uCertify

Course Outline

Data Communication and Networking

04 Aug 2025

1. Exercises, Quizzes, Flashcards & Glossary

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

   Syllabus

   Chapter 1: Preface

   Chapter 2: Basic Concepts

   Chapter 3: Telephony

   Chapter 4: Integrated Services Digital Network

   Chapter 5: Networking Devices

   Chapter 6: Network Layer

   Chapter 7: Transport Layer and Upper Layers in OSI Model

   Chapter 8: Foundation

   Chapter 9: Internetworking

   Chapter 10: Advanced Internetworking

   Chapter 11: End-to-End Protocols

   Chapter 12: Congestion Control and Resource Allocation

   Chapter 13: Multimedia Networking

   Chapter 14: Network Security

   Videos and How To

1. 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.

2. 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.

3. 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.

4. 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

5. 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: Preface

Chapter 2: Basic Concepts

- Introduction
- Introducing data communication
- Distributed processing
- Line configuration

- Topology
- Transmission modes
- Categories of computer network
- Open System Interconnection model layers
- Network layer
- TCP/IP model layers and their functions
- Comparison of models
- Digital transmission
- Transmission media
- Conclusion
- Questions

Chapter 3: Telephony

- Introduction
- Multiplexing
- Error detection and correction
- Switching
- Data link control protocol
- Synchronous and asynchronous protocols overview

- Conclusion
- Questions

Chapter 4: Integrated Services Digital Network

- Introduction
- Integrated Services Digital Network
- Services
- Historical outline
- Subscriber’s access
- ISDN layers
- Broadband ISDN
- Conclusion
- Questions

Chapter 5: Networking Devices

- Introduction
- Repeaters
- Bridges
- Gateways

- Routers
- Conclusion
- Questions

Chapter 6: Network Layer

- Introduction
- Network layer
- Design issues
- Routing concepts
- Distance vector protocol
- Link state routing
- Conclusion
- Questions

Chapter 7: Transport Layer and Upper Layers in OSI Model

- Introduction
- Transport layer
- Session layer
- Presentation layer

- Application layer
- Conclusion
- Questions

Chapter 8: Foundation

- Introduction
- IT system networking techniques
- Typical IT networks
- Encoding
- Links
- Frame error detection and correction
- Reliable transmission
- Ethernet
- History of Ethernet
- Conclusion
- Questions

Chapter 9: Internetworking

- Introduction

- Internetworking
- Basic internetworking
- Switching
- Bridging
- Conclusion
- Questions

Chapter 10: Advanced Internetworking

- Introduction
- Advanced internetworking
- The global internet
- Multicast
- Multiprotocol Label Switching
- Routing among mobile devices
- Questions

Chapter 11: End-to-End Protocols

- Introduction
- End-to-end protocols

- Simple demultiplexer
- Reliable byte stream
- Remote procedure call
- Real-time transport protocol
- Conclusion
- Questions

Chapter 12: Congestion Control and Resource Allocation

- Introduction
- Congestion control
- Resource allocation
- Queuing disciplines
- TCP congestion control avoidance mechanisms
- Quality of Service
- Conclusion
- Questions

Chapter 13: Multimedia Networking

- Introduction

- Multimedia networking
- Multimedia networking applications
- Real-time streaming protocol
- Session initiation protocol
- H.323
- Conclusion
- Questions

Chapter 14: Network Security

- Introduction
- Network security
- Cryptographic building blocks
- Pretty Good Privacy
- Transport Layer Security
- Secure Socket Layer
- Firewall
- Intrusion detection (T1, R1, R2)
- Conclusion

- Questions

You can’t stay away! Get in touch with our team to

3187 Independence Drive
Livermore, CA 94551,
United States

+1-415-763-6300

support@ucertify.com

www.ucertify.com