

 uCertify

# Course Outline

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**Pearson: Networking  
Essentials, 4/E**



17 Jan 2020



Lesson



Practice test



Lab

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## 1. Course Objective

Get to know about the Networking concepts with the Networking Essentials fourth edition course and performance-based labs. Performance-based labs simulate real-world, hardware, software & command line interface environments and can be mapped to any text-book, course & training. Networking Essentials fourth edition course and performance-based labs cover all the concepts and methodology and provide expertise and technical knowledge required to identify network limitations and weaknesses; establish basic network design and connectivity.

## 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.

610  
EXERCISES

## 4. Quizzes

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.



347

QUIZZES

## 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.



493

FLASHCARDS

## 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.



493

GLOSSARY OF  
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 assignments. 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 5 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

## 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: Networking Essentials: Fourth Edition

### Chapter 2: Getting Started

- Organization of the Text

### Chapter 3: Introduction to Computer Networks

- Introduction
- Network Topologies
- The OSI Model
- The Ethernet LAN



- Home Networking
- Assembling an Office LAN
- Testing and Troubleshooting A LAN
- Summary

#### Chapter 4: Physical Layer Cabling: Twisted Pair

- Introduction
- Structured Cabling
- Unshielded Twisted-Pair Cable
- Terminating CAT6/5E/5 UTP Cables
- Cable Testing and Certification
- 10 Gigabit Ethernet Over Copper
- Troubleshooting Cabling Systems
- Summary

#### Chapter 5: Physical Layer Cabling: Fiber Optics

- Introduction
- The Nature of Light
- Fiber Attenuation and Dispersion

- Optical Components
- Optical Networking
- Safety
- Summary

## Chapter 6: Wireless Networking

- Introduction
- The IEEE 802.11 Wireless LAN Standard
- 802.11 Wireless Networking
- Bluetooth, WiMAX, RFID, and Mobile Communications
- Securing Wireless LANs
- Configuring a Point-To-Multipoint Wireless LAN: A Case Study
- Summary

## Chapter 7: Interconnecting the LANs

- Introduction
- The Network Bridge
- The Network Switch

- The Router
- Interconnecting LANs with the Router
- Configuring the Network Interface—Auto-Negotiation
- Summary

## Chapter 8: TCP/IP

- Introduction
- The TCP/IP Layers
- Number Conversion
- IPv4 Addressing
- Subnet Masks
- CIDR Blocks
- IPv6 Addressing
- Summary

## Chapter 9: Introduction to Router Configuration

- Introduction
- Router Fundamentals
- The Console Port Connection

- The Router's User Exec Mode (Router>)
- The Router's Privileged Exec Mode (Router#)
- Summary

## Chapter 10: Introduction to Switch Configuration

- Introduction
- Introduction to VLANs
- Introduction to Switch Configuration
- Spanning-Tree Protocol
- Network Management
- Power over Ethernet
- Summary

## Chapter 11: Routing Protocols

- Introduction
- Static Routing
- Dynamic Routing Protocols
- Distance Vector Protocols

- Configuring RIP And RIPv2
- Link State Protocols
- Configuring the Open Shortest Path First (OSPF) Routing Protocol
- Hybrid Protocols: Configuring the Enhanced Interior Gateway Routing Protocol (EIGRP)
- Summary

## Chapter 12: Internet Technologies: Out to the Internet

- Introduction
- The Line Connection
- Remote Access
- Metro Ethernet/Carrier Ethernet
- Network Services—DHCP and DNS
- Internet Routing—BGP
- Analyzing Internet Data Traffic
- Summary

## Chapter 13: Troubleshooting

- Introduction
- Analyzing Computer Networks

- Analyzing Computer Networks—FTP Data Packets
- Analyzing Campus Network Data Traffic
- Troubleshooting the Router Interface
- Troubleshooting the Switch Interface
- Troubleshooting Fiber Optics—The OTDR
- Troubleshooting Wireless Networks
- Summary

## Chapter 14: Network Security

- Introduction
- Intrusion (How an attacker gains Control of a Network)
- Denial of Service
- Security Software and Hardware
- Introduction to Virtual Private Network
- Wireless Security
- Summary

## Chapter 15: Cloud Computing and Virtualization

- Introduction
- Virtualization
- Cloud Computing
- Summary

## Chapter 16: Codes and Standards

- Introduction
- Safety Standards and Codes
- Industry Regulatory Compliance
- Business Policies and Procedures
- Summary

## Chapter 17: Appendix A: Network+ Exam Supplement

- 1.0 Network Architecture
- 2.0 Network Operations
- 3.0 Network Security
- 4.0 Troubleshooting
- 5.0 Industry standards, practices, and network theory

## Videos and How To

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

17

VIDEOS

04:34

HOURS

## 12. Practice Test

uCertify provides full length practice tests. These tests closely follow the exam objectives and are designed to simulate real exam conditions. Each course has a number of test sets consisting of hundreds of items to ensure that learners are prepared for the certification exam.

### Here's what you get

105

PRE-ASSESSMENTS QUESTIONS

100

POST-ASSESSMENTS QUESTIONS

## Features



### Full Remediation

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.

