uCertify

Course Outline

Network Expert

05 Jul 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

   Number of Questions
4. Expert Instructor-Led Training
5. ADA Compliant & JAWS Compatible Platform
6. State of the Art Educator Tools
7. Award Winning Learning Platform (LMS)
8. Chapter & Lessons

   Syllabus

   Chapter 1: Introduction

   Chapter 2: Introduction to Networks

   Chapter 3: The Open Systems Interconnection Specifications

   Chapter 4: Networking Connectors and Wiring Standards

   Chapter 5: The Current Ethernet Specifications

   Chapter 6: Networking Devices

   Chapter 7: Introduction to the Internet Protocol

   Chapter 8: IP Addressing

   Chapter 9: IP Subnetting, Troubleshooting IP, and Introduction to NAT

   Chapter 10: Introduction to IP Routing

   Chapter 11: Routing Protocols

   Chapter 12: Switching and Virtual LANs

   Chapter 13: Wireless Networking

   Chapter 14: Using Statistics and Sensors to Ensure Network Availability

   Chapter 15: Organizational Documents and Policies

   Chapter 16: High Availability and Disaster Recovery

   Chapter 17: Common Security Concepts

   Chapter 18: Common Types of Attacks

Chapter 19: Network Hardening Techniques

Chapter 20: Remote Access Security

Chapter 21: Physical Security

Chapter 22: Data Center Architecture and Cloud Concepts

Chapter 23: Ensuring Network Availability

Chapter 24: Cable Connectivity Issues and Tools

Chapter 25: Network Troubleshooting Methodology

Chapter 26: Network Software Tools and Commands

Chapter 27: Appendix A: Subnetting Class A

Chapter 28: Appendix B: Videos

Videos and How To

9. Practice Test

   Here's what you get

   Features

10. Live labs

    Lab Tasks

    Here's what you get

1. Course Objective

The Network Expert course offers comprehensive training for professionals seeking expertise in networking technologies and protocols. Covering topics such as routing, switching, network security, and troubleshooting, this course equips individuals with the skills needed to design, implement, and manage robust network infrastructures. Through hands-on labs and simulated hardware environment, participants gain practical experience in configuring network, routers, switches, and firewalls, preparing them for various networking roles in the IT industry.

2. Pre-Assessment

Pre-Assessment lets you identify the areas for improvement before you start your prep. It determines what students know about a topic before it is taught and identifies areas for improvement with question assessment before beginning the course.

3. Exercises

There is no limit to the number of times learners can attempt these. Exercises come with detailed remediation, which ensures that learners are confident on the topic before proceeding.

4. Quiz

Quizzes test your knowledge on the topics of the exam when you go through the course material. There is no limit to the number of times you can attempt it.

5. flashcards

Flashcards are effective memory-aiding tools that help you learn complex topics easily. The flashcard will help you in memorizing definitions, terminologies, key concepts, and more. There is no limit to the number of times learners can attempt these. Flashcards help master the key concepts.

6. Glossary of terms

uCertify provides detailed explanations of concepts relevant to the course through Glossary. It contains a list of frequently used terminologies along with its detailed explanation. Glossary defines the key terms.

7. Expert Instructor-Led Training

uCertify uses the content from the finest publishers and only the IT industry's finest instructors. They have a minimum of 15 years real-world experience and are subject matter experts in their fields. Unlike a live class, you can study at your own pace. This creates a personal learning experience and gives you all the benefit of hands-on training with the flexibility of doing it around your schedule 24/7.

8. ADA Compliant & JAWS Compatible Platform

uCertify course and labs are ADA (Americans with Disability Act) compliant. It is now more accessible to students with features such as:

- Change the font, size, and color of the content of the course
- Text-to-speech, reads the text into spoken words
- Interactive videos, how-tos videos come with transcripts and voice-over
- Interactive transcripts, each word is clickable. Students can clip a specific part of the video by clicking on a word or a portion of the text.

JAWS (Job Access with Speech) is a computer screen reader program for Microsoft Windows that reads the screen either with a text-to-speech output or by a Refreshable Braille display. Student can easily navigate uCertify course using JAWS shortcut keys.

9. State of the Art Educator Tools

uCertify knows the importance of instructors and provide tools to help them do their job effectively. Instructors are able to clone and customize course. Do ability grouping. Create sections. Design grade scale and grade formula. Create and schedule assessments. Educators can also move a student from self-paced to mentor-guided to instructor-led mode in three clicks.

