

# NETWORK TECHNOLOGY (NTEC)

**IP Subnetting**  
NTEC 103 3 Credits/Units  
2 hours of lecture / 2 hours of lab  
**Prerequisite:** CAP 42 (grade of "C" or higher) or placement into Math level 10

Covers the Internet Protocol (IP) numbering systems IPv4 and IPv6. Includes the following concepts: calculation and converting numbers between DECimal, BINary, and HEXadecimal number systems; understanding the meaning of IP numbers, the purpose/role of the various parts of the number, types/classes of numbers; understanding how to subnet these number ranges using both traditional and VLSM approaches; create supernets, summary routes, and hierarchical addressing schemes. [GE]

**Introduction to Cybersecurity**  
NTEC 125 3 Credits/Units  
2 hours of lecture / 2 hours of lab  
**Prerequisite:** Concurrent enrollment in, or completion of NTEC 103 (grade of "C" or higher)

Builds an understanding of network security topics including how hacker attacks are carried out and how to select the right security solutions for each type of risk. Students learn to create clear and enforceable security policies and to keep them up to date; to establish reliable processes for responding to security advisories; to use encryption effectively and recognize its limitations; to secure networks with firewalls, routers, and other devices; and to prevent attacks aimed at wireless networks. [GE]

**Cloud Computing Fundamentals**  
NTEC 142 3 Credits/Units  
2 hours of lecture / 2 hours of lab  
**Prerequisite:** Concurrent enrollment in, or completion of NTEC 103 (grade of "C" or higher)

Helps students prepare for the CompTIA Cloud Essentials certification by building an understanding of the following Cloud Computing topics: technical understanding of the foundations of Cloud Computing as compared to traditional IT; integrating Cloud Computing into IT infrastructure; creating economic value by implementing Cloud innovations; and integrating Cloud Computing into an organization's existing compliance, risk and regulatory framework. [GE]

**Linux Essentials**  
NTEC 151 3 Credits/Units  
2 hours of lecture / 2 hours of lab  
**Prerequisite:** CAP 42 (grade of "C" or higher) or placement into Math level 10

Explores the basics of Linux, the world's most popular operating system. Includes system administration skills (using the command line, how to configure a computer running Linux, and basic networking), basic open source concepts. This course may help students prepare for attaining the LPI (Linux Professional Institute) Linux Essentials industry certification. [GE]

**Network Scripting Fundamentals**  
NTEC 161 5 Credits/Units  
3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 151 and NTEC 221 (grades of "C" or higher).

Network programming to build complex scripts that can easily scale to fit the needs of a network. Fundamentals of how to use libraries for SSH management of network hardware and write scripts to perform a number of network configurations. From a simple script with one connection and one command, to building a powerful script that can read multiple commands and multiple IPs from a file, prompt for user credentials, handle errors, and find specific devices. [GE]

**Cooperative Work Experience**  
NTEC 199 1-6 Credits/Units  
18 hours of clinical  
Supervised work experience in an approved job. Completion of specific learning objectives and employee evaluation. [GE] [PNP]

**Deploying Linux Server Services**  
NTEC 220 5 Credits/Units  
3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 151 (grade of "C" or higher)  
Knowledge and skills for using LINUX Server OS to setup LAN/WAN connections and authentication; and to explore features of the network operating systems, such as FTP, email, web server, file server, print server, remote desktop, DNS, DHCP, and users and groups. [GE]

**Introduction to Networks**  
NTEC 221 5 Credits/Units  
3 hours of lecture / 4 hours of lab  
**Prerequisite:** Concurrent enrollment in, or completion of NTEC 103 (grade of "C" or higher)

Introduction to the architecture, structure, functions, components, and models of the Internet, and other computer networks. Fundamentals to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes. Part one of a three-course sequence to prepare for the Cisco CCNA Routing and Switching industry certification. [GE]

**Switching, Routing, and Wireless Essentials**  
NTEC 222 5 Credits/Units  
3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 221 (grade of "C" or higher)