### Learn, Test and Review Mode

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. Performance Based Labs

uCertify's performance-based labs are simulators that provides virtual environment. Labs deliver hands on experience with minimal risk and thus replace expensive physical labs. uCertify Labs are cloud-based, device-enabled and can be easily integrated with an LMS. Features of uCertify labs:

- Provide hands-on experience in a safe, online environment
- Labs simulate real world, hardware, software & CLI environment
- Flexible and inexpensive alternative to physical Labs
- Comes with well-organized component library for every task
- Highly interactive - learn by doing
- Explanations and remediation available
- Videos on how to perform

### Lab Tasks

- Downloading a graphics card driver for Windows 7
- Identifying the network topology

- Identifying network topologies
- Identifying a network topology
- Identifying OSI layer functions
- Identifying connectionless communication
- Describing OSI layers
- Identifying application layer protocols
- Identifying OSI layers
- Identifying the topology
- Connecting cable internet access for your network
- Connecting a new workstation to the Internet
- Installing a NIC
- Determining reference point maximum distances
- Identifying internetworking devices
- Connecting a wireless router to the laptop
- Identifying the network device
- Creating a network manually
- Identifying devices used in an internetwork
- Identifying internetworking devices
- Identifying network infrastructure devices
- Replacing a faulty NIC
- Identifying NICs
- Identifying network devices
- Connecting a workstation to the LAN and configuring IPv4 properties
- Assembling components to complete the workstation
- Preparing a temporary server for the network/Internet connection
- Identifying types of cable
- Connecting patch cables between the patch panel and switch ports
- Terminating a cable with an RJ-45 plug
- Identifying types of cable
- Identifying fiber connectors
- Identifying components of an optical fiber
- Identifying common fiber optic connectors
- Identifying the device for Ethernet segment communication
- Identifying Ethernet standards
- Identifying Fast Ethernet standards

- Identifying 802.11 standards
- Understanding wireless technology
- Connecting a system to a wireless network
- Adding counters in the Performance Monitor
- Identifying wireless acronyms
- Identifying wireless protocols
- Configuring a wireless client
- Using a switch to interconnect the networking devices
- Connecting a hub to a switch
- Identifying components of a Cisco 2800 series router
- Identifying network symbols
- Identifying data transmission type
- Identifying TCP/IP protocol layers
- Identifying TCP/IP layers
- Identifying TCP utilities
- Identifying FTP commands
- Identifying abbreviations for various Internet layer protocols
- Identifying TCP/IP troubleshooting tools
- View a TCP connection using Network Monitor
- Identifying protocols
- Configuring a Local Area Connection's TCP/IP Version 4 properties
- Identifying IPv4 protocol
- Identifying Internet protocols and their subtypes
- Viewing driver details and the install date of a keyboard
- Avoiding redundant paths within ports
- Configuring monitoring tools
- Connecting a workstation to the Ethernet and to the Internet
- Identifying Interior Gateway Protocols (IGPs)
- Configuring Windows Update Services
- Checking system performance
- Identifying networking components
- Identifying WAN bandwidth features
- Identifying T-carrier line transmission speeds
- Identifying client and server
- Creating a dial-up connection

- Checking properties of and deleting a dial-up connection
- Identifying the network types
- Connecting computers and a printer to the Internet
- Identifying remote access methods
- Identifying the POTS terms
- Identifying speed of bandwidth technologies
- Identifying DSL (Digital Subscriber Line) variations
- Connecting computers on a SOHO network to the Internet
- Configuring a DHCP role in Server 2012
- Installing Active Directory Domain Services on Windows Server 2012
- Configuring Windows logs
- Configuring a DHCP role with error notification
- Identifying network protocol features
- Identifying uses of a network analyzer
- Troubleshooting errors occurring on a server
- Troubleshooting a network problem
- Diagnosing a network problem
- Identifying network and mail protocols
- Identifying strategies for password protection
- Identifying the steps of IP address spoofing
- Identifying types of attacks
- Identifying types of Denial of Service attacks
- Connecting systems to the Internet through a router
- Identifying network device log information
- Installing the AVG antivirus and scanning a drive
- Learning about Cisco IOS firewall
- Learning about Cisco Intrusion Prevention System
- Identifying a back-to-back firewall
- Identifying firewall techniques
- Identifying hardware firewall features
- Examining advanced Windows Firewall settings
- Identifying VPN protocols
- Providing a remote connection to a server on a client computer
- Identifying network security threats
- Identifying security-threats

- Identifying the diameter protocol features
- Comparing authentication systems
- Identifying encryption methods
- Evaluating security practices
- Configuring a new server
- Configuring a client system to get event logs
- Identifying cloud computing categories
- Learning about change management software

## Here's what you get

**115**  
PERFORMANCE BASED  
LAB

**42**  
VIDEO TUTORIALS

**01:36**  
HOURS

## 14. Post-Assessment

After completion of the uCertify course Post-Assessments are given to students and often used in conjunction with a Pre-Assessment to measure their achievement and the effectiveness of the exam.

Have Any Query? We Are Happy To Help!

GET IN TOUCH:

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