10. Award Winning Learning Platform (LMS)

uCertify has developed an award winning, highly interactive yet simple to use platform. The SIIA CODiE Awards is the only peer-reviewed program to showcase business and education technology's finest products and services. Since 1986, thousands of products, services and solutions have been

recognized for achieving excellence. uCertify has won CODiE awards consecutively for last 7 years:

- **2014**
    1. Best Postsecondary Learning Solution

- **2015**
    1. Best Education Solution
    2. Best Virtual Learning Solution
    3. Best Student Assessment Solution
    4. Best Postsecondary Learning Solution
    5. Best Career and Workforce Readiness Solution
    6. Best Instructional Solution in Other Curriculum Areas
    7. Best Corporate Learning/Workforce Development Solution

- **2016**
    1. Best Virtual Learning Solution
    2. Best Education Cloud-based Solution
    3. Best College and Career Readiness Solution
    4. Best Corporate / Workforce Learning Solution
    5. Best Postsecondary Learning Content Solution
    6. Best Postsecondary LMS or Learning Platform
    7. Best Learning Relationship Management Solution

- **2017**
    1. Best Overall Education Solution
    2. Best Student Assessment Solution
    3. Best Corporate/Workforce Learning Solution
    4. Best Higher Education LMS or Learning Platform

- **2018**
    1. Best Higher Education LMS or Learning Platform

2. Best Instructional Solution in Other Curriculum Areas
3. Best Learning Relationship Management Solution

- **2019**
  1. Best Virtual Learning Solution
  2. Best Content Authoring Development or Curation Solution
  3. Best Higher Education Learning Management Solution (LMS)

- **2020**
  1. Best College and Career Readiness Solution
  2. Best Cross-Curricular Solution
  3. Best Virtual Learning Solution

11. Chapter & Lessons

uCertify brings these textbooks to life. It is full of interactive activities that keeps the learner engaged. uCertify brings all available learning resources for a topic in one place so that the learner can efficiently learn without going to multiple places. Challenge questions are also embedded in the chapters so learners can attempt those while they are learning about that particular topic. This helps them grasp the concepts better because they can go over it again right away which improves learning.

Learners can do Flashcards, Exercises, Quizzes and Labs related to each chapter. At the end of every lesson, uCertify courses guide the learners on the path they should follow.

Syllabus

Chapter 1: Introduction

- What Is the Network+ Certification?
- What is the Ucertify Network Expert Certification.

Chapter 2: Introduction to Networks

- First Things First: What's a Network?
- Physical Network Topologies
- Topology Selection, Backbones, and Segments
- Summary
- Exam Essentials

Chapter 3: The Open Systems Interconnection Specifications

- Internetworking Models
- The OSI Reference Model
- Introduction to Encapsulation
- Modulation Techniques
- Summary
- Exam Essentials

Chapter 4: Networking Connectors and Wiring Standards

- Physical Media
- Cable Properties

- Wiring Standards
- Installing Wiring Distributions
- Summary
- Exam Essentials

Chapter 5: The Current Ethernet Specifications

- Network Basics
- Ethernet Basics
- Ethernet at the Data Link Layer
- Ethernet at the Physical Layer
- Ethernet over Other Standards (IEEE 1905.1-2013)
- Summary
- Exam Essentials

Chapter 6: Networking Devices

- Common Network Connectivity Devices
- Other Specialized Devices
- Networked Devices
- Planning and Implementing a Basic SOHO Network Using Network Segmentation

- Summary
- Exam Essentials

Chapter 7: Introduction to the Internet Protocol

- Introducing TCP/IP
- Data Encapsulation
- Summary
- Exam Essentials

Chapter 8: IP Addressing

- IP Terminology
- The Hierarchical IP Addressing Scheme
- IPv4 Address Types
- Internet Protocol Version 6 (IPv6)
- Summary
- Exam Essentials

Chapter 9: IP Subnetting, Troubleshooting IP, and Introduction to NAT

- Subnetting Basics

- Troubleshooting IP Addressing
- Introduction to Network Address Translation (NAT)
- Summary
- Exam Essentials

Chapter 10: Introduction to IP Routing

- Routing Basics
- The IP Routing Process
- Testing Your IP Routing Understanding
- Static and Dynamic Routing
- Summary
- Exam Essentials

Chapter 11: Routing Protocols

- Routing Protocol Basics
- Distance-Vector Routing Protocols
- Link-State Routing Protocols
- High Availability

