

# Mapping Your Future

## Information Technology



### What is Information Technology (IT)?

Every industry needs to collect, analyze, and manage information. The IT industry is about using technology to do just that. New York City is home to large and small IT companies. Some companies specialize in computer systems. Others develop consumer “apps” like games and social networking. Still, others specialize in IT within other industries like healthcare and finance. Every industry needs to collect and manage information so people with IT skills can find jobs in almost any industry.

There are software and hardware jobs in IT. Hardware jobs deal with computer systems and networks. With more people using smart phones and tablets, the number of hardware jobs has increased even more. **Computer engineers** design and develop computer systems—the physical structures of a computer such as circuits, networks etc. **Software engineers** develop programs that run on the hardware. Software jobs have grown because of the Internet.

*Entry-level* jobs include help desk specialists and field technicians. Help-desk specialists work with users to solve their technological problems. Field technicians install equipment for users. Currently, there is a huge demand for higher-level IT positions and the demand is expected to increase in the future. Examples of higher-level IT positions include programmers and web developers. These jobs require a four-year degree and a substantial amount of technical knowledge and expertise.

The industry changes so fast that people in IT need to be able to learn quickly and be flexible. Most IT jobs are salaried, but there are freelance jobs too.

What you know, how well you know it, and how well you communicate your knowledge and skills are especially important in the interview process for technology jobs. Even more important, how well you are paid will depend on your combined knowledge, skill, *and* experience. At any given time, there are programming languages and software applications that are in high demand. It is important to know which ones employers are looking for when you are interviewing for a job.

## INCREASING LEVELS OF EDUCATION/TRAINING REQUIRED

Some College and/or Moderate Experience	College and Experience <i>continued</i>	College Plus Extensive Experience or Postgraduate Degree
<p><b>Help Desk Specialist</b></p> <p>DUTIES: Answers users' questions and solves problems related to printing, word processing, email, and computer operating systems.</p> <p>PAY RANGE: \$38,000 to \$71,000 per year</p> <p><b>Web Designer</b></p> <p>DUTIES: Designs and modifies websites to meet customer needs. May include creating sketches, designs, and layouts for online content and selecting size, style and arrangement of content.</p> <p>PAY RANGE: \$38,000 to \$75,000 per year</p>	<p><b>Software Developer</b></p> <p>DUTIES: Develops, creates, and revises general computer applications software or specialized programs that address client needs.</p> <p>PAY RANGE: \$70,000-\$121,000 per year</p> <p><b>Data Security Analyst</b></p> <p>DUTIES: Plans, implements, upgrades, monitors, and responds to breaches of security measures for networks and information.</p> <p>PAY RANGE: \$61,000 to \$109,000 per year</p> <p><b>Information Technology Project Manager</b></p> <p>DUTIES: Plans, initiates, and manages information technology (IT) projects often acting as a liaison between business and technical staff.</p> <p>PAY RANGE: \$67,000 to \$154,000 per year</p> <p><b>Quality Assurance Analyst</b></p> <p>DUTIES: Develops and executes test plans in order to identify hardware and software problems and their causes.</p> <p>PAY RANGE: \$53,000 to \$117,000 per year</p>	<p><b>Director, IT Security</b></p> <p>DUTIES: Directs the strategic design, planning and implementation of network and information security management policies and programs.</p> <p>PAY RANGE: \$67,000 to \$154,000 per year</p> <p><b>VP Software Development, Computer Engineering</b></p> <p>DUTIES: Leads the engineering efforts for software development and/or computer engineering.</p> <p>PAY RANGE: \$125,000 and higher</p>
<p><b>College and Experience</b></p> <p><b>Database Administrator</b></p> <p>DUTIES: Manages and updates databases, runs tests of the system and uses knowledge of database management systems to improve operations.</p> <p>PAY RANGE: \$55,000 to \$105,000 per year</p> <p><b>Network and Systems Administrator</b> ⚡</p> <p>DUTIES: Installs, configures, monitors and supports all or part of local area (LAN) or wide area networks (WAN), or network Internet systems.</p> <p>PAY RANGE: \$60,000 to \$105,000 per year</p>		

**MAP KEY**

-  Expected to grow faster than average in the next 6 years.
-  Licensing or certification required.
- Pay Range** Typical pay range from entry level to experienced. Jobs that are primarily part-time are expressed as hourly pay; jobs that are primarily full-time are shown with annual pay. Those that could be either are shown both ways.
- Education** *Minimum* education and experience requirements. This may vary from employer to employer.

