelligence administration and/or programming, SAS programming, SQL programming, Unidata, MySQL and/or Microsoft SQL Server 2000 databases.

NETWORK OPERATIONS / ADMINISTRATION

210. COMPUTER OPERATIONS MANAGER - Responsible for all equipment operation and related aspects of data processing in a computer installation, but does not have responsibility for systems analysis, programming, or operating systems programming. Subordinate functions may include computer operations, data input, and data control and scheduling. May also have subordinate supervisors in charge of any or all of these functions. Is responsible for coordinating these functions to meet approved standards of quality and timeliness.

215. COMPUTER OPERATIONS SUPERVISOR - Supervises personnel engaged in setting up and operating stored program computers and peripheral equipment. Is responsible for solving operating problems and insuring compliance with established methods, procedures, and standards of operation. May be responsible for scheduling jobs and equipment maintenance to achieve maximum use of equipment. Directs training of subordinates in operation of equipment used. May be responsible for all or only part (such as one shift) of computer operations. This is a first-level exempt supervisory classification. Typically reports to the computer operations manager.

220. SYSTEMS ADMINISTRATOR - Under general supervision Provides system support to the activities and resources required to provide quality computer operations processing and applications system resource management and availability. Will set-up and implement standards for computer operations and use software support tools to process scheduling, reports, report generation, database administration, system data backups, performance tuning, and security. Will troubleshoot and resolve problems associated with local and wide area network environments, PCs, and software; may coordinate with help desk, and set connections to broadband/baseband networks. May be asked to work with hardware and software vendors to resolve technical support issues. Able to work with software and systems administration including communication hardware designed to maintain wide area networks. Knowledge of TCP/IP networking and operating environments such as UNIX and Windows NT. May work with lead personnel in the upgrade of equipment.

221. SYSTEMS ADMINISTRATOR, SR. - Under general direction, responsible for system support to the activities and resources required to provide quality computer operations processing and applications system resource management and availability. Directly or via other IT personnel, will set-up and implement standards for computer operations and use software support tools to process scheduling, reports, report generation, database administration, system data backups, performance tuning, and security. Will troubleshoot and resolve problems associated with local and wide area network environments, PCs, and software; may coordinate with help desk, and set connections to broadband/baseband networks. It is usually responsible for dealing with hardware and software vendors and other IT suppliers. Extensive experience with software and systems administration including communication hardware designed to maintain wide area networks. In-depth knowledge of TCP/IP networking and operating environments such as UNIX and Windows NT. May have lead responsibilities in the upgrade of equipment.

252. NETWORK PLANNING ANALYST, SENIOR - Under general direction, plans, monitors and evaluates the performance of complex network systems and recommend improvement/upgrades. Provides highly skilled technical support in network planning, engineering, architecture, and in the resolution of network problems. Will develop technical guidelines and interface applications, identify and evaluate new products, and resolve network problems of considerable complexity. May be responsible for identifying, evaluating, and recommending the acquisition of new hardware and software. May interface with vendors. May have lead responsibilities of projects involving less-experienced network planning analysts. Typically has a bachelor's degree in CS or related field, plus 5 to 8 years of related experience.

253. NETWORK PLANNING ANALYST, INTERMEDIATE - Under general supervision, plans and evaluates moderately complex existing network systems and makes recommendations for resources to maintain and/or expand service levels. Provides assistance in network planning, engineering, architecture, and the development of technical standards and interface applications. Will assist in developing technical guidelines and interface applications. May assist more experienced planning analysts in the evaluation of new products and evaluate new products, as assigned. Resolves routine network problems usually referring more complex issues to senior-level analysts. Typically has a bachelor's degree in CS or related field plus 3 to 5 years of related experience.

255. NETWORK ENGINEER, SENIOR - Under general direction, is responsible for the technical design, configuration, and implementation of local and wide area network solutions between multiple platforms including ongoing technical support to remote area networks, Internet, and EDI communications. Has thorough knowledge of multi-protocol systems and extensive implementation experience with multi-vendor network systems. Is responsible for troubleshooting network usage, workstations, and computer peripherals. Will develop and implement policies and standards and ensures adherence to security procedures. In addition to a B.A. degree, incumbents usually have special certification such as CNE or equivalent and over 5 years of experience.

260. NETWORK ENGINEER, INTERMEDIATE - Under general supervision, is responsible for the technical design, configuration, and implementation of local and wide area network solutions between multiple platforms including ongoing technical support to remote area networks, Internet, and EDI communications. Possesses extensive knowledge of multi-protocol systems and implementation experience with multi-vendor network systems. Responsible for troubleshooting network usage, workstations, and computer peripherals. In addition to a B.A. degree, incumbents usually have special certification such as CNE or equivalent and 3 to 4 years of experience.

265. NETWORK (LAN/WAN) SUPPORT TECHNICIAN, SENIOR - Provides technical maintenance and recovery support to the firm's local or wide area networks. Will use a variety of testing tools and techniques to troubleshoot and resolve complex technical problems associated with the system's hardware and software. Will interface with vendors and maintenance providers to service and maintain the system, implement necessary measures to limit the system's downtime, and provide technical support to optimize system performance. Is fully trained with network protocols (IPX/SPX and TCP/IP) and has working knowledge of programming languages (C, C++, Visual Basic), operating systems, and environments. Excluded are those incumbents with significant responsibility for the systems development and
installation.

270. DATA SECURITY MANAGER - Develops, directs, and implements policies and procedures to protect the firm's information technology assets from deliberate or accidental modification, disclosure, or destruction. Responsible for recommending and implementing procedures, policies, and security clearance for users to gain access to information system assets. Will design appropriate measures to minimize security breaches including data recovery and back-up procedures. Will schedule assignments, personnel, and operations and will direct all activities. Will continuously review and evaluate staff's performance and prepare performance reports.

