

Internetwork Engineering

Prepares students for:

CompTIA® A+ and Network+ Certifications
Microsoft® Certified Systems Administrator (MCSA)
Microsoft® Certified Systems Engineer (MCSE)
Interconnecting Cisco Network Devices (CCNA)

Program Information

Vocational Objectives:

This program provides comprehensive training, including theoretical concepts and hands-on practice, to provide students with the expertise and skills to work as a Network Administrator/Engineer or Computer/Network Support Specialist. The graduate will have working familiarity with network hardware and software including Microsoft Windows Desktop and Server and will be able to understand, select, install, troubleshoot and support Microsoft and Cisco networks and implement Network Security.

PC AGE program is designed to prepare students to become CompTIA Certified A+ and Network+ Technicians, Microsoft Certified Systems Administrators (MCSA), Microsoft Certified Systems Engineers (MCSE) and Cisco Certified Network Associates (CCNA.) Students will also learn how to create an effective resume, methods for job search, and how to get ready for a job interview. Job Placement assistance is also provided.

Courses

Hours/Credits

IE 100: Introduction to Computers and Internet Fundamentals	45/3.0
IE 100T: Certification Test Preparation	28/1.5
IE 110: Computer Hardware Installation and Troubleshooting	45/3.0
IE 110T: Certification Test Preparation	28/1.5
IE 115: Networking Fundamentals	45/3.0
IE 115T: Certification Test Preparation	29/1.5
IE 121: Supporting Microsoft Windows Desktop Operating System	45/3.0
IE 121T: Certification Test Preparation	28/1.5
IE 122: Supporting Microsoft Windows Server Operating System	45/3.0
IE 122T: Certification Test Preparation	32/1.0
IE 130: Supporting Microsoft Windows Network Infrastructure	45/3.0
IE 130T: Certification Test Preparation	29/1.0
IE 160: Planning and Maintaining a Microsoft Windows Network Infrastructure	45/3.0
IE 160T: Certification Test Preparation	30/1.0
IE 140: Planning, Implementing and Administering Microsoft Windows Directory Service	45/3.0
IE 140T: Certification Test Preparation	25/1.0
IE 150: Designing a Microsoft Windows Directory Services Infrastructure	45/3.0
IE 150T: Certification Test Preparation	29/1.0
IE 185: Deploying and Managing Microsoft Security on the Internet	45/3.0
IE 190: Introduction to Cisco Router Configuration	45/3.0
IE 190T: Certification Test Preparation	27/1.0
IE 200: Designing, Implementing & Troubleshooting Project	24/1.0
IE 210: Certification Tests Preparation	48/3.0
UN 100: Unix System Administration	45/3.0
IE 170: Technical Career Preparation Workshop	47/2.0

Note: Taking any industry certification exam is optional. The school does not award any industry certification.

Total Hours:

960 Clock Hours / 54 Credits

Course Information

IE 100: Introduction to Computers & Internet

Fundamentals

Objective: Gives students an overview of the personal computer, hardware, operating systems, and Internet technologies.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Understand Microsoft Operating System fundamentals
- Install, configure, and upgrade Microsoft Operating Systems.
- Perform diagnosing and troubleshooting of Microsoft Operating Systems.
- Understand basic networking.
- Understand and configure Internet web browsers.

Instruction: Major topics covered in the course are: DOS, Windows 9.X, Windows ME, Windows NT 4.0, Windows 2000, and Windows XP.

IE 110: Computer Hardware Installation and Troubleshooting

Objective: Gives students the essential operating competencies for an entry-level IT professional or PC service technician.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install, configure and upgrade computers
- Diagnose and troubleshoot computer related problems
- Do preventive maintenance
- Configure the motherboard, processor, and memory
- Troubleshoot printers
- Understand Basic Networking

Instruction: Major topics covered in the course are: use of mouse, keyboard, USB devices, ports, motherboards, monitors, processors, memory, hard drives, CDROM drives, modems, and printers.

IE 115: Networking Fundamentals

Objective: Students will be able to install, configure and troubleshoot basic networking hardware, protocols and services.

This course prepares students for CompTIA Network+ Exam.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Understand Media and Topologies
- Understand Protocols and Standards
- Understand the Terminology of Network Implementation
- Understand Network Support

Instruction: Major topics covered in the course are: topologies, cable types, connectors, protocols, OSI model, WAN and LAN, network security, network services, and network operating systems.

