FLINT HILLS TECHNICAL COLLEGE | Network Technology

Division of Information Technology

"Every business needs computers. As an IT professional,
every business will need someone like you."

Mission Statement

Students successfully completing the Network Technology curriculum will develop professional skills that prepare them for immediate employment in the field of computer or IT (Information Technology) network support and administration. In developing these skills, students will:

- Install, configure, and troubleshoot computer networks using industry standard hardware and software technologies.
- Manage, maintain, and secure common network services using industry standard network operating systems and protocols.
- Prepare to take CompTIA, Linux Professional Institute, Microsoft, and Cisco certification exams.

Why a Career in Computer Network Support?

- **Numerous Job Opportunities and Good Job Security –** Most industries are growing more and more dependent upon computer networks for their day-to-day operations. Thus, there will always be a need for individuals with the skills to support these networks. This equates to more job opportunities and better job security for graduates with a degree in Network Technology.

  According to the U.S. Department of Labor's *Industry Employment and Output Projections to 2024* report, "The computer system design and related services industry is projected to have the eighth largest increase in employment among all industries, adding 408,900 jobs to reach almost 2.2 million in 2024. The demand for both improved computer and network security, better and faster mobile technologies, and the increased use of electronic records will drive the demand for employment in this industry."

  Network Technology students have found successful employment in the field of computer and network (IT) support with a wide variety of companies, including the following:

-American Eagle Outfitters
-Bachelor Controls
-Bob's Computer Service
-Cable ONE
-CBIZ
-Cerner
-Children's Mercy Hospital
-Citizens State Bank
-Clinical Reference Laboratory
-Cognizant Technology Solutions
-Converged Communications
-Dick's Business Machines
-Emporia State University
-Ericsson
-Extru-Tech Inc.
-Fishnet Security
-Flint Hills Technical College
-Forrest T. Jones & Company
-Fort Hays State University
-Lyon County State Bank
-Mission Valley School District
-Newman Regional Health
-Ogden Publications
-Oklahoma Cancer Specialist and Research Institute
-Ransom Memorial Hospital
-Seamless Data Systems
-Sekisui XenoTech
-Shawnee Mission Medical Center
-Silver Lake School District
-Social and Rehabilitation Services
-Sprint
-Staples
-Stormont Vail Health
-Stutler Technologies
-Tallgrass Technologies
-The City of Emporia
-The Emporia Public Library
-The Help Desk

-Fusion (formerly Birch Communications)
-Gateway 2000
-Home BancShares
-Hopkins Manufacturing
-IdeaTek
-Integrated Technologies of Kansas
-ITRenew
-k12itc
-Kansas Bureau of Investigation
-Kansas Highway Patrol
-Kansas Housing Resources Corp.
-Koch Business Solutions
-Koch Industries
-Lawrence Police Department
-Lyon County Courthouse
-Toast Inc.
-Total Technology LLC
-Transystems Corporation
-Tri-County Wireless
-Unified School District 251
-Unified School District 252
-Unified School District 253
-Unified School District 290
-Unified School District 421
-ValuNet LLC
-Vektek, Inc.
-Walmart Corporate
-Washburn University
-Westar Energy
-Wolf Creek Nuclear Operating Corporation

- **Good Pay –** In their latest study, *May 2018 State Occupational Employment and Wage Estimates*, the U.S. Department of Labor reports the following average annual wages for network support-related occupations:

Occupation	State of Kansas	Nation wide
Computer User Support Specialists	$45,360	$55,050
Computer Network Support Specialists	**$50,690**	**$68,050**
Network and Computer Systems Administrators	**$75,940**	**$87,070**
Information Security Analysts	$86,160	$102,470
Computer Network Architects	$93,670	$111,130

- **A Challenging and Fast-paced Career –** Due to the complex and ever-changing nature of computing technology, a career in computer network support should never be dull or monotonous. There will always be new challenges to face and new technologies to support. A good technician is always learning, which keeps the mind stimulated and interested.

Industry Certification and Partnerships

There are numerous industry certifications available to workers in the field of computer network support (see the Mission Statement). Though not required, students are strongly encouraged to obtain one or more industry certifications before graduating from the program. Certifications make the student more marketable to prospective employers and can improve their salary. Most of the courses taught in the Network Technology program are preparatory for an industry certification.

FHTC maintains the following partnerships in order to obtain significant discounts for students on certification exams and software:

- Member – CompTIA (Computer Trade Industry Association)
- Microsoft IT Academy
- Microsoft Imagine (formerly known as DreamSpark and MSDNAA)
- Authorized Pearson-VUE Testing Center

Program Outcomes

Upon successful completion of the Network Technology program, students will:

1. Apply best practices in the management and administration of industry-standard client and server operating systems.
2. Demonstrate effective troubleshooting techniques in solving computer technology problems.
3. Demonstrate the ability to install and configure computer software and hardware devices.
4. Design and maintain a computer network.