275. DATA SECURITY ANALYST - Under general supervision, works with existing security procedures to protect the system's assets from deliberate or accidental access, disclosure, or destruction. May analyze user needs and/or coordinate recommendations for new and improved security measures. May design appropriate security procedures among users and document and train personnel on such matters. Usually general understanding of firewall theory, configuration, and application. Will coordinate back-up and recovery procedures. . Usually oversees data access policies by users to information to insure adherence to security policies.

276. DATA SECURITY ANALYST, SR. - Under general direction, will implement security procedures to protect the system's assets from deliberate or accidental access, disclosure, or destruction. May analyze user needs and/or coordinate recommendations for new and improved security measures. Will design appropriate security procedures among users and document and train personnel on such matters. Usually has in-depth understanding of firewall theory, configuration, and application. Usually develops policies with management to coordinate access by users to information while simultaneously, ensuring security issues. Will coordinate back-up and recovery procedures. Usually provides status reports to management and to appropriate personnel.

280. HELP DESK MANAGER - Will manage the organization's help desk department to ensure that technical problems are resolved promptly with a minimal amount of user inconvenience. Monitors staff and their resolution of user problems to ensure optimum user-system performance. Will implement the necessary administrative procedures to monitor, log, and track technical problems and/or user difficulties. Typically, this position takes part or is the lead person in the evaluation of software/hardware used by the help desk group. Will prepare reports related to department activities, system functionality, and staff performance. Exclude those who simply lead the department by their ability to resolve the more technical problems.

290. HELP DESK COORDINATOR, SENIOR - Under general supervision, is responsible for supporting the timely process through which system problems are controlled. Will isolate, resolve and follow-up with end-users to resolve MIS problems of a high-level of complexity. Typically, this position has limited discretion to resolve problems that fall outside normal areas of expertise. May elevate problems of unusual complexity to lead or management-level personnel. May involve the use of a problem management database and help desk systems. May provide guidance/training to less experienced personnel.

295. HELP DESK COORDINATOR, INTERMEDIATE - Under general supervision, will assist users in resolving problems through diagnoses and discussion of the particular problem. Will take the necessary steps to recognize the problem, research, isolate, and resolve the problem. Can typically resolve problems of a moderate level of complexity referring more difficult problems to senior-level personnel.

299. BUSINESS ANALYST, LEADER - Under general direction and acting as a member of a project team, directs and checks the work of other business systems analysts. Works with functional groups within IT and internal business clients to develop short- and long-term system plans. Provides technical guidance concerning the business implications of the application of various systems. Directs the planning, implementation, and execution of business-specific technology plans. Devises or modifies procedures to solve complex problems considering computer equipment capacity and limitations, operation time, and form of desired results. Ensures that internal customers' needs analysis is in alignment with business initiatives. Incumbents usually have complete technical knowledge of most phases of systems analysis and business implications of the application of technology to the current and future business environment. Usually requires at least 6 to 8 years of related progressive experience.

300. BUSINESS ANALYST, SENIOR - Plans and performs analysis of major company activities and/or functions and guides the subsequent design and implementation or improvement of existing data processing-based business systems applications. Utilizes available personnel resources and resources from the computer system to analyze information, methods, systems, and procedures to determine the most useful business solutions to the company. Is concerned with the interaction between systems to take advantage of new and more effective ways of providing needed information. Will analyze, interpret, and make recommendations in the form of formal proposals and/or presentations to senior executives. Depending on the assignment, will perform proactive activities related to the completion and implementation of a project. May occasionally train and guide the work of less-experienced analysts, but this function is incidental to specific projects. Fully competent to work at the highest level of all phases of business analysis. Typically has a bachelor's degree in one of the following areas: information technology, finance, computer science, or related. Usually requires at least 5-6 years of related progressive experience. Exclude systems auditors or systems analysts.

305. BUSINESS ANALYST, INTERMEDIATE - Plans and performs analysis of major company activities and/or functions and guides the subsequent design and implementation or improvement of existing data processing-based business systems applications. Utilizes available personnel and computer system resources to analyze information, methods, systems, and procedures to determine the most useful business solutions to the company. Is concerned with the interaction between systems to take advantage of new and more effective ways of providing needed information. Will analyze, interpret, and make recommendations in the form of formal proposals and/or presentations to senior executives. Depending on the assignment, will perform proactive activities related to the completion and implementation of a project. May occasionally train and guide the work of less-experienced analysts, but this functions is incidental to specific projects. Able to work in most aspects of business analysis in accordance with acceptable practices and standards. Typically has a bachelor's degree in one of the following areas: information technology, finance, computer science, or related. Usually requires at least 3-4 years of related progressive experience. Exclude systems Auditors or systems analysts.

325. PROJECT MANAGER – Under general supervision, works with teams in systems projects of significant magnitude in terms of complexity, cost, time-constraints, internal and external staffing, and equipment including software and hardware. Assists in setting direction to a project team including the assignment of individual responsibilities, tasks, and technical functions. Follows overall project requirements including identifying needs and allocating the appropriate resources to meet the timely completion of specific project tasks. May monitor individual progress to insure meeting of specific deadlines. Possesses a broad-knowledge of most technical resources and uses them to effectively coordinate team members and resources. Will confer with senior MIS or administrative management regarding changes of significant consequences to the scope or schedule of the project. Given the life-cycle of most projects, most assignments usually last more than three months. Excluded are outside consultants and incumbents that may perform the above functions on a part-time basis.

326. PROJECT MANAGER, SR. - Oversees various systems projects of significant magnitude in terms of complexity, cost, time-constraints, internal and external staffing, and equipment including software and hardware. Will provide direction to a project team including the assignment of individual responsibilities, tasks, and technical functions. Will identify needs and allocate the appropriate resources to meet the timely completion of specific project tasks. Will continually monitor individual progress to insure meeting of specific deadlines. Possesses a broad-knowledge of most technical resources and uses them to effectively coordinate team members and resources. Will confer with senior MIS or administrative management regarding changes of significant consequences to the scope or schedule of the project. Usually manages external vendors, including task reviews, costs, fees, etc. Excluded are outside consultants and incumbents that may perform the above functions on a part-time basis.