IE 121: Supporting Microsoft Windows Desktop Operating System

Objective: This course measures your ability to implement, administer, and troubleshoot information systems that incorporate Microsoft Windows XP Professional. The IE 121 course prepares students for Microsoft Exam 70-270.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install Windows XP Professional
- Implement and Conduct Administration of Resources
- Implement, Managing, and Troubleshoot Hardware Devices and Drivers

- Monitor and Optimize System Performance and Reliability
- Configure and Troubleshoot the Desktop Environment
- Implement, Manage, and Troubleshoot Network Protocols and Services

Instruction: Major topics covered in the course are: Windows XP Professional, Administration of Resources, Troubleshooting Hardware Devices and Drivers, System Performance and Reliability, Desktop Environment, Network Protocols and Services, and Troubleshooting Security.

IE 122: Supporting Microsoft Server Operating System

Objective: Students will learn to operate in medium to very large computing environments that use the Windows 2003 Server operating system. The IE 122 course prepares students for Microsoft Exam 70-290.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install and Manage Windows Server 2003
- Install, Configure and Troubleshoot Hardware Devices, Drivers and network resources.
- Manage, Monitor, and Optimize System Performance, Reliability, and Availability.
- Manage Servers Remotely
- Configure and Troubleshoot Windows Server 2003 Network Connections and Security
- Manage and Implement Disaster Recovery

Instruction: Major topics covered in the course are: Windows 2003 Server; Access to Resources, Hardware Devices and Drivers, Storage Use, Windows 2003 Network Connections, and Troubleshooting Security.

IE 130: Supporting Microsoft Windows Network Infrastructure

Objective: Students will learn how to install, manage, monitor, configure, and troubleshoot DNS, DHCP, Remote Access, Network Protocols, IP Routing, and WINS in a Windows Server 2003 network infrastructure. This course prepares students for Microsoft Exam 70-291.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install, Configure, Manage, Monitor, and Troubleshoot DNS, WINS, and DHCP in a Windows Server 2003 Network Infrastructure
- Configure, Manage, Monitor, and Troubleshoot Remote Access in a Windows Server 2003 Network Infrastructure
- Install, Configure, Manage, Monitor, and Troubleshoot Network Protocols in a Windows Server 2003 Network Infrastructure
- Install, Configure, Manage, Monitor, and Troubleshoot IP Routing in a Windows Server 2003 Network Infrastructure
- Install, Configure, Manage, Monitor, and Troubleshoot Certificate Services

Instruction: Major topics covered in the course are: network infrastructure, features supported by Windows 2003, network protocols and services, compatibility, TCP/IP for enterprise networks, DNS, Windows Internet Name Service (WINS), and Dynamic Host Configuration Protocol (DHCP) in Active Directory-enabled environments, routing and remote access.

Course Information

IE 160: Planning and Maintaining a Microsoft Windows Network Infrastructure

Objective: The student will learn to analyze the business requirements for a network infrastructure and design and implement a network infrastructure that meets business requirements. This course prepares students for Microsoft Exam 70-293.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Analyze Business and Technical Requirements
- Plan Windows 2003 Routing and Remote Access
- Plan Internet Connectivity
- Plan Wide Area Network Infrastructure
- Design Windows Server 2003 Security Infrastructure
- Implement and Maintain Windows Server 2003 Network Infrastructure

Instruction: Major topics covered in the course are: Attributes of a Windows Server 2003 networking services infrastructure design, DHCP, OSPF, RIP, IGMP, name resolution with DNS and WINS, Internet connectivity designs with NAT, private network connectivity designs with Routing and Remote Access, RADIUS, management strategies for networking services, business requirements.

IE 140: Planning, Implementing and Administering Microsoft Windows Directory Service

Objective: Provide students the skills to install, configure, and troubleshoot the Windows 2003 Active Directory™ components, DNS for Active Directory, and Active Directory security solutions. This course prepares students for Microsoft Exam 70-294.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install and Configure Active Directory
- Install, Configure, Manage, Monitor, and Troubleshoot DNS for Active Directory
- Configure Group Policies
- Manage, Monitor, and Optimize the Components of Active Directory
- Configure, Manage, Monitor, and Troubleshoot Security in a Directory Services Infrastructure

Instruction: Major topics covered in the course are: Advanced administration tasks in a Microsoft Windows Server 2003 network, centrally managing a Windows Server 2003 network, Windows 2003 Server controls, administration tools, Active Directory objects, Group Policy, Security Configuration Tool Set, Audit policy, DFS, disaster recovery

IE 150: Designing a Microsoft Windows Directory Services Infrastructure

Objective: Students will learn how to gather the network requirements for a business, analyze an existing network, and design an Active Directory Services Infrastructure. This course prepares students for Microsoft Exam 70-297.