5. Apply effective security practices in a network environment.
6. Obtain computer industry certification.

Curriculum

The Network Technology program of study is a two-year program culminating in an Associate of Applied Science (AAS) degree upon successful completion. Its curriculum consists of the following technical courses.

1st Semester – Courses in this semester are designed to provide students with the fundamental skills necessary to install, configure, and troubleshoot hardware and software on computers and computer networks. When this semester is completed, they should have a solid foundation upon which more specific and advanced skills can be built. The courses are:

- NET 100 Windows Command-Line Interface Fundamentals (online course)
- NET 115 Digital Electronics
- NET 116 PC Servicing & Troubleshooting
- NET 117 Networking Concepts

2nd and 3rd Semesters – The best jobs in the field are those in the area of network administration; which is the management of the servers and networking devices which run the network. In these semesters, students will study the most important principles of network administration. More specifically, they will learn how to administer Microsoft and Linux servers and networks (both real and virtual), as well as how to administer Cisco networking devices. The courses are:

- NET 230 Microsoft Client Administration
- NET 248 Microsoft Server Administration I
- NET 275 Microsoft Server Administration II
- NET 235 Virtual Datacenters
- NET 236 Virtual Datacenters II
- NET 272 Linux Administration I
- NET 273 Linux Administration II
- NET 280 Cisco Network Administration
- NET 282 Cisco Network Administration II

4th Semester – An increasingly important aspect of network support is security. In this semester, students study the methods and technologies used to protect computer networks. They will also learn more about configuring and supporting Microsoft Windows servers. Since this is the last semester before graduation, students will also take a course in developing job-related skills which they will need as they seek their first network support job. Students are also required to participate in an internship, where they will receive real life on-the-job training. The courses are:

- NET 274 Network Security
- NET 276 Microsoft Server Administration III
- PDV 101 Professional Development I
- NET 281 Network Technology Internship

In addition to these technical courses, students are required to take 16-17 credits of general education courses and maintain a minimum cumulative GPA of 2.0 in order to graduate. The required general education courses are:

- 3 credit hours of Written Communication
- 3 credit hours of Oral Communication
- 3 credit hours of Mathematics
- 4-5 credit hours of Life/Natural Sciences (Lab required)
- 3 credit hours of Behavioral Sciences

Location

Flint Hills Technical College – Main Campus (rooms M109, M107, and M103 – offices in M102)
3301 West 18th Avenue, Emporia, Kansas 66801

Instructors

Adam Starr, Instructor
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Program Advisory Committee

The college maintains a standard of education monitored and approved by program advisory committees made up of members from the general public, business and industry. The committees guide the college in fulfilling its responsibilities to provide up-to-date, quality education. Current members of the Network Technology PAC are:

Jean Barnett* – Lyon County
Jim Belford – Seamless Data Systems
Chuck Boyce – Lyon County
Lynn Cress‡ – Washburn University
Robert Davis* – Bob's Computer Service
Pat Foraker* – Flint Hills Community Health Center
Brad Hinderliter* – The City of Emporia
Brandon Knight* – Converged Communications
Ryan Kurtenbach* – Newman Regional Health
Jeff Lutes* – Hopkins Manufacturing
Dan McCoy* – FHTC
Alan Minor* – FHTC
Tony Ponce* – Newman Regional Health
Steve Stone* – Forrest T. Jones & Company
Chris Swift* – Stormont Vail Health
Harold Vilander* – Cerner
Kyle Williams* – Children's Mercy Hospital
Chris Winfough*‡ – Sprint

* Graduate of FHTC
‡ Former Network Technology Instructor at FHTC

Network Technology Course Descriptions

SEMESTER 1

NET 100 – Windows Command-Line Interface Fundamentals (1 credit hour ONLINE)
Students will utilize DOS commands from the Microsoft Windows command-line interface (CLI) to manipulate the operating system and its file system.

NET 115 – Digital Electronics (3 credit hours)
Students will evaluate and construct common DC and AC circuits. Students will construct, evaluate, and repair common digital circuits and devices which are used in computers. The student will examine the various components and test equipment used in digital electronics. Extensive hands-on application of circuitry is stressed. *NET 115 is a prerequisite for all Network Technology courses with a course number of NET 116 or higher.*

NET 116 – PC Servicing and Troubleshooting (3 credit hours)
Students will analyze the hardware components of a personal computer and evaluate their relative industry standards in terms of features, performance, and cost. They will analyze and evaluate industry-standard operating systems and their relative software components in terms of features, performance, and cost. Students will perform installations and upgrades of hardware and software components of the PC and demonstrate preventive maintenance techniques on these components. They will interact with customers in order to troubleshoot and repair malfunctioning customer's PCs. This course is preparatory for the CompTIA A+ essentials certification exam. *Prerequisite: NET 115 Digital Electronics. NET 116 is a prerequisite for all Network Technology courses with a course number of NET 117 or higher.*

