Network Administration

What is network administration?

Network and computer systems administrators are responsible for the day-to-day operation of an organization's computer networks. They organize, install, and support an organization's computer systems, including local area networks (LANs), wide area networks (WANs), network segments, intranets, and other data communication systems.

What is the Network Administration Program?

The Network Administration Program at HCC guides the student from an entry-level knowledge in computer networks to advanced concepts in Ethernet networks, router configuration, TCP/IP networks, routing protocol, local, campus, and wide-area network configuration, network security, wireless networking, optical networks, Voice over IP (VoIP), the network server, and Linux networking.

What skills do network administrators need to have?

Individuals in the network administration field need to have good communication skills because they frequently must speak with the public, suspects, and/or law enforcement officers. Individuals in this field also need to possess excellent observation and decision-making skills so that they can quickly determine the best course of action in a dangerous situation. In addition, network administrators need to demonstrate honesty and integrity since they must protect confidential information and expensive equipment.

Essential Work Habits:

- Have the ability to work methodically and be very detail oriented
- Be eager to dig into technical questions and examine them from all sides
- Be enthusiastic and highly adaptable
- Possess strong analytical and diagnostic skills
- Demonstrate skills in innovation and collaboration
- Maintain a current understanding of vulnerabilities from the Internet
- Maintain awareness and knowledge of contemporary standards, practices, procedures and methods
- Have the ability to get the job done

PROGRAM OPTIONS

- A.A.S. Degree, Network Administration Concentration
- Certificate, Network Administration, Information Systems Technology

CAREER OUTLOOK

MEDIAN SALARY	EMPLOYMENT
$81K network & computer systems administrators	333,200 jobs in the U.S. 3% growth in the next ten years

Demand for information technology (IT) workers is high and should continue to grow as firms invest in newer, faster technology and mobile networks. Employment growth also is expected as the use of IT in healthcare increases.

(source: www.bls.gov/ooh)

What crimes prevent individuals from working in the field?

Applicants who have been convicted of a felony or involved in physical or domestic abuse will be disqualified from working in network administration. Prior to employment, applicants are expected to undergo rigorous background checks, drug tests, and panel interviews.

In addition, misdemeanor offenses may disqualify individuals for employment at certain organizations. Examples of misdemeanor offenses that may prevent employment include:

- Property Crimes—Offenses that involve taking or damaging the property of another person without his or her knowledge or consent.
- Serious Traffic Violations—Offenses that involve serious misconduct while driving a motor vehicle such as DUI/DWI.
- Sex Crimes—Offenses that involve illegal sexual conduct. Examples include pandering (i.e., soliciting a prostitute), indecent exposure, and sexual battery (i.e., uninvited sexual advances).
- Drug Crimes—Offenses that involve the possession, sale, distribution, or sale of illegal drugs

- Violent Crimes including domestic violence—Offenses that involve an act of violence against another person. The violence can be verbal or mental and can include making terrorist threats or stalking.
- Crimes Against Public Order or Public Administration—Offenses that involve some kind of action against a public official, a government institution, or a breach of the public peace. Examples include disorderly conduct, public intoxication, failing to appear in court, unlawful assembly, and giving a false name or driver's license to a police officer.

Why should you choose HCC?

HCC's new, state-of-the-art computer network labs allow students to gain hands-on experience with the latest network software tools and network hardware that includes routers, switches, and firewalls.

The networking curriculum is overseen by a strong and active network advisory group comprised of representatives from local industry, educational institutions, and government agencies.

The curriculum has recently been streamlined by separating many of the network administration and cybersecurity courses into two distinct programs. Those interested in cybersecurity can

view the cybersecurity program requirements online at *www.hagerstownccc.edu/cyber.*

HCC has articulation agreements with several regional four-year colleges and universities, which makes it extremely easy for students to complete their bachelor's degrees.

Students are encouraged to transfer to institutions that have been designated as National Centers of Academic Excellence in Information Assurance Education (CAEIAE) to ensure that they continue to receive quality information systems training once they graduate from HCC. Local CAEIAE institutions include Capitol College, George Mason University, Johns Hopkins University, Towson University, and University of Maryland University College.

