uCertify

Course Outline

Data Modeling



27 Mar 2024

1. Course Objective
2. Pre-Assessment
3. Exercises, Quizzes, Flashcards & Glossary

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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

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   Chapter 2: Introduction to Data Modeling

   Chapter 3: Relational Model Components

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   Chapter 7: Logical Database Design Using Normalization

   Chapter 8: Beyond Third Normal Form

   Chapter 9: Physical Database Design

   Chapter 10: Alternatives for Incorporating Business Rules

   Chapter 11: Alternatives for Handling Temporal Data

   Chapter 12: Modeling for Analytical Databases

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   Videos and How To
9. Practice Test

   Here's what you get

   Features
10. Live labs

Lab Tasks

Here's what you get

11. Post-Assessment

1. Course Objective

The Data Modeling course and lab cover the entire field of how to create data models that allow complex data to be analyzed, manipulated, extracted, and reported upon accurately. The labs are cloud-based, device-enabled, and can easily be integrated with an LMS. The computer architecture course and lab also provide knowledge on the areas such as I/O functions and structures, RISC, and parallel processors with real-world examples enhancing the text for reader interest.

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.

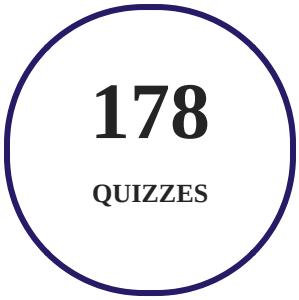
3. Exercises

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.



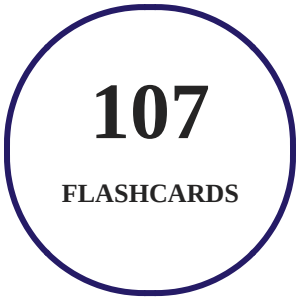
4. Quizzes

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.



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

- Who Should Read This Course
- What the Course Covers

Chapter 2: Introduction to Data Modeling

- Data-Centric Design
- Anatomy of a Data Model
- Importance of Data Modeling
- Measures of a Good Data Model
- How Data Models Fit Into Application Development
- Data Modeling Participants

Chapter 3: Relational Model Components

- Conceptual and Logical Model Components
- Physical Model Components

Chapter 4: Data and Process Modeling

- Data Model Diagramming Alternatives
- Process Models
- Unified Modeling Language (UML)
- Relating Entities and Processes

Chapter 5: Organizing Database Project Work

- The Traditional Life Cycle
- Nontraditional Life Cycles
- The Project Triangle

Chapter 6: Conceptual Data Modeling

- The Conceptual Modeling Process
- Creating the Model
- Evaluating the Model

Chapter 7: Logical Database Design Using Normalization

- The Need for Normalization
- Applying the Normalization Process
- Denormalization
- Practice Problems

Chapter 8: Beyond Third Normal Form

- Advanced Normalization
- Resolving Supertypes and Subtypes
- Generalizing Attributes

- Alternatives for Reference Data

Chapter 9: Physical Database Design

- The Physical Design Process
- Designing Tables
- Integrating Business Rules and Data Integrity
- Adding Indexes for Performance
- Designing Views

Chapter 10: Alternatives for Incorporating Business Rules

- The Anatomy of a Business Rule
- Implementing Business Rules in Data Models
- Limitations on Implementing Business Rules in Data Models
- Functional Classification of Business Rules

Chapter 11: Alternatives for Handling Temporal Data

- Temporal Data Structures
- Calendar Data Structures
- Business Rules for Temporal Data

Chapter 12: Modeling for Analytical Databases

- Data Warehouses
- Data Marts
- Modeling Analytical Data Structures
- Loading Data into Analytical Databases

Chapter 13: Enterprise Data Modeling

- Enterprise Data Management
- The Enterprise Data Model

12. Practice Test

Here's what you get

52	52
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.

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 Data Modeling

- Creating a Conceptual model

- Creating a Physical Data Model
- Creating a Logical Data Model

Relational Model Components

- Modifying a Conceptual Model

Data and Process Modeling

- Drawing of a Conceptual Model with Nested Subtypes

Organizing Database Project Work

- Discussing the Traditional Life Cycle and Requirements Gathering
- Testing the Knowledge of Project Database Management Tasks
- Discussing Nontraditional Life Cycles and the Project Triangle

Conceptual Data Modeling

- Creating a Conceptual Model for the Employee Management System

Logical Database Design Using Normalization

- Creating a Data Model in Second Normal Form
- Creating a Data Model in First Normal Form
- Analyzing Normalization in Academic Tracking Database

Beyond Third Normal Form

- Creating a Data Model in Fourth Normal Form
- Creating a Complex Logical Data Model

Physical Database Design

- Converting a Logical Data Model into a Physical Data Model
- Creating a Physical Data Model ERD
- Creating a Data Model in Third Normal Form

Alternatives for Incorporating Business Rules

- Modeling Business Rules in a Logical Data Model

Alternatives for Handling Temporal Data

- Adding History to Data Models

Modeling for Analytical Databases

- Designing a Star Schema Fact Table

Enterprise Data Modeling

- Developing an Enterprise Conceptual Model

Here's what you get

21	18
LIVE LABS	VIDEO TUTORIALS

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.