- Advanced IPv6 Concepts
- IPv6 Routing Protocols
- Summary
- Exam Essentials

Chapter 12: Switching and Virtual LANs

- Networking Before Layer 2 Switching
- Switching Services
- Spanning Tree Protocol
- Virtual LANs
- VLAN Trunking Protocol
- Two Additional Advanced Features of Switches
- Summary
- Exam Essentials

Chapter 13: Wireless Networking

- Introduction to Wireless Technology
- Cellular Technologies
- The 802.11 Standards (Regulatory Impacts)

- Comparing 802.11 Standards
- Wireless Network Components
- Installing a Wireless Network
- Site Survey
- Wireless Security
- Summary
- Exam Essentials

Chapter 14: Using Statistics and Sensors to Ensure Network Availability

- Performance Metrics/Sensors
- SNMP
- Network Device Logs
- Interface Statistics/Status
- Interface Errors or Alerts
- Environmental Factors and Sensors
- Baselines
- NetFlow Data
- Uptime/Downtime

- Summary
- Exam Essentials

Chapter 15: Organizational Documents and Policies

- Plans and Procedures
- Hardening and Security Policies
- Common Documentation
- Common Agreements
- Summary
- Exam Essentials

Chapter 16: High Availability and Disaster Recovery

- Load Balancing
- Multipathing
- Network Interface Card (NIC) Teaming
- Redundant Hardware/Clusters
- Facilities and Infrastructure Support
- Redundancy and High Availability (HA) Concepts

- Mean Time to Repair (MTTR)
- Mean Time Between Failure (MTBF)
- Recovery Time Objective (RTO)
- Recovery Point Objective (RPO)
- Network Device Backup/Restore
- Summary
- Exam Essentials

Chapter 17: Common Security Concepts

- Confidentiality, Integrity, and Availability (CIA)
- Threats
- Vulnerabilities
- Least Privilege
- Role-Based Access
- Zero Trust
- Defense in Depth
- Authentication Methods
- Security Risk Assessments

- Security Information and Event Management (SIEM)
- Summary
- Exam Essentials

Chapter 18: Common Types of Attacks

- Technology-Based Attacks
- Human and Environmental
- Summary
- Exam Essentials

Chapter 19: Network Hardening Techniques

- Best Practices
- IoT Access Considerations
- Summary
- Exam Essentials

Chapter 20: Remote Access Security

- Site-to-Site VPN
- Client-to-Site VPN

- Remote Desktop Connection
- Remote Desktop Gateway
- SSH
- Virtual Network Computing (VNC)
- Virtual Desktop
- Authentication and Authorization Considerations
- In-Band vs. Out-of-Band Management
- Summary
- Exam Essentials

Chapter 21: Physical Security

- Detection Methods
- Prevention Methods
- Asset Disposal
- Summary
- Exam Essentials

Chapter 22: Data Center Architecture and Cloud Concepts

- Data Center Network Architectures

- Software-Defined Networking
- Traffic Flows
- Branch Office vs. On-premises Data Center vs. Colocation
- Cloud Computing and Its Effect on the Enterprise Network
- Overview of Network Programmability in Enterprise Network
- Application Programming Interfaces (APIs)
- Managing Network Documentation
- Network Monitoring
- Network Optimization
- Summary
- Exam Essentials

Chapter 23: Ensuring Network Availability

- Performance Metrics/Sensors
- Network Metrics
- Network Device Logs
- Interface Statistics/Status
- Interface Errors

- Baseline
- NetFlow
- Uptime
- Downtime
- Summary
- Exam Essentials

Chapter 24: Cable Connectivity Issues and Tools

- Identifying Hardware Tools
- Summary
- Exam Essentials

Chapter 25: Network Troubleshooting Methodology

- Narrowing Down the Problem
- Troubleshooting Steps
- Troubleshooting Tips
- Summary
- Exam Essentials

Chapter 26: Network Software Tools and Commands

- Software Tools
- Using traceroute
- Using ipconfig, ifconfig, and ip
- Using the iptables Utility
- Using the ping Utility
- Using the Address Resolution Protocol
- Using the arp Utility
- Using the nslookup Utility
- Resolving Names with the Hosts File
- Using the Mtr Command (pathping)
- Using the Nmap Utility
- Using the route Command
- Using the nbtstat Utility
- Using the netstat Utility
- Using tcpdump
- Using the File Transfer Protocol

- Using the Telnet Utility
- Summary
- Exam Essentials

Chapter 27: Appendix A: Subnetting Class A

- Subnetting Practice Examples: Class A Addresses
- Subnetting in Your Head: Class A Addresses
- Written Lab 1
- Written Lab 2

Chapter 28: Appendix B: Videos

- Module 12 - High Availability and Disaster Recovery

Videos and How To

uCertify course includes videos to help understand concepts. It also includes How Tos that help learners in accomplishing certain tasks.