330. PROJECT MANAGER, ERP - Under corporate direction, leads the technical and functional efforts associated with an enterprise resource planning system. Based on needs analysis, will lead project teams in the implementation or maintenance of customized functional solutions that meet corporate-wide needs in areas such as finance, human resources, distribution, manufacturing, etc. Provides direction to a project team including assignment of individual responsibilities, tasks, and technical functions. Coordinates and actively participates in all stages of project development including research, design, programming, testing, and implementation. Confers with lead functional and technical personnel and coordinates changes of significant consequences to the scope or schedule of the project. Assesses project deadlines by continually monitoring individual progress. Possesses extensive knowledge and experience of most technical resources and uses them to effectively coordinate team members and resources. Acts as the key liaison among all functions, the implementation team, information technology department, and the software vendor. Exclude outside consultants and incumbents that may perform the above functions on a part-time basis.

335. BUSINESS ANALYST, SPECIALIST, ERP - Plans and performs the analysis of major company activities and/or functions and guides the subsequent design and implementation or improvement of existing ERP systems. Using advanced concepts and techniques, analyzes information, methods, systems, and procedures to determine the most useful business solutions to the company. Studies and tests the interaction between systems to take advantage of new and more effective ways of providing needed information. Will analyze, interpret, and make recommendations as formal proposals and/or presentations to senior executives. Depending on the assignment, will perform proactive activities related to the completion and implementation of a project. Usually directs and guides the work of less-experienced analysts. Fully competent to work at the highest level in all phases of business analysis. Typically has a bachelor's degree in one of the following areas: information technology, finance, computer science, or related. Usually requires at least 6 years of related progressive experience. Excludes systems auditors or systems analysts.

340. BUSINESS ANALYST, SENIOR, ERP - Under general direction, plans and performs the analysis of major company activities and/or functions and guides the subsequent design and implementation or improvement of existing ERP systems. Performs non-standard procedures to analyze information, methods, systems, and procedures to determine the most useful business solutions to the company. Will analyze, interpret, and make recommendations to senior IT managers. Usually trains and guides the work of less-experienced analysts, but this function is incidental to specific projects. Is competent to work in most phases of business analysis. Typically has a bachelor's degree in information technology, finance, computer science, or related. Usually requires at least 4 to 6 years of related progressive experience. Exclude systems auditors or systems analysts.

345. SYSTEMS ANALYST / PROGRAMMER, SPECIALIST, ERP - Under minimal direction, plans and performs analysis to guide the subsequent design and implementation or improvement of an ERP system. Based on needs assessment and corporate direction, develops information and data requirements and translates them into systems designs including tables, panels, and reports. During the implementation phase, may develop plans and programs to convert the existing data to the new system. Interfaces with the department and other systems providers to resolve conversion and/or production issues. Responsible for requirement analysis and design specifications. May serve as a project coordinator and act as an active participant at all stages of development including research, design, programming, testing, and implementation. Reviews and approves documentation for the system and communicates any procedural changes to appropriate staff members. Has extensive experience with leading edge technologies including, but not limited to, client-server technology, RDBMS, C/C++, and Oracle. May occasionally direct the work of less-experienced programmer analysts, but this function is incidental to the job. Works at the highest technical level of all phases of applications system analysis activities. Usually has quality assurance responsibilities.

350. SYSTEMS ANALYST / PROGRAMMER, SENIOR, ERP - Under general direction, plans and performs analysis to guide the subsequent design and implementation or improvement of an ERP system. Based on needs assessment and corporate direction, develops information and data requirements and translates them into system designs including tables, panels, and reports. During implementation, may develop plans and programs to convert the existing data to the new system. Interfaces with the IT department and other systems providers to resolve conversion and/or production issues. Responsible for requirement analysis and design specifications. Formulates/defines systems scope and objectives and usually participates in most stages of development including analysis, panel design, programming, testing, and implementation. Writes and may review document procedures from less-experienced staff members. Has considerable experience with leading technologies including but not limited to, client-server, RDBMS, C/C++, and Oracle. Follows documented or established procedures to perform quality assurance activities.

390. TECHNICAL SUPPORT ANALYST - Analyzes, troubleshoots, repairs, and maintains the computer system, terminal network, and peripheral equipment. Performs routine preventative maintenance on all computer system equipment. Responsible for the maintenance repair of data transmitting equipment such as transmitters, receivers, time emitters, and other specialized equipment. Utilizes diagnostic programs and electronic test equipment. Does not include manufacturing technicians or field service customer representatives.

SOFTWARE ENGINEERING & QUALITY ASSURANCE

For IT Engineers, See the following Job Codes under the Engineers Job Group:

2100. to 2140. Software Engineers (5 Levels)

2200. to 2240. Hardware Engineers (5 Levels)

2250. to 2290. Software Quality Assurance (5 Levels)

MOBILE APPLICATION DEVELOPER

505. MOBILE APPLICATION DEVELOPMENT, MANAGER - Responsible for providing management and product development services to the organization's mobile application development group. In line with agreed technology and product development strategies, partner with engineering and product development to lead the company's innovation and development in mobile content and application solutions. Oversees employee and contract resources to manage the complete software development life cycle process and lead the mobile engineering team in implementation of cross-platform products deployed into broad global markets. Cultivate vendor relationship to optimize streamlined delivery from contract resources. Has experience on complex projects and expertise with Java Enterprise and/or related systems and middleware technologies to advance the company's software / mobile products and their related applications. In depth product development and management experience and technical expertise of a wide range of platforms, software programs and technologies, iOS, Android, PhoneGap, Sencha, HTML5, jQuery Mobile, Windows Phone, Blackberry etc. Generally possesses Bachelor's in Computer Science, Computer Engineering, or related degree.

