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| TechMart Industries |
| IT Job Descriptions |
| Human Resource Guide |

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# Introduction

Five of the twenty fastest growing occupations are in information systems. By 2012, the total United States workforce is expected to increase 14.8 percent to 165 million.

According to the U.S. Department of Labor’s Bureau of Labor Statistics (BLS), more than one-third of the 21 million jobs that will be added will be in the professional, scientific, and technical services.

We have identified our future needs in the IT area and have compiled a list of jobs, along with their descriptions. Included in this guide are the jobs for which we foresee the most immediate need. As our needs change and grow, more jobs likely will be added.

## Computer Forensics Specialist

Computer forensics is a rapidly growing field that involves gathering and analyzing evidence from computers and networks. It is the responsibility of the computer forensics specialist to take several careful steps to identify and retrieve possible evidence that may exist on a suspect’s computer. These steps include protecting the suspect’s computer, discovering all files, recovering deleted files, revealing hidden files, accessing protected or encrypted files, analyzing all the data, and providing expert consultation and/or testimony as required. A computer forensics specialist must have knowledge of all aspects of the computer, from the operating system to computer architecture and hardware design.

In the past, many computer forensics specialists were self-taught computer users who may have attended computer forensics seminars, or they may have been trained in the use of one or more computer forensics tools by software vendors. The computer forensics specialist of today needs extensive training, usually from several different sources. A degree in Computer Science should be supplemented with graduate courses and university level professional development certificates. The most widely recognized certifications available to computer forensics professionals are the Certified Information Systems Security Professional (CISSP) and the Certified Computer Examiner (CCE).

Entry level salaries for computer forensics specialists range from $85,000 to $120,000. With experience and certifications, salaries can exceed $160,000.

### Systems Analyst

One of the fastest growing IT positions in the country is that of systems analyst. The primary focus of this type of work is to design systems and to incorporate new technologies.

Typically, systems analysts are more involved in design issues than in day-to-day programming. Systems analysts work closely with users to identify operating procedures and clarify system objectives. They must be familiar with concepts and practices within a specific field. A successful systems analyst is willing to embrace new technologies and is open to continued learning. Good communications skills are important. Systems analysts may be expected to write program documentation and operating manuals. Growing in demand are skills for the systems analyst that include e-commerce, enterprise-wide networking, and intranet technologies. Given the technology available today, telecommuting is common for computer professionals, including the systems analysts. Many analysts work as consultants.

The minimum educational requirement is a bachelor’s degree, but many people opt for a master’s degree. Salaries are excellent in this fast-growing occupation. They range from $50,000 to $95,000 and up. Graduates with a master’s degree can expect to earn in excess of $120,000 per year.

### Web Developer

A Web developer analyzes, designs, develops, implements, and supports Web applications and functionality. Specialized programming skills required include HTML, JavaScript, Java, Perl, C++, and VBScript. Developers also need multimedia knowledge, including Photoshop, Flash, and Dreamweaver. Developers must be aware of emerging technologies and know how they can be used to enhance a Web presence.

A Web developer must be able to appreciate a client’s needs, recognize the technologies involved to meet those needs, and explain those technologies to the client. For example, if the client is a large corporation seeking to set up an online store, a Web developer must understand e-commerce and be able to explain requirements, probable costs, and possible outcomes in a way the client can understand.

Educational requirements can range from a high school education to a four-year degree. Certification is helpful. Two of the more popular certifications are available through the International Webmasters Association (IWA) and the World Organization of Webmasters (WOW). A wide salary range exists – from $40,000 to $80,000 – depending on educational background.

# Help Desk Specialist

A Help Desk specialist position is an entryway into the information technology field. A Help Desk specialist deals with problems in hardware, software, or communications systems. Job requirements may include the following: solve procedural and software questions both in person and over the telephone, develop and maintain Help Desk operations manuals, and assist in training new Help Desk personnel.

Usually a Help Desk specialist must be knowledgeable about the major programs in use. Entry-level positions primarily involve answering calls from people with questions. Other positions provide additional assistance and assume further responsibilities, often demanding greater knowledge and problem-solving skills that can lead to more advanced IT positions. This job is ideal for people who must work irregular hours, because many companies need support people to work evenings, weekends, or part-time.

Educational requirements are less stringent than they are for other jobs in the computer field. In some cases, a high school diploma is sufficient. Advancement requires a minimum of a two-year degree, while management generally requires a bachelor’s degree in IT or a related field. Certification is another way Help Desk specialists can increase their attractiveness in the marketplace. Entry-level salaries range from $38,000 to $60,000 per year. Managers range from $55,000 to $95,000.