154	16:15
VIDEOS	HOURS

12. Practice Test

Here's what you get

90	2
PRE-ASSESSMENTS QUESTIONS	FULL LENGTH TESTS

Features

Each question comes with detailed remediation explaining not only why an answer option is correct but also why it is incorrect.

Unlimited Practice

Each test can be taken unlimited number of times until the learner feels they are prepared. Learner can review the test and read detailed remediation. Detailed test history is also available.

Each test set comes with learn, test and review modes. In learn mode, learners will attempt a question and will get immediate feedback and complete remediation as they move on to the next question. In test mode, learners can take a timed test simulating the actual exam conditions. In review mode, learners can read through one item at a time without attempting it.

13. Live Labs

The benefits of live-labs are:

- Exam based practical tasks
- Real equipment, absolutely no simulations

- Access to the latest industry technologies
- Available anytime, anywhere on any device
- Break and Reset functionality
- No hardware costs

Lab Tasks

Introduction to Networks

- Identifying Clients and Servers
- Connecting Devices in a Peer-To-Peer Architecture
- Connecting Devices in a Bus Topology

Networking Connectors and Wiring Standards

- Preparing a Temporary Server for the Network or Internet Connection
- Connecting a Workstation to the Ethernet and Internet

The Current Ethernet Specifications

- Configuring Advanced Ethernet Options

Networking Devices

- Configuring a DHCP Server
- Creating a Subinterface on a Router and Assigning an IP Address
- Configuring and Displaying Speed, Duplex, and Description on a Switch
- Performing a Proxy Server Operation
- Adding a DNS server

Introduction to the Internet Protocol

- Displaying a Router’s IP ARP Table
- Displaying the Structure of a TCP Segment

- Displaying the Structure of a UDP Segment
- Understanding the IPv4 Header

IP Addressing

- Configuring a Class B IP Address
- Configuring a Class A IP Address
- Configuring a Class C IP Address
- Enabling and Verifying SLAAC on a Router

IP Subnetting, Troubleshooting IP, and Introduction to NAT

- Pinging a Host Using a PC
- Configuring a CIDR-Based IP Network
- Configuring Port Address Translation
- Configuring Network Address Translation

Introduction to IP Routing

- Using the show IP route Command
- Configuring Static Routing

Routing Protocols

- Configuring GRE Tunnels

Switching and Virtual LANs

- Using the show Command
- Configuring an Access Port
- Identifying the Root Ports and Viewing the STP Information of a Switch
- Creating a VLAN and Viewing its Assignment to Port Mapping
- Configuring and Viewing a Trunk Port Status

Wireless Networking

- Installing an NIC on a Motherboard of a CPU
- Verifying Whether a Wireless NIC is Configured in a Laptop

- Turning On the Personal Hotspot in an iPhone

Using Statistics and Sensors to Ensure Network Availability

- Configuring Syslog and Viewing Settings on a Router
- Viewing the Application, Security, and System Logs
- Viewing Interface Statistics and Status
- Configuring NetFlow

Organizational Documents and Policies

- Creating a Demilitarized Zone
- Configuring a Default Domain Password Policy

High Availability and Disaster Recovery

- Configuring VRRP

Common Security Concepts

- Setting Up a Honeypot
- Configuring AAA for Device Access Control
- Installing a RADIUS Server

Common Types of Attacks

- Performing ARP Spoofing
- Performing a DoS Attack with the SYN Flood
- Cracking Passwords
- Simulating a DoS Attack
- Using OWASP ZAP
- Using Social Engineering Techniques to Plan an Attack

Network Hardening Techniques

- Configuring DHCP Snooping

Remote Access Security

- Configuring an SSH Server

Data Center Architecture and Cloud Concepts

- Creating a Virtual Switch

Network Software Tools and Commands

- Part II: Command Line Tools
- Part I: Command Line Tools
- Capturing a Packet Using Wireshark
- Part III: Command Line Tools

Here's what you get

57	58	04:37
LIVE LABS	VIDEO TUTORIALS	HOURS

GET IN TOUCH:

3187 Independence Drive
Livermore, CA 94551,
United States

+1-415-763-6300

support@ucertify.com

www.ucertify.com