

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

- Metadata Management
- Information Subject Area
- Big Data
- Big Data Challenges

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