



Computer Technology/Computer Systems Technology CIP Code 15.1202

Introduction – Program of Study

Information Technology (IT) has become an integral part of modern life. Among its most important functions are the efficient transmission of information and the storage and analysis of information.

Network engineers are the designers of computer networks. They set up, test, and evaluate systems such as local area networks (LANs), wide area networks (WANs), the internet, intranets, and other data communications systems. Systems are configured in many ways and can range from a connection between two offices in the same building to globally distributed networks, voice mail, and email systems of a multinational organization. Network engineers perform network modeling, analysis, and planning, which often require both hardware and software solutions. These workers may also research related products and make necessary hardware and software recommendations, as well as address information security issues.

Network and computer systems administrators design, install, and support an organization's computer systems. They are responsible for LANs, WANs, network segments, and internet and intranet systems. They work in a variety of environments, including large corporations, small businesses, and government organizations. They install and maintain network hardware and software, analyze problems, and monitor networks to ensure their availability to users. These workers gather data to evaluate a system's performance, identify user needs, and determine system and network requirements.

Systems administrators are responsible for maintaining system efficiency. They ensure that the design of an organization's computer system allows all of the components, including computers, the network, and software, to work properly together. Administrators also troubleshoot problems reported by users and by automated network monitoring systems and make recommendations for future system upgrades. Many of these workers are also responsible for maintaining network and system security.

Database administrators work with database management software and determine ways to store, organize, analyze, use, and present data. They identify user needs and set up new computer databases. In many cases, database administrators must integrate data from old systems into new systems. They also test and coordinate modifications to the system when needed, and troubleshoot problems when they occur. An organization's database administrator ensures the performance of the system, understands the platform on which the database runs, and adds new

users to the system. Because many databases are connected to the Internet, database administrators also must plan and coordinate security measures with network administrators.

Computer security specialists plan, coordinate, and maintain an organization's information security. These workers educate users about computer security, install security software, monitor networks for security breaches, respond to cyber attacks, and, in some cases, gather data and evidence to be used in prosecuting cyber crime. Telecommunications specialists focus on the interaction between computer and communications equipment. These workers design voice, video, and data communication systems, supervise the installation of the systems, and provide maintenance and other services to clients after the systems are installed.

Assumptions of this Program of Study

High quality programs should meet the following standards:

1. Promote positive working relationships.
2. Implement a curriculum that fosters all areas of skill development
3. Use appropriate and effective teaching approaches.
4. Provide ongoing assessments of student progress.
5. Employ and support qualified teaching staff.
6. Establish and maintain relationships and use resources of the community.
7. Provide a safe and healthy learning environment.
8. Implement strong program organization and supervision policies that result in high quality teaching and learning.
9. Integrate academic skills and aptitudes necessary for postsecondary education, gainful employment and a foundation of lifelong learning.

CIP Code

15.1202 Computer Technology/Computer Systems Technology

This is an instructional program that prepares individuals to apply basic engineering principles and technical skills in support of professionals who use computer systems. This program includes instruction in basic computer design and architecture, programming, problems of specific computer application, component and system maintenance and inspection procedures, hardware and software problem diagnosis, and repair and report preparation.

For more information, contact:

The Pennsylvania Department of Education
Bureau of Career and Technical Education
333 Market Street, 11th Floor
Harrisburg, PA 17126-0333
Phone: 717-346-9735
Fax: 717-783-6672
TTY: 717-783-7445