**This flyer highlights some jobs, but not all jobs in this sector.**

# Put Yourself on the Map: How to Use This Brochure

Like any map, this Career Map helps you find your way to new places – in this case, a bunch of careers within one specific industry. (An industry is a loosely defined area of businesses engaged in similar work.) As you read, ask yourself: what different kinds of jobs are there? How does one job lead to the next? Which ones will I like? How much money can I earn, and how long will it take me to get there? What kind of training do I need?

One of the best ways to find a satisfying career is to get clear about your personal interests and strengths. What do you most enjoy doing? What do your friends, teachers, parents say you do best? Do you prefer to work with people, ideas or things? Do you want to be in charge, or work alongside your peers? Which of these jobs will let you be your best?

Once you've found a path that sounds like a good fit, it's time to test it out. Find someone who works in the industry – ask your friends, parents, teachers and neighbors if they can introduce you. Ask if they are willing to talk with you for a few minutes. This is called an "informational interview." You're not asking them to find you a job; you're only asking to listen and learn about their experience. If you ask in a professional manner, many people are happy to speak with you. (If you're nervous about this, ask a teacher, guidance counselor or parent to help.)



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Before you meet with the person, reread the brochure and write down any questions you have, for example:

- What do you spend your day doing in this job?
- How did you get started in this field?
- How much reading, writing or math do you do in your job?
- How do people dress at the work place?
- Do you have a routine set of tasks you do every day or do you do something different every day?
- Do you work the same schedule every week, or does it change?
- What courses would I take in high school or college to prepare for this job?
- What is my next step after high school if I am interested in this field?
- Where can I find people who can help me learn more about this field?

Make sure to send a thank you note, and in no time you'll be on your way. For more information about this industry and many others, you can visit [www.careerzone.ny.gov](http://www.careerzone.ny.gov)

## INCREASING LEVELS OF EDUCATION/TRAINING REQUIRED



Some College and/or Moderate Experience	College Plus Experience and/or Postgraduate Degree
<p><b>Tech Retail Salesperson</b></p> <p>DUTIES: Sells software, computers and peripherals—such as printers and monitors—to consumers in a retail setting.</p> <p>PAY RANGE: 18,000 to \$31,000 per year or \$10 to \$17 per hour</p> <p><b>Sales Engineer</b></p> <p>DUTIES: Sells IT hardware or services to business customers. Requires a technical background equivalent to a four-year degree in computer science or engineering.</p> <p>PAY RANGE: \$58,000 to \$112,000 per year</p>	<p><b>Marketing Manager</b></p> <p>DUTIES: Plans, directs, and coordinates IT marketing policies and programs.</p> <p>PAY RANGE: \$99,000 to over \$200,000 per year</p> <p><b>Sales Manager</b> ⚡</p> <p>DUTIES: Plans, directs, and coordinates the distribution of an IT product or service to the customer.</p> <p>PAY RANGE: \$105,000 to over \$200,000 per year</p> <p><b>VP Sales and Marketing</b> ⚡</p> <p>DUTIES: Manages staff that plans and directs the distribution of IT products or services to customers. Establishes sales territories, quotas, and goals for IT sales.</p> <p>PAY RANGE: \$175,000 and higher</p>
College and Experience	
<p><b>PR Specialist</b> ⚡</p> <p>DUTIES: Writes or selects material for release to various media to support the promotion or creation of a public image for IT firms and their products.</p> <p>PAY RANGE: \$44,000 to \$92,000 per year</p> <p><b>Marketing Specialist</b></p> <p>DUTIES: Researches market conditions or creates campaigns to publicize IT products and services.</p> <p>PAY RANGE: \$45,000 to \$89,000 per year</p>	

### Did you know?

- There is a great demand for people with IT skills now and into the foreseeable future.
- Most positions require a four-year degree.
- Degrees in computer science, math, and engineering lead to IT jobs.
- People with IT skills can work in just about any industry.

