

ICT Database Essentials

Objectives Matrix

The *ICT Database Essentials* course focuses on fundamentals of using relational databases. Students will learn about common database components including tables, record and field structures, and data types. They will learn about queries and how to create them. They will study data import/export mechanisms. They will learn the basics of Structured Query Language (SQL) statements for managing and manipulating data. Finally, they will use the skills they have learned to create basic database tables, data queries and data reports.

ICT Database Essentials Objective	ICT Database Essentials Courseware Lesson(s) and Section(s)
Domain 9.1: Describe the purpose and uses of relational databases, including databases vs. spreadsheets, advantages of databases, real-world uses, and "Big Data."	
9.1.1: Describe the functions of a relational database.	Lesson 1: What is a Database? - Introduction to Databases
9.1.2: Distinguish between databases and spreadsheets.	Lesson 1: What is a Database? - Introduction to Databases
9.1.3: Identify advantages of using a database instead of alternatives (e.g., spreadsheets, electronic documents, paper).	Lesson 1: What is a Database? - Introduction to Databases
9.1.4: Describe real-world uses for databases, including search engines, schools, hospitals, retail.	Lesson 1: What is a Database? - Introduction to Databases
9.1.5: Define "Big Data" and describe how it is used in advertising.	Lesson 1: What is a Database? - Big Data
Domain 9.2: Identify database components and functions, including fields vs. records, basic data types, table vs. query, primary and foreign keys, table relationships, reports, Structured Query Language (SQL), and popular database applications.	
9.2.1: Identify the components of a database.	Lesson 2: Designing a Database - Database Basics
9.2.2: Distinguish between fields and records in a database.	Lesson 2: Designing a Database - Database Basics
9.2.3: Describe the basic data types and formats used in a database.	Lesson 2: Designing a Database - Database Basics
9.2.4: Distinguish between a table and a query.	Lesson 2: Designing a Database - Database Basics
9.2.5: Identify database keys, including primary and foreign.	Lesson 2: Designing a Database - Database Basics
9.2.6: Identify the relationships between tables in a database (i.e., one-to-one, one-to-many, many-to-many).	Lesson 2: Designing a Database - Database Basics

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9.2.7: Distinguish between a query and a report.	Lesson 2: Designing a Database - Database Basics
9.2.8: Identify various report types.	Lesson 2: Designing a Database - Database Basics
9.2.9: Describe Structured Query Language (SQL) and discuss its use with databases.	Lesson 1: What is a Database? - Structured Query Language (SQL)
9.2.10: Identify and compare various database applications, including Microsoft Access, MySQL, Oracle.	Lesson 1: What is a Database? - Database Applications
Domain 9.3: Create a database table and organize data in it, including multiple data types in a table, adding records, deleting records, editing records and sorting records.	
9.3.1: Create a data table that uses multiple data types.	Lesson 3: Creating and Managing Database Tables - Creating, Editing and Sorting Database Tables
9.3.2: Add (insert) records into a database table.	Lesson 3: Creating and Managing Database Tables - Creating, Editing and Sorting Database Tables
9.3.3: Edit (update) records in a database table.	Lesson 3: Creating and Managing Database Tables - Creating, Editing and Sorting Database Tables
9.3.4: Sort records in a database query or table.	Lesson 3: Creating and Managing Database Tables - Creating, Editing and Sorting Database Tables
9.3.5: Delete records from a database table.	Lesson 3: Creating and Managing Database Tables - Creating, Editing and Sorting Database Tables
Domain 9.4: Manipulate and share data in a database, including troubleshooting errors, select queries, action queries, table joins, importing and exporting spreadsheet data, and creating reports.	
9.4.1: Troubleshoot common database errors, including data type errors, query syntax errors.	Lesson 4: Manipulating and Sharing Data in a Database - Troubleshooting Common Database Errors
9.4.2: Create a basic select query in one table.	Lesson 4: Manipulating and Sharing Data in a Database - Creating Database Queries
9.4.3: Create an action query to manipulate data.	Lesson 4: Manipulating and Sharing Data in a Database - Creating Database Queries
9.4.4: Create a query using primary and foreign keys.	Lesson 4: Manipulating and Sharing Data in a Database - Creating Table Joins
9.4.5: Create a simple table join.	Lesson 4: Manipulating and Sharing Data in a Database - Creating Table Joins
9.4.6: Export data from a database into a spreadsheet.	Lesson 4: Manipulating and Sharing Data in a Database - Importing and Exporting Data

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9.4.7: Import data from a spreadsheet into a database.	Lesson 4: Manipulating and Sharing Data in a Database - Importing and Exporting Data
9.4.8: Create relevant reports from a database.	Lesson 4: Manipulating and Sharing Data in a Database - Creating Database Reports