
Course Outline – Data Modeling 101

Course Code	Data modeling 101
Course Duration	2 days
Pre-requisite	Business Analysis Essentials, Requirements Development, Documentation, and Management, Use Case Modeling
Course Description	
▪ This course will enable participants to get a detailed understanding of various concepts of data modeling.	

Learning Outcome	
▪ How logical data models relate to requirements	
▪ Identifying entities and attributes	
▪ Determining relationships and business rules	
▪ Data integrity through normalization	

Detailed Course Outline

Day 1

1) Introduction to Logical Data Modeling 2 hours

- Importance of logical data modeling in requirements
- When to use logical data models
- Relationship between logical and physical data model
- Elements of a logical data model
- Read a high-level data model
- Data model prerequisites
- Data model sources of information
- Developing a logical data model

2) Project Context and Drivers 2 hours

- Importance of well-defined solution scope
- Functional decomposition diagram
- Context-level data flow diagram
- Sources of requirements
 - Functional decomposition diagrams
 - Data flow diagrams
 - Use case models
 - Workflow models
 - Business rules
 - State diagrams
 - Class diagrams
 - Other documentation
- Types of modeling projects
 - Transactional business systems
 - Business intelligence and data warehousing systems

Course Outline – Data Modeling 101

- Integration and consolidation of existing systems
- Maintenance of existing systems
- Enterprise analysis
- Commercial off-the-shelf application

3) Conceptual Data Modeling

2 hours

- Discovering entities
- Defining entities
- Documenting an entity
- Identifying attributes
- Distinguishing between entities and attributes

4) Conceptual Data Modeling-Identifying Relationships and Business Rules

2 hours

- Integra Model fundamental relationships
- Cardinality of relationships
 - One-to-one
 - One-to-many
 - Many-to-many
- Is the relationship mandatory or optional?
- Naming the relationships

Day 2

5) Identifying Attributes

2 hours

- Discover attributes for the subject area
- Assign attributes to the appropriate entity
- Name attributes using established naming conventions
- Documenting attributes

6) Advanced Relationships

2 hours

- Modeling many-to-many relationships
- Model multiple relationships between the same two entities
- Model self-referencing relationships
- Model ternary relationships
- Identify redundant relationships

Course Outline – Data Modeling 101

- 7) Completing the Logical Data Model** **1 hour**
- Use super types and subtypes to manage complexity
 - Use super types and subtypes to represent rules and constraints
- 8) Data Integrity Through Normalization** **2 hours**
- Normalize a logical data model
 - First normal form
 - Second normal form
 - Third normal form
 - Reasons for de-normalization
 - Transactional vs. business intelligence applications
- 9) Verification and Validation** **1 hour**
- Verify the technical accuracy of a logical data model
 - Use CASE tools to assist in verification
 - Verify the logical data model using other models
 - Data flow diagram
 - CRUD matrix
 - Program closure and feedback