

Career Focus on...

# Computer Systems Engineering Technology

## Introduction

- Are you interested in learning how to diagnose and resolve problems with software applications, computer hardware, or networks?
- Do you have good communications skills, and the ability to work on multiple projects at once?
- Would you like a career in one of the fastest growing occupations in Massachusetts?

If you answered “yes” to these questions, you may want to consider a career in Computer Systems Engineering Technology (CSET).

## Did You Know... ?

- Virtually all companies and organizations – across all industry sectors – employ information technology professionals.
- Many of the state’s fastest growing occupations in Massachusetts are related to IT, including network systems and data communications analysts, and computer software engineers. The growth reflects increased business demand for faster and more powerful computer systems.
- The proliferation of criminal activity on the Internet, such as identity theft, spamming, e-mail harassment, and illegal downloading of copyrighted materials, will increase the demand for private investigators (CSET – Computer Forensics Option).

## CSET @ QCC

The mission of the Computer Systems Engineering Technology (CSET) Program is to prepare students for a broad range of career opportunities in the Information Technology (IT) field. Graduates are prepared to work in virtually any business or organization that utilizes computers and computer networks. This is accomplished by adhering to industry standards developed to measure and promote the competency of IT professionals. The CSET Program offers 2 Associate Degrees and 7 certificate options that allow students to specialize in specific areas of interest.

CSET program Student Learning Outcomes include the following knowledge, skills, and abilities:

- Demonstrates the application of information technology to common business functions, including the implementation and use of basic end user software.
- Demonstrates the fundamentals of telecommunications in a modern business environment, including management of voice, call centers, and Voice Over IP.
- Performs support and maintenance of computer hardware.
- Analyzes and applies operating systems concepts to implement and support multiple industry standard operating systems in enterprise networking environments.

## Career Options

### COMPUTER SUPPORT SPECIALIST

Median Annual Salary: \$48,900

Recommended Education: Associate degree (A.S.)

[www.bls.gov/ooh/computer-and-information-technology/computer-support-specialists.htm](http://www.bls.gov/ooh/computer-and-information-technology/computer-support-specialists.htm)

### COMPUTER SYSTEMS ANALYST

Median Annual Salary: \$79,680

Recommended Education: Bachelor degree (B.S.)

or A.S. with related work experience

[www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm](http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm)

### SYSTEMS ADMINISTRATOR

Median Annual Salary: \$72,560

Recommended Education: Bachelor degree (B.S.)

or A.S. with related work experience

[www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm](http://www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm)

### COMPUTER HARDWARE ENGINEER

Median Annual Salary: \$100,920

Recommended Education: B.S.

[www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm](http://www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm)

## Worcester Area Employers

- Abbott Laboratories
- Charter Communications
- EMC<sup>2</sup>
- The Hanover Insurance Group
- Intel Corp.
- Quinsigamond Community College
- Saint Gobain Abrasives, Inc.
- UMass Memorial Medical Center
- Worcester Public Schools

## CSET @ QCC (continued)

- Applies an understanding of basic programming structures and algorithms.
- Applies networking concepts to design, implement and maintain LANs and WANs to support modern implementations including internet working and data convergence.
- Ability to design and implement basic and advanced routing utilizing the TCP/IP and other common networking protocols and utilities.
- Defines and manages network services for effective network performance.
- Designs data storage solutions that meet the enterprises' varied needs, including fault tolerance and disaster recovery.
- Deploys and manages common third party applications to support business needs.
- Demonstrates the management of IT infrastructures and projects.
- Develops documentation appropriate to clearly communicate computer network specification, configuration, and/or processes.
- Troubleshoots computer networking infrastructures to resolve user problems.
- Demonstrates the implementation of IT in a business environment through cooperative education and seminars or service learning experience.

## Next Steps

Wondering if Computer Systems Engineering Technology is right for you?

- Take a Career Assessment to match your interests with potential careers: [www.qcc.mass.edu/t3/ort/sites.html#careerassess](http://www.qcc.mass.edu/t3/ort/sites.html#careerassess)
- Research the web links on this page and more: [www.qcc.mass.edu/t3/ort/sites.html#careerinfo](http://www.qcc.mass.edu/t3/ort/sites.html#careerinfo)
- Conduct an Informational Interview. Speak with a live person employed in this field: [www.qcc.mass.edu/t3/ort/sites.html#infointerview](http://www.qcc.mass.edu/t3/ort/sites.html#infointerview)
- Attend a Career Planning Session: [www.QCC.edu/images/capssession.pdf](http://www.QCC.edu/images/capssession.pdf)
- Speak with an Advisor: [www2.qcc.mass.edu/advising/adVCalladvCall.asp](http://www2.qcc.mass.edu/advising/adVCalladvCall.asp)
- Speak with QCC Faculty who teach CSET courses.

## Sources Used

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook, 2014 Edition*:

- Computer Support Specialists: [www.bls.gov/ooh/computer-and-information-technology/computer-support-specialists.htm](http://www.bls.gov/ooh/computer-and-information-technology/computer-support-specialists.htm)
- Computer Systems Analysts: [www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm#tab-1](http://www.bls.gov/ooh/computer-and-information-technology/computer-systems-analysts.htm#tab-1)
- Network and Computer Systems Administrators: [www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm](http://www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm)
- Computer Hardware Engineers: [www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm](http://www.bls.gov/ooh/architecture-and-engineering/computer-hardware-engineers.htm)

Massachusetts Executive Office of Labor and Workforce Development, "Fastest Growing Occupations Through 2014."

Quinsigamond Community College, "Computer Systems Engineering Technology," 2013|2014 Catalog online:

- [www.qcc.edu/academics/technology/computer-systems-engineering-technology](http://www.qcc.edu/academics/technology/computer-systems-engineering-technology)

## Professional Associations

- International Association of Computer Investigative Specialists: [www.iacis.com](http://www.iacis.com)
- Regional Computer Forensics Laboratory: [www.rcfl.gov](http://www.rcfl.gov)
- Computing Technology Industry Association: [www.comptia.org](http://www.comptia.org)
- Information Technology Association of America: [www.techamerica.org](http://www.techamerica.org)
- NorthWest Center of Emerging Technologies: [www.nwcet.org](http://www.nwcet.org)

## Positions Entered by QCC Graduates

- Technical Support
- Testing Specialist
- Network Administrator
- Computer Technician
- IT Trainer

## Looking for employment, co-op, internship, or service learning opportunities?

Contact the Career Placement Office:

[www.QCC.edu/pages/Career\\_Placement.html](http://www.QCC.edu/pages/Career_Placement.html)

## Possible Transfer Schools

- Assumption College
- Becker College
- Clark University
- Fitchburg State University
- Northeastern University
- UMass Amherst
- UMass Lowell
- Worcester State University

## Looking for Specific Transfer Information?

- Start at the QCC Transfer web site: [www.qcc.mass.edu/transfer](http://www.qcc.mass.edu/transfer)
- Make an appointment online with the Transfer Advisor: [www.qcc.mass.edu/transfer/calendar](http://www.qcc.mass.edu/transfer/calendar)
- Email questions to: [transfer@qcc.mass.edu](mailto:transfer@qcc.mass.edu)