



# ***Fundamentals of Data Modeling and Metadata Management***

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## **Module 0. About the Course (8 min)**

## **Module 1. Understanding Data (15 min)**

- *Views of Data*
- *Projects Flow*
- *Describing the Data Meaning*
- *Describing the Data Constraints*
- *Describing the Data Relationships*
- *Describing the Data*

## **Module 2. Metadata Management (43 min)**

- *Metadata Defined*
- *Metadata Purposes*
  - *Classify*
  - *Describe*
  - *Guide*
  - *Control*
- *Metadata Dependencies*
- *Metadata Classification*
- *Metadata Kinds*
- *Metadata Management Processes*
- *Metadata and IT Projects*
- *Metadata and People*
- *Metadata Organizations*
- *Metadata Skills and Competencies*
- *Metadata Architecture*
- *Using Metadata*
- *Metadata Standards*
- *Metadata Tools and Technologies*

## **Module 2. Data Modeling (69 min)**

- *Data Modeling Defined*
- *Data Modeling Purpose*
- *Data Modeling and People*
- *Kinds of Data Models*
- *Data Modeling Processes*
- *The “Things” in Data Models*
- *Entity-Relationship Modeling*
  - *E-R Modeling Overview*
  - *Modeling Entities*
  - *Modeling Attributes*
  - *Modeling Entities*
  - *Modeling Relationships*
  - *Normalization*
  - *Verifying the Logical Model*
  - *Many-to-Many Relationships*
  - *Data Element Properties*
  - *Keys and Access Paths*
  - *Optimization*



## DM-01: Fundamentals of Data Modeling and Metadata Management

- *Supplemental Models and Additional E-R Concepts*
  - Subject Area Models
  - Adapting Subject Area Models
  - State Transition Models
  - Building State Transition Models
  - Entity Subtypes
  - Entity Abstraction
- *Dimensional Data Modeling*
  - Meters and Measures
  - Dimensions
  - Dimension Hierarchies
  - Dimensions and Meter Association
  - Dimension Attributes
  - Star Schema Modeling

### **Module 3. Data Profiling (42 min)**

- *What is Data Profiling?*
- *Myth and Reality of Data Profiling*
- *Profiling Techniques*
  - Column Profiling
  - Profiling Relational Data Models
  - Profiling Time-Dependent Data
  - Subject Profiling
  - Profiling State Transition Models
  - Attribute Dependency Profiling
  - Dynamic Data Profiling
- *Profiling Challenges*
  - What to Profile?
  - How to Profile?
  - How to Organize the Results?
  - How to Analyze the Results?
- *Role of Profiling*
  - Profiling and Data Quality Management
  - Profiling and Master Data Management
  - Profiling and Data Migration
  - Profiling and Data Consolidation
  - Profiling and Data Integration Interfaces
  - Profiling and Data Warehousing
- *People and Technology*
  - Tools and Technology
  - Role of IT
  - Role of Business
  - Data Profiling Profession