

Database Specialist Design



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3 Sessions –

9 Hours of Interactive Training

The Database Design course from LearnKey is fundamental training for those with no previous experience in database design. Expert instructor Wayne Snyder begins with basics of relational databases and uses examples, sample programs and clear step-by-step instruction to teach you database design methodology. At the conclusion of this course you will be familiar with the concepts underlying enterprise data model design.

About The Author

Wayne Snyder is a recognized expert in application development and database design and modeling with specialization in Microsoft SQL Server. Wayne has worked with SQL from its first release, and won the prized Microsoft MVP (Most Valuable Professional) award in 1998. His certifications include MCDBA, MCSE, and MCT. Wayne is a highly respected speaker at industry conferences and a sought-after reviewer for major technical publications. He is a popular instructor and consultant currently working with IKON Education Services.

Session 1

Section A: Introduction to Databases

- What is a Database?
- Flat File Databases
- Relational Databases
- RDMS & Disadvantages

Section B: Relational Database Fundamentals

- Application Components
- Client & Server Tiers
- Relational Model
- Entities & Primary Keys
- Data Modeling
- Entry Types
- Database Terminology

Section C: Database Planning

- Database Strategy
- Design Application
- Requirements Document
- Interview Strategy
- DBMS Selection
- Application Interface

Section D: Database Design Methodology

- Design Problems
- Anomalies
- Phases of DB Design
- Identify Entities
- Identify Attributes & Domains
- Relationships
- Identify Relationships
- Candidate & Primary Keys
- Entity-Relationship Model
- IE Model
- Relationship Types
- Chen Data Model

Section E: Database Normalization

- Normal Forms
- First Normal Form Rules
- Primary Key
- Second Normal Form Rules
- Using Second Normal Form
- Third Normal Form Rules
- Boyce-Codd Normal Form
- Data Normalization

Session 2

Section A: Logical Database Design

- Identify Relationships
- Resolve Many to Many Relationships
- Complex Relationships
- Recursive Relationships
- Relationship Attributes
- Redundant Relationships
- Database Definition Language
- Domain Definitions
- Validate Logical Model
- Referential Integrity
- Foreign Key Constraints
- Cascade, Set Null & Set Default
- Data Integrity

Section B: Physical Database Design

- Using DDL & DBMS
- Syntax Requirements
- Enterprise Constraints
- Using Constraints
- Multiple Constraints
- Constraints & Updates
- Foreign Key Constraints
- Secondary Indexes
- Denormalization
- Denormalize Foreign Keys
- Creating User Views
- Grant Statement

Section C: Intro to SQL

- Standards
- Structured Query Language
- Data Types

Session 3

Section A: SQL

- DDL
- Create Schema & Alter Command
- Alter & Drop Domain
- DML & Insert & Delete
- Update & Select
- Using Select & Distinct
- Where Clause
- Using Where
- Using Multiple Boolean Statements
- Using Like Statements
- Order-By Clause
- DCL, Grant & Revoke

Section B: Relational Algebra

- Selection & Projection
- Cartesian Product & Union
- Difference & Intersection
- Theta-Join & Equi-Join
- Natural Join & Outer Join
- Relationship Diagram
- Using & Refining Joins
- Distinct Join & Three-way Join
- Using Outer Join

Section C: Transactions & Database Security

- Transaction
- ACID Properties
- Dirty Read 7 Non-repeatable Read
- Phantom Reads
- Serialability
- Locking Timestamp & Optimistic Control
- Security