



COURSE SYLLABUS

Administering a SQL Database Infrastructure

Learn to secure, back up, restore, automate and monitor SQL Server 2025 databases through hands-on administration labs.

\$3,000 per person

30 course hours (on-demand video and labs) plus 3 hours of coaching

On-demand asynchronous training with online support, plus 3 hours of coaching.

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Credential type	Certificate, issued by We Can Code IT
Clock hours	33 (30 course hours plus 3 hours of coaching)
Price	\$3,000 per person
Time	30 course hours (on-demand video and labs) plus 3 hours of coaching
Delivery	On-demand asynchronous training with online support, plus 3 hours of coaching.
Credential	Certificate of completion from We Can Code IT
Who it is for	This course is for IT staff, junior database administrators and developers who have been asked to maintain SQL Server databases. It also suits system administrators who are taking on database responsibilities.
Prerequisites	Working knowledge of Transact-SQL and relational databases, such as completion of a SQL querying course or equivalent experience; Basic familiarity with Windows
Requirements	Requires a Windows PC; SQL Server 2025 Standard Developer or Enterprise Developer edition, which Microsoft provides free for development and training; SQL Server Management Studio 21 or later

About this course

This course teaches the day-to-day work of keeping a SQL Server database environment secure, recoverable and healthy. 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 work through authentication and permissions, encryption and auditing, backup and restore, automation with SQL Server Agent, and monitoring and troubleshooting, then finish by writing and testing an administration runbook.

What you will be able to do

- You will be able to configure SQL and Windows authentication and grant server and database permissions using roles and least privilege.
- You will be able to protect a database with Transparent Data Encryption and record activity with SQL Server Audit.
- You will be able to choose a recovery model and build a full, differential and log backup strategy that meets a stated recovery goal.
- You will be able to restore a database to a point in time and verify that your backups can be restored.

- You will be able to automate maintenance with SQL Server Agent jobs, schedules, operators and alerts.
- You will be able to diagnose common performance, connectivity and space problems using dynamic management views, Extended Events and Query Store.

Syllabus

Module	Hours
1. The SQL Server instance and secure connections SQL Server instances, System and user databases, SQL Server Management Studio tour, Connection encryption basics, What is new in SQL Server 2025 for administrators. Lab: You install the free SQL Server 2025 Developer edition, connect with SQL Server Management Studio and document the instance, its databases and its connection settings.	3 h
2. Authentication, logins, users and roles SQL and Windows authentication, Logins and database users, Fixed server and database roles, Granting and revoking permissions, Least privilege. Lab: You create logins, users and roles for three job functions and prove each one can do its work and nothing more.	4.5 h
3. Protecting data with encryption and auditing Transparent Data Encryption, Always Encrypted overview, Certificate and key backup, SQL Server Audit. Lab: You enable Transparent Data Encryption on a sample database and set up an audit that records permission changes and failed logins.	3.5 h
4. Recovery models and backups Recovery models, Full, differential and log backups, Backup strategy for a recovery goal, Backup compression. Lab: You design and run a backup schedule for a sample database that meets a stated recovery point and recovery time goal.	4 h
5. Restoring and verifying databases Full database restore, Point-in-time restore, Verifying backups, Restore drills. Lab: You recover a database to the minute before a simulated accidental delete and confirm the restored data is complete.	4 h
6. Automating administration with SQL Server Agent Jobs and job steps, Schedules, Operators, Alerts and notifications, SQL Server Agent security. Lab: You build Agent jobs that run your backup and maintenance tasks on a schedule and raise an alert when a job fails.	4 h

7. Monitoring and troubleshooting

4 h

Dynamic management views, Extended Events sessions, Query Store basics, Connectivity problems, Disk space problems.

Lab: You investigate a set of planted problems, including a blocked query, a full log and a failed connection, and record the cause and fix for each.

8. Administration runbook project

3 h

Security review checklist, Backup and restore plan, Scheduled maintenance, Monitoring routine.

Lab: You write a runbook for a sample database covering security, backups, restores, automation and monitoring, then test each step on your own instance.

Coaching sessions

3 h

3 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

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