Learning Outcomes: Upon completion of this course, the student will be able to:

- Analyze Business Requirements
- Analyze Technical Requirements
- Design an Active Directory Architecture
- Design Service Location

Instruction: Major topics covered in the course are: Analyzing Business and Technical Requirements, Designing an Active Directory structure, Securing and delegating administrative authority over Active Directory objects, Creating an Active Directory design based on administrative Group policy requirements defined by business needs, Designing a site topology for managing Active Directory replication, Designing an Active Directory structure that combines administrative, replication, and naming requirements.

IE 210: Certification Test Preparation

Objective: Give students the knowledge to prepare for the Microsoft Windows Desktop Operating System and Server Operating System exams.

Learning Outcomes: Upon successful completion of this course, the student will be able to take certification exams for Microsoft Windows Desktop Operating System and Server Operating System.

Instruction: This course is a distance learning course. The students will be provided a list of modules to complete online.

IE 170: TCPW: Technical Career Preparation Workshop

This workshop prepares students to seek employment in the computer networking field. Students will learn how to create an effective resume, methods for job search, and how to get ready for a job interview.

IE 185: Deploying and Managing Microsoft Security on the Internet

Objective: Give students the knowledge and skills to implement, administer, and troubleshoot information systems that incorporate the Enterprise Edition of Microsoft Internet Security and Acceleration Server 2000. This course prepares students for Microsoft exam 70-227.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- Install ISA Server
- Configure and Troubleshoot ISA Server Services
- Configure, Manage, and Troubleshoot Policies and Rules
- Deploy, Configure, and Troubleshoot the Client Computer
- Monitor, Manage, and Analyze ISA Server Use

Instruction: Major topics covered in the course are: installing, configuring and administering Microsoft ISA Server, network security, internet connectivity, network access

Course Information

IE 190: Introduction to Cisco Router Configuration (CCNA)

Objective: The student will learn knowledge and skills necessary to select, connect, configure, and troubleshoot the various Cisco networking devices. This course prepares students for Cisco Exam 640-801: Cisco Certified Network Associate (CCNA).

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- a. Plan & Design a Cisco network
- b. Implement & Operate a Cisco router
- c. Troubleshoot a Cisco router
- d. Understand the technology related to a Cisco router

Instruction: Major topics covered in the course are: Cisco routers, IOS commands, internetworking, LLC and MAC sub-layers, WAN technologies, routing and routed protocols, Extending Switched Networks with VLANs, Determining IP Routes, Managing IP traffic with Access Lists, Establishing Point-to-Point connections, and Establishing Frame Relay Connections

IE 200: Designing, Implementing & Troubleshooting Project

Objective: Enable a student to Design, Implement, and Troubleshoot Local and Wide Area networks working as a team.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- a. Design and Implement a TCP/IP Network for a medium sized company.
- b. Install and configure all the components of network including application servers.
- c. Implement firewall and publish websites.
- d. Install and configure Cisco routers for public network access.
- e. Implement Remote Access to access company network through Internet.
- f. Upgrade networks from old version of Microsoft to New versions.

Instruction: Major topics covered in the course are: Designing and Implementing TCP/IP networks, Implementing a domain design, Implementing application servers including webserver, Internet Security and acceleration sever, mail server, Implementing DNS server, Upgrading Windows servers, Configuring Cisco routers, Troubleshooting networks.

UN 100: Unix System Administration

Objective: Enable a student to install, manage, and support Linux Open System environment.

Learning Outcomes: Upon successful completion of this course, the student will be able to:

- a. Install Linux Operating System.
- b. Install Linux software packages and patches.
- c. Manage user and Group accounts.
- d. Install and Configure DHCP, DNS, FTP and Web Server.
- e. Use vi editor.
- f. Install and Configure SAMBA to Connect to Windows Computers.

Instruction: Major topics covered in the course are: Introduction to Unix environment and Installation of Linux; Linux operating system commands and basic Operating Environment commands, including file system navigation, file permissions, the vi text editor, command shells, and basic network use.

IE 100T: Certification Test Preparation

This course provides students extra help to prepare for the related certification exam as well as the job market by focusing on more hands-on projects.

IE 110T: Certification Test Preparation

This course provides students extra help to prepare for the related certification exam as well as the job market by focusing on more hands-on projects.

IE 115T: Certification Test Preparation

This course provides students extra help to prepare for the related certification exam as well as the job market by focusing on more hands-on projects.

IE 121T: Certification Test Preparation

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IE 130T: Certification Test Preparation

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IE 140T: Certification Test Preparation

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IE 150T: Certification Test Preparation

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IE 160T: Certification Test Preparation

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IE 190T: Certification Test Preparation

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