510, 515. MOBILE APPLICATION DEVELOPER, LEAD - Lead the architecture, development and maintenance the company's mobile application portfolio and related web interfaces including development of new mobile applications. Evaluate new technologies and device platforms to provide feasibility assessments and accurate estimates for project implementations. Part of the development process of mobile application solutions including development of timelines and required resources required; work other functional teams in development, product planning, product verification, and documentation. Subject matter expert in mobile and web technologies, offer thought-leadership and dependable execution ability characterized by ongoing iteration and product pushes. Guide and mentor the development team in all phases of the project, including requirement validation, detail design, development, and implementation; key contributor in product development that help shape the direction for division's mobile strategy. Incumbents have extensive experience on complex projects and in-depth expertise in a professional environment with mobile application development on one of the following platforms: iOS, Android, jQuery Mobile, Windows Phone, Blackberry, etc. Extensive development and programming experience with user interface design tools: Objective-C coding language, JavaScript, CSS, Database (MySQL, Oracle), HTML5, JavaScript, PhoneGap, Sencha, and related mobile web technologies. Generally possesses M.S. or Bachelor's in Computer Science, Computer Engineering, or related degree. ***(Use Job Code 510 if developer focuses on a specific platform and report that platform within the Company Title column of the Compensation Data Reporting Form. Use Job Code 515 if developer focuses on multiple platforms.)***

520, 525. MOBILE APPLICATION DEVELOPER, SENIOR - Responsible for the specifications, design, and development of mobile applications. Work with QA to test comparability between solutions and mobile platforms. Use design patterns to solve application issues. Evaluate and research latest technologies. Support production and patent issues. Mentor other team members on mobile application development techniques and technologies. Work with product development to help them design web services that are optimized for mobile device. As needed, provide guidance and expertise to product development team on how best to design the product solution to work with mobile devices. Incumbents generally have at least three years of relevant mobile application development experience in a professional environment with mobile application development in one major platform: iOS, Android, jQuery Mobile, Windows Phone, Blackberry, etc. Extensive development and programming experience with user interface design tools: Objective-C coding language, JavaScript, CSS, Database (MySQL, Oracle), HTML5, JavaScript, PhoneGap, Sencha, and related mobile web technologies. Generally possesses Bachelor's in Computer Science, Computer Engineering, or related degree. ***(Use Job Code 520 if developer focuses on a specific platform and report that platform within the Company Title column of the Compensation Data Reporting Form. Use Job Code 525 if developer focuses on multiple platforms.)***

530, 535. MOBILE APPLICATION DEVELOPER, INTERMEDIATE - Responsible for the development of mobile applications including specifications, design, and code. Work with QA to deal with comparability between solutions and mobile platforms. Use design patterns to solve application issues. Evaluate and research latest technologies. Support production and patent issues. Closely work with product development in the design and optimization of web services and mobile devices. Works with product development product design comparability solutions with mobile devices. Incumbents generally have at two years of relevant mobile application development experience in a professional environment with mobile application development in one major platform: iOS, Android, jQuery Mobile, Windows Phone, Blackberry, etc. Extensive development and programming experience with user interface design tools: Objective-C coding language, JavaScript, CSS, Database (MySQL, Oracle), HTML5, JavaScript, PhoneGap, Sencha, and related mobile web technologies. Generally possesses Bachelor's in Computer Science, Computer Engineering, or related degree. ***(Use Job Code 530 if developer focuses on a specific platform and report that platform within the Company Title column of the Compensation Data Reporting Form. Use Job Code 535 if developer focuses on multiple platforms.)***

WEB OPERATIONS

570. MANAGER, E-OPERATIONS - Responsible for the ongoing development, implementation, overall Web strategy, and operations. Will develop business plans, annual budgets, and staffing needs to provide company's products/services through the Web. Oversees operational Web activities focusing on content creation and site maintenance. May develop and coordinate content including Website copy, budget monitoring, legal issues, e-mail response/distribution, and business correspondence with production/developers. Has considerable experience with Web technologies and Web page design including HTML, graphics design, layout, and computer file management.

575. MANAGER, E-MARKETING - Responsible for developing and implementing plans to promote the company's products/services through strategic Web marketing campaigns. Responsible for assisting in the creation and implementation of Web marketing plans. Coordinates closely with design and content management teams to design, develop, and implement online marketing and merchandising programs on a regular and timely basis. Develops marketing policies and programs and coordinates marketing and sales promotions with overall sales and profit objectives. Uses market research techniques to adjust strategies and plans. Typically has a degree in marketing or related field and an understanding of Web technologies.

595. WEBSITE ENGINEER - Acting as the head technical person, maintains the connectivity between the Internet provider and the company's Website as well as the links between the Internet and the LAN/WAN sites within the company. Has considerable knowledge of Internet protocols, security hardware and software protocols, and implementation. Within area of responsibility, will install hardware, software, and networking systems company-wide. May provide company-wide level technical support for all hardware, software, and networking systems related to the network. May create/maintain mechanisms connecting the Internet and the company's internal (Intranet/Local) e-mail system. Will continuously keep up-to-date on technology advances and make recommendations for new systems and technologies that provide the company with a competitive advantage. Maintains and upgrades hardware and software including Website technical architecture related to hardware and telecommunication connectivity.

600. WEB ADMINISTRATOR - Responsible for providing onsite technical and administrative support to maintain the technical integrity of the organization's Web-based server. Utilizing knowledge of operating systems and Internet services, performs the ongoing operation of the server software including maintaining system security, monitoring usage statistics and logs, and modifying configuration settings as needed to achieve optimal performance. Monitors site for acceptable performance and user accessibility. Will perform system tests to determine connectivity, capacity testing, performance tuning, and hardware/software responsibility. Maintains servers, creates monitoring reports and logs, and ensures functionality of links. May establish back-ups and monitor site security.

