SEMATEC
IT Professional Training Center

Applied Business Intelligence

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

تعداد ساعات: ۷۲ 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 انباره 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 ابزارهای پلتفرم مایکروسافت 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
    - Working with Precedence Constraints
    - 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 Merge or 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
        - Full Additive vs Semi Additive & Non Additive Measures
    - Demonstrate results Using Excel Pivot Table
    - Advanced Dimension Designing
    - Introduction to MDX language (Multi-Dimensional Expressions)
        - MDX Query
        - MDX Expressions
            - 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 (9 Hours)**
  - Tabular Model Concepts
    - Tabular Model Concepts
    - Comparison of Multidimensional and Tabular Models
  - Tabular Model Implementation
    - Fetching the Data
    - Designing Data Model & Understanding Relationships
      - Active vs Inactive Relationship
      - Bidirectional Relationship
    - Introduction to DAX language (Data Analysis Expressions)
      - Calculated Attributes
      - Calculated Tables
      - Measures
    - Demonstrate results Using Excel Pivot Table
    - Implementing KPI
    - Implementing Hierarchy
    - Using Perspectives
    - Adding Translation
    - 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 (9 Hours)**
  - Introduction to all reporting tools in Microsoft platform
  - Implementing Power View for Excel
  - Configuring SSRS
  - Implementing SSRS Reports
    - Paginated Reports initial familiarization
      - Implementing Parameterized Reporting
      - Implementing Graphical & Geographical Dashboards

        - Implementing Actionable Reports
    - Power BI Reports initial familiarization
    - Mobile Reports initial familiarization
- **Elementary Data Mining (9 Hours)**
    - **Understanding Data Mining**
    - **Data Mining Concepts**
        - The Data Mining Process
        - Understanding Key Concepts
            - Attribute
            - State/Value
            - Case/Nested Case/Case Table/Nested Table
            - Keys (Case Key/Nested Key)
            - 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
    - **Introduction to DMX (Data Mining Extensions) in DQL mode**