



COURSE SYLLABUS

Developing SQL Databases

Design and build SQL Server 2025 database objects, including tables, constraints, indexes, views, stored procedures, functions and triggers.

\$1,995 per person

20 course hours (on-demand video and labs) plus 2 hours of coaching

On-demand asynchronous training with online support, plus 2 hours of coaching.

Developing SQL Databases

Design and build SQL Server 2025 database objects, including tables, constraints, indexes, views, stored procedures, functions and triggers.

Credential type	Certificate, issued by We Can Code IT
Clock hours	22 (20 course hours plus 2 hours of coaching)
Price	\$1,995 per person
Time	20 course hours (on-demand video and labs) plus 2 hours of coaching
Delivery	On-demand asynchronous training with online support, plus 2 hours of coaching.
Credential	Certificate of completion from We Can Code IT
Who it is for	This course is for application developers, report developers and analysts who need to create and maintain database objects. It also suits technical staff moving from writing queries to building the databases behind them.
Prerequisites	Comfort writing SELECT, INSERT, UPDATE and DELETE statements and basic joins; Completion of a SQL querying course or equivalent experience
Requirements	Requires a Windows PC; SQL Server 2025 Developer edition, which Microsoft provides free for development and training; SQL Server Management Studio 21 or later

About this course

This course teaches you to build the objects that make a database work, rather than only query it. The course name comes from a retired Microsoft course built on SQL Server 2016, so you learn and practice on the current version, SQL Server 2025. You design tables and constraints, plan indexes, write views, stored procedures, functions and triggers, and finish by building a small database that passes a provided test script.

What you will be able to do

- You will be able to design and create tables with suitable data types, keys and schemas, including the native JSON type in SQL Server 2025.
- You will be able to enforce data integrity with primary key, foreign key, unique, check and default constraints.
- You will be able to choose clustered, nonclustered, covering and filtered indexes and confirm their effect in an execution plan.
- You will be able to write parameterized stored procedures with TRY and CATCH error handling, plus scalar and table-valued functions.

- You will be able to write AFTER and INSTEAD OF triggers and control changes with explicit transactions and isolation levels.

Syllabus

Module	Hours
1. Designing and implementing tables Schemas, Choosing data types, Primary and foreign keys, The native JSON type, Altering tables safely. Lab: You create the tables for an order-tracking database, choosing data types and keys for each column and storing product attributes in a JSON column.	3 h
2. Data integrity through constraints Primary key constraints, Foreign key constraints, Unique constraints, Check and default constraints. Lab: You add constraints to your tables and run a script of bad inserts to prove each constraint blocks the data it should.	2.5 h
3. Indexes and an index strategy Heaps and clustered indexes, Nonclustered indexes, Covering and filtered indexes, Reading an execution plan, Columnstore overview. Lab: You run a set of slow queries, read their execution plans, add indexes and measure the before and after results.	3.5 h
4. Views Creating views, Securing data with views, Maintaining views. Lab: You build views that give a reporting team the order data it needs without access to the underlying tables.	1.5 h
5. Stored procedures and user-defined functions Parameterized stored procedures, Error handling with TRY and CATCH, Scalar functions, Table-valued functions. Lab: You write procedures to place and cancel orders that validate input and return clear errors, plus functions that calculate order totals.	4 h
6. Triggers, transactions and concurrency basics AFTER triggers, INSTEAD OF triggers, Explicit transactions, Isolation levels and blocking. Lab: You add a trigger that records price changes in an audit table and use transactions to keep a multi-step order update all-or-nothing.	3 h
7. Build and verify a small database Schema build script, Constraints, indexes and views together, Procedures and triggers together, Running a test script. Lab: You build a complete small database from a short specification and run a provided test script until every check passes.	2.5 h

Coaching sessions

2 h

2 hours of coaching. One-on-one or small-group coaching, scheduled with your coach.

Live online or in-person sessions are available for an additional fee. Email admissions@wecancodeit.org for details.

Provider

We Can Code IT, LLC, 26300 Cedar Rd, Suite 1105, Beachwood, OH 44122. Registered with the Ohio State Board of Career Colleges and Schools, Registration No. 15-03-2064T. Contact: admissions@wecancodeit.org. Syllabus version 2026-10-10.