605. HEAD OF WEB CONTENT - Responsible for developing, providing, and authorizing Website content to increase traffic, support and promote sales/services, and gain content visibility. Will manage and perform Website editorial activities including gathering and researching information that enhances the value of the site. Will act as a liaison with legal and business affairs departments and obtain clearance on copyrighted materials, ensuring all issues are resolved. Will seek, negotiate, and pursue content. Will maintain positive relationships with internal and external contacts and address all questions with a timely/appropriate response. May oversee data control technicians and writers dedicated to website. Background generally includes a college degree in English, Journalism, Graphic Design, Communications, or related field plus experience in production management, web page design, HTML, and web graphics types and standards.

635. WEB DEVELOPER, SPECIALIST - With minimal direction, develops advanced custom programs written in Web-based languages. Designs, develops, troubleshoots, debugs, and implements software code such as HTML, ASP, Perl, C, C++, Active X, and Javascript for a component of the Website. Provides technical direction to graphic designers and other members of a project team to develop the site concept, interface design, and architecture of the Website. Has a thorough knowledge of programming and server software operations. Works closely with engineering, Web graphics designers, content managers, and artisans to ensure Website is developed according to specifications. Will oversee the technical efforts of lower-level programmers. May have lead responsibilities in ad hoc projects. This position is usually the top technical classification among software developers and incumbents usually have a mastery of various Web-based languages combined with 4 or more years of related programming experience.

640. WEB DEVELOPER, SENIOR - Under general direction, develops custom programs written in Web-based languages. Designs, develops, troubleshoots, debugs, and implements software code such as HTML, ASP, Perl, C, C++, Active X, and Javascript for a component of the Website. Works with graphic designers and other members of a project team to develop the site concept, interface design, and architecture of the Website. Has a thorough knowledge of programming and server software operations. Works closely with engineering, Web graphics designers, content managers, and artisans to ensure Website is developed according to specifications. Incumbents usually have extensive experience in Web-based languages and 2 to 4 years of related programming experience.

645. WEB DEVELOPER, INTERMEDIATE - Under direction from the lead or top technical position, writes script to develop custom programs written in Web-based languages. Based on experience, will design, troubleshoot, debug, and implement software code such as HTML, CGI, Perl, C, C++, Active X, and Javascript for a specific portion of the Website. Will assist graphic designers and other members of a project team to develop the site concept, interface design, and architecture of the Website. Has working knowledge of programming and server software operations. Incumbents usually have at least 2 years related programming experience.

665. WEBMASTER - Responsible for the organization's Internet and or Intranet technical functions. Maps the flow of the site, creates general graphics, provides specifications to the Web Author, Web Developer, and outside vendors for the development of databases, interactive applets, and custom graphics. Supervises development efforts including content, design and production, and site maintenance and updating. Using a general knowledge of technical organization and operations of sites, acts as a liaison between the site and users. Interacts with content manager-online for the purpose of updating existing information and creating new content. Has experience and skill with dominant applications to maintain and modify the organization's Internet/Intranet efforts including content, graphical and multimedia displays, and communications. Has considerable knowledge of multiple operating systems (e.g., UNIX, Sun SOLARIS, Mac). Position requires specialized knowledge of Web technologies, HTML, graphics design and layout, and computer file management. Incumbents in this position may be single contributors or part of a team effort.

675. SOCIAL MEDIA AND CONTENT DEVELOPMENT, DIRECTOR OF - Responsible for directing the growth of the company's integrated social media program and content development strategies relative to the company's website, mobile applications and related technologies. Responsible for enhancing and directing the development of company's website(s) and email database and other communication channels and leading the strategy and planning for the company's social media activities. Work closely with senior level executives in the development of the overall social media marketing plan for organization including strategies to grow and activate the company's social media communities, the organizations e-commerce capabilities, and oversight of online booking engine and /or related sales and marketing platforms. Lead efforts in the company's consumer marketing and advertising programs including daily management of marketing agency relationship. Provide direction to staff to ensure execution of all website and application development projects, within prescribed timelines and budget. Act as a subject matter expert across the organization for interactive and social media for existing and emerging technologies and platforms. Generally has significant experience direct and senior management experience in marketing and communications, including social media, web development and marketing.

680. SOCIAL MEDIA AND WEB SPECIALIST - Under limited supervision and in support of social media-based strategies that yield maximum ROIs, organizes and coordinates the company's online marketing activities including websites, social media, blogs, email campaigns, and related media channels. Leads implementation of holistic social media strategy that fully addresses the opportunities and risks presented by social media for company. Oversees day-to-day activities and presence in social networking sites other community sites, posted on relevant blogs. Engages in social media dialogues and coordinates with internal business units to respond customer feedback where appropriate. Maintains internal social media guidelines and educates stakeholders as needed. Determines benchmarks for measuring the impact of web and social media programs; and analyzes, reviews, and reports on effectiveness of campaigns and SEO in an effort to maximize results. Prepares regular reports on insights gained from website, SEO, and social media monitoring for the Marketing and PR teams to help them evolve their strategies in a timely fashion. Incumbents generally have B. A. in marketing, advertising, communications, or other related field plus multiple years of experience in web marketing and in implementing and measuring a company's social media strategy, or related experience. This is a staff position and those with management responsibilities or those with only ancillary responsibilities should be excluded.