Upon program completion, students will be prepared for several industry standard certification exams including:

- CompTIA's A+, Network+, and Security+ (depending on student's choice of Restricted Electives)
- Cisco Certified Network Associate (CCNA)

Job prospects will be best for college graduates who possess the latest technological skills, particularly graduates who have supplemented their formal education with relevant work experience.

What are the program options?

Students can earn a certificate or an A.A.S. degree in network administration.

A.A.S. Degree
Information Systems Technology, Option in Network Administration

The career program in network administration is designed for students who plan to enter the field of information technology. Major areas of study include network fundamentals, design, management, troubleshooting, and operating systems. Students who plan to transfer to a four-year program should identify an intended transfer institution as early as possible and complete appropriate courses. Students should always consult with advisors and transferring institutions for specific requirements as these are subject to change.

General Education Requirements   18-20 credits
Arts/Humanities
Select from approved General Education course list 3
Behavioral/Social Sciences
Select from approved General Education course list..... 3
Biological/Physical Science
Select from approved General Education course list..3-4

Diversity
Select from approved General Education course list .. 3
English
Select from approved General Education course list...3
Mathematics
Select from approved General Education course list 3-4

Program Requirements			**33 credits**
CSC	102	Introduction to Information Technology...	3
CSC	109	UNIX/Linux Operating System	3
CYB	246	Introduction to Cloud Computing	3
IST	108	Microsoft Operating System	3
IST	150	PC Tech: Repair and Troubleshooting	3
IST	151	PC Tech: Operating Systems	3
IST	154	Networking Basics	3
IST	155	Networking I	4
IST	156	Networking II	4
IST	261	Server Management I	3
STU	106	Professionalism in the Workplace	1

Restricted Electives			**7-9 credits**
Select restricted electives from the following list:			
CSC	130	Fundamentals of Programming Design	(3)
CYB	210	Ethics in the Information Age	(3)
CYB	224	Ethical Hacking Fundamentals	(3)
IST	160	Introduction to Security Fundamentals	(3)
IST	166	Computer Forensics I - Principles and Practices	(3)
IST	173	Database Fundamentals	(3)
IST	255	Networking III	(4)
IST	269	Internship I	(1-3)
IST	276	Network Forensics	(3)

Degree Requirement................................60

Certificate
Information Systems Technology Network Administration

The Network Administration Certificate program is for the student interested in a career in networking concepts. Major concentration will be network fundamentals, design and management, troubleshooting, and operating systems. Classes are conducted in hands-on labs. Currently, three national certifications are a part of this option: A+, Network+, and CCNA.

Program Requirements			**27 credits**
CSC	102	Introduction to Information Technology..	3
		CW 120	
IST	108	Microsoft Operating System	3
IST	150	PC Tech: Repair and Troubleshooting	3
IST	154	Networking Basics	3
IST	155	Networking I	4
		CW 150	
IST	156	Networking II	4
		CW 151	
IST	255	Networking III	4
		CW 250	
IST	261	Server Management I	3
		CW 230	

Restricted Electives			**3 credits**

Electives should be selected in consultation with the Technology and Computer Studies Division to satisfy career goals and/or transfer college requirements. Select elective credits from the following list.

Approved courses are listed below:

CSC	109	UNIX/Linux Operating System	(3)
		CW 140	
IST	151	PC Tech: Operating Systems	(3)
IST	160	Introduction to Security Fundamentals	(3)
IST	166	Computer Forensics I— Principles and Practices	(3)
IST	173	Database Fundamentals	(3)

Certificate Requirement 30**

* *CyberWATCH Designator*
** *Note: This certificate must be completed within four years because of constantly changing technology. Students who do not complete within four years will fall under the latest catalog.*

Contact information:

Doug Leisher
Assistant Professor, IST
Business and Technology (BT) Division
240-500-2446
dkleisher@hagerstownccc.edu

Recommended Professional Organizations

Information Systems Security Association:
www.issa.org

InfraGard:
www.infragard.org

International Information Systems Security Certification Consortium (ISC2):
www.isc2.org