# Types of Employment

	HOURS/WEEK	SCHEDULE	WAGE/SALARY	PAYMENT	COMMON BENEFITS
<b>Full-Time</b>	Usually 35+	Steady	Annual	Weekly or bi-weekly	Paid sick leave, vacation time, health insurance, retirement savings
<b>Part-Time</b>	Usually <35	May vary	Hourly	Weekly or bi-weekly	Usually none
<b>Temp</b>	As available	May vary	Hourly	Weekly or bi-weekly	Usually none
<b>Self-employed aka Freelance</b>	Varies	Varies	Negotiate rate of pay with client	Upon completion of work or on a schedule of deliverables	None: must pay own taxes and health insurance
<b>Union</b>			Typically higher than comparable non-union positions		As negotiated by the union with the employer on behalf of members

## ***For information about the NYC Department of Education CTE Programs:***

<http://schools.nyc.gov/ChoicesEnrollment/CTE/ParentsandStudents/default.htm>

<http://CTECouncil.org>

## ***For additional information:***

<http://computingcareers.acm.org>

<http://www.bls.gov/oco/ocos305.htm>

(computer network, systems and database administrators)

The link redirects automatically to: <http://www.bls.gov/ooh/Computer-and-Information-Technology/Network-and-computer-systems-administrators.htm>

## ***Where can I get additional general information on careers?***

For careers in New York State: [www.careerzone.ny.gov](http://www.careerzone.ny.gov)

For general career information, including videos of nearly 550 careers: [www.acinet.org](http://www.acinet.org)

For general career information, visit: [www.bls.gov/k12/](http://www.bls.gov/k12/)

# Tech Jobs in Other Sectors

Almost all tech jobs in IT businesses can be found throughout all industry areas, from education and nonprofits to investment banks. Some industries have specialized information needs and use applications that are not used anywhere else. These industries hire professionals with both IT knowledge and skills in the specific industry where they are working. Below are a few examples of specialized tech jobs in healthcare, banking, and architecture.

## INCREASING LEVELS OF EDUCATION/TRAINING REQUIRED

Some College and/or Experience	College and Some Experience	College Plus Extensive Experience and/or Postgraduate Degree
<p><b>HEALTH CARE</b></p> <p><b>Health Information Technician</b></p> <p>DUTIES: Assembles patients' health information, making sure that medical charts and forms are complete and correct. Communicates with health care professionals about diagnoses and treatments. Analyzes data to improve patient care, control cost, and provides documentation as required by law or for use in research studies.</p> <p>PAY RANGE: \$30,000 to \$42,000 per year or \$14 to \$20 per hour</p>	<p><b>HEALTH CARE</b></p> <p><b>Health Information Manager</b> </p> <p>DUTIES: Manages the analysis and transcription of health information systems. Ensures that coding is completed for the current billing cycle and done in accordance with hospital and government regulations.</p> <p>PAY RANGE: \$75,000 to over \$100,000 per year</p>	<p><b>HEALTH CARE</b></p> <p><b>Bioinformatics Programmer</b> ⚡</p> <p>DUTIES: Works with medical staff or faculty to develop computational solutions to problems in research (for example, gene sequencing) like improving efficiency, processing more data, and visualizing data.</p> <p>PAY RANGE: \$54,000 to \$97,000 per year</p>
<p><b>ARCHITECTURE and ENGINEERING</b></p> <p><b>Computer-Assisted Design (CAD) Technician</b></p> <p>DUTIES: Uses specialized software to produce drawings, layouts, sketches, maps, and graphic representations of architectural or engineering designs. Requires technical knowledge and often entails traveling to building project work sites.</p> <p>PAY RANGE: \$36,000 to \$57,000 per year or \$17 to \$27 per hour</p>	<p><b>FINANCE</b></p> <p><b>Credit Analyst</b></p> <p>DUTIES: Develops trading strategies for investment banks that maximize profit and minimize loss. Tests strategies with statistical modeling techniques using historical market data. Manages information and develops applications that enable traders and other analysts to access market data.</p> <p>PAY RANGE: \$55,000 to \$130,000 per year</p> <p><b>ARCHITECTURE and ENGINEERING</b></p> <p><b>Building Automation Programmer</b></p> <p>DUTIES: Assists senior engineering managers in developing and maintaining sophisticated automated building management systems. Runs backups, reports and test alarms and security systems.</p> <p>PAY RANGE: \$73,000 to \$130,000 per year</p>	<p><b>FINANCE</b></p> <p><b>Chief Information Officer</b> ⚡</p> <p>DUTIES: Directs the strategic design, acquisition, management, implementation and maintenance of a firm-wide data storage, analysis, and reporting infrastructure. Develops, implements and enforces rules and procedures to prevent security breaches.</p> <p>PAY RANGE: \$150,000 and higher</p> <p><b>ARCHITECTURE and ENGINEERING</b></p> <p><b>Director of Building Information Modeling</b></p> <p>DUTIES: Works with other executives in an engineering firm to develop best practices in building information modeling systems. Manages construction projects to ensure efficiency and less harm to the environment.</p> <p>PAY RANGE: \$91,000 to \$155,000 per year</p>