Module One

Data Modeling Concepts

- Data Models in Context
  - Zachman Framework Overview
  - Levels of Data Models – Enterprise Perspective
  - Levels of Data Models – Project Perspective
- Entity Relationship Diagram Overview
  - Entity Relationship Diagram and Its Components
  - Normalized and Dimensional Models
  - Standards
- Normalization
  - Normalization to Third Normal Form
  - Higher Normal Form

Module Two

Business Data Model Development

- Model Components
  - Entities
  - Entities (Continued) – Supertype and Subtype
  - Relationships
  - Attributes
- Business Data Model Development Approaches
  - Top-Down
  - Bottom-Up
  - Generic Models
  - Limited Depth Model
  - Business Stakeholder
- Data Modeling Roles
  - Business Stakeholder
  - Data Steward
  - Subject Matter Expert
  - Business Analyst
  - Data Analyst / Data Modeler
- Business Data Model Application
  - Basis for System Data Model
  - Transformation and Integration Foundation
  - Data Profiling
  - Package Selection
  - Business Communications
- Special Considerations
  - Recursive Relationships
  - State and Status in ERD
  - Diagramming Options
  - Metadata
  - Tool Exploitation

Module Three

System and Physical Data Model Development

- Data Modeling Roles
  - Data Analyst / Data Modeler
  - Database Administrator
  - Business Analyst
  - Developer

- Application Implications
  - Model Differences
- Denormalization
  - Overview
- Time Dependencies
  - History
- Optimization
  - Indexing
  - Horizontal Partitioning
  - Vertical Partitioning
- Special Considerations
  - Surrogate Keys
  - Columnar Databases
  - Point-in-Time vs. Over-Time Models
  - Data Warehouse Load Implications
  - Metadata

Module Four
Additional Concepts

- Complementary Models
  - State Transition Model
  - Function Models
  - Process Models
  - Use Case Model
- Model Management
  - Model Validation and Testing
  - Model Synchronization
- Tools
  - Data Modeling Tools
  - Repositories

Module Five
Summary and Conclusions

- Critical Success Factors
- Common Mistakes

Appendix A
Bibliography and References

Appendix B
Workshops

- Workshop 1
  - Standards
- Workshop 2
  - Normalization to Third Normal Form
- Workshop 3
  - Normalization to Higher Normal Forms
- Workshop 4
  - Subject Areas
- Workshop 5
  - Entity-Level Business Data Model
- Workshop 6
  - Attribute-Level Business Data Model
- Workshop 7
  - Model Application for Data Profiling

- Workshop 8
  - Application System Model Development
- Workshop 9
  - History Implications
- Workshop 10
  - Indexing
- Workshop 11
  - Model Synchronization