Course Syllabus

Introduction to SQL Databases

Course #: 55315

Number of Days: 3

Format: Instructor-Led

Certification Exams: None

This course syllabus should be used to determine whether the course is appropriate for the students, based on their current skills and technical training needs.

Course content, prices, and availability are subject to change without notice.

Elements of this syllabus are subject to change.

This three-day instructor-led course is aimed at people looking to move into a database professional role or whose job role is expanding to encompass database elements. The course describes fundamental database concepts including database types, database languages, and database designs. This course updates and replaces course 10985C previously published under the same title.

Audience

The primary audience for this course is people who are moving into a database role, or whose role has expanded to include database technologies. Developers that deliver content from SQL Server databases will also benefit from this material.

At Course Completion

After completing this course, students will be able to:

- Describe key database concepts in the context of SQL Server
- Describe database languages used in SQL Server
- Describe data modelling techniques
- Describe normalization and denormalization techniques
- Describe relationship types and effects in database design
- Describe the effects of database design on performance
- Describe commonly used database objects

Prerequisites

This is a foundation level course and therefore only requires general computer literacy.

Course Outline:

Module 1: Introduction to databases

This module introduces key database concepts in the context of SQL Server.

Lessons
▪ Introduction to Relational Databases ▪ Other Databases and Storage ▪ Data Analysis ▪ SQL Server Database Languages
Lab 1: Exploring SQL Server Databases and Tables
• Explore SQL Server • Query Databases and Tables

After completing this module, students will be able to:

- Describe what a database is
- Understand basic relational aspects
- Describe database languages used in SQL Server
- Describe data analytics

Module 2: Data Modeling

This module describes data modelling techniques.

Lessons
▪ Data Modelling ▪ Designing a Database ▪ Relationship Modeling
Lab 2: Identify Components in Relationship Modeling
▪ Modeling a database

After completing this module, students will be able to:

- Understand the common data modelling techniques
- Describe the ANSI/SPARC database model
- Describe entity relationship modelling

Module 3: Normalization

This module describes normalization and denormalization techniques.

Lessons
▪ Fundamentals of Normalization ▪ Normal Form ▪ Denormalization
Lab 3: Normalizing Data
▪ Normalizing Tables

After completing this module, students will be able to:

- Describe normalization benefits and notation
- Describe important normalization terms
- Describe the normalization levels
- Describe the role of denormalization

Module 4: Relationships

This module describes relationship types and effects in database design.

Lessons
▪ Introduction to Relationships ▪ Planning Referential Integrity
Lab 4: Planning and Implementing Referential Integrity
• Implementing Referential Integrity

After completing this module, students will be able to:

- Describe relationship types
- Describe the use, types, and effects of referential integrity

Module 5: Performance

This module introduces the effects of database design on performance.

Lessons
▪ Indexing ▪ Query Performance ▪ Concurrency
Lab 5: Performance Issues
• Using Indexes

After completing this module, students will be able to:

- Discuss the performance effects of indexing
- Describe the performance effects of join and search types
- Describe the performance effects of concurrency

Module 6: Database Objects

This module introduces commonly used database objects.

Lessons
• Tables • Views • Stored Procedures, Triggers and Functions
Lab 6: Using SQL Server Objects
▪ Using Tables ▪ Using Views ▪ Using Stored Procedures

After completing this module, students will be able to:

- Describe the use of tables in SQL Server
- Describe the use of views in SQL Server
- Describe the use of stored procedures in SQL Server
- Describe other database objects commonly used in SQL Server