uCertify

Course Outline

SQL Server 2019



28 Mar 2024

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1. Course Objective

The SQL Server 2019 course and lab provide knowledge and skills required to plan, implement, manage, and secure SQL Server 2019. The lab provides a hands-on learning experience in a safe and online environment. The SQL Server course covers topics such as SQL Server 2019's toolset, SQL Server management studio, Azure data studio, configuration manager, and more. This SQL training course also helps in understanding basic and advanced concepts associated with SQL Server Administration.

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. 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.



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: Introduction

- Acknowledgments

Chapter 2: Getting started with SQL Server tools

- SQL Server setup
- Tools and services installed with the SQL Server Database Engine
- Performance and reliability monitoring tools
- SQL Server Reporting Services
- SQL Server Management Studio (SSMS)

- Azure Data Studio
- SQL Server Data Tools
- A note on discontinued and deprecated features

Chapter 3: Introducing database server components

- Memory
- Central Processing Unit
- Storing your data
- Connecting to SQL Server over the network
- High availability concepts
- Securing SQL Server
- Understanding virtualization and containers

Chapter 4: Designing and implementing an on-premises database infrastructure

- Introduction to SQL Server database architecture
- Data files and filegroups
- Recording changes in the transaction log
- Table partitioning

- Compressing data
- Managing the temporary database
- Configuration settings
- Container orchestration with Kubernetes

Chapter 5: Installing and configuring SQL Server instances and features

- What to do before installing SQL Server
- Installing a new instance
- Post-installation server configuration
- Post-installation configuration of other features

Chapter 6: Installing and configuring SQL Server on Linux

- What is Linux?
- Considerations for installing SQL Server on Linux
- Installing SQL Server on Linux
- Configuring SQL Server for Linux
- Caveats of SQL Server on Linux

Chapter 7: Provisioning and configuring SQL Server databases

- Adding databases to a SQL Server instance
- Moving and removing databases

Chapter 8: Understanding table features

- Reviewing table design
- Special table types
- Storing BLOBs
- Table partitioning
- Capturing modifications to data

Chapter 9: Maintaining and monitoring SQL Server

- Detecting, preventing, and responding to database corruption
- Maintaining indexes and statistics
- Managing database file sizes
- Monitoring activity by using DMOs
- Monitoring with the SQL Assessment API
- Utilizing extended events
- Capturing performance metrics with DMOs and Data Collectors
- Protecting important workloads by using Resource Governor

- Understanding the new servicing model

Chapter 10: Automating SQL Server administration

- Components of SQL Server automated administration
- Maintaining SQL Server
- Using SQL Server Maintenance Plans
- Strategies for administering multiple SQL Servers
- Using PowerShell to automate SQL Server administration

Chapter 11: Developing, deploying, and managing data recovery

- Preparing for data recovery
- Understanding different types of backups
- Understanding backup devices
- Creating and verifying backups
- Restoring a database
- Defining a recovery strategy

Chapter 12: Implementing high availability and disaster recovery

- Overview of high availability and disaster recovery technologies in SQL Server

- Configuring failover cluster instances
- Designing availability groups solutions
- Configuring availability groups in SQL Server on Linux
- Administering availability groups

Chapter 13: Administering security and permissions

- Authentication modes
- Security principals
- Permissions
- Common security administration tasks

Chapter 14: Protecting data through encryption, privacy and auditing

- Privacy in the modern era
- Introducing security principles and protocols
- Protecting the data platform
- Auditing with SQL Server and Azure SQL Database
- Securing Azure infrastructure as a service

Chapter 15: Performance tuning SQL Server

- Understanding isolation levels and concurrency
- Understanding durability settings for performance
- Understanding how SQL Server executes your query
- Understanding advanced engine features for tuning queries

Chapter 16: Understanding and designing indexes

- Designing clustered indexes
- Designing rowstore nonclustered indexes
- Understanding columnstore indexes
- Understanding indexing in memory-optimized tables
- Understanding index statistics
- Understanding other types of indexes

Chapter 17: Designing and implementing hybrid and Azure database infrastructure

- Cloud computing and Microsoft Azure
- Cloud models and SQL Server
- Cloud security
- Other data services in Azure

Chapter 18: Provisioning Azure SQL Database

- Provisioning a logical SQL server
- Provisioning a database in Azure SQL Database
- Provisioning an elastic pool
- Managing database space
- Security in Azure SQL Database
- Preparing Azure SQL Database for disaster recovery

Chapter 19: Provisioning Azure SQL Database managed instance

- What is a Managed Instance?
- Creating a managed instance
- Establishing a connection
- Migrating data to managed instance
- Deleting a managed instance
- Network requirements for managed instances
- Managed Instance administration features
- Azure SQL Analytics
- Security of Managed Instance

- Data protection features

Chapter 20: Migrating to SQL Server solutions in Azure

- Migration Services Options
- Common causes for migration failures
- Integration Runtime options for Migration Services
- Best Practices for security and resiliency during migration

Chapter 21: Leveraging big data and machine learning

- A big data primer
- Introducing Big Data Clusters
- Deploying Big Data Clusters
- Benefits of PolyBase
- Operationalizing analytics with Machine Learning Server
- Launchpad service

11. Practice Test

Here's what you get

100	100
PRE-ASSESSMENTS QUESTIONS	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

Getting started with SQL Server tools

- Exporting Data with the Import/Export Wizard

Introducing database server components

- Installing the Failover Cluster Feature

Designing and implementing an on-premises database infrastructure

- Designing Multiple Filegroups

Installing and configuring SQL Server instances and features

- Installing SQL Server Analysis Services
- Installing SQL Server Integration Services

Installing and configuring SQL Server on Linux

- Configuring SQL Server

Provisioning and configuring SQL Server databases

- Creating a SQL Login
- Using the ALTER Command with the ROLLBACK IMMEDIATE Command

Understanding table features

- Creating a Table

Maintaining and monitoring SQL Server

- Using CHECKDB
- Managing Resource Utilization Using Resource Governor

Automating SQL Server administration

- Configuring Database Mail

Developing, deploying, and managing data recovery

- Creating a Differential Backup
- Creating a Full Database Backup

Administering security and permissions

- Granting Permissions to Create Tables

Protecting data through encryption, privacy and auditing

- Creating a New Server Audit and Configuring a Server Audit Specification

Performance tuning SQL Server

- Optimizing Queries

Understanding and designing indexes

- Creating a Non-Clustered Index
- Creating a Columnstore Index
- Configuring Full-Text Indexing

Designing and implementing hybrid and Azure database infrastructure

- Creating a Virtual Machine in Azure

Here's what you get

21	20	01
LIVE LABS	VIDEO TUTORIALS	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.

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