

Module One

Data Modeling Concepts

- The Data Modeling Life Cycle
 - Where Data Modeling Begins and Ends
 - Between Business Needs and Implemented Data
- Kinds of Data Systems: Business Uses of Data
- Data Characteristics: Understanding Properties of Data
- Data Modeling Techniques: An Overview of Many Techniques
- Data Modeling Framework for BI: Where and What to Model

Module Two

Business Data Models

- Business Context
 - Business Drivers, Goals, and Strategies
 - Business Domains
 - Business Information Needs
 - Business Subjects
- Gathering Business Questions
 - The Modeling Process
 - Working with the Business
 - An Example
- Analyzing Business Questions
 - The Modeling Process
 - Mapping Facts and Qualifiers – Finding the Facts
 - Mapping Facts and Qualifiers – Fact/Qualifier Associations
 - An Example
- Fact Analysis and Refinement
 - Removing Redundancy
 - An Example
- Qualifier Analysis and Refinement
 - Finding Hierarchies
 - Explicit and Implicit Qualifiers
- Fact/Qualifier Analysis Results
 - An Example
- Business Dimensional Modeling
 - The Modeling Process
 - An Example

Module Three

Logical Data Models

- What to Model
 - The Data and Information Pipeline
- Understanding Data Structures
 - Why Sources Matter
 - Extracting Source Data Structure
 - Source Data Profiling
- Logical Relational Modeling
 - The Modeling Process
 - Logical Models for Data Warehouse and ODS
 - A Data Warehouse Example
 - Logical Models for Marts and Reporting

- A Relational Data Mart Example
- Logical Dimensional Modeling
 - Data Structure of Business Metrics
 - The Modeling Process
 - Modeling Meters and Measures
 - Adding the Dimensions
 - Refining and Enriching the Dimensions
 - Declaring the Grain
 - Refining and Enriching the Measures
- Logical Models and Business Metrics
 - Creating a Catalog of Metrics
 - Classifying Metrics
 - An Example
- Logical Models and Business Analytics
 - Analytics Applications
 - Data Mining Applications
- Logical Models and Master Data Management
 - Identity Management
 - Hierarchy Management
- Logical Models and Unstructured Data
 - Unstructured Data and Content Management
 - Unstructured Data and Text Analytics

Module Four

Implementation Data Models

- Data Structure in Transaction Systems
 - Extracting the Structure of Existing Data
- Structural Modeling and Data Integration
 - From Business Models to Technology Models
 - Normalization
 - The Normalization Process
 - A Normalization Example
 - Time-Variant Data Structures
 - A Snapshot Example
 - An Audit Trail Example
 - An Example of States
 - Access, Navigation, Security, and Distribution
 - Access and navigation Examples
 - Security and Distribution Examples
- Structural Modeling and Business Analytics
 - From Metrics Models to Technology Models
 - Star-Schema Design
 - Star-Schema Design Process
 - Star-Schema Design- Modeling Dimension Tables
 - Star-Schema Design- Fact Table Key
 - Analytic Application and Data Structures
 - Data Mining Data Structures
- Physical Design Overview
 - The Results of Physical Design and Implementation
- Some Optimization Techniques
 - Derivation
 - Aggregation

- Summarization
- Horizontal Partitioning
- Vertical Partitioning
- Optimization Summary
- Physical Design and Implementation
 - Implementing Relational Data
 - Implementing Business Analytics
 - Implementing OLAP

Module Five

A Quick Review

Appendices

Appendix A - Entity-Relationship Modeling Basics

- Relational Data Design
- Introduction to Entity/Relationship Modeling
 - E/R Model Components
 - Entities and Attributes
 - Relationships
 - Subtypes and Supertypes
 - Reading E/R Models: E/R Models for Communication

Appendix B – Case Study