Learn the architecture, components, and operations of routers and switches in an enterprise network, how to configure VLANs, routing protocols; troubleshoot routers and switches; resolve common issues with networks. Part two of a three-course sequence to prepare for the Cisco CCNA Routing and Switching industry certification. [GE]

**Enterprise Networking, Security, and Automation**  
NTEC 223 5 Credits/Units  
3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 222 (grade of "C" or higher)

Learn how to configure routers and switches for advanced functionality; to configure and troubleshoot routers and switches and resolve common issues in both IPv4 and IPv6 networks. Develop the knowledge and skills needed to manage a complex network. Part three of a three-course sequence to prepare for the Cisco CCNA Routing Switching industry certification. [GE]

<b>Network</b>	<b>Security</b>					<b>Linux</b>	<b>Administration</b>	<b>1</b>
NTEC 225						NTEC 252		5 Credits/Units
3 hours of lecture / 4 hours of lab								
<b>Prerequisite:</b> NTEC 125 (grade of "C" or higher).								
Understand and use the most recent advancements in cybersecurity technology, terms, techniques, and tools, such as: automation, zero trust, risk analysis, operational technology, and IoT. Key skills for the ever-evolving cybersecurity landscape. This course may help students prepare for the CompTIA industry certification exam Security+. [GE]								
<b>Administering Windows Server Hybrid Core Infrastructure</b>						<b>Linux</b>	<b>Administration</b>	<b>2</b>
NTEC 234						NTEC 253		5 Credits/Units
3 hours of lecture / 4 hours of lab								
<b>Prerequisite:</b> NTEC 142 (grade of "C" or higher)								
Students will learn to accomplish the following technical tasks: deploy and manage Active Directory Domain Services (AD DS) in on-premises and cloud environments; manage Windows Servers and workloads in a hybrid environment; manage virtual machines and containers; implement and manage an on-premises and hybrid networking infrastructure; and manage storage and file services. This course may help students prepare for the Microsoft industry certification exam AZ-800: Administering Windows Server Hybrid Core Infrastructure. [GE]								
<b>Windows Server Hybrid Advanced Services</b>						<b>Selected</b>	<b>Topics</b>	
NTEC 235						NTEC 280		1-6 Credits/Units
3 hours of lecture / 4 hours of lab								
<b>Prerequisite:</b> NTEC 234 (grade of "C" or higher).								
Students will learn to accomplish the following technical tasks: secure Windows Server on-premises and hybrid infrastructures; implement and manage Windows Server high availability; implement disaster recovery; migrate servers and workloads; and monitor and troubleshoot Windows Server environments. This course may help students prepare for the Microsoft industry certification exam AZ-801: Configuring Windows Server Hybrid Advanced Services. [GE]								
<b>Cybersecurity</b>	<b>Defense</b>		<b>Operations</b>			<b>Special</b>	<b>Projects</b>	
NTEC 236						NTEC 290		1-6 Credits/Units
3 hours of lecture / 4 hours of lab								
<b>Prerequisite:</b> NTEC 125, NTEC 151, and NTEC 221 (grades of "C" or higher).								
Student will learn day-to-day, tactical knowledge and skills that Security Operations Center (SOC) teams need to detect and respond to cybersecurity threats. The course covers knowledge and skills related to security concepts, security monitoring, host-based analysis, network intrusion analysis, and security policies and procedures. This course may help students prepare for the Cisco industry certification exam CyberOps Associate. [GE]								
<b>Datacenter</b>	<b>Virtualization</b>		<b>Technology</b>			<b>Capstone</b>	<b>Experience:</b>	<b>Network Technologies</b>
NTEC 242						NTEC 297		3 Credits/Units
3 hours of lecture / 4 hours of lab								
<b>Prerequisite:</b> NTEC 142 (grade of "C" or higher)								
Fundamentals of server and desktop virtualization. Topics include practical and conceptual skills for understanding basic virtualization concepts, comparison of physical servers and virtualized servers, skills for planning and implementing datacenter virtualization, the virtualized approach to datacenters with functions and services of their components, plus the various components, concepts and skill-sets associated with virtualization. [GE]								
						<b>Enterprise</b>	<b>Networking</b>	<b>Foundation</b>
						NTEC 321		5 Credits/Units
3 hours of lecture / 4 hours of lab								
Admission into the program required for enrollment. Provides a wide overview of computer networking concepts with emphasis on configuring, managing and maintaining essential network devices. Offers instruction and practice in implementing network security, standards, and protocols as well as troubleshooting network problems and creating virtualized networks. May prepare students to attain the industry certification CompTIA Network+. [GE]								