ENGINEERS (FIVE LEVELS)

Job Code Guide A

To report engineers, use the job codes that correspond to the level that best matches your job as based on the Level Definitions described below:

	Engineer I	Engineer II	Engineer III	Engineer IV	Engineer V
	Job Code	Job Code	Job Code	Job Code	Job Code
AERONAUTICAL/AEROSPACE ENGINEER	1000	1010	1020	1030	1040
BIO ENGINEERS	1200	1210	1220	1230	1240
CHEMICAL ENGINEERS	1300	1310	1320	1330	1340
CIVIL ENGINEERS	1400	1410	1420	1430	1440
ELECTRICAL/ELECTRONICS ENGINEERS	1500	1510	1520	1530	1540
ENVIRONMENTAL ENGINEERS	1600	1610	1620	1630	1640
INDUSTIAL ENGINEERS	1700	1710	1720	1730	1740
MECHANICAL ENGINEERS	1800	1810	1820	1830	1840
METALLURGICAL ENGINEERS	1900	1910	1920	1930	1940
SOFTWARE ENGINEERS	2100	2110	2120	2130	2140
HARDWARE ENGINEERS	2200	2210	2220	2230	2240
SOFTWARE QUALITY ASSURANCE	2250	2260	2270	2280	2290
TELECOMMUNICATIONS ENGINEERS	2300	2310	2320	2330	2340
PRODUCTION/[PROCESSING ENGINEERS	2400	2410	2420	2430	2440
FACILITIES ENGINEERS	2600	2610	2620	2630	2640
QUALITY CONTROL ENGINEERS	2700	2710	2720	2730	2740
SAFETY ENGINEERS	2800	2810	2820	2830	2840
RESEARCH & DEVELOPMENT ENGINEERS	3000	3010	3020	3030	3040

LEVEL DEFINITIONS FOR ENGINEERING POSITIONS

	Engineer I	Engineer II	Engineer III	Engineer IV	Engineer V
Minimum Education & Experience	BS and 0 - 1 year; entry level	BS & 1 - 3 years Or MS & 0 -1year	BS+ 3 - 5 years or MS+ 1 - 3years; senior	BS+ 5 – 8 years or MS+ 3 – 5 years; principal	BS+ 8 – 10 years or MS+ 5–8 years; senior principal
Knowledge/ Skills & Abilities	Knows and understands basic concepts and procedures in one of the engineering disciplines.	Appropriately applies engineering principles and concepts to area of specialization. Is able to draw solutions from both formal training and experience.	Demonstrates creativity and ingenuity in applying engineering principles and practices. Is able to draw solutions from a wider range of experience. Generally is more proficient at solving problems in a timely manner. May be a career level for many engineers.	Has extensive and broad knowledge in a field of specialization and may have knowledge of other fields. Is able to adapt methods to solve problems. Uses creativity to resolve complex issues.	Has extensive breadth and depth of knowledge in a field of specialization and working knowledge of other fields. Capable of clearly defining appropriate technical approaches and solutions to the most mission critical challenges. Able to define critical project criteria to ensure project completion. Has demonstrated leadership skills and mastery of financial principles.
Responsibilities	Uses established policies and procedures to complete work assignments. Work is somewhat a routine with detailed instructions. Work is performed under close supervision. May be assigned an element of a project or well-defined tasks.	Work is varied in nature. Under general direction, plans and performs engineering duties for part of a major project or for projects of moderate complexity.	Assignments are broad in nature requiring creativity and ingenuity. Works under minimal supervision. Responsible for defining technical approaches to projects.	Work is stated in terms of objectives, requiring project planning and judgment. May have overall project responsibility. Acts as technical authority in area of specialty on assigned projects.	Work is stated in terms of objectives requiring project planning and judgment. Acts as one of the foremost technical authorities in the area of specialty. Responsible for all aspects (which may include other engineering disciplines) of projects including financial budgets.
Supervision	None	May provide work direction to technicians.	May act as lead on some projects and guide lower level engineers and technicians.	Will act as lead on most assigned projects and assist lower level engineers and technicians.	Has critical project technical leadership responsibility; may plan work assignments for lower level department employees; may coordinate the work of engineers from other disciplines.

1000 thru 1040. AERONAUTICAL/AEROSPACE ENGINEER - Refers to engineers who primarily design, develop, and test aircraft, space vehicles, surface effect vehicles, missiles and related component systems. Designs and develops commercial, military, executive, general aviation, or special purpose aircraft, satellites, rockets or related hardware or systems. Tests models, prototypes, subassemblies, or production vehicles to study and evaluate operational characteristics and effects of stress imposed during actual or simulated flight conditions. May specialize in design and development of structural components, such as wings, fuselage, rib assemblies, landing gear, or operational control systems. May specialize in analytical programs concerned with ground or flight testing, or development of acoustic, thermodynamic, or propulsion systems. May assist in planning technical phases of air transportation systems or other aspects of flight operation, maintenance, or logistics. May be engaged in research, planning, and development of flight systems and aero vehicles for use in terrestrial atmosphere and outer space. Includes engineering work on aerovehicles, missiles, rockets, space systems research and development, test and evaluation functions. (To determine the appropriate reporting job code, use Job Code Guide B page 30)

