Level 5 Diploma in Database Administration (990)
171 Credits

Unit: Windows SQL Server Database Administration **Exam Paper No.:** 4	**Guided Learning Hours:** 280 **Number of Credits:** 28
Prerequisites: Knowledge of Windows operating system.	**Corequisites:** A pass or higher at Diploma level.
Aim: This unit provide learners with the technical skills required to program a database solution with Microsoft SQL Server client/server database management system. SQL Server is a Microsoft product used to manage and store information. Technically, SQL Server is a "relational database management system" (RDMS). Broken apart, this term means two things. First, that data stored inside SQL Server will be housed in a "relational database", and second, that SQL Server is an entire "management system", not just a database. SQL itself stands for Structured Query Language. This is the language used to manage and administer the database server. The unit provide learners with the knowledge and skills required to install, configure, administer, and troubleshoot the Microsoft SQL Server client/server database management system of Microsoft SQL Server. The unit will help prepare candidates for a number of IT positions, including database developer, database administrator, IT consultant, and IT manager. On completing this unit, learners will be able to: describe SQL Server Integration Services and its tools; create an Integration Services package; implement control flow in an Integration Services package; implement data flow in an Integration Services package; implement logging in an Integration Services package; debug and implement error handling in an Integration Services package; implement checkpoints and transactions in an Integration Services package; deploy an Integration Services package; manage and secure an Integration Services package.	
Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	

Intended Learning Outcomes:	**Assessment Criteria:**
1. The functions of Microsoft SQL Server as a relational database server; the step-by-step procedure for installing a new instance of SQL Server using the SQL Server setup installation.	1.1 Describe SQL Server concepts 1.2 Analyse SQL Server editions 1.3 Explain SQL Server applications 1.4 Define relational database management system 1.5 Explain the relational database components 1.6 Describe the different relational database management systems that use SQL 1.7 Define SQL Server 1.8 Describe SQL Server installation requirements 1.9 Demonstrate how to create service accounts 1.10 Describe installation process 1.11 Outline post-installation checks
2. SQL Server administrative tools that manage users and objects in a database; the steps on how to create a database in SQL Server using Enterprise Manager.	2.1 Describe SQL Server management studio 2.2 Describe SQL Server system databases 2.3 Describe SQL Server Database Administration Tools 2.4 Analyse tools for creating and editing database objects 2.5 Explain the differences between Management Tools Basic and Management Tools Complete. 2.6 Describe data tables 2.7 Describe SQL Server data types 2.8 Define primary key 2.9 Demonstrate how to create default values 2.10 Describe check constraints 2.11 Describe unique constraints

	2.12 Explain relationships and foreign keys 2.13 Demonstrate how to create relationships 2.14 Describe data normalisation 2.15 Demonstrate how to create computed columns
3. The steps on how the Import/Export Wizard imports data into SQL Server database from another data source; the syntax for retrieving information from a table database with the SQL SELECT statement.	3.1 Examine SQL Server import and export wizard 3.2 Demonstrate how to import Excel files into SQL Server 3.3 Demonstrate how to import CSV files into SQL Server 3.4 Demonstrate how to import Access database into SQL Server 3.5 Define transact-SQL statements 3.6 Analyse and identify SELECT statement components 3.7 Demonstrate how to create conditions in SQL 3.8 Carry out SQL sort commands 3.9 Describe aggregate functions 3.10 Demonstrate how to find unique values 3.11 Identify how to join multiple tables 3.12 Describe types SQL subqueries 3.13 Describe the syntax for inserting and updating SQL database; updating records; basic use of the UPDATE statement; SQL UPDATE statement syntax 3.14 Demonstrate how to write INSERT statements 3.15 Demonstrate how to write UPDATE statements 3.16 Demonstrate how to write DELETE statements 3.17 Describe the OUTPUT clause
4. The SQL command showing a tables fields; their formats, using parameters to pass values to SQL statements or stored procedures, providing type checking and validation.	4.1 Define a function 4.2 Demonstrate how use SQL configuration functions 4.3 Describe string functions 4.4 Explain data functions 4.5 Identify user defined functions 4.6 Create transactions in SQL Server stored procedures using the Transact-SQL; executing related T-SQL statements; creating new database and populating it with data 4.7 Define stored procedures 4.8 Demonstrate how to create procedures 4.9 Describe database transactions 4.10 Demonstrate how to create transactions 4.11 Demonstrate how explicit transactions are used within stored procedures.
5. The approach for optimising table indexes. and reorganizing or rebuilding a fragmented index in SQL Server	5.1 Describe data indexing 5.2 Demonstrate how to create indexes 5.3 Identify how to rebuild an index 5.4 Demonstrate how to monitor database size and integrity
6. The benefits of backing up SQL Server databases, basic backup and restore terms, and backup and restore strategies.	6.1 Demonstrate how to create backups 6.2 Contrast differential vs full backup 6.3 Be able to restore database backup
7. The security features of the SQL Server	7.1 Describe data security breaches

Database Engine SQL Server Audit, ALTER LOGIN WITH SET CREDENTIAL syntax, Reporting Services and Integration Services.	7.2 Explain permissions 7.3 Identify how to add users to a database 7.4 Demonstrate how to create SQL Server logins 7.5 Explain authentication modes 7.6 Describe Database Engine permissions 7.7 Explain Windows Security log and requirement of the SQL Server service account
8. SQL Server Reporting Services and its components ready-to-use tools and services to help create, deploy, and manage reports.	8.1 Describe SQL services 8.2 Explain how to connect to Report Manager 8.3 Demonstrate how to use Report Builder 8.4 Describe report formatting 8.5 Demonstrate how to add charts to a report 8.6 Describe report security issues 8.7 Demonstrate how to create a Reporting Services report.
9. SQL Server Integration Services (SSIS) SQL Server database tool; resources for developers; tool that we use to perform ETL operations; i.e. extract, transform and load data.	9.1 Describe Business Intelligence Development Studio (BIDS) 9.2 Demonstrate how to operate and execute SSIS package 9.3 Describe how to import packages into SQL Server Management Studio 9.4 Describe job scheduling with SQL Server Studio
Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Windows SQL Server Database Administration with a weighting of 100%.	

Recommended Learning Resources: Windows SQL Server Database Administration

Text Books	• SQL Server Administration in Action by Rod Colledge ISBN-10: 193398872X • SQL Server Administration: Real-World Skills for MCITP Certification and Beyond ISBN-10: 0470554207 • Microsoft SQL Server Implementation And Maintenance by Mike Hotek ISBN-10: 0735626057
Study Manuals	BCE produced study packs
CD ROM	Power-point slides
Software	Windows SQL Server