

# Applied Business Intelligence

## Including Data Warehouse Design, ETL, OLAP, Reporting & Data Mining



تعداد ساعات: ۶۶ ساعت

پیش نیاز: تسلط به SQL Server DB Engine و توان

نوشتن گزاره های T-SQL

**هدف دوره:** آشنایی با طراحی و پیاده سازی Data Warehouse بصورت Subject Oriented. آشنایی با ابزار SSIS در طراحی و پیاده سازی فرآیند ETL (Extract / Transform / Load) جهت جمع آوری، یکسان سازی، تجمیع و بارگذاری داده ها در انبار داده. آشنایی با ابزار SSAS جهت طراحی و پیاده سازی یک ساختار چند بعدی جهت آنالیز داده ها و چگونگی نگارش گزاره های تحلیلی. آشنایی با ابزار SSRS, Excel, Power View for Excel جهت ساخت گزارشات داشبوردی. آشنایی مقدماتی با چگونگی ایجاد ساختارها و مدل های داده کاوی جهت انجام تحلیل های پیشرفته تر.

کاربرد در: راه اندازی سیستم های BI و ساخت داشبوردهای مدیریتی

سرفصل دوره:

- **Data Warehouse Design (6 Hours)**
  - Understanding BI
  - Understanding Data Warehouse Design
  - Stages of Making a BI System
  - Designing Data Warehouse
    - OLAP Modeling
      - Star Schema
      - Snowflake Schema
      - Constellation Schema
    - Designing Dimension
    - Designing Fact
- **Extract, Transform & Load Data (15 Hours)**
  - Introduction to SSIS
  - Getting Started
    - Creating SSIS Packages and Data Sources
    - Creating and Editing Control Flow Objects
  - Using the Maintenance Plan Tasks

- Using Containers
  - Sequence Container
  - For Loop Container
  - Foreach Loop Container
- Using Expressions & Variables
- Using Parameters
- Loading a Data Warehouse
  - Data Extraction
  - Data Transformation
    - Changing Data Types with the Data Conversion Transform
    - Creating Columns with the Derived Column Transform
    - Rolling Up Data with the Aggregate Transform
    - Ordering Data with the Sort Transform
    - Joining Data using Lookup/Merge Join
    - Combining Multiple Inputs with the Union All
    - Auditing Data with the Row Count Transform
    - Separating Data with the Conditional Split Transform
    - Altering Rows with the OLE DB Command Transform
    - Using Cache Transform Component
  - Dimension Table Loading
  - Using SCD(Slowly Changing Dimensions)
  - Fact Table Loading
  - Using CDC(Change Data Capture)
  - SSAS Processing
- **Implementing Multi-Dimensional Model (24 Hours)**
  - Designing DSV(Data Source View)
  - Dimensions: Attributes & Members
  - Dimensions: Hierarchies
  - Measure Group & Measures
  - Demonstrate Using Excel Pivot Table
  - Advanced Dimension Designing
  - Introduction to MDX language (Multi-Dimensional Expressions)
    - MDX Query
    - MDX Expressions
  - Using Calculations
    - Calculated Member
    - Named Set
    - Script Command
  - Implementing KPI
  - Adding Translation

- Using Perspectives
- Managing Data Warehouse
  - Elementary Partitioning
  - Elementary Processing
  - Deployment
- Managing Security
- **Implementing Tabular Model (6 Hours)**
  - Tabular Model Concepts
    - Tabular Model Concepts
    - Comparison of Multidimensional and Tabular Models
  - Tabular Model Implementation
    - Fetching the Data
    - Designing Data Model
    - Introduction to DAX language (Data Analysis Expressions)
    - Demonstrate Using Excel Pivot Table
    - Implementing KPI
    - Implementing Hierarchy
    - Using Perspectives
    - Managing Data Warehouse
      - Elementary Partitioning
      - Elementary Processing
      - Deployment
    - Managing Security
  - Self Service BI (Power Pivot)
    - Self Service BI Concepts
    - Power Pivot Implementation Using Excel
- **Reporting & Dashboard Design (6 Hours)**
  - Configuring SSRS
  - Implementing Reports
  - Implementing Parameterized Reporting
  - Implementing Graphical Dashboard
  - Implementing Power View for Excel
- **Elementary Data Mining (9 Hours)**
  - **Understanding Data Mining**
  - **Data Mining in Excel using the Table Analyze Ribbon**
    - Analyze Key Influencer
    - Detect Categories
    - Fill From Example
    - Forecasting
    - Highlight Exceptions

- Scenario Analysis
  - Goal Seek
  - What-If
- Prediction Calculator
- Shopping Basket Analysis
- **Data Mining Concepts**
  - The Data Mining Process
  - Understanding Key Concepts
    - Attribute
    - State
    - Case
    - Keys
    - Inputs & Outputs
- **Implementing Mining Structure**
  - Implementing Case Table
  - Implementing Nested Table
  - Partitioning Sets
- **Implementing Mining Model**
  - Introduction to Data Mining Algorithms
- **Browsing & Querying Mining Models**
  - Using Mining Model Viewer
  - Elementary Prediction with Mining Model Predictions
- **Data Mining Client in Excel using the Data Mining Ribbon**