

# uCertify

## Course Outline

Security in computing



22 Jan 2025

1. Pre-Assessment
2. Exercises, Quizzes, Flashcards & Glossary  
Number of Questions
3. Expert Instructor-Led Training
4. ADA Compliant & JAWS Compatible Platform
5. State of the Art Educator Tools
6. Award Winning Learning Platform (LMS)
7. Chapter & Lessons  
Syllabus  
Chapter 1: Preface  
Chapter 2: Introduction  
Chapter 3: Toolbox: Authentication, Access Control, and Cryptography  
Chapter 4: Programs and Programming  
Chapter 5: The Internet—User Side  
Chapter 6: Operating Systems  
Chapter 7: Networks  
Chapter 8: Data and Databases  
Chapter 9: New Territory  
Chapter 10: Privacy  
Chapter 11: Management and Incidents  
Chapter 12: Legal Issues and Ethics  
Chapter 13: Details of Cryptography  
Chapter 14: Emerging Topics  
Videos and How To
8. Practice Test  
Here's what you get  
Features
9. Live labs

Lab Tasks

Here's what you get

10. Post-Assessment

## 1. 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.

## 2. 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.

**383**  
EXERCISES

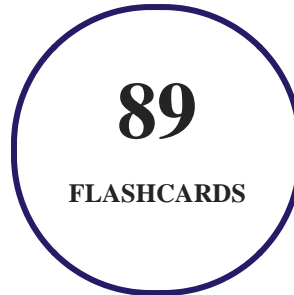
## 3. Quiz

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.

**50**  
QUIZ

## 4. 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.



## 5. 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.



## 6. 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.

## 7. 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.

## 8. 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.

## 9. 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

## 10. 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

- Why Read This Course?
- Uses and Users of this Course
- Organization of This Course
- How to Read This Course
- What Is New in This Edition

#### Chapter 2: Introduction

- What Is Computer Security?
- Threats
- Harm
- Vulnerabilities
- Controls
- Conclusion
- What's Next?
- Exercises

### Chapter 3: Toolbox: Authentication, Access Control, and Cryptography

- Authentication
- Access Control
- Cryptography
- Conclusion
- Exercises

### Chapter 4: Programs and Programming

- Unintentional (Nonmalicious) Programming Oversights
- Malicious Code—Malware



- Countermeasures
- Conclusion
- Exercises

## Chapter 5: The Internet—User Side

- Browser Attacks
- Attacks Targeting Users
- Obtaining User or Website Data
- Mobile Apps
- Email and Message Attacks
- Conclusion
- Exercises

## Chapter 6: Operating Systems

- Security in Operating Systems
- Security in the Design of Operating Systems
- Rootkits
- Conclusion

- Exercises

## Chapter 7: Networks

- Network Concepts
- Threats to Network Communications
- Wireless Network Security
- Denial of Service
- Distributed Denial of Service
- Cryptography in Network Security
- Firewalls
- Intrusion Detection and Prevention Systems
- Network Management
- Conclusion
- Exercises

## Chapter 8: Data and Databases

- Introduction to Databases
- Security Requirements of Databases
- Reliability and Integrity

- Database Disclosure
- Data Mining and Big Data
- Conclusion
- Exercises

## Chapter 9: New Territory

- Introduction
- Cloud Architectures and Their Security
- IoT and Embedded Devices
- Cloud, IoT, and Embedded Devices—The Smart Home
- Smart Cities, IoT, Embedded Devices, and Cloud
- Cloud, IoT, and Critical Services
- Conclusion
- Exercises

## Chapter 10: Privacy

- Privacy Concepts
- Privacy Principles and Policies

- Authentication and Privacy
- Data Mining
- Privacy on the Internet
- Email and Message Security
- Privacy Impacts of Newer Technologies
- Conclusion
- Exercises

## Chapter 11: Management and Incidents

- Security Planning
- Business Continuity Planning
- Handling Incidents
- Risk Analysis
- Physical Threats to Systems
- New Frontiers in Security Management
- Conclusion
- Exercises

## Chapter 12: Legal Issues and Ethics

- Protecting Programs and Data
- Information and the Law
- Rights of Employees and Employers
- Redress for Software Failures
- Computer Crime
- Ethical Issues in Computer Security
- An Ethical Dive into Artificial Intelligence
- Incident Analyses with Ethics
- Conclusion
- Exercises

## Chapter 13: Details of Cryptography

- Cryptology
- Symmetric Encryption Algorithms
- Asymmetric Encryption
- Message Digests
- Digital Signatures
- Quantum Key Distribution

- Conclusion

## Chapter 14: Emerging Topics

- AI and Cybersecurity
- Blockchains and Cryptocurrencies
- Offensive Cyber and Cyberwarfare
- Quantum Computing and Computer Security
- Conclusion

## 11. Practice Test

### Here's what you get

**30**

PRE-ASSESSMENTS QUESTIONS

**50**

POST-ASSESSMENTS QUESTIONS

### 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.

## 12. 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**

### **Toolbox: Authentication, Access Control, and Cryptography**

- Performing Dictionary Attack using Cain & Abel
- Using Rainbow Tables for Cracking Passwords
- Enabling an Access Control List
- Examining PKI Certificates

- Examining Asymmetric Encryption
- Performing Symmetric Encryption
- Adding a Digital Certificate

### **Programs and Programming**

- Defending Against a Buffer Overflow Attack
- Hiding Text using Steganography
- Creating a Remote Access Trojan (RAT)
- Scanning and Classifying Different Types of Viruses
- Using the Windows Defender Settings

### **The Internet—User Side**

- Exploiting a Website Using SQL Injection
- Creating PGP Certification
- Observing a SHA256-Generated Hash Value
- Performing a Phishing Attack

### **Operating Systems**

- Setting up a Honeypot
- Detecting Rootkits

### **Networks**

- Performing Packet Sniffing
- Performing Nmap Port Scanning
- Securing a Wi-Fi Hotspot
- Configuring a Wireless AP
- Using a Wireless AP for MAC Address Filtering
- Confirming the Spoofing Attack in Wireshark
- Conducting a DoS Attack Using Smurf Attack
- Launching a DoS Attack
- Performing Session Hijacking Using Burp Suite
- Simulating the DDoS Attack



- Binding a Site Using IIS
- Configuring a VPN
- Configuring IPSec
- Using Packet Filtering to Restrict Sites
- Configuring a Network Firewall

### **Data and Databases**

- Retrieving Data from a Table
- Inserting Data into a Table
- Creating a Table in SQL
- Updating the Table Data

### **Privacy**

- Examining Spyware

### **Management and Incidents**

- Scheduling a Server Backup
- Taking an Incremental Backup
- Taking a Full Backup

### **Details of Cryptography**

- Creating Asymmetric Key Pairs
- Observing an MD5-Generated Hash Value

**Here's what you get**

**43**

LIVE LABS

**43**

VIDEO TUTORIALS

**01:38**

HOURS

### 13. 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.

**You can't stay away! Get**

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