

Introduction to Database Design

Aims and Objectives of the Course

Students should be able to:

Overall:

- Distinguish between Flat File and Relational Databases, and a Data Warehouse
- Use a database management package to create tables, queries, forms and reports
- Describe and apply basic principles of boolean logic
- Describe the process of data normalisation
- Use Entity Relation modelling techniques (at an introductory level)
- Design a simple relational database
- Critically analyse the main database models
- Make connections between this and other IT modules

Session Objectives

1a: Understanding Database Terminology

- Describe what is meant by the term "Database"
- Describe the uses of a computerised database

1b: Working with an Access Table

- Load Access
- Edit a table structure
- Add and Delete records
- Differentiate between different Data Types
- Set a key field
- Implement simple validation Rules

2: Boolean Logic

- Use the AND, OR and NOT logical operators
- Use AND, OR & NOT in combination
- Use Query files
- Demonstrate the use of simple SQL statements



3: Reports

- Design a simple report file
- Use a report file in a variety of situations
- Design a multilevel report file
- Present data in sorted order

4: Forms

- Create a simple form
- Use Filters in a Form
- Base a form on an existing Query

5: Macros (optional section)

- Create a simple macro
- Test a macro
- Debug a macro
- Run a macro
- Create a functioning user interface

6: Introduction to Relational Databases

- Use more than one table in a database
- Link two tables together with tutorial guidance
- Create a simple report using two related tables

7: Normalisation

- Describe the limitations of a Flat File
- Describe in general outline the process of Normalisation to 3rd Normal form
- Apply normalisation to database design
- Critically evaluate design

8: Basic Entity Relation Modelling

- Describe the basic elements of the Entity Relation model
- Use the Entity Relation model to design a simple relational database

9: Data Warehousing and other database models

- Describe hierarchical and network databases
- Describe the main characteristics of the data warehousing model
- Compare and contrast the main database models



10: Consolidation and course review

- Recap and reflect on techniques and processes
- Complete course portfolio
- Evaluate course and provide feedback

Related Modules

The material presented in this module both supplements and draws from the *Information Systems* and *Business Systems* modules.

The *Computer Systems* module provides a sound background to some of the hardware aspects of computing science.

The *Good Web Design* module provides an opportunity to explore web site design and hence opens the way to future exploration of database driven web sites.

Finally, the *Software Development* module can be drawn upon to provide an insight into the programming and customisation of Microsoft Access.

