

# uCertify

## Course Outline

### Network Expert



16 Sep 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.

**395**  
EXERCISES

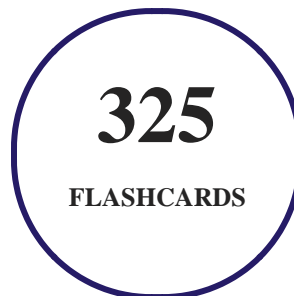
## 4. Quiz

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**

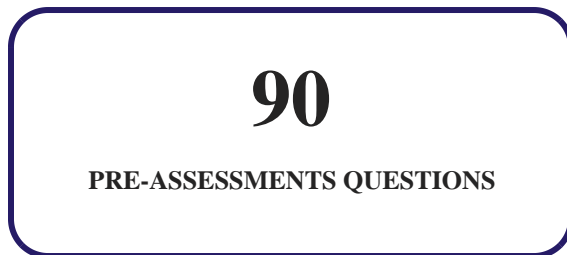
VIDEOS

**16:15**

HOURS

## 12. Practice Test

### Here's what you get



### 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 a 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**

LIVE LABS

**58**


VIDEO TUTORIALS

**04:37**


HOURS

**GET IN TOUCH:**

 3187 Independence Drive  
Livermore, CA 94551,  
United States

 +1-415-763-6300

 [support@ucertify.com](mailto:support@ucertify.com)

 [www.ucertify.com](http://www.ucertify.com)