

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
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]		

Network Security
 NTEC 225 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: 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]

Administering Windows Server Hybrid Core Infrastructure
 NTEC 234 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: 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]

Windows Server Hybrid Advanced Services
 NTEC 235 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: 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]

Cybersecurity Defense Operations
 NTEC 236 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: 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]

Datacenter Virtualization Technology
 NTEC 242 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: 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]

Linux Administration 1
 NTEC 252 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: NTEC 151 (grade of "C" or higher)
 Builds on the skills learned in NTEC 151 - Linux Essentials course. Covers the following: system architecture, Linux installation and package management, GNU and UNIX commands, devices, Linux file systems, and file system hierarchy standards. [GE]

Linux Administration 2
 NTEC 253 5 Credits/Units
 3 hours of lecture / 4 hours of lab
Prerequisite: NTEC 252 (grade of "C" or higher)
 Builds on the skills learned in the NTEC 151 and NTEC 252. Covers the following: shells, scripting and data management, interfaces and desktops, administrative tasks, essential system services, networking fundamentals, and security. [GE]

Selected Topics
 NTEC 280 1-6 Credits/Units
 6 hours of lecture
 Selected topics in Network Technology. Topics vary and course theme and content change to reflect new topics. Because the course varies in content, it is repeatable for credit. Individual topics are listed in the term class schedules. [GE]

Special Projects
 NTEC 290 1-6 Credits/Units
 6 hours of lecture
 Opportunity to plan, organize, and complete special projects approved by the department. [GE]

Capstone Experience: Network Technologies
 NTEC 297 3 Credits/Units
 1 hours of lecture / 4 hours of lab
 Department consent required for enrollment. This course will normally be taken during the final term of the program. Students will apply their skills on many topics covered in the other degree program courses. Students will complete a project in a team/small group setting as they create a network design proposal document, design an enterprise network to meet established user requirements, create detailed documentation plans for implementation, create a functional demo/mock-up, and make a final presentation to the class. This course will provide students a hands-on experience designing an enterprise network based on user requirements. Topics include all aspects of network planning, design, and troubleshooting. [GE]

Enterprise Networking Foundation
 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]

IoT 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]