1200 thru 1240. BIO ENGINEER - Normally refers to individuals who conduct research into biological aspects of humans, animals or plants to develop new theories and facts, or test, prove, or modify known theories of life systems. Plans and conducts research concerning behavioral, biological, psychological, or other life systems. Studies engineering aspects of bio-behavior systems, utilizing knowledge of electrical, mechanical, chemical, or other engineering principles and knowledge of bio-behavioral systems in order to obtain data from measuring or controlling life processes, utilizing knowledge of computer, graphics, and other related technologies. Designs and develops instruments and devices, such as artificial organs, cardiac pacemakers, or ultrasonic imaging devices, capable of assisting medical or other health-care personnel in observing, repairing, or treating physical ailments or deformities, using knowledge of materials compatible with body tissues, energy exchanges within the body, and instrumentation capable of measuring and controlling body functions. May specialize in design and development of bio-medical equipment used by medical facilities and be known as Clinical Engineer. May develop equipment and instruments used in genetic research and gene modification. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1300 thru 1340. CHEMICAL ENGINEER - Includes occupations concerned with the application of chemistry and other sciences, such as physics and mathematics, and of engineering principles to manufacturing operations, which involve chemical processes. Also includes the design, construction, and operation of industrial plants carrying out chemical processes. Typical specializations are heat transfer and energy conversion, food and pharmaceutical products, forest products, petrochemicals and fuels, and materials handling. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1400 thru 1440. CIVIL ENGINEER - Includes occupations concerned with the planning, design, and construction of structures and facilities, such as buildings, bridges, roads, harbors, airfields, dams, tunnels, and water supply and sewage systems. Also included are occupations concerned with the engineering aspects of environmental health systems and urban planning or renewal. Frequently requires knowledge of codes and ordinances. Accessory techniques needed are those used in agricultural, ceramic, chemical, electrical, geological, mechanical, metallurgical, and mining engineering. Typical specializations are structures, hydraulics, transportation systems, sanitation, water utility systems, airports, city planning, environmental protection, construction, engineering mechanics, irrigation and drainage, power, soil mechanics and foundations, pipeline engineering, and waterways and harbors. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1500 thru 1540. ELECTRICAL/ELECTRONIC ENGINEERING - Includes occupations concerned with the application of the laws of electrical energy and the principles of engineering for the generation, transmission, and use of electricity. Also includes the design and development of machinery and equipment for production and utilization of electric power. Accessory techniques needed are those used in mechanical and process engineering. Typical areas of specialization are electrical power generation, transmission, and distribution, atomic power generation, electrical and electronic components, equipment, and systems manufacturing, radio and television broadcasting, telephone, and telegraph (Report the specialties of bioengineering and computer engineering in their respective job families). (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1600 thru 1640. ENVIRONMENTAL ENGINEERING - Includes occupations performing a variety of engineering works in designing, installing, operating, and maintaining measuring apparatus necessary to determine the level of pollutants involving air, land, and water. Ascertains levels of pollution and recommends appropriate action to assure conformance with federal, state, and municipal legislation and regulations regarding environmental control. May also assist in the overall planning and installation of equipment revision relating to the environment. Performs tests or experiments requiring the use of nonstandard procedures and complex instrumentation. Other responsibilities may include acting as liaison for an organization and regulatory agencies concerned with environmental control. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1700 thru 1740. INDUSTRIAL ENGINEERING - Includes occupations concerned with the design and installation or integrated systems of personnel, materials, machinery, and equipment. Accessory techniques may include those used in mechanical and various other engineering specialties. Typical specialization are plant layout; production methods and standards; costs control; quality control; time, motion, and incentive studies; and methods, production, and safety engineering. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1800 thru 1840. MECHANCIAL ENGINEERING - Includes jobs concerned with the application of principles of physics and engineering for the generation, transmission, and utilization of heat and mechanical power; and the design, production, installation, and maintenance of fabricated products, tools, machines, machinery, and associated or auxiliary systems. Accessory techniques needed may be those used in electrical, metallurgical, nuclear, and civil engineering. Typical specialization's are steam and mechanical power generation, transmission, and utilization; hydraulics; instrumentation; controls; automotive engineering; tooling; heating and ventilating; air-conditioning and refrigeration; bioengineering; pollution control; systems engineering; research; design; testing; sales; and project control. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

1900 thru 1940. METALLURGICAL ENGINEERING - Individuals concerned with the extraction of metals from ores, and their processing and conversion into final shape. Also includes the design and development of process methods. Accessory techniques needed include those used in chemistry, geology, ceramics, mineralogy, and in mining, chemical, and mechanical engineering. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2100 thru 2140. SOFTWARE ENGINEERING - Includes individuals who formulate, define and provide empirical analysis for complex software programming applications or modify or maintain existing applications using engineering releases and utilities from the manufacturer. Normally responsible for the design/development, coding, testing, debugging, implementation, and documentation of software program applications. Usually responsible for applications dealing with the overall operating systems, such as file maintenance routines, large telecommunications networks, computer accounting and advanced mathematical/scientific software packages. Typically a software engineer holds a degree in Computer Science or Computer Engineering. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2200 thru 2240. HARDWARE ENGINEERING - Work is related to the design, development and implementation of hardware for products such as circuit design of components, development of structure specification of personal computer, and the design of computer display units. Is also responsible for the development of test strategies, devices and systems. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2250 thru 2290. QUALITY ASSURANCE - In support of a quality assurance program for a software product, will set up and conduct quality tests for highly complex software applications. Will debug and develop test environments and quality plans. Specific responsibilities may include the establishment of software quality standards for life-cycle, documentation, development methods, testing and maintenance, and the development of quantitative measurements and techniques for measuring software quality. May also establish advanced software test standards and methods and conduct complex software tests. May review and evaluate software quality assurance products and services for applicability to in-house needs. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2300 thru 2340. TELECOMMUNICATIONS ENGINEER - Performs tasks and activities relative to the design, maintenance, or implementation of telecommunications of voice and data networks. Supports, upgrades, modifies, and troubleshoots voice and data communications systems and networks. Has in-depth knowledge and experience with network protocols as well as installing and supporting routers, switches, hubs, and gateways. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2400 thru 2440. PRODUCTION/PROCESSING ENGINEER - Engineers in this category are involved in developing and implementing production/processing methods and controls in accordance with quality standards in the most cost efficient manner. Typical duties involve evaluating and solving problems as they occur, and recommending and implementing improvements as needed relating to the production process. Oversees operations to assure that they comply with established quality standards. May have responsibility to review proposals regarding acquisition of existing production/processing equipment. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2600 thru 2640. FACILITES ENGINEER - Engineers in this general category are concerned with the layout of plant, warehouse, office and other facilities and the determination of requirements for procurement, layout and location of machinery and equipment. Work typically involves investigation, analyzing and determining the overall advantage of requests of new facilities and equipment, rearranging existing facilities, and modifying, repairing or scrapping machinery and equipment. Engineers in this category must be familiar with the flow of work through the various production, storage or other operations, with safety regulations and building codes, and with equipment facilities requirements to determine plant layout. Provides liaison with architects and contractors who actually carry out construction, modification and moving projects. Excludes engineers whose area of responsibility includes planning of actual methods and processes associated with production of specific products. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2700 thru 2740. QUALITY CONTROL ENGINEER - Engineers in this general category develop and oversee installation of methods of determining whether in process and completed products meet specified standards and specifications. They specify inspection and testing methods, techniques, equipment and facilities to be used, determine optimum frequency of application and establish limits of allowable variation from specifications at various stages of the manufacturing process. They may develop testing techniques and equipment for use in analysis of company products and forms for reporting test results and statistical techniques for analysis of test data. They may participate in revisions of product specifications or resolution of engineering design problems to offset causes of deviations from quality standards. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