# Computer Engineer

A computer engineer designs and develops the electronic components found in computers and peripheral devices. They also can work as researchers, theorists, and inventors. Computer engineer positions may be permanent or temporary, with jobs that extend from a few months to a few years, depending on the project. Engineers in research and development often work on projects that will not be released to the general public for two years.

Responsibilities vary, but all computer engineering work demands problem-solving skills and the ability to create and use new technologies. The ability to handle multiple tasks and concentrate on detail is a key component. Assignments often are taken on as part of a team. Therefore, computer engineers must be able to communicate clearly with both computer personnel and computer users, who may have little technical knowledge.

Computer engineering degrees include B.S., M.S., and Ph.D. Because computer engineers often advance into managerial positions, many graduates obtain a master’s degree in business administration (M.B.A.). Most computer engineers earn between $70,000 and $115,000 annually, depending on experience, but salaries can exceed $150,000.

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## Graphic Designer/Illustrator

Graphic designers and graphic illustrators are artists, but many do not create original works. Instead, they portray visually the ideas of their clients. Illustrators create pictures for books and other publications and sometimes for commercial products, such as greeting cards. They work in fields such as fashion, technology, medicine, animation, or even cartoons. Illustrators often prepare their images on a computer. Designers combine practical skills with artistic talent to convert abstract concepts into designs for products and advertisements. Many use computer-aided design (CAD) tools to create visualize, and modify designs.

Certificate, two-year, four-year, and masters-level educational programs are available within design areas. About 30 percent of graphic designers/illustrators choose to freelance, while others work with advertising agencies, publishing companies, design studios, or specialized departments within large companies. Salaries range from $35,000 to $100,000-plus, based on experience and educational background.

### Computer Technician

The demand for computer technicians is growing. The responsibilities of a computer technician, also called a computer service technician, include a variety of duties. Most companies that employ someone with this title expect the technician to have basic across-the-board knowledge of concepts in the computer electronics field. Some of the tasks are hardware repair and installation; software installation, upgrade, and configuration; and troubleshooting client and/or server problems. Because the computer field is changing rapidly, technicians must work to remain abreast of current technology and become aware of future developments. Computer technicians generally work with a variety of users, which requires expert people skills, especially the ability to work with groups of nontechnical users.

Most entry-level computer technicians possess the A+ certification. This certification attests that a computer technician has demonstrated knowledge of core hardware and operating system technology including installation, configuration, diagnosing, preventive maintenance, and basic networking that meets industry standards. The Electronics Technicians Association also provides a Computer Service Technician (CST) certification program.

Because this is an entry-level position, the pay scale is not as high as other more demanding and skilled positions. Individuals can expect an average annual starting salary of around $36,000 to $45,000. With experience and certification, however, the salary can be higher.

### Network Specialist

The demand for network specialists continues to grow. A network specialist must have a working knowledge of local area networks and their application within wide area networks. A network specialist also must be familiar with the Internet, its connectivity to LANs and WANs, and Web server management. Responsibilities of a network specialist include installing, configuring, and troubleshooting network systems. Other responsibilities may include managing system and client software, Web page integration and creation, network security measures, user accounting, and monitoring network event logs for problem resolution. A network specialist must possess good problem-solving skills and the ability to work independently. They also must have the ability to concentrate on detailed projects for long periods of time. Good oral, written, and team-oriented interpersonal skills also are beneficial.

In addition to a college degree, industry certifications are available for further career enhancement. Two of the more notable certifications are the Novell CNA (Certified Novell Administrator) and the Cisco CCNA (Certified Cisco Networking Associate). Network specialist salaries will vary depending on education, certifications, and experience. Individuals with certifications can expect an approximate starting salary between $50,000 and $70,000.

## Database Administrator

A database administrator (DBA) creates, applies, supports, and administers the policies and procedures for maintaining a database. Database administrators construct logical and physical descriptions of the database, establish database parameters, develop data models characterizing data elements, ensure database integrity, and coordinate database security measures including developing and implementing disaster recovery and archiving procedures. They also use query languages to obtain reports of the information in the database. With the large amounts of sensitive data generated, data integrity, backup, and security have become increasingly important aspects of the administrator’s responsibilities.

Administering a database requires a great deal of mental work and the ability to focus on finite details. Database administrators must be able to read and comprehend business related information, organize data in a logical manner, apply general rules to specific problems, identify business principles and practices, and communicate clearly with database users. Being proficient with a particular database such as Oracle, Informix, or SQL Server is an added advantage.

Database administrators usually have a bachelor or associate degree and experience with computer programming, relational databases, query languages, and online analytical processing. Typical salaries for database administrators are between $74,000 and $96,000, depending on experience.

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