NET 117 – Networking Concepts (3 credit hours)
Students will examine the essentials of computer networking by comparing and contrasting industry-standard network models, services, transmission media, protocols, and architectures. They will design and construct computer networks using these models, services, transmission media, protocols, and architectures. Students will also analyze common maintenance, troubleshooting, and security practices used in modern networks. This

course is preparatory for the CompTIA Network+ certification exam. *Prerequisite: NET 116 PC Servicing and Troubleshooting. NET 117 is a prerequisite for all Network Technology courses with a course number of NET 200 or higher.*

SEMESTERS 2 AND 3

NET 230 – Microsoft Client Administration (2 credit hours)

Students will install, configure, maintain, and troubleshoot the Microsoft Windows client operating system. This course is preparatory for a Microsoft client certification exam. *Prerequisite: NET 117 Networking Concepts*

NET 248 – Microsoft Server Administration I (3 credit hours)

Students will install, configure, maintain, and troubleshoot the Microsoft Windows Server operating system. They will also install and configure common Windows Server roles and features such as advanced storage options, virtualization, clustering, and OS deployment services. This course is preparatory for an entry-level Microsoft server certification exam. *Prerequisite: NET 230 Microsoft Client Administration*

NET 275 – Microsoft Server Administration II (3 credit hours)

Students will examine and perform the administrative tasks utilized by network administrators on Windows servers in order to configure and maintain the network services and network infrastructure of a Microsoft Windows network. This course is preparatory for a Microsoft server certification exam. *Prerequisite: NET 248 Microsoft Server Administration I*

NET 235 – Virtual Datacenters (4 credit hours)

Students will install, configure, and manage a server virtualization platform. They will then install and configure virtual servers using the server virtualization platform. Students will also install, configure, and manage a SAN (Storage Area Network). *Prerequisite: NET 117 Networking Concepts*

NET 236 – Virtual Datacenters II (4 credit hours)

Students will install, configure, and manage both Microsoft SQL and Exchange virtual servers. They will also install, configure, and manage a virtual desktop infrastructure. Students will then use the virtual desktop infrastructure to install and configure virtual desktop clients. *Prerequisite: NET 235 Virtual Datacenters*

NET 272 – Linux Administration I (3 credit hours)

Students will install, configure, and troubleshoot the Linux operating system. They will examine and perform fundamental user and file system management tasks utilized by network administrators on Linux servers. *Prerequisite: NET 117 Networking Concepts*

NET 273 – Linux Administration II (3 credit hours)

Students will install, compile, configure, and troubleshoot common devices and software packages in the Linux operating system. They will examine and perform fundamental network service management tasks utilized by network administrators on Linux servers. Students will also analyze and demonstrate basic preventive maintenance and security practices in a Linux environment. This course is preparatory for the LPI (Linux Professional Institute) Level 1 certification exams. *Prerequisite: NET 272 Linux Administration I*

NET 280 – Cisco Network Administration (4 credit hours)

Students will analyze and demonstrate the procedures required to install, configure, secure and troubleshoot Cisco switches and routers in an internetwork environment. They will examine and perform fundamental management tasks using the Cisco IOS software. *Prerequisite: NET 117 Networking Concepts*

NET 282 – Cisco Network Administration II (4 credit hours)

Students will analyze and demonstrate the procedures required to install, operate, and troubleshoot a small to medium size enterprise branch network using Cisco switches and routers. They will perform these more advanced management tasks using the Cisco IOS software. This course is preparatory for a Cisco certification exam. *Prerequisite: NET 280 Cisco Network Administration*

SEMESTER 4

NET 274 – Network Security (5 credit hours)

Students will examine the essentials of computer network security by analyzing and demonstrating the risks and threats to an organization's data and exploring the methods and technologies used to safeguard this data. This course is preparatory for the CompTIA Security+ certification exam. *Prerequisites: NET 275 Microsoft Server Administration II, NET 273 Linux Administration II, NET 282 Cisco Network Administration II*

NET 276 – Microsoft Server Administration III (3 credit hours)

Students will examine and perform advanced administrative tasks utilized by network administrators on a Microsoft Windows network using Windows servers and Active Directory. This course is preparatory for a Microsoft server certification exam. *Prerequisite: NET 275 Microsoft Server Administration II*

PDV 101 – Professional Development I (1 credit hours)

This course delivers the basic background in professional behaviors, understanding of self, co-workers, and supervisory positions. Students will participate and interact in specific elements of the class including role-plays, language development, conflict resolutions and basic employment issues.

NET 281 – Network Technology Internship (2 credit hours)

Students will work in an IT business environment working with and assisting the network administrator in supporting, troubleshooting, and maintaining the computer network and related systems. The student will display the ability to communicate effectively with others and perform job tasks accurately and efficiently. Integration of classroom training with on-the-job experience will allow the student to relate more meaningfully to their future IT/network support careers. *Prerequisites: NET 275 Microsoft Server Administration II, NET 273 Linux Administration II, NET 282 Cisco Network Administration II, NET 236 Virtual Datacenters II*