SVQ for IT Users (ITQ) — level 3 (SCQF level 6)

F9C6 04: Database Software 3

6 SCQF credit points at SCQF level 6

Description: This is the ability to use a software application designed to organise and store structured information and generate reports.

Outcome	Skills and Techniques	Knowledge and Understanding
On completion of this Unit the candidate should be able to:		
1 Plan, create and modify relational database tables to meet requirements.	1 Plan and create multiple tables for data entry with appropriate **fields and properties**. 2 Set up and modify **relationships between database tables**. 3 Respond appropriately to **problems with database tables**. 4 Use database tools and techniques to ensure data integrity is maintained.	1 Explain how a **relational database design** enables data to be organised and queried. 2 Explain why and how to maintain **data integrity**.
2 Enter, edit and organise structured information in a database.	1 Design and create forms to access, **enter, edit and organise data** in a database. 2 Select and use appropriate tools and techniques to **format data entry forms.** 3 **Check data entry** meets needs, using IT tools and making corrections as necessary. 4 Respond appropriately to **data entry errors**.	
3 Use database software tools to create, edit and run data queries and produce reports.	1 Create and run **database queries** to display, amend or calculate selected data. 2 Plan and produce **database reports** from a multiple-table relational database. 3 Select and use appropriate tools and techniques to **format database reports**. 4 **Check reports** meet needs, using IT tools and making corrections as necessary.	1 Explain how to select, generate and output information from queries according to requirements.

Note: The **emboldened** items are exemplified in the Support Notes.

Evidence Requirements

Completion of a portfolio (manual, electronic or combination) to cover all of the Skills and Techniques and Knowledge and Understanding points stated above. The evidence generated should adhere to the Assessment Strategy for this award and encompass a range of evidence types.

NB: It is possible to achieve this Unit by Accreditation of Prior Achievement (APA), however, the relevant evidence must be referenced within the portfolio.

General information

This Unit equates to NOS (National Occupational Standards for IT Users 2009) code DB: Database Software level 3. It has a stated number of SCQF credit points = 6 at SCQF level 6.

Support Notes

Summary

A SCQF level 6 (ITQ level 3) user can select and use advanced database software tools and techniques efficiently to:

♦ enter complex information into databases
♦ retrieve information by creating queries using multiple selection criteria
♦ produce reports by setting up menus or short cuts

They will also be able to design, create and interrogate multiple-table relational databases.

Database tools, functions and techniques will be described as 'advanced' because:

♦ the software tools and functions involved will be complex and at times require new learning, which will involve having the idea that there may be a tool or function to do something (eg improve efficiency or create an effect), exploring technical support, self-teaching and applying
♦ the input, manipulation and output techniques involved will be complex, which will involve research, identification and application

Examples of context which illustrate typical activities which might be undertaken by users:

♦ typical more complex reports from multiple-table relational databases. These may be about customers' buying methods, order frequency and payment patterns.

Examples of content are given separately for highlighted text, where explanatory notes are required on terminology in the Outcomes, and do not form part of the standards. Such examples are not meant to form a prescriptive list for the purposes of assessment but rather to amplify and interpret the generic terms used in the Performance Criteria in the light of current usage of ICT systems and software. These examples are subject to change as new tools and techniques become commonplace and older ones drift out of use.

The examples given below are indicative of the learning content and are not intended to form a prescriptive list for the purpose of assessment.

Outcome 1

Database design: What types of information are stored, use of data entry form, routine queries, how data is structured in a single table non-relational database, use of indexes and key field to organise data, how relationships are established in a multiple-table database, how data is structured in a multiple-table database, what logical operators are and how to use them; schema.

Field characteristics: Data type, field name, field size, field format, validation; primary and secondary keys; lookup tables.

Relationships between database tables: One to one; one to many; many to many.

Data integrity: Unique not null primary key; field characteristics; data validation; consistency, completeness, accuracy; effect of malicious or accidental alteration; methods for maintaining integrity of data in a multiple table database; referential integrity, foreign keys.

Problems with database tables: Redundant data, duplication, table structure, field characteristics and validation; sources of help; access control, data type; indexing; analytical tools.

Outcome 2

Enter, edit and organise data: Select and update fields, create new records, locate and amend records; using wildcards, search operators.

Format data entry forms: Field characteristics and layout, tables, colour, lookups, styles, subforms.

Check data entry: Spell check, format, accuracy, consistency, completeness, validity, security, fitness for purpose.

Data entry errors: Due to field size, data type, validation checks; using help; deal with data that does not fit parameters, alerts, reminders; problems with forms.

Outcome 3

Database queries: Alphanumeric sort, filter, single criteria, multiple criteria; save queries and output, cross-tabulate data; queries to update and amend data; logical operators.

Database reports: Using menus, wizards or shortcuts; selected fields; selected records.

Formatting database reports: Data fields; page and section layout; add text or images; adjust page setup for printing; styles.

Check data entry: Completeness, accuracy.

Guidance on examples of evidence

Typical examples of evidence for Outcomes 1–3

Product evidence in the form of listings, reports, screenshots etc. These would illustrate evidence from multiple-table relational databases about customers buying methods, order frequency and payment patterns. This would also include evidence showing the use of database software tools to enter, edit and organise structured information.

Knowledge test using multiple-choice questions to measure competence in Knowledge and Understanding sections for all Outcomes. Written or verbal knowledge responses, candidate statements.

Disabled candidates and/or those with additional support needs

The additional support needs of individual candidates should be taken into account when planning learning experiences, selecting assessment instruments, or considering whether any reasonable adjustments may be required. Further advice can be found on our website **www.sqa.org.uk/assessmentarrangements**