Module 1: Data Modeling Concepts

- Enterprise Architecture
  - Definition
  - Zachman Framework Overview
  - Data Modeling Framework for BI
  - Levels of Data Models – Enterprise Perspective
  - Levels of Data Models – Project Perspective
  - The Open Group Architecture Framework
  - Control Objectives for Information Technology
  - Frameworks – Discussion

- Higher Normal Forms
  - Boyce-Codd Normal Form
  - Fourth Normal Form
  - Fifth Normal Form
  - Anchor Modeling
  - Data Vault Modeling

- Specialization and Generalization
  - Roles and Classifications
  - Considerations
  - Party

- Presentation
  - Standards

Module 2: Business Data Model Development

- Business Data Model Development Approaches
  - Top-Down
  - Bottom-Up
  - Generic Models
  - Limited Depth Models

- Data Modeling Roles
  - Functions, Traits, and Challenges

- Business Data Model Application
  - Basis for System Data Model
  - Transformation and Integration Foundation
  - Package Selection
  - Business Communications
  - Data Profiling
  - Data Governance

- Data Governance
  - Definition
  - Quality Improvement
  - Real-Time Implications
Module 3: System and Physical Data Model Development

- Data Modeling Roles
  - Functions, Traits, and Challenges
- Globalization / Localization
  - Information Needs
  - Currencies
  - Time Zones
  - Languages
- Non-Relational Data Structures
  - Columnar Databases
  - In-Memory Databases
  - XML Structures
  - Key Value Pairs
- Business Analytics
  - Definition
  - Schema on Read
  - Modeling Process

Module 4: Additional Concepts

- Recursive Relationships
  - Normalized Approach
  - Dimensional Approach
- Cloud
  - Modeling Implications
- Complementary Models
  - State Transition Model
  - Function Models
  - Process Models
  - Model Management
- Model Management
  - Model Validation and Testing
  - Model Synchronization
  - Tool Exploitation
  - Data Modeling Tools
  - Repositories

Module 5: Summary and Conclusions

- Summary of Key Points
  - A Quick Review

Appendix A: Bibliography and References
Appendix B: Exercises

- Exercise 1: Normalization to Higher Normal Forms
- Exercise 2: Party Modeling
- Exercise 3: Financial Institution Model
- Exercise 4: Model Application for Data Profiling
- Exercise 5: Application System Model Development
- Exercise 6: Model Evaluation