

# 10985-C: Introduction to SQL Databases

## Course outline

### Module 1: Introduction to databases

This module introduces key database concepts in the context of SQL Server 2016.

#### *Lessons*

- Introduction to relational databases
- Other types of database
- Data analysis
- Database languages in SQL Server

#### *Lab : Exploring and querying SQL Server databases*

After completing this module, you 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 Modelling

This module describes data modelling techniques.

#### *Lessons*

- Data modelling
- ANSI/SPARC database model
- Entity relationship modelling

#### *Lab : Identify components in entity relationship modelling*

After completing this module, you 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 : Normalizing data*

After completing this module, you 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 : Planning and implementing referential integrity*

After completing this module, you 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 : Performance issues*

After completing this module, you 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 : Using SQL server*

After completing this module, you 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