**Cybersecurity Programming & Scripting Foundation**  
 NTEC 361 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
 Admission into the program required for enrollment. Focuses on learning to use the Python programming language to accomplish coding tasks related to the basics of programming as well as the fundamental notions and techniques used in object-oriented programming. May prepare students to attain the industry certification PCAP (Certified Associate in Python Programming) from the Python Institute. [GE]

**lot Foundation: Connecting Things**  
 NTEC 364 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 361 (grade of "C" or higher)  
 Admission into the program required for enrollment. Explores how nearly object can be connected to the Internet, from washing machines to an airplane's jet engine, even organic items like crops and cows. Introduction to the basis of this exciting and emerging field using hands-on activities to model securely connecting sensors to cloud services over IP networks and collecting data in an end-to-end IoT (Internet of Things) system. [GE]

**Big Data & Analytics Foundation**  
 NTEC 365 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 361 and NTEC 364 (grades of "C" or higher)  
 Admission into the program required for enrollment. Explores modern, real-time applications, IoT (Internet of Things) systems and the data they collect. Includes collecting, storing, and visualizing data obtained from IoT sensors and using data analytics to gain insights from the intelligence produced. [GE]

**Cybersecurity Foundation**  
 NTEC 371 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 321 (grade of "C" or higher)  
 Admission into the program required for enrollment. Provides a wide overview of cybersecurity concepts and places an emphasis on mitigating specific security issues with extensive hands-on lab activities. May prepare students to attain the industry certification CompTIA Security+. [GE]

**Cybersecurity Penetration Testing**  
 NTEC 472 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 361 and NTEC 371 (grades of "C" or higher)  
 Admission into the program required for enrollment. Covers the penetration testing as well as vulnerability assessment and management. Emphasizes skills necessary to determine the resiliency of a network against attacks. Includes how to customize assessment frameworks to effectively collaborate on and report findings as well as best practices to communicate recommended strategies to improve the overall state of IT security. May prepare students to attain the industry certification CompTIA Pen Test. [GE]

**Cybersecurity Analyst**  
 NTEC 473 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 361 and NTEC 371 (grades of "C" or higher)  
 Admission into the program required for enrollment. Covers behavioral analytics skills to identify and combat malware and advanced persistent threats with an emphasis on performing data analysis and interpreting the results to identify vulnerabilities, threats and risks to an organization. Includes how to configure and use threat-detection tools and how to secure and protect applications and systems within a organization. May prepare students to attain the industry certification CompTIA CySA+. [GE]

**Cybersecurity Operations**  
 NTEC 475 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 472 and NTEC 473 (grades of "C" or higher)  
 Admission into the program required for enrollment. Focuses on how to monitor, detect and respond to cybersecurity threats with specific instruction in cryptography, host-based security analysis, security monitoring, computer forensics, attack methods and incident reporting and handling. May prepare students to attain the industry certification Cisco CyberOps Associate. [GE]

**Capstone Project**  
 NTEC 499 5 Credits/Units  
 3 hours of lecture / 4 hours of lab  
**Prerequisite:** NTEC 472 and NTEC 473 (grades of "C" or higher)  
 Admission into the program required for enrollment. Integrates and synthesizes competencies from across the degree program. Each project consists of a technical work proposal, the proposal's implementation, and a post-implementation report that describes the students's experience in developing and implementing the capstone project. [GE]