2800 thru 2840. SAFTEY ENGINEER - Engineers in this general category are concerned with the design and proper execution of company safety programs in accordance with local, state and federal OSHA regulations. Typical duties include evaluating and recommending solutions for the prevention and/or possible occurrence of occupational hazards. May recommend safety standards for the handling and use of hazardous materials. Develops safety programs to ensure employee awareness of company safe working conditions and practices. Is responsible for investigating and analyzing causes of accidents and recommending solutions in accordance to regulations. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

3000 thru 3040. RESEARCH AND DEVELOPMENT ENGINEER - Conducts research or development projects associated with the design and development of new products, models, or mechanisms. Investigates and resolves technical problems involving product performance, production equipment or facility systems affecting production. Coordinates development and design problems with research engineering, tooling and manufacturing. Follows up on building of design models, life test models, and analysis of test results. Follows through on laboratory and field tests and develops new ideas based on results. Prepares or follows up on preparation of design drawings. Prepares estimates of development costs. Determines and establishes specifications and standards. Follows up on building of pilot production. Discusses and consults with sales staff or customer on product requirements and specifications where design or manufacturing problems are involved. (To determine the appropriate reporting job code, use Job Code Guide B on page 30)

ENGINEERING MANAGEMENT

3100. SUPERVISOR OF ENGINEERING - Supervises the daily operations and activities of an engineering department. Responsible for formalizing work plans and directing their implementation. Assigns work to meet overall project deadlines. Evaluates progress on projects and suggests changes. Interprets policies and procedures and ensures they are followed within the department. Responsible for the training and development of subordinate staff. Responsible for financial budgets at the department level. Directly supervises engineers and technicians in the department, with the authority to hire/terminate/promote and make compensation decisions for subordinate staff. Normally possesses and applies comprehensive knowledge in field of specialization. Knowledge significantly crosses engineering fields. Capable of clearly defining organizational approaches to complex and/or large projects. Usually requires BS in engineering and 6+ years of engineering experience including some project management experience.

3110. MANAGER OF ENGINEERING - Has overall responsibility to ensure department goals and objectives are met. Manages fiscal responsibility for entire department. Reviews and makes recommendations on policies and procedures to maximize departmental operating performance. Interacts with all levels of management. Develops and justifies evaluation, quality, and process criteria. Identifies technical issues of future importance. Responsible for in-depth understanding of the overall organization. Directly supervises Engineering Supervisor(s).

3120. DIRECTOR OF ENGINEERING - Directs the design, development and implementation of all major engineering projects. Plans and supervises all phases of engineering. Develops and initiates procedures, methods, and processes for projects. Ensures that all corporate policies and procedures are uniformly understood and properly interpreted, implemented and administered. Has overall project approval including budgets, deadlines, and personnel.

3130. VICE PRESIDENT OF ENGINEERING - Normally will be a member of the overall corporate executive management team and assists in developing plans to ensure the organization's development, growth and maximize the organization's return on investment. Responsibilities include planning and directing all engineering departments/divisions within an organization. Develops long and short-term objectives for engineering functions and ensures they are aligned with overall company goals and objectives. Responsible for the development, maintenance, and adherence to financial goals and objectives. Ensures cooperation and coordination between other departments, such as production, research and development, sales and marketing, and quality assurance. Develops corporate policies and procedures. Reviews and approves proposed policies of subordinate units.

DESIGNERS

3200. DESIGNER (NON-DEGREED ENGINEER) - Experienced member of the engineering staff, typically with a two-year technical or other non-engineering degree, functioning in an engineering capacity. This job is often an outgrowth of drafting, technician, machine building, machinist or similar occupation. Incumbents will typically have at least 8 years of practical experience and a strong aptitude for engineering work.

3210. SENIOR DESIGNER (NON-DEGREED ENGINEER) - Highly experienced member of the engineering staff, typically with a two-year technical or other non-engineering degree, functioning in an engineering capacity. This job is often an outgrowth of drafting, technician, machine building, machinist or similar occupation. Incumbents will typically have at least 10 years of practical experience and a strong aptitude for engineering work.

Job Code Guide A
APPLICATION MATCHING

Identify the application (type of work) your incumbent performs most of the time (design, manufacturing, sales, or other). Typically most applications are in design, manufacturing, sales or other category. In producing the final report, all of the data reported on the various specialty areas is recombined based on application and level and is reported as five levels of Design Engineer, five levels of Manufacturing Engineer and five levels of Sales Engineer. The following definitions of the applications followed by descriptions:

Design Engineer - Work primarily is involved with the development or improvement of actual products or designs. Work may include creation of previously non-existent products or modification of existing products, including product line extensions. Work includes selection and testing of materials, ingredients or components that will be suitable for the product. Work may include responding to a customer request for a particular product or design. The typical cycle includes conceptualizing, developing prototypes, testing and perfecting designs.

Manufacturing Engineer - Work is involved with the development of methods and processes to implement product manufacturing in the most cost effective manner, subject to product quality and process safety. Work may involve developing pilot plant operations, a new production line or process, or developing improvements to existing plant operations. May also be called Process Engineer, particularly in chemical or food applications.

Sales Engineer - Work is primarily involved with facilitation of sales to customers. Work includes assisting customers with the selection of products that meet their specific needs, modification of products to meet specific customer applications, and training customers in the use of products. Work may also include intervention when customers need assistance with product reliability. Work often includes travel to customer locations to participate in sales presentations, demonstrate product or otherwise assist in the sales process.

Indicate which **engineering application** best describes the work performed **by each incumbent**

Enter 1 for Sales	Enter 3 for Design
Enter 2 for Manufacturing	Enter 4 for Other

For additional job title request please contact us at:

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